

# SPECIFICATIONS AND CONTRACT DOCUMENTS



CONWAY, ARKANSAS

FAULKNER COUNTY

## **DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)**

Federal Aid Project RTP-1302(265)  
ArDOT JOB 080522  
Garver Project No. 15017432

Prepared For:

City of Conway

November 2017





000001 – CERTIFICATIONS



**DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)**

ArDOT JOB NO. 080522

GARVER PROJECT NO. 15017432



CITY OF CONWAY PROJECT NO. 14-118

I hereby certify that the applicable portions of this project plans and specifications were prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of Arkansas.

SEAL AND SIGNATURE	APPLICABLE DIVISION OR PROJECT RESPONSIBILITY
<p>Dustin Tackett, P.E.</p>  <p>Digitally Signed 11/22/2017</p>	<p>Project Manager</p> <p>AND</p> <p>Trail and Drainage Improvements</p>
<p>Nicholas Holland, P.E.</p>  <p>Digitally Signed 11/22/2017</p>	<p>Lighting Infrastructure</p>



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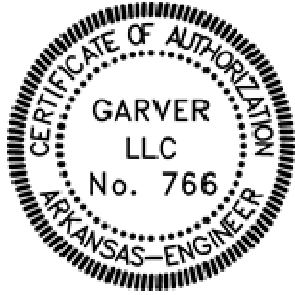
SEAL AND SIGNATURE	APPLICABLE DIVISION OR PROJECT RESPONSIBILITY
<p style="text-align: center;">Joel Skinner, P.E.</p>  <p style="text-align: center;">Digitally Signed 11/22/2017</p>	<p>Bridge Layout, Quantities and Superstructure; Retaining Walls</p>
<p style="text-align: center;">Madison McEntire, P.E.</p>  <p style="text-align: center;">Digitally Signed 11/22/2017</p>	<p>Bridge Substructure</p>



000001 – CERTIFICATIONS

**GARVER, LLC CERTIFICATE OF AUTHORIZATION:**

**AR ENGINEERING AND SURVEYING:**



Expiration Date: 12-31-2018





CITY OF CONWAY

DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)  
FEDERAL AID PROJECT RTP-1302(265)  
ArDOT JOB 080522

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## 010000 - ADVERTISEMENT FOR BIDS

Sealed bids for **DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)**, to be constructed for CITY OF CONWAY, ARKANSAS, will be received at the City Hall Downstairs Conference Room, 1201 Oak Street, Conway, Arkansas 72032, until 2:00 P.M., TUESDAY, FEBRUARY 13, 2018, at which time the bids shall be publicly opened and read aloud. Sealed bids submitted prior to the bid opening should be sent to City Hall, Attn: Finley Vinson, 1201 Oak Street, Conway, Arkansas, 72032.

The project includes, but is not limited to, 1,300 LF of shared-use path improvements including a new 400 LF bridge, 900 LF of trail approaches, retaining walls, sidewalk, and lighting as shown on the plans and indicated in the specifications.

Digital copies of the bid documents are available at [www.GarverUSA.com](http://www.GarverUSA.com) for a fee of \$30. These documents may be downloaded by selecting this project from the "Plan Room" link, and by entering Quest Project Number 5513512 on the "Browse Projects" page. For assistance and free membership registration, contact QuestCDN at 952.233.1632 or [info@questcdn.com](mailto:info@questcdn.com). Addendums to the bid package will be issued through the online Garver Plan Holders List; therefore, all prime bidders shall be responsible for downloading the bid documents from the Garver online plan room in order to be included in the Plan Holders List. Prime bidders should be registered on the Garver Plan Holders List in order to submit a bid on the project.

Proposals shall be accompanied by a cashier's or certified check upon a national or state bank in an amount not less than five percent (5%) of the total maximum bid price payable without recourse to the Owner, or a bid bond in the same amount from a reliable surety company, as a guarantee that the Bidder will enter into a contract and execute performance and payment bonds within ten (10) days after notice of award of Contract to him. Such bid guarantee shall be made payable to CITY OF CONWAY.

The successful bidder must furnish a performance and payment bond upon the form provided in the amount of one hundred per cent (100%) of the contract price from an approved surety company holding a permit from the State of Arkansas to act as surety, or other surety or sureties acceptable to the Owner.

A State of Arkansas Contractor's License is not required to bid on the project; however, no contractor shall submit a bid prior to submitting an initial application (which does not require a full audit) for licensure, and no construction contract shall be executed until the successful bidder has furnished an appropriate license issued by the State of Arkansas Contractor's Licensing Board.

The owner hereby notifies all bidders that this contract is subject to Davis-Bacon wage determinations.

City of Conway reserves the right to reject any or all bids, to waive irregularities in the bids and bidding deemed to be in the best interests of City of Conway, and to reject nonconforming, nonresponsive, or conditional bids.

The City of Conway hereby notifies all bidders that this contract is subject to applicable labor laws, non-discrimination provisions, wage rate laws and other federal laws including the Fair Labor Standards Act of 1938. The Work Hours Act of 1962 and Title VI of the Civil Rights Act of 1964 also apply. "Buy America" provisions apply to this project. The Arkansas Department of Transportation's Standard Specifications Section 106 has requirements and restrictions for Buy America. Also, 23 CFR § 635.410 has all of the federal requirements for Buy America.

Bids must remain in effect for 60 days after the bid opening date.

City of Conway, Arkansas  
Bart Castleberry, Mayor



## 010200 - INSTRUCTIONS TO BIDDERS

### 1. PREPARATION OF BID

Each bid must be submitted on the prescribed form (Proposal) and Unit Price Schedule(s). All blank spaces must be filled in legibly (either typed or written with ink). All blank spaces for bid prices on the Unit Price Schedules must be filled in and the extended total for each item shall be entered in figures only. If the unit price and the extended total of any item are not in agreement, the unit price shall govern and the extended total is corrected to conform thereto. Erasures or other corrections on the Proposal form or Unit Price Schedules shall be initialed by the signer of the bid. All bids must be signed in ink by an individual authorized to bind the Bidder. All bids must be regular in every respect and no interlineations, excisions, or special conditions shall be made or included in the Proposal by the Bidder.

There must be a bid on all items that may appear on the Unit Price Schedule(s). No bid will be considered which covers only a part of the work. A conditional bid will not be considered.

The Proposal and Unit Price Schedule(s), along with other specific section items required in Section 17 below for the sealed bid, shall not be altered and these sections shall be submitted in their entirety. Submission must be at the place, and at or prior to the time specified in the Advertisement for Bids.

Each bid must be submitted in a sealed envelope clearly marked on the outside that it contains a bid for **DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)** and with the time and date of bid opening shown thereon. The name and address of the Bidder shall appear in the upper left-hand corner of the envelope. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope.

A bid that obviously is unbalanced may be rejected.

### 2. INTERPRETATIONS AND ADDENDA

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to Garver, 831 Parkway, Suite C, Conway, AR 72034 or by email to [DLTackett@GarverUSA.com](mailto:DLTackett@GarverUSA.com). Any inquiry received forty-eight (48) hours prior to the opening of bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the contract Documents, and when issued, will be sent to the Plan Holders list located in the electronic plan room at least twenty-four (24) hours before bids are opened. It shall be the Bidder's responsibility to make inquiry to the electronic plan room as to the Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

### 3. BIDDING DOCUMENTS

Complete sets of the bidding documents may be obtained as stated in the advertisement. Owner and Engineer, in making copies of these documents available, do so only for the purpose of obtaining bids for the work, and do not authorize or grant a license for any other use. Complete sets of the documents shall be used in preparing bids; neither the Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

### 4. INSPECTION OF SITE

Each Bidder shall visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and shall fully inform himself as to the facilities involved, laws and regulations, and the difficulties and restrictions in attending the performance of the Contract.

The Bidder shall thoroughly examine and familiarize himself with the Plans, Technical Specifications, other

Contract Documents, and referenced items. The Bidder shall also carefully study all available reports of explorations and tests of subsurface conditions at or adjacent to the Site.

The Contractor, by the execution of the Contract, shall not be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing, and the Owner will be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

It is the responsibility of each Bidder before submitting a bid to agree that the submission of a bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of the Contract Documents, that without exception the bid and all prices in the bid are premised upon performing and furnishing the work required by the Contract Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Contract Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the work.

## 5. BID GUARANTY

The bids must be accompanied by a Bid Guaranty, which shall not be less than five percent (5%), of the amount of the bid. At the option of the Bidder, the guaranty may be a certified check, or may be a Bid Bond that is similar to the attached form. No bid will be considered unless it is accompanied by the required guaranty. Certified check must be payable to the order of City of Conway. Cash deposits will not be accepted. The Bid Guaranty shall insure the execution of the Agreement and the furnishing of the surety bond or bonds by the successful Bidder, all as required by the Contract Documents.

The guaranty of the apparent successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid Guaranty will be released. If the successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 10 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid Guaranty of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

The Bid Guaranty of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the effective date of the Contract or 61 days after the Bid opening, whereupon Bid Guaranty furnished by such Bidders will be released. Bid Guaranty of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be returned upon request as soon as feasible after the opening of the bids.

## 6. COLLUSION; SUBCONTRACTS

A Bidder submitting a Proposal to the Owner for the work contemplated by the Documents on which bidding is based shall not collude with any other person, firm, or corporation in regard to any bid submitted.

Before executing any subcontract, the successful Bidder shall submit Section 010440, LIST OF PROPOSED SUBCONTRACTORS for prior approval of the Owner.

If requested by Owner, the list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity.

If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent



successful Bidder to submit an acceptable substitute, in which case the apparent successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Award. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder.

If apparent successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in the General Conditions.

#### 7. STATEMENT OF BIDDER'S QUALIFICATIONS

Each Bidder shall submit, on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's qualifications, his experience record in construction of work similar to that which here is involved, and his organization and equipment available for the work contemplated; and when specifically requested by the Owner, a detailed financial statement. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations under the Contract and the Bidder shall furnish the Owner all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract.

#### 8. BALANCED BIDS; VARIATIONS IN QUANTITIES

The lump sum price and unit price for each of the several items in the Proposal of each Bidder shall be balanced and shall include its pro rata share of overhead.

The Owner shall have the right to increase or decrease the extent of the work, to change the location or gradient, or the dimensions of any part of the work, provided that the length of the improvement is not increased or decreased in excess of twenty-five percent (25%) of the length as determined by the Contract, or that the quantities of work to be done or the materials to be furnished are not increased or decreased in money value in excess of twenty-five percent (25%) of the total contract as determined by the Contract. Such changes shall not be considered as a waiver of any conditions of the Contract nor invalidate any of the provisions thereof. The Contractor shall perform the work as increased or decreased within the qualifying limits named and no allowance will be made for anticipated profits or increases or decreases so incurred. Change in length or in money value, within the twenty-five percent (25%) limits set out, shall not be cause for adjustment of any lump sum or unit price. Changes in items of work covered by unit prices and/or lump sum prices, within the twenty-five percent (25%) limits set out, shall not be cause for adjustment of any other (non-involved) lump sum or unit price.

Increases or decreases in items of work, and the cost thereof, shall be done in accordance with the Section entitled, CHANGES IN THE WORK under GENERAL CONDITIONS.

#### 9. TIME FOR RECEIVING BIDS

A bid received prior to the advertised hour of opening will be kept securely and will remain sealed until the hour of opening. The officer whose duty it is to open them will decide when the specified time has arrived, and any bid received subsequent to that time will be returned unopened.

#### 10. OPENING OF BIDS

At the time and place fixed for the opening of bids, the Owner will cause the bids to be opened and publicly read aloud, irrespective of any irregularities therein. Bidders and other persons properly interested may be

present, in person or by representative. Bid qualification may be evaluated before and/or after the bid opening, at the Owner's discretion.

#### 11. WITHDRAWAL OF BIDS

Bids may be withdrawn on written request if the request is received prior to the time fixed for the opening of bids. Bidder may withdraw its Bid within 24 hours after Bids are open and Bid Guaranty will be returned if Bidder files a duly signed written notice with the Owner and promptly demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid. The Bidder shall not be allowed to submit a revised Bid.

#### 12. AWARD OF CONTRACT; REJECTION OF BIDS

The Contract will be awarded to the responsive and responsible Bidder submitting the lowest total bid complying with the conditions of the Advertisement for Bids and other parts of these Contract Documents.

The criteria which will be used to determine the lowest responsive and responsible Bidder are as follows:

- 12.1 Responsive Bidder: Means a Bidder who has submitted a complete bid which conforms in all material respects and requirements to the Contract Documents.
- 12.2 Responsible Bidder: Means a Bidder who has the capacity and capability in all respects to perform fully the contract requirements and who has the integrity and reliability to assure good faith performance. Among factors to be considered in determining whether the Bidder meets these standards are the Bidder's financial responsibility, performance responsibility, technical feasibility, his equipment, and his past performance in completing similar work.

A Bidder's failure to submit a complete bid or required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

The Bidder to whom the award is made will be notified at the earliest possible date, but not later than sixty (60) days after the opening of bids. The Owner, however, reserves the right to reject any or all bids and to waive any informality in bids received whenever such rejection or waiver is in its interests. The Owner also reserves the right to consider as unqualified to do the work any Bidder who does not habitually perform with his own forces the major portions of such work as is involved in construction of these improvements.

#### 13. EXECUTION OF CONTRACT; PERFORMANCE AND PAYMENT BOND

Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Owner a Contract in the form included in the Contract Documents in such number of copies as the Owner may require.

Having satisfied all conditions of award as set forth elsewhere in these Documents, the successful Bidder shall, within the period specified above, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature, including utility and transportation services employed or used by him in performing the work. Such bond shall be as included in the Contract Documents and shall bear the same date as, or a date subsequent to, that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond.

The failure of the successful Bidder to execute such Contract and to supply the required bond or bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant, based upon reasons determined sufficient by the Owner, shall constitute a default, and the Owner may either award the Contract to the next lowest responsible Bidder or re-advertise for bids.

#### 14. BONDS AND INSURANCE

Attention of Bidders is called to Arkansas Code Annotation §§ 22-9-401 et. Seq., which has certain requirements pertaining to Performance Bonds, labor bonds, employer's liability insurance, public liability insurance, workmen's compensation insurance, and property damage insurance.

All companies furnishing Bid Bonds and Performance Bonds shall furnish evidence of being on the U.S. Treasury Department's most current list (Circular 570, as amended) and be authorized to transact business in the State of Arkansas.

#### 15. CONTRACTOR'S LIABILITY INSURANCE REQUIREMENTS

The Bidder shall provide with the Proposal a listing of both automobile and personal liability insurance coverage currently in force, along with a copy of a Certificate of Insurance as verification of that coverage.

In the event the Owner determines that the low Bidder's coverage in force is inadequate, the Owner may require the low Bidder to procure additional coverage in accordance with the requirements as specified herein.

In the event the lower Bidder is unable, after diligent effort, to procure such additional coverage as may be required by the Owner, the Owner may provide such additional coverage, naming the Contractor as insured or, at the option of the Owner, reduce the amount of additional coverage required or waive any requirement for additional coverage.

#### 16. THIRD PARTY COVERAGE

The Contractor shall provide insurance coverage for the Engineer and the Owner as indicated in Section 010800, GENERAL CONDITIONS.

#### 17. SIGNATORY AND CONTRACT SUBMITTALS

The Contract Documents call for all Bidders, and for the awarded Contractor, to complete and/or submit information concerning equal employment opportunity, quality control, labor items, etc. A list of required items to be submitted with each bid is listed in the Bidders Checklist.

The following is a list of completed forms/submittals that the apparent low Bidder will be required to complete before execution and award of the contract:

- Contract (all pages)
- Performance Bond
- Payment Bond
- Certificates of Insurance and Insurance Policies

The following is a list of completed forms/submittals that the awarded Contractor will be required to submit before construction begins:

- Construction Schedule

Additional certifications and submittals will be required for construction materials and other items in the technical specifications.

#### 18. LEGAL QUALIFICATIONS

All Bidders, in order to submit a bonafide Proposal, must comply with the applicable terms of Arkansas Code.

19. MODIFICATION OF BID

No modification of any bid already submitted will be considered unless such modification is received in writing, signed and witnessed by persons authorized to so act on behalf of the bidder, prior to the time set for opening of bids.

END OF INSTRUCTIONS TO BIDDERS

## 010300 - BID BOND

### 1. BID DEFAULT

Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Contract required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

This obligation shall be null and void if:

- 1.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Contract required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
- 1.2 All Bids are rejected by Owner, or
- 1.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and consented to by Surety).

### 2. BOND PAYMENT DUE

Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

### 3. PROCEEDING REQUIREMENTS

Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed the time required by the Bidding Documents without Surety's written consent.

No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default is received by Bidder and Surety and in no case later than one year after the Bid due date. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

### 4. STATUTORY REQUIREMENTS

This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

5. BID BOND CERTIFICATE

KNOW ALL MEN BY THESE PRESENTS:

THAT we the undersigned, \_\_\_\_\_

\_\_\_\_\_, as PRINCIPAL, and \_\_\_\_\_

\_\_\_\_\_, as SURETY, are held and firmly bound unto the City of Conway, Conway, Arkansas, hereinafter called the OWNER in the penal sum of

\_\_\_\_\_ Dollars

(\$ \_\_\_\_\_), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these Presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT WHEREAS, the Principal has submitted the accompanying Proposal, dated \_\_\_\_\_, for

**"DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)"**

NOW, THEREFORE, if the Principal shall not withdraw said Proposal within sixty (60) days after the opening of same, and shall within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Owner in accordance with the Proposal as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument, under their several

seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representatives, pursuant to authority of its governing body.

SEAL

\_\_\_\_\_  
Principal

Witness \_\_\_\_\_  
Signature

By \_\_\_\_\_  
Signature

Witness \_\_\_\_\_  
Print Name and Title

By \_\_\_\_\_  
Print Name and Title

\_\_\_\_\_  
\_\_\_\_\_  
Address

SEAL

\_\_\_\_\_  
Surety

Witness \_\_\_\_\_  
Signature

By \_\_\_\_\_  
Attorney-In-Fact - Signature

Witness \_\_\_\_\_  
Print Name and Title

By \_\_\_\_\_  
Attorney-In-Fact - Print Name and Title

\_\_\_\_\_  
\_\_\_\_\_  
Address

NOTE: Power-of-attorney for person  
signing for surety company  
must be attached to bond.





**010400 - PROPOSAL**

Place \_\_\_\_\_

Date \_\_\_\_\_

Proposal of \_\_\_\_\_,  
a corporation organized and existing under the laws of the State of \_\_\_\_\_,

or

Proposal of \_\_\_\_\_,  
a partnership consisting of \_\_\_\_\_

or

Proposal of \_\_\_\_\_,  
an individual doing business as \_\_\_\_\_,

To: City of Conway

This bid results from your advertisement for bids for the construction of the **DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)**.

The undersigned Bidder, having visited the site of the work, having examined the Plans, Specifications, and other Contract Documents including all Addenda, and being familiar with all of the conditions relating to the construction of the proposed project, hereby agrees to comply with all other conditions or requirements set forth in the Plans, Specifications, and other Contract Documents, and further proposes to; furnish all material, supplies, equipment, and appliances; to furnish all labor, tools, equipment and incidentals to complete the work in accordance with the Plans, Specifications, and other Contract Documents at and for the lump sum and unit prices proposed in the attached Unit Price Schedule(s).

The undersigned Bidder agrees to begin work within ten (10) calendar days after the issuance by, or on behalf of, the Owner of a "Work Order" or "Notice to Proceed" and to complete the work within Three Hundred (300) consecutive calendar days thereafter (except as modified in accordance with the GENERAL CONDITIONS of these Contract Documents). Should the work fail to be completed within the time herein stated, the Contractor shall pay to the Owner, as fixed and agreed liquidated damages, and not as a penalty, the sum, for each day of delay until the work is completed and accepted, as stipulated in GENERAL CONDITIONS of these Contract Documents. It is understood that additional time for the completion of the project is to be allowed only for delays as stipulated in GENERAL CONDITIONS of these Contract Documents.

Bidder acknowledges receipt of the following addendum (addenda):

\_\_\_\_\_ and \_\_\_\_\_  
\_\_\_\_\_ and \_\_\_\_\_  
\_\_\_\_\_ and \_\_\_\_\_

The undersigned Bidder agrees that this bid shall be good and shall not be withdrawn for a period of sixty (60) calendar days after the opening thereof. If written notice of the acceptance of this Proposal is mailed, telegraphed, or delivered to the undersigned within sixty (60) days after the opening thereof, or at any time thereafter before this Proposal is withdrawn, the undersigned agrees to execute and deliver an Agreement (Contract) in the prescribed form, and furnish the required Performance and Payment Bond, within ten (10) days after the Agreement is presented to him for signature.

It is understood by the undersigned Bidder that the Owner reserves the right to reject any or all bids.

Accompanying this Proposal as bid security is a certified check/bid bond (*strike one*)

in the amount of \_\_\_\_\_ Dollars (\$\_\_\_\_\_), being not less than five percent (5%) of the total amount of the bid. If the undersigned Bidder is the successful Bidder, but fails or refuses to execute the contract and furnish the required bond within the prescribed ten (10) days of the notification of award, then this bid security is to become the property of the Owner as liquidated damages for the delay and additional expense to the Owner caused by such failure or refusal.

\_\_\_\_\_  
(Witness) (Name of Bidder)

\_\_\_\_\_  
By \_\_\_\_\_

\_\_\_\_\_  
(Address) (Print Name and Title)

\_\_\_\_\_  
(Office Address of Bidder)

SEAL (If Bidder is a corporation)

NOTES: Sign in ink. Do not detach.  
Items must be bid upon as specified  
in the Unit Price Schedule.

**CITY OF CONWAY**  
**DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)**  
**ARDOT JOB NO. 080522 - UNIT PRICE SCHEDULE**

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
1	SP2-4.1	Bridge Construction Control	L.S.	1.00		
2	SP2-4.2	Unclassified Excavation for Structures - Bridge	C.Y.	91		
3	SP2-4.3	Class S Concrete - Bridge	C.Y.	231.98		
4	SP2-4.4	Class S(AE) Concrete - Bridge	C.Y.	145.37		
5	SP2-4.5	Reinforcing Steel - Bridge (Grade 60)	POUND	33,655		
6	SP2-4.6	Epoxy Coated Reinforcing Steel (Grade 60)	POUND	32,862		
7	SP2-4.7	Structural Steel in Plate Girder Spans (M270-GR. 50)	POUND	147,272		
8	SP2-4.8	Elastomeric Bearings	C.I.	8,776.0		
9	SP2-4.9	Silicone Joint Sealant	L.F.	64		
10	SP2-4.10	Bridge Name Plate (Type C)	EACH	2		
11	SP3-4.1	Steel Piling (HP12x53)	L.F.	382		
12	SP3-4.2	Preboring	L.F.	182		
13	SP4-8.1	Metal Handrail (Type H2)	L.F.	1,764		
14	SP5-2.1	Painting Structural Steel	TON	73.6		
15	SP6-5.1	Drilled Shaft (60" Diameter)	L.F.	90		
16	SP6-5.2	Permanent Steel Casing (66" Diameter)	L.F.	60		
17	SP7-4.1	Crosshole Sonic Logging (60" Diameter)	EACH	4		



**CITY OF CONWAY**  
**DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)**  
**ArDOT JOB NO. 080522 - UNIT PRICE SCHEDULE**

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
18	SP7-4.2	Coring Drilled Shaft	L.F.	40		
19	SP8-13.1	100' Steel Truss	EACH	1		
20	SP10-3.1	Textured Coating Finish	S.Y.	2,922.32		
21	SP11-3.2	Architectural Finish	S.Y.	313.1		
22	SP14-5.1	Retaining Wall	S.F.	14,076		
23	SP14-5.2	Select Granular Backfill	C.Y.	3,816		
24	SP14-5.3	MSE Wall Undercut and Backfill	C.Y.	2,555		
25	SP14-5.4	MSE Wall Undercut and Stone Backfill	C.Y.	1,600		
26	SP15-5.1a	Roadway Illumination Pole (Type A, 10', Decorative Base)	EACH	12		
27	SP15-5.1b	Roadway Illumination Pole (Type B, 14', Decorative Base)	EACH	11		
28	SP16-5.1	Bridge Grounding System	L.S.	1.00		
29	SP17-5.1	Concrete Pull Box (Type Special HD)	EACH	14		
30	SP18-5.1a	Electrical Conductors-in-Conduit, Aluminum (2C/4 A.W.G., E.G.C.)	L.F.	1,300		
31	SP18-5.1b	Electrical Conductors-in-Conduit, Aluminum (2C/6 A.W.G., E.G.C.)	L.F.	1,400		
32	SP19-5.1	Lockout/Tagout Procedures	L.S.	1.00		
33	SP19-5.2	Utility Connections & Service Point	L.S.	1.00		
34	SP19-5.3	Galvanized Steel Conduit 1-1/2"	L.F.	1,100		



**CITY OF CONWAY**  
**DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)**  
**ArDOT JOB NO. 080522 - UNIT PRICE SCHEDULE**

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
35	SP19-5.4	Non-Metallic Conduit 1-1/2"	L.F.	1,600		
36	SP20-4.1	Concrete Barrier Wall (Parapet Type Special II)	L.F.	1,238		
37	SP23-2.1	Video Inspection	INVOICE	1	N/A	\$ 2,000.00
38	E1-4.1	Site Preparation	L.S.	1.00		
39	E2-6.1	Unclassified Excavation	C.Y.	1,906		
40	E2-6.2	Embankment Construction	C.Y.	563		
41	E2-6.3	Undercut Excavation and Backfill	C.Y.	200		
42	E4-5.1	Trench and Excavation Safety System	L.S.	1.00		
43	I1-5.1	Maintenance of Traffic	L.S.	1.00		
44	I2-4.1	Concrete Ditch Paving	S.Y.	174		
45	I3-6.1a	18" Reinforced Concrete Pipe, Class III	L.F.	18		
46	I3-6.1b	18" Reinforced Concrete Pipe, Class IV	L.F.	28		
47	I3-6.1c	30" Reinforced Concrete Pipe, Class III	L.F.	47		
48	I3-6.2	18" Reinforced Concrete Flared End Section	EACH	2		
49	I5-6.1	Area Inlet	EACH	3		
50	I12-5.1	Temporary Erosion Control	L.S.	1.00		
51	I13-5.1	Sodding	S.Y.	4,173		





CITY OF CONWAY  
 DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)  
 ArDOT JOB NO. 080522 - UNIT PRICE SCHEDULE

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
52	I16-5.1	Sidewalk	S.Y.	404		
53	I17-5.1	Concrete Border Curb	L.F.	682		
54	I18-4.1	Roadway Construction Control	L.S.	1.00		
55	I20-5.1	Pipe Bollard	EACH	3		
56	M5-5.1	Pipe Embedment	C.Y.	14		
57	SS & P1-5.1	Aggregate Base Course (Class 7)	TON	258		
58	SS & P3-5.1	ACHM Surface Course	TON	122		
59	T1-5.1	Reflectorized Paint Pavement Marking - 4" Yellow	L.F.	314		

**Total Bid**

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### 010420 - STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion).
7. General character of work performed by your company.
8. Have you ever failed to complete any work awarded to you?
9. Have you ever defaulted on a Contract?  
If so, where and why?
10. Have you ever been fined or had your license suspended by a Contractor's Licensing Board?  
If so, where and why?
11. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
12. List your major equipment available for this Contract.
13. Experience in construction work similar in importance to this project.
14. Background and experience of the principal members of your organization, including the officers.
15. Background and experience of the Master Electrician(s) licensed in the state of Arkansas (issued by the Arkansas Board of Electrical Examiners) who have proper skills in supervising, performing, and maintaining the electrical work.
16. Credit available: \$ \_\_\_\_\_.
17. Give Bank reference: \_\_\_\_\_.
18. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?
19. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner, in verification of the recitals comprising this statement of

Bidder's Qualifications.

20. The Bidder shall provide a brief description of any litigation or administrative proceeding of the following types, either pending or concluded within the preceding year, to which the Bidder (and the ultimate controlling person, if different from the Bidder) or any of its directors or executive officers was a party or of which the property of any such person is or was the subject; the names of the parties and the court or agency in which such litigation or proceeding is or was pending shall be given:
- (a) Administrative or judicial proceedings of any state federal agency or authority concerning environmental violations;
  - (b) Proceedings which may have a material effect upon the solvency of the ultimate holding company, including but not necessarily limited to, bankruptcy and receivership; and
  - (c) Criminal proceedings.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(Name of Bidder)

By \_\_\_\_\_

Title \_\_\_\_\_

STATE OF \_\_\_\_\_ )  
 ) SS.  
 COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_ being duly sworn deposes and says that he is  
 \_\_\_\_\_ of \_\_\_\_\_  
 (Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.  
 SUBSCRIBED AND SWORN TO BEFORE ME this \_\_\_\_\_ day of \_\_\_\_\_  
 \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(Notary Public)

My Commission Expires:

\_\_\_\_\_

**010440 - LIST OF PROPOSED SUBCONTRACTORS**

I, the undersigned General Contractor, hereby certify that proposals from the following Subcontractors were used in the preparation of my bid. I agree that if I am the successful Bidder and if the following subcontracts are approved, I will not enter into contracts with others for these divisions of the work without prior written approval from the Engineer and the Owner.

For Annual Gross Receipts:

- Enter 1 for Less than \$1 Million
- Enter 2 for More than \$1 Million, Less than \$5 Million
- Enter 3 for More than \$5 Million, Less than \$10 Million
- Enter 4 for More than \$10 Million, Less than \$15 Million
- Enter 5 for More than \$15 Million

**Type of Work:** .....

Subcontractor's Name:.....

Arkansas License No.: .....

Address: .....

DBE: Yes / No (circle one)      Contract Amount: .....

Date Firm Established:.....

Annual Gross Receipts (enter the range only): .....

**Type of Work:** .....

Subcontractor's Name:.....

Arkansas License No.: .....

Address: .....

DBE: Yes / No (circle one)      Contract Amount: .....

Date Firm Established:.....

Annual Gross Receipts (enter the range only): .....

**Type of Work:** .....

Subcontractor's Name:.....

Arkansas License No.: .....

Address: .....

DBE: Yes / No (circle one)      Contract Amount: .....

Date Firm Established:.....

Annual Gross Receipts (enter the range only): .....

**Type of Work:** .....

Subcontractor's Name:.....

Arkansas License No.: .....

Address: .....

DBE: Yes / No (circle one)      Contract Amount: .....

Date Firm Established: .....

Annual Gross Receipts (enter the range only): .....

**Bidder (General Contractor):** .....

Arkansas License No.: .....

Address: .....

DBE: Yes / No (circle one)

Date Firm Established: .....

Annual Gross Receipts (enter the range only): .....

By: ..... \*

Title: .....

Percent of Contract to be Completed by DBE: .....

\*Signature must be the same as on the Proposal form.

**Notes:**

- (1) This form must be completed and submitted at the time of the bid opening.
- (2) General contractor and subcontractors shall have a certificate of license with the proper classification from the State Contractors Licensing Board before his or her bid is submitted.
- (3) Certificates of license shall be provided with this form at the time of the bid opening.

## 010480 - BIDDER'S CHECKLIST OF REQUIRED ITEMS

This Bidder's Checklist is provided to ensure all required forms are completed and returned as part of the bid submission. All forms must be included as indicated for a bid to be considered a complete, responsive bid. Appropriate signatures and date are required on each document. If an item is missing, the bid may be declared unresponsive and therefore rejected. **This sheet will serve as the cover sheet for the bid submission.**

Spec. Section	Description	Completed*
	Acknowledgement of All Addenda	<input type="checkbox"/>
	<b>Bid contains the following forms:</b>	
010200	1. Insurance Coverages (Current Auto and Liability Insurance)	<input type="checkbox"/>
010300	2. Bid Bond	<input type="checkbox"/>
010400	3. Proposal	<input type="checkbox"/>
010410	4. Unit Price Schedule	<input type="checkbox"/>
010420	5. Statement of Bidder's Qualifications	<input type="checkbox"/>
010440	6. List of Proposed Subcontractors	<input type="checkbox"/>
	7. Anti-Collusion and Debarment Certification	<input type="checkbox"/>
	8. Certification for Federal-Aid Contracts	<input type="checkbox"/>

\*Check when filled out, signed, and included with submission of bid packet.

### **Within three (3) days after Bid Opening:**

Bidder acknowledges to provide within three (3) days after Bid Opening (Low Bidder and Second Low Bidder Only):

1. Bidder's Qualifications of Subcontractor (if requested)
2. Bid breakdown shall be provided to form the basis for the making of Progress Partial Payments (if applicable)

### **Within ten (10) days after Notice of Award:**

Bidder acknowledges that within ten (10) days after Notice of Award, Successful Contractor is required to complete the following before execution and award of the contract:

- |        |  |
|--------|--|
| 010600 | 1. Contract (all pages and supporting documents) |
| 010700 | 2. Performance Bond                              |
| 010720 | 3. Payment Bond                                  |
| 010900 | 4. Maintenance Bond (if applicable)              |
|        | 5. Statutory Bond (if applicable)                |
| 010800 | 6. Completed Certificates of Insurance           |

### **Prior to Construction:**

Contractor required to submit Construction Schedule before construction begins.

Seal (if incorporated)

Bidder Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip Code: \_\_\_\_\_

Contractor Number (If Available): \_\_\_\_\_

Contact Name: \_\_\_\_\_

Title: \_\_\_\_\_

Contact Number: \_\_\_\_\_

Contact Email: \_\_\_\_\_

Signature of Authorized Agent for Bidder: \_\_\_\_\_

Date: \_\_\_\_\_



**CITY OF CONWAY**  
**SUPPLEMENT TO PROPOSAL**  
**ANTI-COLLUSION AND DEBARMENT CERTIFICATION**

**FAILURE TO EXECUTE AND SUBMIT THIS CERTIFICATION SHALL RENDER THIS BID  
NONRESPONSIVE AND NOT ELIGIBLE FOR AWARD CONSIDERATION.**

As a condition precedent to the acceptance of the bidding document for this project, the bidder shall file this Affidavit executed by, or on behalf of the person, firm, association, or corporation submitting the bid. The original of this Affidavit shall be filed with the CITY OF City of Conway **at the time proposals are submitted.**

**A F F I D A V I T**

I hereby certify, under penalty of perjury under the laws of the United States and/or the State of Arkansas, that the bidder listed below has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the submitted bid for this project, is not presently barred from bidding in any other jurisdiction as a result of any collusion or any other action in restraint of free competition, and that the foregoing is true and correct.

Further, that except as noted below, the bidder, or any person associated therewith in the capacity of owner, partner, director, officer, principal investigator, project director, manager, auditor, or any position involving the administration of Federal funds:

- a. is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal agency;
- b. has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal agency within the past 3 years;
- c. does not have a proposed debarment pending; and
- d. has not been indicted, convicted, or had an adverse civil judgment rendered by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

**CITY OF CONWAY**  
**SUPPLEMENT TO PROPOSAL**  
**ANTI-COLLUSION AND DEBARMENT CERTIFICATION**

**FAILURE TO EXECUTE AND SUBMIT THIS CERTIFICATION SHALL RENDER THIS BID  
NONRESPONSIVE AND NOT ELIGIBLE FOR AWARD CONSIDERATION.**

**EXCEPTIONS:**

APPLIED TO	INITIATING AGENCY	DATES OF ACTION
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

Job No. _____	_____
	(Name of Bidder)
F.A.P. No. _____	_____
	(Signature)
_____	_____
(Date Executed)	(Title of Person Signing)

The following Notary Public certification is **OPTIONAL** and may or may not be completed at the contractor's discretion.

State of \_\_\_\_\_ )  
County of \_\_\_\_\_ )ss.

\_\_\_\_\_, being duly sworn, deposes and says that he is

\_\_\_\_\_ of \_\_\_\_\_  
(Title) (Name of Bidder)

and that the above statements are true and correct.

Subscribed and Sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.  
My commission expires: \_\_\_\_\_

\_\_\_\_\_  
(Notary Public)

(NOTARY SEAL)

**CITY OF CONWAY**  
**SUPPLEMENT TO PROPOSAL**  
**C E R T I F I C A T I O N**

The prospective contractor certifies, by signing and submitting this proposal, to the best of his or her knowledge and belief, that:

- 1 No Federal appropriated funds have been paid or will be paid, by or on his or her behalf, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or any employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- 2 If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal-Aid contract, the prospective contractor shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities", in accordance with its instructions. (Available from Arkansas Department of Transportation, Program Management Division).

This Certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. This Certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U. S. Code.

During the period of performance of this contract, the contractor and all lower tier subcontractors must file a Form-LLL at the end of each calendar year quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any previously filed disclosure form. Any person who fails to file the required Certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each failure.

The prospective contractor also agrees by submitting his or her proposal that he or she shall require that the language of this Certification be included in all lower tier subcontracts which exceed \$100,000 and that all such subcontractors shall certify and disclose accordingly.

**CITY OF CONWAY**  
**SUPPLEMENT TO PROPOSAL**  
**C E R T I F I C A T I O N**

**THIS CERTIFICATION SHALL BE COMPLETED BY THE BIDDER AS PART OF THIS PROPOSAL**

The bidder \_\_\_\_\_, proposed subcontractor \_\_\_\_\_, hereby certifies that he has \_\_\_\_\_, has not \_\_\_\_\_, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has \_\_\_\_\_, has not \_\_\_\_\_, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

(Currently, Standard Form 100 [EEO-1] is the only report required by the Executive Orders or their implementing regulations.)

JOB NO. \_\_\_\_\_

\_\_\_\_\_  
(Company)

F.A.P. NO. \_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date Executed)

\_\_\_\_\_  
(Title of Person Signing)

**NOTE:** The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7 (b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

**010600 - CONTRACT**

THIS AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, by and between \_\_\_\_\_ a Corporation organized and existing under the laws of the State of \_\_\_\_\_ hereinafter called the "Contractor", and City of Conway, hereinafter called the "Owner".

**W I T N E S S E T H:**

That the Contractor and the Owner for the consideration stated herein mutually agree as follows:

**ARTICLE 1. Statement of Work.** The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, incidentals and services, including utility and transportation services and perform and complete all work required for the construction of **DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)** in strict accordance with the Contract Documents.

**ARTICLE 2. The Contract Price.** The Owner will pay the Contractor, because of his performance of the Contract, for the total quantities of work performed at the lump sum and unit prices stipulated in the Proposal subject to additions, and deductions as provided in the Section entitled "CHANGES IN THE WORK" under GENERAL CONDITIONS.

**ARTICLE 3. Contract Time.** The Contractor agrees to begin work within ten (10) calendar days after issuance by the Owner of a "Work Order" or "Notice to Proceed" and to complete the work within Three Hundred (300) consecutive calendar days thereafter (except as modified in accordance with the GENERAL CONDITIONS of these Contract Documents). If the Contractor shall fail to complete the work within the time specified, he and his Surety shall be liable for payment to the Owner, as liquidated damages ascertained and agreed, and not in the nature of a penalty, the amount specified in GENERAL CONDITIONS of these Contract Documents for each day of delay. To the extent sufficient in amount, liquidated damages shall be deducted from the payments to be made under this Contract.

**ARTICLE 4. Contract.** The executed Contract Documents shall consist of the following:

- a. Executed Contract
- b. Addenda (if any)
- c. Advertisement for Bids
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This Contract together with other Documents enumerated in this Article 4, which said other Documents are as fully a part of the Contract Documents as if hereto attached or herein repeated, form the Contract between the parties hereto. In the event that any provisions in any component part of this Contract conflicts with any provision of any other component part, the conflict shall be resolved by the Engineer whose decision shall be final.

ARTICLE 5.     Surety. The Surety on the Performance and Payment Bonds shall be a surety company of financial resources satisfactory to the Owner, authorized to do business in the State of the Project, and shall comply with applicable state laws.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be executed in four (4) counterparts, each of which shall be considered an original on the day and year first written.

\_\_\_\_\_  
(Contractor)

ATTEST: \_\_\_\_\_ By \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_  
(Street)

\_\_\_\_\_  
(City)

\_\_\_\_\_  
(Owner)

ATTEST: \_\_\_\_\_ By \_\_\_\_\_

\_\_\_\_\_  
Title: \_\_\_\_\_

(Print the names underneath all signatures)

## 010700 - PERFORMANCE BOND

### 1. NOTIFICATION

The Surety's obligation under this Bond shall arise after:

- 1.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Default. Such notice shall indicate that the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. Unless the Owner agrees otherwise, any conference requested under this Paragraph shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- 1.2 The Owner declares a Default, terminates the Construction Contract and notifies the Surety.

Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Failure on the part of the Owner to comply with the notice requirement shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations.

The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

### 2. SURETY'S ACTIONS

When the Owner has satisfied the conditions of Paragraph 1, the Surety shall promptly and at the Surety's expense take one of the following actions:

- 2.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
- 2.2 Undertake to perform and complete the Construction Contract itself, through its mutually acceptable agents or independent contractors;
- 2.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 3 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
- 2.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
  - 2.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

- 2.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

### 3. SURETY OBLIGATIONS

If the Surety elects to act under Paragraph 2.1, 2.2, or 2.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

- 3.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- 3.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 2; and
- 3.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

### 4. SURETY DEFAULT

If the Surety does not proceed as provided in Paragraph 2 with reasonable promptness, the Surety shall be deemed to be in default on this Bond ten days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 2.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

### 5. PROCEEDINGS

Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

### 6. STATUTORY REQUIREMENTS

When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted hereto and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.



7. PERFORMANCE BOND CERTIFICATE

KNOW ALL MEN BY THESE PRESENTS:

THAT WE, \_\_\_\_\_

as Principal, hereinafter called "Principal", and \_\_\_\_\_

\_\_\_\_\_, State of \_\_\_\_\_, as

Surety, hereinafter called "Surety", are held and firmly bound unto the City of Conway, Conway, Arkansas, as Obligee, hereinafter called "Owner", in the amount of:

\_\_\_\_\_ Dollars (\$\_\_\_\_\_),

in lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

WHEREAS, the Principal entered into a Contract with the Owner by written agreement dated the day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is attached hereto and made a part hereof, hereinafter referred to as the Contract,

**"DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)"**

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said Contract, including without limitation the maintenance warranty thereof, during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

Any alterations which may be made in the terms of the Contract, or in the work to be done under it, or the giving by the Owner of an extension of time for the performance of the Contract, or any other forbearance on the part either of the Owner or the Principal to the other shall not release in any way the Principal and Surety, or either of these, their heirs, personal representatives, successors, or assigns from their liability hereunder, notice to the Surety of any alteration, extension or forbearance hereby being waived.

In no event shall the aggregate liability of the Surety exceed the sum set out herein.

This bond is executed pursuant to the terms of Arkansas Code Annotation §§ 18-44-501 et. Seq., as amended.



Executed on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

SEAL

\_\_\_\_\_  
Principal

By \_\_\_\_\_  
Signature

By \_\_\_\_\_  
Print Name and Title

SEAL

\_\_\_\_\_  
Surety

By \_\_\_\_\_  
Attorney-In-Fact - Signature

By \_\_\_\_\_  
Attorney-In-Fact - Print Name and Title

Surety Address for giving Notices: \_\_\_\_\_  
\_\_\_\_\_

NOTES: Attach Power of Attorney.

Date of Bond must not precede date of Contract.

A copy of this Bond must be filed with the  
Circuit Clerk in each county wherein the work  
is to be performed.



## 010720 - PAYMENT BOND

### 1. NOTIFICATION

The Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in the Bond Certificate) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations. When the Owner has made notification, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

The Surety's obligations to a Claimant under this Bond shall arise after Claimants have furnished a written notice of non-payment to the Contractor, Surety, or Owner, stating with substantial accuracy the amount claimed and the name of the party to whom the materials, labor, or equipment was furnished or supplied. It is sufficient if a notice of non-payment is given to the Contractor by the Owner.

### 2. SURETY'S OBLIGATION

When a Claimant has satisfied the conditions of Paragraph 1, the Surety shall promptly and at the Surety's expense take the following actions:

- 2.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
- 2.2 Pay or arrange for payment of any undisputed amounts.
- 2.3 The Surety's failure to discharge its obligations under Paragraph 2.1 or 2.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 2.1 or 2.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

### 3. DEDICATION OF BOND FUNDS

Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

### 4. OTHER OBLIGATIONS

The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make

payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

#### 5. PROCEEDINGS

No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

#### 6. STATUTORY REQUIREMENTS

When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted hereto and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

7. PAYMENT BOND CERTIFICATE

KNOW ALL MEN BY THESE PRESENTS:

THAT WE, \_\_\_\_\_

as Principal, hereinafter called "Principal", and \_\_\_\_\_

\_\_\_\_\_, State of \_\_\_\_\_, as

Surety, hereinafter called "Surety", are held and firmly bound unto the City of Conway, Conway, Arkansas, as Obligee, hereinafter called "Owner", in the amount of:

\_\_\_\_\_  
Dollars (\$ \_\_\_\_\_),  
in lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

WHEREAS, the Principal entered into a Contract with the Owner by written agreement dated the day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is attached hereto and made a part hereof, hereinafter referred to as the Contract,

**"DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)"**

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor performed in such work, whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

Any alterations which may be made in the terms of the Contract, or in the work to be done under it, or the giving by the Owner of an extension of time for the performance of the Contract, or any other forbearance on the part either of the Owner or the Principal to the other shall not release in any way the Principal and Surety, or either of these, their heirs, personal representatives, successors, or assigns from their liability hereunder, notice to the Surety of any alteration, extension or forbearance hereby being waived.

In no event shall the aggregate liability of the Surety exceed the sum set out herein.

This bond is executed pursuant to the terms of Arkansas Code Annotation §§ 18-44-501 et. Seq., as amended.





Executed on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

SEAL

\_\_\_\_\_  
Principal

By \_\_\_\_\_  
Signature

By \_\_\_\_\_  
Print Name and Title

SEAL

\_\_\_\_\_  
Surety

By \_\_\_\_\_  
Attorney-In-Fact - Signature

By \_\_\_\_\_  
Attorney-In-Fact - Print Name and Title

Surety Address for giving Notices: \_\_\_\_\_  
\_\_\_\_\_

NOTES: Attach Power of Attorney.

Date of Bond must not precede date of Contract.

A copy of this Bond must be filed with the  
Circuit Clerk in each county wherein the work  
is to be performed.



## 010800 - GENERAL CONDITIONS

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## GC.1 DEFINITIONS

Wherever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

(1) "Addendum" means any change, revision, or clarification of the Contract Documents which has been duly issued by the Owner, or the Engineer, to prospective Bidders prior to the time of receiving bids.

(2) "Award" means the acceptance by the owner of the successful bidder's proposal.

(3) "Balance of the Contract Price" means the total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

(4) "Bidder" means any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

(5) "Calendar Day" means every day shown on the calendar.

(6) "Change Order" means a written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the scope of work affected by the change. The work covered by the change order shall be within the scope of the contract.

(7) "Claim" means (a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

(8) "Contract" means the Contract executed by the Owner and the Contractor of which these GENERAL CONDITIONS form a part.

(9) "Contract Documents" means and shall include, but not be limited to, the following: Executed Contract, Addenda (if any), Advertisement For Bids, Instructions to Bidders, Statement of Bidders Qualifications, List of Proposed Subcontractors, Proposal, Performance-Payment Bond, General Conditions, Special Conditions, Technical Specifications, and Drawings.

(10) "Contractor" means the person, firm, or corporation entering into the Contract with the Owner to construct and install the improvements embraced in this project.

(10) "Default" means the failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Contract Documents.

(11) "Defective" means Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents, or does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to Engineer's recommendation of final payment.

(11) "Engineer" means the Owner or any other person or persons employed by said Owner to furnish engineering services in connection with the construction embraced in the Contract.

(12) "Local Public Agency" or "Owner" means the City of Conway, which is authorized to undertake this Contract.

(13) "Plans" or "Drawings" means the official drawings or exact reproductions which show the location, character, and details of the work contemplated, and which are to be considered part of the contract, supplementary to the specifications.

(14) "Proposal" means the written offer of the Bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the Plans and Specifications.

(15) "Specifications" means a part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials, or testing, which are sited in the specifications by reference shall have the same force and effect as if included in the contract physically.

(16) "Subcontractors" shall mean the individual, partnership or corporation entering into an agreement with the Contractor to perform any portion of the work covered by the Plans and Specifications.

(17) "Surety" shall mean any person, firm, or corporation that has executed, as Surety, the Contractor's Performance Bond securing the performance of the Contract.

(18) "Technical Specifications" means that part of the Contract documents which describes, outlines and stipulates the quality of the materials to be furnished; the quality of workmanship required; and the controlling requirements to be met in carrying out the construction work to be performed under this Contract. This also includes Special Provisions.

(19) "Work" shall mean the furnishing of all necessary labor, tools, equipment, appliances, supplies, and material other than materials furnished by the Owner as specified to complete the construction covered by the Plans and Specifications.

(20) "Substantial Completion" shall mean the completion of the project to the extent that all component parts are suitable for their intended use and the final punch list has been completed. The Owner, at his or her sole discretion, may waive punch list items required for substantial completion.

## GC.2 SUPERINTENDENCE BY CONTRACTORS

Except where the Contractor is an individual and gives his personal superintendence to the work, the Contractor shall provide a competent superintendent, satisfactory to the Owner and the Engineer, on the work at all times during working hours with full authority to supervise and direct the work and who shall be the Contractor's agent responsible for the faithful discharge of the Contractor's obligations under the Contract. During working hours, the Contractor's superintendent shall be equipped with a mobile phone or other communication device suitable to the Engineer for contact by the Engineer or Owner.

The Owner shall have the authority to require the Contractor to remove from the work any incompetent or insubordinate superintendent.

## GC.3 CONTRACTOR'S EMPLOYEES

The Contractor shall employ only competent skillful workers and shall at all times enforce strict discipline and good order among the employees.

The Contractor shall neither permit nor suffer the introduction or use of alcoholic beverages or controlled substances upon or about the work embraced in this Contract.

The Contractor shall be responsible to conduct business and carry out the work on this Project utilizing the highest level of respect, manners, deportment, attitude, demeanor, appearance, and all other positive ways when working, explaining, discussing, occupying, or other in the presence of the public or on private or public property. The use of foul language, offensive or lewd behavior, unprofessional attire, parking on private property, storage of materials on private property or other undesirable conduct shall be strictly forbidden and shall be grounds for the termination of this Agreement. There shall be no tolerance for unprofessional behavior on the part of the Contractor, his/her employees, Subcontractors or laborers on this Project.

The Owner may require the Contractor to dismiss from the work such employee or employees as the Owner or the Engineer may deem incompetent, careless, or insubordinate.

#### GC.4 SAFETY

The Contractor shall be responsible for the safety of all persons on the Site who may be affected during the progress of the work as well as the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage to persons or property which may result from their failure or their improper construction, maintenance, or operation. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

#### GC.5 SUBCONTRACTS

The Contractor is responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by the subcontractors and is aware that nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

#### GC.6 OTHER CONTRACTS

The Owner may award, or may have awarded other Contracts for additional work, and the Contractor shall cooperate fully with such other contractors, by scheduling his own work with that to be performed under other Contracts as may be directed by the Owner. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor as scheduled.

#### GC.7 BOND

Coincident with the execution of the Contract, the Contractor shall furnish a good and sufficient surety bond, in the full amount of the Contract sum, guaranteeing the faithful performance of all covenants, stipulations, and agreements of the Contract, the payment of all bills and obligations arising from the execution of the Contract, (which bills or obligations might or will in any manner become a claim against the Owner), and guaranteeing the work included in this Contract against faulty materials and/or poor workmanship for one (1) year after the date of completion of Contract.

All provisions of the bond shall be complete and in full accordance with Statutory requirements. The bond shall be executed with the proper sureties through a company licensed and qualified to operate in the state and approved by the Owner. The issuing agent's power of attorney shall be attached to the bond and the bond shall be signed by an agent licensed in the state and date of bond shall be the date of execution of the Contract. If at any time during the continuance of the Contract the surety on the Contractor's bond becomes irresponsible, the Owner shall have the right to require additional and sufficient sureties which the Contractor shall furnish to the satisfaction of the Owner within ten (10) days after notice to do so. In default thereof, the Contract may be suspended and all payments or money due the Contractor withheld.

## GC.8 CONTRACTOR'S INSURANCE

Contractor shall obtain insurance of the types and in the amounts described below. The insurance shall be written by insurance companies and on forms acceptable to Owner.

**Owner and Garver, LLC shall be included as an additional insured under the CGL, (using ISO Additional Insured Endorsement CG 20 10 11 85 or a substitute providing equivalent coverage), and under the commercial automobile liability (using ISO Additional Insured Endorsement CA 2048 or a substitute providing equivalent coverage), and commercial umbrella, if any. This insurance, including insurance provided under the commercial umbrella, if any, shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs afforded to, or maintained by, Owner.**

### GC.8.1 Commercial General and Umbrella Liability Insurance

Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance, with a limit of not less than \$5,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to the Project.

CGL insurance shall be written on ISO occurrence form CG 20 10 (11-85) (or a substitute combination of the following forms CG 20 10 (10-01) and CG 20 37 (10-01) providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury and liability assumed under an insured contract.

There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from pollution, explosion, collapse, underground property damage, or amending the contractual coverage in the ISO occurrence form.

### GC.8.2 Continuing CGL Coverage – *Not Used*

### GC.8.3 Owner's and Contractor's Protective Liability Insurance.

Contractor shall maintain Owner's and Contractor's Protective Liability (OCP) insurance on behalf of Owner and Garver, LLC, as named insured, with a limit of \$1,000,000.

### GC.8.4 Railroad Protective Liability Insurance – *Not Used*

### GC.8.5 Commercial Auto and Umbrella Liability Insurance

Contractor shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than \$1,000,000 each accident.

Such insurance shall cover liability arising out of any auto (including owned, hired and non-owned autos).

Commercial auto coverage shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01.

If the Contract Documents require Contractor to remove and haul hazardous waste from the Project site, or if the Project involves such similar environmental exposure, pollution liability coverage equivalent to that provided under the ISO Pollution Liability-Broadened Coverage for Covered Autos Endorsement (CA 99 48) shall be provided, and the Motor Carrier Act Endorsement (MCS 90) shall be attached.



#### GC.8.6 Workers' Compensation Insurance

Contractor shall maintain workers' compensation and employer's liability insurance.

The employer's liability, and if necessary commercial umbrella, limits shall not be less than \$500,000 each accident for bodily injury by accident or \$500,000 each employee for bodily injury by disease.

If Contractor leases its employees, the alternate employer endorsement (WC 00 03 01 A) shall be attached showing Owner in the schedule as the alternate employer.

Where applicable, U.S. Longshore and Harborworkers Compensation Act Endorsement shall be attached to the policy.

Where applicable, Nonappropriated Fund Instrumentalities Act (NFIA) shall be attached to the policy. NFIA extends the coverage of the Longshore and Harbor Workers' Compensation Act to civilian employees working on United States military bases throughout the world who are not paid with funds appropriated by Congress. These employees, working in facilities operated for the comfort, contentment, and improvement of armed forces personnel, are instead compensated with funds generated from earnings of their facility.

Where applicable, Outer Continental Shelf Lands Act Endorsement shall be attached to the policy.

Where applicable, the Maritime Coverage Endorsement shall be attached to the policy.

If project is located in a state where workers compensation is secured via monopolistic state funds, include evidence of the "Stop Gap" endorsement to the general liability policy.

#### GC.8.7 Property Insurance

If applicable, Contractor shall purchase and maintain property insurance for the Work. Such insurance shall be written in an amount at least equal to the initial contract sum as well as subsequent modifications of that sum. The insurance shall apply on a replacement cost basis. If the insurance obtained in compliance with this paragraph is builders risk insurance, coverage shall be written on a completed value form.

The property insurance as required above shall name as insureds the Owner, Contractor, and all subcontractors and sub-subcontractors on the Project.

#### GC.8.8 Primary and Non-contributory

Contractor agrees that the insurance listed above, including insurance provided under the commercial umbrella, if any, shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs afforded to, or maintained by, Owner.

#### GC.8.9 Waiver of Subrogation

Contractor waives all rights against the Owner and Garver, LLC and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the commercial general liability, commercial umbrella liability insurance, automobile liability insurance and workers compensation insurance maintained pursuant to paragraph GC.8 of this agreement.

#### GC.8.10 No Implied Waiver

Contractor shall furnish certifications matching the coverage requirements. Failure of Owner or Engineer to demand such certificate or other evidence of full compliance with these insurance requirements or failure of Owner or Engineer to identify a deficiency from evidence that is provided shall not be construed as a waiver

of the contractor's obligations to furnish and maintain such insurance, or as a waiver to the enforcement of any of the provisions at a later date.

Any waiver of the contractor's obligation to furnish such certificate or maintain such evidence must be by written change order and signed by a Managing Member (Officer) of the Engineer and the Owner.

#### GC.8.11 Cancellation, Non-Renewal, and/or Impairment Notification

The Contractor shall not cause any insurance policy to be cancelled or permit it to lapse and all insurance policies shall include an endorsement to the effect that the insurance policy or certificate shall not be subject to cancellation or to a reduction in the required limits of liability or amounts of insurance until notice has been mailed to the Owner and Engineer, stating the date when such cancellation or reduction shall be effective, which date shall not be less than (60) days after such notice.

Notice shall be sent via email and regular mail to the following persons and addresses:

Owner:

City of Conway  
Finley Vinson, PE  
100 East Robbins Street  
Conway, Arkansas 72032  
Finley.Vinson@cityofconway.org

Garver:

Dustin Tackett, PE  
831 Parkway, Suite C  
Conway, Arkansas 72034  
DLTackett@GarverUSA.com



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
(must be dated)

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

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

PRODUCER <b>Agency Name</b> <b>Agency Address</b>  www.stephens.com INSURED <b>Named Insured on the policies</b>	CONTACT NAME: <b>Agency contact</b> PHONE (A/C, No, Ext): <b>Agency ph#</b> FAX (A/C, No): E-MAIL ADDRESS: <b>Agency contact email address</b>	INSURER(S) AFFORDING COVERAGE INSURER A: <b>Carrier Name (AM Best Rating)</b> INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:	NAIC #
	INSURER(S) AFFORDING COVERAGE		

**COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:**

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

INSR LTR	TYPE OF INSURANCE	APPLICABLE INSURER W/P	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: POLICY <input checked="" type="checkbox"/> PRO <input type="checkbox"/> RET <input type="checkbox"/> LOC	X X	XXXXXXXXXX			EACH OCCURRENCE \$ 5,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 5,000,000 PRODUCTS - COMP/OP AGG \$ 5,000,000
	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS   SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS   NON-OWNED AUTOS	X X	XXXXXXXXXX			COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input checked="" type="checkbox"/> UMBRELLA LIAB EXCESS LIAB <input checked="" type="checkbox"/> OCCUR CLAIMS-MADE DED   RETENTION \$ XXXXXX	X X	XXXXXXXXXX			EACH OCCURRENCE \$ AGGREGATE \$ \$ \$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A	XXXXXXXXXX			<input checked="" type="checkbox"/> WC STATUTORY LIMITS   OTH ER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000
	DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)		XXXXXXXXXX			

Owner & Garver, LLC shall be included as an Additional Insured by endorsement #CG2013(11/85) on the General Liability and #CA2048 on the Automobile and Umbrella or substitute endorsement providing equivalent coverage. Coverage shall be Primary and non-contributory with respect to any other insurance or self-insurance programs afforded to the Owner and Garver LLC. Waiver of Subrogation applies in favor of the Owner and Garver LLC on all policies. 60 day notice will be provided to the Owner and Garver LLC in the event of cancellation, non-renewal and/or impairment of the Contractor's policies.

<b>CERTIFICATE HOLDER</b>  Owner and Garver LLC	<b>CANCELLATION</b>  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE (must be signed by the Contractor's Insurance Agent)
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ACORD 25 (2010/05)

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#### GC.10 CONTRACTOR'S AND SUBCONTRACTOR'S INDEMNIFICATION PROVISION

(1) INDEMNIFICATION: The CONTRACTOR and/or SUBCONTRACTOR shall indemnify and hold harmless the OWNER, ENGINEER, ENGINEER'S Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the Work, provided that any such claim, cost, loss, or damage (i) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) is caused in whole or in part by a negligent act or omission of the Contractor, any Subcontractor or Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work.

(2) NO LIMITATION UPON LIABILITY: In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors or employees by any employee (or the survivor or personal representative or such employee) of CONTRACTOR, any Subcontractor or Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph (1) shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefits acts or other employee benefit acts.

(3) ENGINEER/ARCHITECT EXCLUSION: The indemnification obligations of CONTRACTOR under paragraph (1) shall not extend to the liability of ENGINEER and ENGINEER'S Consultants, officers, directors, employees, or agents caused by the professional negligence, errors, or omissions of any of them, arising out of: the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, or specifications.

#### GC.11 FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, Subcontractors, or materialmen engaged upon this Contract. He shall be prepared to guarantee to each of his Subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

#### GC.12 KNOWLEDGE OF CONDITIONS

The Contractor states that he has examined all the available records and has made a field examination of the site and right-of-way and that he has informed himself about the character, quality, and quantity of surface and subsurface materials and other conditions to be encountered; the quantities in various sections of the work; the character of equipment and facilities needed for the prosecution of the work; the location and suitability of all construction materials; the local labor conditions; and all other matters in connection with the work and services to be performed under this contract.

#### GC.13 MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect or through failure to comply with any applicable Government regulations by the Contractor, any other Contractor or any Subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or Subcontractor by agreement or arbitration, if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner will notify this Contractor, who shall defend at his own expense any suit based upon such claim, and, if any judgment or claims against the Owner shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith.

## GC.14 PAYMENT TO CONTRACTOR

The Engineer will prepare (with the required assistance from the Contractor) the application for partial payment. If the bid contains lump sum prices, the Contractor shall furnish to the Engineer, upon request, a detailed cost breakdown of the several items of work involved in the lump sum prices. The Engineer will use this cost breakdown to determine the amount due the Contractor as progress payment. A cut-off time shall be established near the last day of the month such as to allow sufficient time for the application to be prepared, approved by the Contractor, and submitted by the Engineer to the Owner by the first day of the successive month.

The amount of the payment due to the Contractor shall be determined by the total value of work completed to date, deducting five percent (5%) for retainage (to assure faithful performance of the contract), adding the value of submitted paid invoices covering construction materials, properly stored on the site or in a bonded warehouse, and deducting the amount of all previous payments.

If the project has specific phased construction work in which completion can occur on a partial occupancy, the five percent (5%) retainage value shall be in direct proportion to that phase or part of the capital improvement project. Any proportional retainage withheld in this manner shall be released within thirty (30) days of completion of that phase of the project.

The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit and lump sum prices contained in the Proposal. The value of materials properly stored on the site or in a bonded warehouse shall be based upon the estimated quantities of such materials and the invoice prices. Copies of paid invoices, covering construction materials for which material payments are made, shall be furnished to the Engineer before such material payments are made.

Note: It has been the policy of the Owner to make payments for properly stored materials/equipment based upon invoice price and allow the Contractor to submit paid invoices within 30 days (or the next partial payment period). If paid invoices are not provided within the time allowed, then the materials/equipment so paid for will be removed from the next partial payment.

Monthly or partial payments made by the Owner to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work of construction. All material and complete work covered by such monthly or partial payments shall remain the property of the Contractor, and he shall be responsible for the care and protection of all materials and work upon which payments have been made. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

### GC.14.1 Withholding Payments

The Owner may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Owner and if it so elects may also withhold any amounts due from the Contractor to any Subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his Subcontractors or material dealers, or to withhold any monies for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any monies from the Contractor shall not impair the obligations of any Surety or Sureties under any bond or bonds furnished under this Contract. Such withholding may also occur as a result of the Contractor's failure or refusal to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Documents, or if the Contractor fails to comply with any applicable regulations promulgated by the U.S. Government or any other Government agencies.

### GC.14.2 Final Payment

After final inspection and acceptance by the Owner of all work under the Contract, the application for final payment including retainage shall be prepared which shall be based upon the carefully measured or computed quantity of each item of work at the applicable unit and lump sum prices stipulated in the Unit Price Schedule. The total number of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments. All prior payments shall be subject to correction in the final payment. Final payment to the Contractor shall be made within thirty (30) days after the construction contract has been completed, subject to his furnishing the Owner with a release in satisfactory form of all claims against the Owner arising under and by virtue of his Contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation and the release as provided under the section entitled DISPUTES under GENERAL CONDITIONS.

The Owner, before paying the final estimate, may require the Contractor to furnish releases or receipts from all Subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project), and services to the Contractor, if the Owner deems the same necessary in order to protect its interest. The Owner, however, may, if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments so made shall not impair the obligations of any Surety or Sureties furnished under this Contract.

Withholding of any amount due the Owner under the section entitled LIQUIDATED DAMAGES FOR DELAY under GENERAL CONDITIONS, shall be deducted from the payments due the Contractor.

All equipment warranties and general guarantee shall become effective for one year upon date of final acceptance of the completed project by the Owner.

#### GC.14.3 Payments Subject to Submission of Certificates

Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him.

#### GC.15 USE OF COMPLETED PORTIONS

The Owner shall have the right to use any completed or partially completed portion of the work and such use shall not be considered as an acceptance of any work.

#### GC.16 CHANGES IN THE WORK

The Owner may make changes in the scope of the work required to be performed by the Contractor under the Contract or make additions thereto, or omit work therefrom without invalidating the Contract, and without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the Guaranty Bonds, and without relieving or releasing the Surety or Sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

All change orders must be approved by ArDOT in addition to the owner.

Except for the purpose of affording protection against any emergency endangering life or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements, or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract price will be valid unless so ordered.

After the work is complete, a final change order may be prepared to be accepted by the Owner and Contractor to adjust final payment as required to cover the actual units of work acceptably completed.

If the applicable unit prices are contained in the Proposal (established as a result of either a unit price or a

Supplemental Schedule of Unit Prices) the Owner may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit and lump sum prices specified in the Contract; provided that in case of a unit price Contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement by more than twenty-five (25) percent .

If applicable unit prices are not contained in the Unit Price Schedule as described above or if the total net change increases or decreases the total Contract price more than twenty-five (25) percent, the Owner shall, before ordering the Contractor to proceed with a desired change, request an itemized Proposal from him covering the work involved in the change after which the procedure shall be as follows:

- (1) If the Proposal is acceptable the Owner will prepare the Change Order in accordance therewith for acceptance by the Contractor and
- (2) If the Proposal is not acceptable and prompt agreement between the two (2) parties cannot be reached, the Owner may order the Contractor to proceed with the work on a Force Account basis, under which the net cost shall be the sum of the actual costs that follow:
  - (A) Labor, including foremen;
  - (B) Materials entering permanently into the work;
  - (C) The ownership or rental cost of construction plant and equipment during the time of use on the extra work;
  - (D) Power and consumable supplies for the operation of power equipment;
  - (E) Insurance;
  - (F) Social Security and old age and unemployment contributions.

To the net cost shall be added a fixed fee agreed upon, but not to exceed fifteen (15) percent of the net cost, to cover supervision, overhead, bond, and any other general expense, and profit.

Each Change Order shall include in its final form:

- (1) A detailed description of the change in the work.
- (2) The Contractor's Proposal (if any) or a conformed copy thereof.
- (3) A definite statement as to the resulting change in the Contract price and/or time.
- (4) The statement that all work involved in the change shall be performed in accordance with Contract requirements except as modified by the Change Order.

#### GC.17 CLAIMS FOR EXTRA COST

If the Contractor claims that any work encountered related to the project involves additional cost or extension of time beyond what has been required in the contract documents, he shall immediately notify the Engineer, and within ten (10) days after encountering such additional work or delays, and in any event before proceeding to execute the work, submit his claim for additional project time or additional compensation thereto in letter format to the Owner, with a copy to the Engineer. No such claim will be considered unless so made and within the 10 day timeframe.

At a minimum, the following information shall be numbered as follows and must be provided with the submitted claim:

- (1) Project name
- (2) Claim number
- (3) Date encountered
- (4) Nature of the event
- (5) Location of the event
- (6) Cause of the event
- (7) Impact of the event
- (8) Items of work affected by the event
- (9) The name, title, and activity of each of the Owner's representative knowledgeable about facts that gave rise to such claim
- (10) The name, title, and activity of each Contractor or employee knowledgeable about facts that gave rise to such claim
- (11) The cost or extension of time associated with the event
- (12) Any additional supporting information

Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted or would result in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.

Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall at once be reported to the Owner, and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Owner.

The Owner will provide documentation of the decision in writing to the Contractor whether the decision be approval of the claim, denial of the claim or a request for additional information. The Owner's decision on any claim will be the final resolution to the claim.

If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or Time is justifiable, the procedure shall then be as provided in the Section entitled CHANGES IN THE WORK under GENERAL CONDITIONS.

#### GC.18 OWNER'S RIGHT TO TERMINATE CONTRACT

If the Contractor shall be adjudged as bankrupt or shall file a petition for an arrangement or reorganization under the Bankruptcy Act, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except under conditions where extension of time is approved, to supply adequate workmen, equipment and material, or disregard laws, ordinances, or the instructions of the Engineer, or otherwise be guilty of a violation of any provisions of the Contract; provided further that if the Contractor at any time fails to comply with any applicable Federal or State regulation which prevents either the Owner or the Contractor from fulfilling its obligations under these Contract Documents, then the Owner upon certification of the Engineer that sufficient cause exists to justify such action may, without prejudice to any other right or remedy, and after giving the Contractor ten (10) days' written notice, terminate the employment of the Contractor. At the expiration of the said ten (10) days, the Owner may immediately serve notice upon the Surety to complete the work.

In the case the Surety fails to comply with the notice within thirty (30) days after service of such notice, the Owner may complete the work and charge the expense of the completion. Contractor shall not be entitled to receive any further payment until the work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the



difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the work performed.

Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

Owner may not proceed with termination of the Contract if Contractor within ten days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

Upon ten days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract for convenience. In such case, Contractor shall be paid for completed and acceptable work executed in accordance with the Contract Documents prior to the effective date of termination. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

#### GC.19 SUSPENSION OF WORK

Should contingencies arise to make such action necessary, the Owner shall have the right to suspend the whole or any part of the work for a period not to exceed ninety (90) days by giving the Contractor notice in writing three (3) days prior to the suspension.

The Contractor, after written notice to resume work, shall begin within ten (10) days from the date of such notice.

If the work or any part thereof shall be stopped by the Owner's notice and the Owner fails to notify the Contractor to resume work within ninety (90) days, the Contractor may abandon that portion of the work so suspended. The Contractor shall be paid for all acceptable work not deemed as defective that has been performed on the portion so suspended at unit prices quoted in the Unit Price Schedule for completed work involved, at agreed prices on any extra work involved, and at a fair and equitable price for partially completed work involved.

The Engineer may suspend work pending the settlement of any controversy. The Contractor shall not be entitled to any claim for loss or damage by reason of such delay, nor shall he be entitled to any extension of time; but an extension may be granted by the Owner at his discretion.

#### GC.20 CONTRACT TIME – DELAYS – EXTENSION OF TIME

##### GC.20.1 Contract Time

The time allowed for the completion of the work will be as specified in the contract as Fixed Completion Date or Calendar Day. It is understood and agreed by and between the Owner and the Contractor that the time of completion herein set out is a reasonable time. The Contractor shall perform fully, entirely, and in an acceptable manner, the work contracted for within the contract time stated in the Contract. The contract time shall be counted from ten days after the effective date of the "Notice to Proceed", or the date work commences, whichever occurs first.

(1) FIXED COMPLETION DATE: When the contract time is specified as a fixed date, it will be the date on which all work on the project shall be substantially complete without exception.

(2) CALENDAR DAY: Calendar day contract time includes delays for all holidays, weekends including Saturday and Sunday, and normal weather-related events, such as rain, snow, and freezing temperatures that may affect the progress of the construction on a per-month basis as hereinafter set out. Only weather-related delays in excess of these amounts will be considered for time extensions if requested by the Contractor. Time extensions due to weather delays will only be considered if the work was impeded by those conditions. Days Included in Contract Times for Normal Weather-Related Events and holidays are:

(On A Monthly Basis)

Month	Normal Weather-Related Events	Holidays
January	13	2
February	13	1
March	11	0
April	8	0
May	9	1
June	5	0
July	7	1
August	7	0
September	5	1
October	8	1
November	8	3
December	13	2

Saturdays and holidays which may be declared in writing by the Owner for certain special or unusual circumstances will be optional to the Contractor as working days and time will not be assessed unless work is performed that requires observation. Sunday work shall not be permitted.

Holidays that shall be observed are the following: New Year's Day (January 1); Dr. Martin Luther King Jr.'s Birthday (3rd Monday in January); President's Day (3rd Monday in February); Memorial Day (last Monday in May); Independence Day (July 4); Labor Day (1st Monday in September); Columbus Day (2nd Monday in October); Thanksgiving Day (4th Thursday in November); Day after Thanksgiving (Friday following Thanksgiving); Christmas Eve (December 24); and Christmas Day (December 25). If a holiday falls on a Saturday or Sunday, the observed day shall be the Friday preceding the Saturday or the Monday following the Sunday.

#### GC.20.2 Excusable Delays

The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged for any contract time due:

- (a) To any acts of the Government, including controls or restrictions upon requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;
- (b) To any acts or neglect of the Owner or employees that can be proven to have delayed the project;
- (c) To causes not reasonably foreseeable by the parties of this Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other Contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones, and other extreme weather conditions resulting in weather delays in excess of the normal weather-related events.

(d) To inaccessibility to a necessary portion of the work due to utility conflict or utility work, either of which prevents utilization of 60% normal forces and equipment to prosecute the work required for at least 60% of the normal working hours.

(e) To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs (a), (b), (c), and (d) of this paragraph.

No compensation will be made for monetary damages due to excusable delays.

### GC.20.3 Extension of Time

Extensions of time for construction contract completion may be granted for such reasonable time as determined by the Owner for the circumstances stated below:

- (a) Excusable delays as previously specified;
- (b) If the satisfactory execution and completion of the Contract shall require work or material in greater amounts or quantities than those set forth in the Contract, then the Contract time may be increased in the same proportion as the additional work bears to the original contracted work;
- (c) The Owner shall have the authority to grant additional extensions of time as the Owner may deem justifiable.

For clarification purposes, the below items are ineligible for time extensions:

- (a) Workload of the Contractor;
- (b) Normal precipitation amounts and soil conditions;
- (c) Contractor's plea that insufficient contract time to perform construction scope of work was specified;
- (d) The ability of vendors, suppliers, and subcontractors to provide materials and/or services within the Contractor's control;
- (e) All calendar days elapsing between the effective dates of any orders of the Owner or Engineer for suspension of the prosecution of the work due to the fault of the Contractor.

Extensions of contract time will not be granted automatically. The Contractor shall be required to follow the below procedure to be granted a time extension and no other:

- (a) For weather days exceeding the monthly normal weather day events, the Contractor shall submit a report listing the date and description of the weather events on the last working day of each month to the Owner or Engineer for review. Upon approval, the extension of time for each month will be recorded on the monthly pay estimate and signatures of the Contractor, Engineer, and Owner will signify agreement.
- (b) For all other instances, the Contractor shall submit a time extension request in writing to the Owner or Engineer with dates and supporting documentation as proof of extraordinary delays beyond the Contractor's control that meet the required criteria. The request shall be made within ten (10) calendar days of the occurrence of the delay.
- (c) In event of a continuing cause of delay, only one claim is necessary.

(d) If the Contractor does not provide written notice within the allotted time, no subsequent requests for review will be considered.

(e) In case of disagreement between the representative of the Owner and the Contractor, as to the classification of any day, the matter shall be referred to the Owner whose decision shall be final.

It is, therefore, agreed that if there is a delay in the completion of the work beyond the period elsewhere herein specified which has not been authorized by the Owner as set forth above, then the Owner may deduct from the Contract price the amount stated in the section entitled LIQUIDATED DAMAGES FOR DELAY under the GENERAL CONDITIONS, bound herewith, as liquidated damages.

#### GC.21 PROGRESS SCHEDULE

The Contractor shall submit a construction contract schedule of the bar graph (or other approved) format seven (7) calendar days prior to the preconstruction conference showing the following information as a minimum:

- (1) Actual date construction is scheduled to start.
- (2) Planned contract completion date.
- (3) Beginning and completion dates for each phase of work.
- (4) Respective dates for submission of shop drawings/material submittals and the beginning of manufacture, the testing of, and the installation of materials, supplies, and equipment.
- (5) All construction milestone dates.
- (6) A separate graph showing work placement in dollars versus contract time. The schedule shall incorporate contract changes as they occur. The schedule shall be maintained in an up-to-date condition and shall be available for inspection at the construction site at all times.

The construction contract schedule shall be submitted in conjunction with and/or in addition to any other specification requirements concerning schedules

#### GC.22 LIQUIDATED DAMAGES FOR DELAY

The number of calendar days allowed for completion of the project is stipulated in the Proposal and in the Contract and shall be known as the Contract Time. The Contractor agrees that time is a critical element for this Contract. Loss will accrue to the Owner due to delayed completion of the work; and the cost to the Owner of the administration of the Contract, including engineering, inspection, and supervision, will be increased as the time occupied in the work is lengthened. The Contractor agrees that for each day of delay beyond the number of calendar days herein agreed upon for the completion of the work herein specified and contracted for (after due allowance for such extension of time as is provided for in General Conditions), the Owner may withhold, permanently, from the Contractor's total compensation, the sum of One Thousand Dollars (\$1,000.00) as stipulated damages for each day of such delay. Should the amount otherwise due the Contractor be less than the amount of such ascertained and liquidated damages, the Contractor and his Surety shall be liable to the Owner for such deficiency.

#### GC.23 DISPUTES

All disputes arising under this Contract or its interpretation, whether involving law or fact or both, or extra work, and all claims for alleged breach of Contract shall within thirty (30) days of commencement of the dispute be presented by the Contractor to the Owner for decision. In the meantime, the Contractor shall

proceed with the work as directed. Any dispute not presented within the time limit specified within this paragraph shall be deemed to have been waived.

The Contractor shall submit in letter format the details of the dispute and proof thereof. Each decision by the governing body of the Owner will be in writing.

If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work, but shall notify the Owner promptly that he is proceeding with the work under protest, and he may then except the matter in question from the final release. Substantial completion of the project will not be granted until pending disputes are resolved. As such, the Owner shall withhold final payment and retainage release until all pending disputes are resolved.

At any time after initiation of a dispute, Owner and Contractor may mutually agree to mediation of the dispute. Owner and Contractor shall each pay one-half of the mediator's fees and costs. If mediation is unsuccessful, the Owner or Contractor shall give written notice to the other party of the intent (if they so intend) to submit the dispute to a court of competent jurisdiction.

#### GC.24 ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment, supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

#### GC.25 TECHNICAL SPECIFICATIONS AND DRAWINGS

Three (3) sets of Plans and Specifications shall be furnished to the Contractor, at no charge, for construction purposes. Additional copies may be obtained at the approximate cost of reproduction upon request.

The Contractor shall keep one (1) copy of all Drawings and Contract Documents in good condition readily accessible at the site of the work available to the Engineer and his authorized representatives.

The Drawings and this Specification are to be considered cooperative. All work necessary for the completion of the facility shown on the Drawings, but not described in this Specification, or described in this Specification but not shown on the Drawings, OR REASONABLY IMPLIED BY EITHER OR BOTH, shall be executed in the best manner, the same as if fully shown and specified. When no figures or memoranda are given, the Drawings shall be accurately followed, but in all cases of discrepancy in figures or details, the decision of the Engineer shall be obtained before proceeding with the Work. If the Contractor adjusts any such discrepancy without first having obtained the approval of the Engineer, it shall be at his own risk, and he shall bear any extra expense resulting therefrom.

#### GC.26 RECORD DRAWINGS

Before any work is started, the Contractor shall obtain at his own expense one set of Plans to be used for Record Drawings. The Engineer will supply the Plans at printing cost to the Contractor. Record Drawings will be kept on full-size plan sheets; no half-size sheets will be permitted. The Record Drawings shall be stored and maintained in good condition at all times by the Contractor and shall be made available to the Engineer at the work site immediately at the Engineer's request. All writing, notes, comments, dimensions, etc. shall be legible. The Record Drawings shall be stored flat and shall not be rolled. The Record Drawings shall be submitted to the Engineer before the project can be accepted.

The Contractor shall accurately identify and document the locations of all underground and/or concealed

work that he has performed and/or has been affected by his work. This shall include all equipment, conduits, pipe lines, valves, fittings and other appurtenances and underground structures that are part of the Contractor's work and their proximity to existing underground structures and utilities to the extent known. The Contractor will certify accuracy of the Record Drawings by endorsement.

The Contractor's work shall be documented on the Record Drawings in an on-going manner. Distances, offsets, depths, etc. shall be accurately measured from permanent fixed objects so that the Owner can expose any item of the work in the future with a minimum of effort. All such measurements shall be made before the items of work are covered or backfilled. The Contractor shall be required to expose and recover/backfill the work at his own expense if, in the Engineer's opinion, the measurements need to be verified.

#### GC.27 SHOP DRAWINGS

Shop Drawings shall be required for all equipment, materials, and as required by the Engineer. All Shop Drawings, Machinery Details, Layout Drawings, etc., shall be submitted to the Engineer for review (unless otherwise specified) in one of the two following manners: six (6) hardcopies or a single electronic copy in PDF format. This shall be completed sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting, and rechecking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said Shop Drawings, etc. until they are reviewed, and approved; and no claim, by the Contractor, for extension of the Contract time will be granted by reason of his failure in this respect.

Any Drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any Drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of Contract price and/or time; otherwise, the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the Drawings have been reviewed.

The review of Shop Drawings by the Engineer shall be considered an accommodation to the Contractor to assist him in the execution of the Contract. The Engineer's review of such Drawings shall not relieve the Contractor of his responsibility to perform the work in strict accordance with the Plans and Specifications, and approved changes.

If the Shop Drawing is in accordance with the Contract or involves only a minor adjustment in the interest of the Owner not involving a change in Contract price or time, the Engineer shall so stamp the Drawing and shall contain in substance the following:

"Corrections or comments made on the shop drawings during this review do not relieve Contractor from compliance with requirements of the contract documents. This check is only for review of general conformance with the design concept of the project and general compliance with the requirements of the contract documents. The Contractor is responsible for the quality of work, confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating the work of all trades and subcontractors; and performing the work in a safe and satisfactory manner".

#### GC.28 SUBMITTALS

The Contractor shall prepare and submit information required by the individual Specification sections sufficiently in advance of the related work to allow an appropriate review time by the Engineer. The types of submittals are indicated in the individual Specification sections.

During the preconstruction conference, the Engineer and the Contractor shall review the submittal schedule and procedures. Submittals will be transmitted via email as PDF electronic files directly to the Engineer's designated representative, through the project management software as instructed by the Engineer. Unless

otherwise directed by the Engineer, electronic submittals shall be compatible with Adobe Acrobat (\*.PDF) format and shall be legible when printed.

Submittals shall be neat, organized, and easy to interpret. Assemble complete submittal package into a single indexed electronic file or hard cover bound book, incorporating submittal requirements of an individual Specification section, the transmittal form with unique submittal numbering system, and electronic links or tabs enabling navigation to each item. Unless approved otherwise by the Engineer, all submittals for the individual Specification section shall be submitted at one time.

Submittals must come directly from the Prime Contractor; submittals from subcontractors or suppliers will not be reviewed.

Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review. Faxed submittals or submittals with extremely small or otherwise unreadable print will not be accepted. Submittals not required by the Contract Documents will be returned by the Engineer without action.

The Contractor shall retain complete copies of submittals on project site. Use only final submittals that are marked with approval notation from Engineer's submittal review stamp with comments form.

The Contractor will implement, in conjunction with the Engineer and Owner, project-specific procedures/policies for construction management services during construction to assist in obtaining completed Projects in accordance with the purpose and intent of the construction documents including, but not limited to the following:

1. Use required web based construction management software such as Newforma Info Exchange, and require all Subcontractors and any other project participants to use this software as well. Access to this system will be provided at no cost to the Contractor.

Resubmittals shall continue the unique, sequential, submittal numbering system. Resubmittals without unique numbering, example resubmittals transmitted as 005A or 005REV, are unacceptable and will be returned un-reviewed.

The Engineer's costs related to the third and subsequent reviews of complete or partial submittals/shop drawings, required due to previously incomplete or unacceptable submittals/shop drawings, may be withheld by the Owner from payments due the Contractor.

#### GC.29 REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in his possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and shall list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two (2) weeks after the Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section. Failure of the Owner to provide any additional information shall not be considered ground for increase in charges above those contained in the Proposal.

#### GC.30 REFERENCE TO MANUFACTURER OR TRADE NAME - "OR EQUAL CLAUSE"

If the Plans, Specifications, or Contract Documents, laws, ordinances or applicable rules and regulations permit the Contractor to furnish or use a substitute that is equal to any material or equipment specified, and if

the Contractor wishes to furnish or use a proposed substitute, he shall make written application to the Engineer for approval of such a substitute certifying in writing that the proposed substitute will perform adequately the functions called for in the general design, be similar and of equal substance to that specified, be suited to the same use and capable of performing the same functions as that specified, and identifying all variations of the proposed substitute from specified and indicating available maintenance service; the use of such substitute will not require revisions of related work. No substitute shall be ordered or installed without the written approval of the Engineer who will be the judge of equality and may require the Contractor to furnish such other data regarding the proposed substitute as he considers pertinent. No substitute shall be ordered or installed without such performance guarantee and bonds as the Owner may require which shall be furnished at Contractor's expense.

Where such substitutions alter the design or space requirements indicated on the Contract Drawings, detailed drawings shall be prepared and submitted by the Contractor delineating any changes in, or additions to, the work shown on the Contract Drawings, and such drawings and changes or additions to the work shall be made by the Contractor at no additional expense to the Owner. In all cases, the burden of proof that the material or equipment offered for substitution is equal in construction, efficiency, and service to that named on the Contract Drawings and in these Contract Documents shall rest on the Contractor, and unless the proof is satisfactory to the Engineer, the substitution will not be approved.

#### GC.31 SAMPLES, CERTIFICATES, AND TESTING

The Contractor shall submit all material, product, or equipment samples, descriptions, certificates, affidavits, etc., as called for in the Contract Documents or required by the Engineer, promptly after award of the Contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the Contract time. Submit four (4) copies of data for Engineer's review.

Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with Contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer, and all specifications or other detailed information which will assist the Engineer in passing upon the acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.

Approval of any materials shall be general only and shall not constitute a waiver of the Owner's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable, at the Contractor's expense.

Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

- (1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;
- (2) The Contractor shall assume all costs of re-testing materials which fail to meet Contract requirements;
- (3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient; and



(4) The Owner will pay all other expenses.

Quality assurance testing and inspection of materials used in the work shall be done by an approved commercial laboratory employed and paid for directly by the Owner, unless otherwise specified in the Contract Documents. Contractor shall give timely notice for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

Inspections and tests required to be arranged and paid for by the Contractor include those by manufacturers of equipment furnished under the Contract Documents, testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the work, and for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the work.

If any work (or the work of others) that is to be inspected, tested, or approved is made un-accessible by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### GC.32 TEST BORINGS/SUBSURFACE INFORMATION

Soil characteristics provided in any geotechnical reports, or as shown or referenced in the construction contract documents are not a warranty of subsurface conditions. Subsurface conditions may vary significantly from the data available. Any errors or omissions that may be contained in the available geotechnical data, or variations found at other locations, are not the responsibility of the Owner, Engineer, or Engineer's consultants, and no claim may be made against them for such. Any reliance on the data is at Contractor's sole risk.

The Contractor may not rely upon or make any claim against Owner, Engineer, or Engineer's Consultants with respect to (1) the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor and safety precautions and programs incident thereto, (2) other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings, (3) any Contractor interpretation or other conclusion drawn from any data, interpretations, opinions, or information.

Any subsurface information, whether referenced in the plans, specifications, or otherwise made available to Contractor, was obtained and intended for the Owner's design and estimating purposes only and is **not** part of the Construction Contract Documents. The Contractor may perform his own geotechnical investigation, as approved by the Owner.

#### GC.33 PERMITS AND CODES

The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the local governments. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers, the Contractor shall remove such work without cost to the Owner.

The Contractor shall at his own expense, secure and pay to the appropriate department of the local government the fees or charges for all permits for street pavements, sidewalks, sheds, removal of abandoned water taps, sealing of house connection drains, pavement cuts, building, electrical, plumbing, water, gas, and sewer permits required by the local regulatory body or any of its agencies.

The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris, and rubbish on or off the site of the work, and commit no trespass on any public or private property in any operation due to or connected with the Improvements embraced in this Contract.

#### GC.34 RIGHTS-OF-WAY

The Owner will secure easements across public or private property permanently required for the work at no cost to the Contractor. The Contractor shall lease, buy, or otherwise make satisfactory provision, without obligating the Owner in any manner, for any land required outside the land provided by the Owner. The Owner will secure State Highway and Railroad Crossing Permits. All other permits and licenses necessary for the prosecution of the work shall be secured and paid for by the Contractor.

#### GC.35 CARE OF WORK

The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any injury, including death, to any person, and for any damage to property which may result from their failure, or from their improper construction, maintenance, or operation. He shall indemnify and save harmless the Owner and the Engineer and their employees and agents, against any judgment with costs, which may be obtained as a result of such injury or property damage, because of the alleged liability of the Owner or of the Engineer.

The Contractor shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Owner.

The Contractor shall provide sufficient competent watchmen, as required to protect the work both day and night, including Saturdays, Sundays, and holidays, from the time the work is commenced until final completion and acceptance.

In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner, is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Owner. Any compensation claimed by the Contractor on account of such emergency work will be determined by the Owner as provided in the Section entitled CHANGES IN THE WORK under GENERAL CONDITIONS.

The Contractor shall avoid damage, as a result of his operations, to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, equipment, etc., and he shall at his own expense completely repair any damage thereto caused by his operations, to the satisfaction of the Owner and Engineer. After damage discovery, the Contractor shall immediately coordinate with the Owner and the Engineer on the complete repair and/or replacement work required. Following written notice of work required, the Contractor shall expeditiously begin and finish this work with all labor and materials required. All repair and/or replacement work, labor, and materials shall be supplied and installed by the Contractor. If the Contractor fails to promptly perform the repair work and correct all deficiencies, the Owner shall have the option of remedying the defects at the Contractor's cost.

The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner, and the Engineer, from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which it may be claimed that the Owner, or the Engineer, is liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

#### GC.36 QUALITY OF WORK AND PROPERTY

All property, materials, and equipment shall be new and free of defects upon completion of the Contractor's performance and, unless different standards are specified elsewhere in the Contract Documents, shall be of the best type and quality available for the purpose. All of the Contractor's work shall be performed with the highest degree of skill and completed free of defects and in accordance with the Contract Documents. Any work, property, materials, or equipment not in conformance with these standards shall be considered defective. If any work, property, materials or equipment is discovered to have been defective or not in conformance with the Contract Documents, whether said discovery is made before or after completion of performance, the Contractor, at his expense, after written notice from the Owner or Engineer, shall promptly replace or correct the deficiency and pay any engineering costs and consequential expense or damage incurred by the Owner in connection therewith. If the Contractor fails to promptly correct all deficiencies, the Owner shall have the option of remedying the defects at the Contractor's cost. If the Contractor is required to furnish shop drawings or designs, the above provisions shall apply to such drawings or designs.

Neither the Owner's payment, acceptance, inspection or use of the work, property, materials, or equipment, nor any other provision of the Contract Documents shall constitute acceptance of work, property, materials, or equipment which are defective or not in accordance with the Contract Documents. If the Contractor breaches any provision of the Contract Documents with respect to the quality of the work, property, materials, equipment or performance, whether initial or corrective, his liability to the Owner shall continue until the statute of limitations with respect to such breach of contract has expired following discovery of the defect. All parts of this section are cumulative to any other provisions of the Contract Documents and not in derogation thereof. If it is customary for a warranty to be issued for any of the property to be furnished hereunder, such warranty shall be furnished, but no limitations in any such warranty shall reduce the obligations imposed under the Contractor in the Contract Documents or by applicable State Law; but if any greater obligations than imposed in this Contract are specified in any such warranty or by applicable State Law, those greater obligations shall be deemed a part of this Contract and enforceable by the Owner.

#### GC.37 BARRICADES, LIGHTS, AND WATCHMEN

Where the work is carried on or adjacent to any street, alley or public place, the Contractor shall, at his own cost and expense, furnish and erect such barricades, fences, lights and danger signals, shall provide such watchmen, and shall provide such other precautionary measures for the protection of persons or property and of the work as are necessary.

Barricades shall be painted in a color that will be visible at night. From sunset to sunrise the Contractor shall furnish and maintain at least one light at each barricade and sufficient number of barricades shall be erected to keep vehicles from being driven on or into any work under construction. The Contractor shall furnish watchmen in sufficient numbers to protect the work.

The Contractor will be held responsible for all damage to the work due to failure to barricades, signs, lights, and watchmen to protect it, and whenever evidence is found of such damage the Engineer may order the damaged portion immediately removed and replaced by the Contractor at his cost and expense. The Contractor's responsibility for the maintenance of barricades, signs and lights, and for providing watchmen, shall not cease until the project shall have been accepted by the Owner.

#### GC.38 FENCES AND DRAINAGE CHANNELS

Boundary fences or other improvements removed to permit the installation of the work shall be replaced in the same location and left in a condition as good as or better than that in which they were found except as indicated on the Drawings.

Where surface drainage channels are disturbed or blocked during construction, they shall be restored to their original condition of grade and cross section after the work of construction is completed.

#### GC.39 WATER FOR CONSTRUCTION

Water used for the mixing of concrete, testing, or any other purpose incidental to this project, shall be furnished by the Contractor. The Contractor shall make the necessary arrangements for securing and transporting such water and shall take such water in a manner and at such times that will not produce a harmful drain or decrease of pressure in the Owners' water system. No separate payment will be made for water used but the cost thereof shall be included in the work items represented in the Unit Price Schedule.

#### GC.40 MATERIAL STORAGE

Materials delivered to the site of the work in advance of their use shall be stored so as to cause the least inconvenience and in a manner satisfactory to the Engineer.

#### GC.41 EXISTING UTILITIES AND SERVICE LINES

The Contractor shall be responsible for the protection of all existing utilities or improvements crossed by or adjacent to his construction operations. Where existing utilities or service lines are cut, broken, or damaged, the Contractor shall replace or repair immediately the utilities or service lines with the same type of original material and construction or better, at his own expense. If the Contractor fails to promptly perform the repair work and correct all deficiencies, the Owner shall have the option of remedying the defects at the Contractor's cost.

#### GC.42 DEFECTIVE WORK

It is the Contractor's obligation to assure that the work is not defective. The Engineer has the authority to determine whether work is defective, and to reject defective work. Contractor shall correct all such defective work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective work, remove it from the project and replace it with work that is not defective. Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective work, fines levied against Owner by governmental authorities because the work is defective, and the costs of repair or replacement of work of others resulting from defective work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective work, then Owner may impose a reasonable set-off against payments due.

If Contractor fails within a reasonable time after written notice from Engineer to correct defective work, or to remove and replace rejected work as required by Engineer, or if Contractor fails to perform the work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after ten days written notice to Contractor, correct or remedy any such deficiency. Owner may exclude Contractor from all or part of the Site, take possession of all or part of the work and suspend Contractor's services related thereto, and incorporate in the work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

All claims, costs, losses, and damages incurred or sustained by Owner will be charged against Contractor as set-offs against payments. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective work.

If the Owner prefers to accept defective work, Owner may do so explicitly in writing (subject to Engineer's confirmation, if such acceptance occurs prior to final payment). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective

work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the work to the extent not otherwise paid by Contractor.

If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of work so accepted, then Owner may impose a reasonable set-off against payments due. If the acceptance of defective work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the work attributable to the exercise by Owner of Owner's rights and remedies under this General Condition.

#### GC.43 ACCIDENT PREVENTION

The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes, including applicable parts of the State's labor safety code, shall be observed. The Contractor shall take or cause to be taken such safety and health measures, additional to those herein required, as he may deem necessary or desirable. Machinery, equipment, and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

The Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.

The Contractor shall indemnify and save harmless the Owner, and the Engineer, from any claims for damages resulting from personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this Contract.

#### GC.44 TRENCH AND EXCAVATION SAFETY SYSTEMS

This section covers trench and excavation safety system required for constructing improvements that necessitate open excavations on the project. All work under this item shall be in accordance with the current edition of the "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System, 29 CFR 1926, Subpart P.

The Contractor, prior to beginning any excavation, shall notify the State Department of Labor (Safety Division) that work is commencing on a project with excavations greater than five feet.

The Contractor shall notify all Utility Companies and Owners in accordance with OSHA Administration 29 CFR 1926.651(b) (2) for the purpose of locating utilities and underground installations.

Where the trench or excavation endangers the stability of a building, wall, street, highway, utilities, or other installation, the Contractor shall provide support systems such as shoring, bracing, or underpinning to ensure the stability of such structure or utility.

The Contractor may elect to remove and replace or relocate such structures or utilities with the written approval of the Owner of the structure or utility and the Project Owner.

The work required by this item will be paid for at the price bid for "Trench and Excavation Safety Systems". After award of the contract, the Contractor shall submit to the Engineer a breakdown of cost for work involved in the price bid for "Trench and Excavation Safety Systems" and shall, with each periodic payment request,

submit a certification by the Contractor's "competent person" as defined in Subpart "P" 1926.650(b) that the Contractor has complied with the provisions of "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System", 29 CFR 1926 Subpart P for work for which payment is requested.

#### GC.45 UNDERGROUND FACILITIES

All work in this contract shall be in accordance with applicable state Underground Facilities Damage Prevention Acts, or similar state requirements which protect underground facilities. The Contractor shall abide by the most current edition of these requirements.

Underground utilities may exist within and adjacent to the limits of construction. An attempt has been made to locate these utilities on the plans. However, all existing utilities may not be shown, and the actual locations of the utilities may vary from the locations shown. Prior to beginning any type of excavation, the Contractor shall contact the utilities involved and make arrangements for the location of the utilities on the ground. The Contractor shall maintain the utility location markings until they are no longer necessary.

#### GC.46 SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workers. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and County. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

#### GC.47 USE OF PREMISES

The Contractor shall confine his equipment, storage of materials, and construction operations to the Rights-of-Way to accommodate the permanent construction furnished by the Owner, or as may be directed otherwise by the Owner, and shall not unreasonably encumber the site of other public Rights-of-Way with his materials and construction equipment. In case such Rights-of-Way furnished by the Owner are not sufficient to accommodate the Contractor's operations, he shall arrange with the owner or owners of private property for additional area or areas, and without involving the Owner in any manner whatsoever.

The Contractor shall comply with all reasonable instructions of the Owner and the ordinances and codes of the State and County (including but not limited to those) regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

#### GC.48 PUBLIC UTILITIES AND OTHER PROPERTY TO BE CHANGED

In case it is necessary to change or move the property of any owner or of a public utility, such property shall not be moved or interfered with until ordered to do so by the Engineer. The right is reserved to the owner of public utilities to enter upon the limits of the project for the purpose of making such changes or repairs of their property that may be made necessary by performance of this Contract.

#### GC.49 LIGHT AND POWER

The Contractor shall provide, at his own expense, temporary lighting and facilities required for the proper prosecution and inspection of the work. At the time the Owner obtains beneficial occupancy of any of the facilities placed in satisfactory service, charges for power and light for regular operation of those involved facilities will become the responsibility of the Owner.

#### GC.50 USED MATERIALS

No material which has been used by the Contractor for any temporary purpose may be incorporated in

the permanent work without written consent of the Engineer.

#### GC.51 REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the project site and public Rights-of-Way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris, and unused materials provided for the work, thoroughly clean all drainage pipes, structures, ditches, and other features, and put the whole site of the work and public Rights-of-Way in a neat and "broom" clean condition. Trash burning on the site of the work will be subject to prior approval of the Owner and existing State and local regulations.

#### GC.52 EXISTING STRUCTURES

The Plans show the locations of all known surface and subsurface structures. However, the Owner assumes no responsibility for failure to show any or all of these structures on the Plans, or to show them in their exact location. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for extra work or for increasing the pay quantities in any manner whatsoever, unless the obstruction encountered is such as to necessitate changes in the lines or grades, or requires the building of special work, provisions for which are not made in the Plans and Proposal, in which case the provisions in these Specifications for extra work shall apply.

The Contractor shall be responsible for protection of all existing structures and any damage caused by his operations shall be repaired immediately without cost to the Owner. If the Contractor fails to promptly perform the repair work and correct all deficiencies, the Owner shall have the option of remedying the defects at the Contractor's cost. It shall be the responsibility of the prospective Contractor to examine the site completely before submitting his bid.

#### GC.53 EMERGENCIES

In emergencies affecting the safety or protection of personnel, the general public, the work, and property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order may be issued.

#### GC.54 HAZARDOUS MATERIALS

If Contractor encounters, uncovers, or reveals a hazardous material or environmental condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the work, or if Contractor or anyone for whom Contractor is responsible creates a hazardous material or condition, then Contractor shall immediately secure or otherwise isolate such condition, stop all work in connection with such condition and in any area affected thereby (except in an emergency), and notify Owner and Engineer (and promptly thereafter confirm such notice in writing). If Contractor or anyone for whom Contractor is responsible created the hazardous material or condition in question and is unable or refuses to satisfactorily address the issue, then Owner may remove and remediate the hazardous material or condition, and impose a set-off against payments to account for the associated costs.

#### GC.55 RETURN OF OWNER'S MATERIALS, EQUIPMENT, OR PROPERTY

Any materials, equipment or other property which belongs to the Owner, removed by the Contractor, shall be delivered to the Owner's designated warehouse unless its re-use or disposal is specified in the Plans and Specifications. If the Contractor fails to deliver the materials, equipment, or other property, the value, as determined by the Engineer, shall be deducted from amounts due the Contractor.

#### GC.56 PAY ITEM DESCRIPTION

Of necessity the items described and shown as components are discussed in a general manner only, describing the major pieces of equipment and/or materials. Any item and/or appurtenance not specifically mentioned shall be considered a portion of the bid item to which, in the opinion of the Engineer, its function is most directly related. Failure to list all items and/or appurtenances does not relieve the Contractor from furnishing all apparatus, devices, labor or materials of whatever nature required for a complete installation in accordance with the intent of the Drawings, approved Shop Drawings and these Specifications.

The successful Contractor shall, as soon as possible after award of the Contract, submit a list itemizing the components of each lump sum bid item and their respective costs to be used as an aid in the preparation of partial payments.

#### GC.57 SPARE PARTS

After approval of the Shop Drawings, the Contractor shall furnish spare parts data for each different item of equipment, valves, instrumentation, etc., for which normal operation requires replacement parts for dependable service. The data shall include a complete list of parts and supplies, with source of supply; list of parts and supplies that are either normally furnished at no extra cost with the purchase of the equipment or specified hereinafter to be furnished as part of the contract and a list of additional items recommended by the manufacturer to assure efficient operation. The foregoing shall not relieve the Contractor of any responsibilities under the guaranty specified.

#### GC.58 OBSERVATION OF WORK

The Engineer, his authorized representative, and any Federal, State, County, or local authority representative having jurisdiction over any part of the work, or area through which the work is located, shall at all times have access to the work in progress.

The detailed manner and method of performing the work shall be under the direction and control of the Contractor, but all work performed shall at all times be subject to the observation of the Engineer or his authorized representative to ascertain its conformance with the Contract Documents. The Contractor shall furnish all reasonable aid and assistance required by the Engineer for the proper observation and examination of the work and all parts thereof.

The Engineer is not responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction, or safety precautions and programs incident thereto.

Observers may be appointed by the Engineer or Owner. Observers shall have no authority to permit any deviation from the Plans and Specifications except on written order from the Engineer and the Contractor will be liable for any deviation except on such written order. Observers shall have authority, subject to the final decision of the Engineer, to condemn and reject any defective work and to suspend the work when it is not being performed properly.

The observer shall in no case act as superintendent or foreman or perform other duties for the Contractor, nor interfere with the management of the work by the latter. Any advice which the observer may give the Contractor shall in no way be construed as binding to the Engineer in any way or releasing the Contractor from fulfilling all of the terms of the Contract.

Any defective work may be rejected by the Engineer at any time before final acceptance of the work, even though the same may have been previously overlooked and estimated for payment and payment therefore made by the Owner.

The Contractor shall notify the Engineer sufficiently in advance of backfilling or concealing any facilities to permit proper observation. If the facilities are concealed without approval or consent of the Engineer, the



Contractor shall uncover for observation and recover such facilities all at his own expense, when so requested by the Engineer.

Should it be considered necessary or advisable by the Engineer at any time before final acceptance of the entire work to make an examination of work already completed, by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his Subcontractors, he shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus fifteen (15) percent of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

Observation of materials and appurtenances to be incorporated in the Improvements embraced in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such observation and acceptance, unless otherwise stated in the Technical Specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the observation of materials as a whole or in part will be made at the project site.

All condemned or rejected work shall be promptly taken out and replaced by satisfactory work. Should the Contractor fail or refuse to comply with the instructions in this respect, the Owner may, upon certification by the Engineer, withhold payment, proceed to terminate the Contract, or perform work as provided herein.

#### GC.59 REVIEW BY OWNER

The Owner, its authorized representatives and agents, shall at all times during work hours have access to and be permitted to observe and review all work, materials, equipment, payrolls, and personnel records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the City through its authorized representatives or agents. Representatives of Federal, State, and City agencies also have the right of physical inspection of the work during work hours.

#### GC.60 PROHIBITED INTERESTS

No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof. No officer, employee, architect, attorney, engineer, or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any executive, supervisory, or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof.

#### GC.61 SUBSTANTIAL COMPLETION

When Contractor considers the entire work ready for its intended use, Contractor shall notify Owner and Engineer in writing that the entire work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the work to determine the status of completion. If Engineer does not consider the work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

If Engineer considers the work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment, along with

a timeframe to complete the punch list items. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the work.

Upon Substantial Completion, the project time for completion will stop and the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

If the Contractor does not achieve Final Completion in the specified time noted on the substantial completion punch list, the project time for completion will continue from the specified Final Completion date until all punch list items have been completed.

#### GC.62 FINAL INSPECTION AND ACCEPTANCE

When the Improvements embraced in this Contract are substantially completed and punch list items have been addressed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection, and bear the signed concurrence of the representative of the Owner having charge of observation. If the Owner determines that the status of the Improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as practicable. The inspection party will also include the representatives of Owner and any other involved government agencies when such improvements are later to be accepted by the Owner and/or other government agencies. Upon confirmation that all improvements have been properly constructed, Final Acceptance will be granted and the Contractor's General Guaranty will begin.

#### GC.63 CONTRACTOR'S OBLIGATION TO COMPLETE THE WORK

Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents: any review and approval of a Shop Drawing or Sample submittal; observations by Engineer or Resident Project Representative; recommendation of or payment of progress or final payment; the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner; use or occupancy of the Work or any part thereof by Owner; any inspection, test, or approval by others; or any correction of defective work by Owner.

#### GC.64 PATENTS

The Contractor shall hold and save harmless the Owner, its officers, employees, and the Engineer, from liability of any nature or kind, including costs and expenses, for, or on account of, any patented or unpatented

invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Technical Specifications.

#### GC.65 WARRANTY OF TITLE

No material, supplies, or equipment for the work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens, or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and material Contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal Contract is entered into for such materials.

#### GC.66 GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the agreed upon day of final acceptance (not substantial completion) of the work. The Owner will give notice of defective materials and work with reasonable promptness.

#### GC.67 REUSE OF DOCUMENTS

Contractor and its Subcontractors and Suppliers shall not have or acquire any title to or ownership rights in any of the Contract Documents, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, or reuse any such documents or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

#### GC.68 RELEASE AND CONTRACTOR'S AFFIDAVIT

At the project's completion, the Contractor shall execute the attached Release and Lien Waiver to release all claims against the Owner arising under and by virtue of his Contract. The date of the Release shall be that agreed to for the final acceptance of the project with the Owner.



**RELEASE**

FROM: Contractor's Name \_\_\_\_\_

Address \_\_\_\_\_

TO: Owner's Name \_\_\_\_\_

Address \_\_\_\_\_

DATE OF CONTRACT: \_\_\_\_\_

Upon receipt of the final payment and in consideration of that amount, the undersigned does hereby release the Owner and its agents from any and all claims arising under or by virtue of this Contract or modification thereof occurring from the undersigned's performance in connection with the

\_\_\_\_\_  
\_\_\_\_\_

project.

\_\_\_\_\_  
Contractor's Signature

\_\_\_\_\_  
Title

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires:  
\_\_\_\_\_



**CONTRACTOR'S AFFIDAVIT**

FROM: Contractor's Name \_\_\_\_\_

Address \_\_\_\_\_

TO: Owner's Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

DATE OF CONTRACT: \_\_\_\_\_

I hereby certify that all claims for material, labor, and supplies entered into contingent and incident to the construction or used in the course of the performance of the work on \_\_\_\_\_

\_\_\_\_\_

have been fully satisfied.

\_\_\_\_\_  
Contractor's Signature

\_\_\_\_\_  
Title

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires:  
\_\_\_\_\_

The Surety Company consents to the release of the retained percentage on this project with the understanding that should any unforeseen contingencies arise having a right of action on the bond that the Surety Company will not waive liability through the consent to the release of the retained percentage.

Dated \_\_\_\_\_  
Surety Company

By \_\_\_\_\_  
Resident Agent, State of Project





**010900 - SPECIAL CONDITIONS**

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## SC.1 GENERAL

The provisions of this section of the Specifications shall govern in the event of any conflict between them and the "General Conditions".

## SC.2 LOCATION OF PROJECT

This project is located Conway, AR. A map showing the general location is included in the Plans.

## SC.3 SCOPE OF WORK

The project includes, but is not limited to, 1,300 LF of shared-use path improvements including a new 400 LF bridge, 900 LF of trail approaches, retaining walls, sidewalk, and lighting as shown on the plans and indicated in the specifications.

## SC.4 TIME ALLOTTED FOR COMPLETION

The time allotted for completion of the work shall be Three Hundred (300) consecutive calendar days, which time shall begin within ten (10) days of the work order or notice to proceed, or upon the date the Contractor moves on the site to begin the work, whichever is the earliest date. After award of the Contract is made and the Contract Documents are completed, the Engineer shall issue a Work Order or Notice to Proceed, notifying the Contractor to proceed with the construction of the project, subject to the provisions of this paragraph.

## SC.5 ADDITIONAL INSURANCE – *Not Used*

## SC.6 MINIMUM WAGES

The Contractor shall comply with the provisions of the Federal prevailing wage laws, and the administrative regulations promulgated thereunder, as they apply under this Contract.

It shall be the responsibility of each Bidder to determine the consequences of the applicable provisions of the Federal and State's prevailing wage laws, and include in his bid any costs made necessary because of them. No additional payment will be made, and no extension of Contract time will be allowed because of the provisions of the laws.

The Contractor shall comply with all applicable provisions of the Federal prevailing wage laws, including the following:

- (1) Pay wage rates not less than the prevailing hourly wage for each craft or type of workman needed to execute the Contract, as determined by the Department of Labor, such determination covering rates for regular hours, and rates for holidays and overtime work.
- (2) Post on the site of the work, in a conspicuous and accessible place, a copy of the prevailing wage rates as determined.
- (3) Keep an accurate record of workman employed by him, and by each subcontractor, if any, including the wage payments made. Such record, or records, shall be available for inspection by the Federal, the State, and the Owner's representatives, during reasonable hours.
- (4) The Contractor's bond shall guarantee the payment of wages as herein specified.

Wage rates, as established by the Federal entities, are the minimum for wage payments under this Contract.

There is no assurance on the part of City of Conway that mechanics and laborers can be obtained for the rates herein bound. Each Bidder shall determine for himself the availability of laborers and mechanics, and the rates he must pay to obtain employees. Such rates of pay may be greater than, but cannot be less than, the wage rates bound herein, at the end of this section.

#### SC.7 REFERENCE SPECIFICATIONS

Where reference is made in these Specifications to specifications compiled by other agencies, organizations or departments, such reference is made for expediency and standardization, and such specifications (latest edition thereof) referred to are hereby made a part of these Specifications.

More specifically, if any items or materials required for completion of the work required for this project are not specified in these Contract Documents, such items or materials and requirements for installation shall conform to the standards or preferences of AHTD.

#### SC.8 SALES TAX

The project is not tax exempt for the purchase of materials permanently incorporated into the project.

#### SC.9 USE OF EXPLOSIVES

The use of explosives will not be permitted except as specifically described in the Specifications.

#### SC.10 LINES AND GRADES

The Contractor will be furnished horizontal and vertical control points and/or baselines and benchmarks to control the work. The Contractor shall be responsible for the additional instrument control necessary to lay out and construct the improvements. The Contractor's instrument control of the work shall not be measured for separate payment. As a minimum, the Contractor shall provide the following instrument control for the work:

- a. For the full length and width of all areas within the limits of paving, the finished grade of the concrete surface course shall be controlled by grade wires or forms set by the Contractor to control the final surface, in accordance with the plans.
- b. For the full length and width of all areas within the limits of paving, the initial courses of bituminous pavement shall be controlled by uniform thickness. The course under the final surface course shall be controlled by grade wire, and the final surface course shall be controlled by uniform thickness. The bituminous pavement shall be constructed with a laydown machine with automatic controls and a 40-ft ski.
- c. For the full length and width of all areas within the limits of paving, the crushed aggregate base course and the subbase course will be controlled with intermediate and final surface stakes, "blue tops". Stakes shall be set as required or as directed by the Engineer to control the construction.
- d. The Contractor shall set intermediate line and grade stakes and final grade stakes, "blue tops," as required to control the construction of subgrade and shoulders.

#### SC.11 SEQUENCE OF CONSTRUCTION

Sequence of all phases of work shall be such as to provide for the least possible inconvenience to the Owner. Scheduling of work which would interfere with normal traffic operation shall be coordinated with the Owner. Material and equipment received on the project prior to time of installation shall be stored at such

locations designated by the Owner.

Before any of the facilities are taken out of service to accomplish the various items of work, the Contractor shall demonstrate to the Owner and Engineer's satisfaction that all equipment and materials required to complete that particular item of work are on hand. As much preliminary work as is possible shall be accomplished prior to taking any unit out of service.

SC.12      TEMPORARY FIELD OFFICE – *Not Used*

SC.13      MAINTENANCE BOND – *Not Used*

SC.14      PREVAILING WAGE DETERMINATION

ARKANSAS DEPARTMENT OF TRANSPORTATION  
 SUPPLEMENTAL SPECIFICATION  
 WAGE RATE DETERMINATION

General Decision Number: AR180277 01/05/2018 AR277

Superseded General Decision Number: AR20170277

State: Arkansas

Construction Type: Highway

County: Faulkner County in Arkansas.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/05/2018

SUAR2014-035 07/21/2014

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 14.09	0.00
CEMENT MASON/CONCRETE FINISHER...	\$ 16.01	0.00
FENCE ERECTOR.....	\$ 12.69	0.00
HIGHWAY/PARKING LOT STRIPING: Operator (Striping Machine).....	\$ 13.25	0.00
HIGHWAY/PARKING LOT STRIPING: Painter.....	\$ 21.75	0.00
IRONWORKER, REINFORCING.....	\$ 14.22	0.00
IRONWORKER, STRUCTURAL.....	\$ 15.36	0.00
LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 14.45	0.00
LABORER: Common or General.....	\$ 12.57	0.00
LABORER: Mason Tender - Cement/Concrete.....	\$ 15.23	0.00

ARKANSAS DEPARTMENT OF TRANSPORTATION  
 SUPPLEMENTAL SPECIFICATION  
 WAGE RATE DETERMINATION

LABORER: Pipelayer.....	\$ 14.33	0.00
OPERATOR: Asphalt Paver.....	\$ 16.52	0.00
OPERATOR: Asphalt Spreader.....	\$ 15.80	0.00
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 17.81	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 16.06	0.00
OPERATOR: Broom/Sweeper.....	\$ 12.00	0.00
OPERATOR: Bulldozer.....	\$ 16.74	0.00
OPERATOR: Crane.....	\$ 20.63	0.00
OPERATOR: Distributor.....	\$ 14.52	0.00
OPERATOR: Drill.....	\$ 14.85	0.00
OPERATOR: Grade Checker.....	\$ 15.54	0.00
OPERATOR: Grader/Blade.....	\$ 20.04	0.00
OPERATOR: Hydroseeder.....	\$ 10.79	0.00
OPERATOR: Loader.....	\$ 17.05	0.00
OPERATOR: Mechanic.....	\$ 22.19	0.00
OPERATOR: Milling Machine.....	\$ 17.52	0.00
OPERATOR: Oiler.....	\$ 18.46	0.00
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 18.78	0.00
OPERATOR: Post Driver (Guardrail/Fences).....	\$ 16.97	0.00
OPERATOR: Roller.....	\$ 20.27	0.00
OPERATOR: Scraper.....	\$ 19.31	0.00
OPERATOR: Screed.....	\$ 15.01	0.00
TRAFFIC CONTROL: Flagger.....	\$ 12.67	0.00
TRAFFIC CONTROL: Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper.....	\$ 13.37	0.00
TRUCK DRIVER: Dump Truck.....	\$ 14.81	0.00
TRUCK DRIVER: Flatbed Truck.....	\$ 21.03	0.00
TRUCK DRIVER: Lowboy Truck.....	\$ 17.61	0.00
TRUCK DRIVER: Servicer.....	\$ 15.90	0.00

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TRUCK DRIVER: Water Truck.....	\$ 14.73	0.00
TRUCK DRIVER: Semi/Trailer Truck.....	\$ 12.50	0.00

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate

changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal



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process described here, initial contact should be with the  
Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an  
interested party (those affected by the action) can request  
review and reconsideration from the Wage and Hour Administrator  
(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the  
interested party's position and by any information (wage  
payment data, project description, area practice material,  
etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an  
interested party may appeal directly to the Administrative  
Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION



If it is necessary to stand at the outboard or inboard edge of the deckload where less than 24 inches of bulwark, rail, coaming, or other protection exists, all employees shall be provided with a suitable means of protection against falling from the deckload.

(d) *First-aid and lifesaving equipment.*

(1) Provisions for rendering first aid and medical assistance shall be in accordance with subpart D of this part.

(2) The employer shall ensure that there is in the vicinity of each barge in use at least one U.S. Coast Guard-approved 30-inch lifering with not less than 90 feet of line attached, and at least one portable or permanent ladder which will reach the top of the apron to the surface of the water. If the above equipment is not available at the pier, the employer shall furnish it during the time that he is working the barge.

(3) Employees walking or working on the unguarded decks of barges shall be protected with U.S. Coast Guard-approved work vests or buoyant vests.

(e) *Commercial diving operations.* Commercial diving operations shall be subject to subpart T of part 1910, §§ 1910.401-1910.441, of this chapter.

[39 FR 22801, June 24, 1974, as amended at 42 FR 37674, July 22, 1977]

**§ 1926.606 Definitions applicable to this subpart.**

(a) *Apron*—The area along the waterfront edge of the pier or wharf.

(b) *Bulwark*—The side of a ship above the upper deck.

(c) *Coaming*—The raised frame, as around a hatchway in the deck, to keep out water.

(d) *Jacob's ladder*—A marine ladder of rope or chain with wooden or metal rungs.

(e) *Rail*, for the purpose of § 1926.605, means a light structure serving as a guard at the outer edge of a ship's deck.

25059), or 9-83 (48 FR 35736), as applicable, and 29 CFR part 1911.

SOURCE: 54 FR 45959, Oct. 31, 1989, unless otherwise noted.

**§ 1926.650 Scope, application, and definitions applicable to this subpart.**

(a) *Scope and application.* This subpart applies to all open excavations made in the earth's surface. Excavations are defined to include trenches.

(b) *Definitions applicable to this subpart.*

*Accepted engineering practices* means those requirements which are compatible with standards of practice required by a registered professional engineer.

*Aluminum Hydraulic Shoring* means a pre-engineered shoring system comprised of aluminum hydraulic cylinders (crossbraces) used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such system is designed, specifically to support the sidewalls of an excavation and prevent cave-ins.

*Bell-bottom pier hole* means a type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

*Benching* (Benching system) means a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

*Cave-in* means the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

*Competent person* means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

*Cross braces* mean the horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

**Subpart P—Excavations**

AUTHORITY: Sec. 107, Contract Worker Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); Secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR

*Excavation* means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

*Faces* or *sides* means the vertical or inclined earth surfaces formed as a result of excavation work.

*Failure* means the breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

*Hazardous atmosphere* means an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

*Kickout* means the accidental release or failure of a cross brace.

*Protective system* means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

*Ramp* means an inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.

*Registered Professional Engineer* means a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

*Sheeting* means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

*Shield* (Shield system) means a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either premanufactured or job-built in

accordance with § 1926.652 (c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

*Shoring* (Shoring system) means a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

*Sides*. See "Faces."

*Sloping* (Sloping system) means a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

*Stable rock* means natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.

*Structural ramp* means a ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

*Support system* means a structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

*Tabulated data* means tables and charts approved by a registered professional engineer and used to design and construct a protective system.

*Trench* (Trench excavation) means a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6 m) or less

(measured at the bottom of the excavation), the excavation is also considered to be a trench.

*Trench box.* See "Shield."

*Trench shield.* See "Shield."

*Uprights* means the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

*Wales* means horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

#### § 1926.651 Specific excavation requirements.

(a) *Surface encumbrances.* All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.

(b) *Underground installations.* (1) The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.

(2) Utility companies or owners shall be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, the employer may proceed, provided the employer does so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.

(3) When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means.

(4) While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

(c) *Access and egress*—(1) *Structural ramps.* (i) Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

(ii) Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.

(iii) Structural members used for ramps and runways shall be of uniform thickness.

(iv) Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.

(v) Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

(2) *Means of egress from trench excavations.* A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.

(d) *Exposure to vehicular traffic.* Employees exposed to public vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

(e) *Exposure to falling loads.* No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with § 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

(f) *Warning system for mobile equipment.* When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

(g) *Hazardous atmospheres—(1) Testing and controls.* In addition to the requirements set forth in subparts D and E of this part (29 CFR 1926.50–1926.107) to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:

(i) Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.

(ii) Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation in accordance with subparts D and E of this part respectively.

(iii) Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.

(iv) When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

(2) *Emergency rescue equipment.* (i) Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous at-

mospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

(ii) Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a life-line securely attached to it. The lifeline shall be separate from any line used to handle materials, and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

(h) *Protection from hazards associated with water accumulation.* (1) Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

(2) If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

(3) If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with paragraphs (h)(1) and (h)(2) of this section.

(i) *Stability of adjacent structures.* (1) Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.

(2) Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably

expected to pose a hazard to employees shall not be permitted except when:

(i) A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or

(ii) The excavation is in stable rock; or

(iii) A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or

(iv) A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

(3) Sidewalks, pavements, and appurtenant structure shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

(j) *Protection of employees from loose rock or soil.* (1) Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

(2) Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

(k) *Inspections.* (1) Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout

the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

(2) Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

(1) Walkways shall be provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with §1926.502(b) shall be provided where walkways are 6 feet (1.8 m) or more above lower levels.

[54 FR 45959, Oct. 31, 1989, as amended by 59 FR 40730, Aug. 9, 1994]

#### § 1926.652 Requirements for protective systems.

(a) *Protection of employees in excavations.* (1) Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with paragraph (b) or (c) of this section except when:

(i) Excavations are made entirely in stable rock; or

(ii) Excavations are less than 5 feet (1.52m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

(2) Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

(b) *Design of sloping and benching systems.* The slopes and configurations of sloping and benching systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (b)(1); or, in the alternative, paragraph (b)(2); or, in the alternative, paragraph (b)(3), or, in the alternative, paragraph (b)(4), as follows:

(1) *Option (1)—Allowable configurations and slopes.* (i) Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical

(34 degrees measured from the horizontal), unless the employer uses one of the other options listed below.

(ii) Slopes specified in paragraph (b)(1)(i) of this section, shall be excavated to form configurations that are in accordance with the slopes shown for Type C soil in Appendix B to this subpart.

(2) *Option (2)—Determination of slopes and configurations using Appendices A and B.* Maximum allowable slopes, and allowable configurations for sloping and benching systems, shall be determined in accordance with the conditions and requirements set forth in appendices A and B to this subpart.

(3) *Option (3)—Designs using other tabulated data.* (i) Designs of sloping or benching systems shall be selected from and be in accordance with tabulated data, such as tables and charts.

(ii) The tabulated data shall be in written form and shall include all of the following:

(A) Identification of the parameters that affect the selection of a sloping or benching system drawn from such data;

(B) Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe;

(C) Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

(iii) At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

(4) *Option (4)—Design by a registered professional engineer.* (i) Sloping and benching systems not utilizing Option (1) or Option (2) or Option (3) under paragraph (b) of this section shall be approved by a registered professional engineer.

(ii) Designs shall be in written form and shall include at least the following:

(A) The magnitude of the slopes that were determined to be safe for the particular project;

(B) The configurations that were determined to be safe for the particular project; and

(C) The identity of the registered professional engineer approving the design.

(iii) At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the Secretary upon request.

(c) *Design of support systems, shield systems, and other protective systems.* Designs of support systems shield systems, and other protective systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (c)(1); or, in the alternative, paragraph (c)(2); or, in the alternative, paragraph (c)(3); or, in the alternative, paragraph (c)(4) as follows:

(1) *Option (1)—Designs using appendices A, C and D.* Designs for timber shoring in trenches shall be determined in accordance with the conditions and requirements set forth in appendices A and C to this subpart. Designs for aluminum hydraulic shoring shall be in accordance with paragraph (c)(2) of this section, but if manufacturer's tabulated data cannot be utilized, designs shall be in accordance with appendix D.

(2) *Option (2)—Designs Using Manufacturer's Tabulated Data.* (i) Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.

(ii) Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval.

(iii) Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy shall



be made available to the Secretary upon request.

(3) *Option (3)—Designs using other tabulated data.* (i) Designs of support systems, shield systems, or other protective systems shall be selected from and be in accordance with tabulated data, such as tables and charts.

(ii) The tabulated data shall be in written form and include all of the following:

(A) Identification of the parameters that affect the selection of a protective system drawn from such data;

(B) Identification of the limits of use of the data;

(C) Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

(iii) At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

(4) *Option (4)—Design by a registered professional engineer.* (i) Support systems, shield systems, and other protective systems not utilizing Option 1, Option 2 or Option 3, above, shall be approved by a registered professional engineer.

(ii) Designs shall be in written form and shall include the following:

(A) A plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and

(B) The identity of the registered professional engineer approving the design.

(iii) At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the Secretary upon request.

(d) *Materials and equipment.* (1) Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function.

(2) Manufactured materials and equipment used for protective systems shall be used and maintained in a man-

ner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.

(3) When material or equipment that is used for protective systems is damaged, a competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service, and shall be evaluated and approved by a registered professional engineer before being returned to service.

(e) *Installation and removal of support—(1) General.* (i) Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.

(ii) Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

(iii) Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand.

(iv) Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.

(v) Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.

(vi) Backfilling shall progress together with the removal of support systems from excavations.

(2) *Additional requirements for support systems for trench excavations.* (i) Excavation of material to a level no greater than 2 feet (.61 m) below the bottom of the members of a support system shall be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and

there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.

(ii) Installation of a support system shall be closely coordinated with the excavation of trenches.

(f) *Sloping and benching systems.* Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

(g) *Shield systems*—(1) *General.* (i) Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.

(ii) Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.

(iii) Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.

(iv) Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically.

(2) *Additional requirement for shield systems used in trench excavations.* Excavations of earth material to a level not greater than 2 feet (.61 m) below the bottom of a shield shall be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.

#### APPENDIX A TO SUBPART P OF PART 1926—SOIL CLASSIFICATION

(a) *Scope and application*—(1) *Scope.* This appendix describes a method of classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. The appendix contains definitions, sets forth requirements, and describes acceptable visual and manual tests for use in classifying soils.

(2) *Application.* This appendix applies when a sloping or benching system is designed in accordance with the requirements set forth in §1926.652(b)(2) as a method of protection for employees from cave-ins. This appendix also applies when timber shoring for excavations is designed as a method of protection from cave-ins in accordance with appendix C

to subpart P of part 1926, and when aluminum hydraulic shoring is designed in accordance with appendix D. This Appendix also applies if other protective systems are designed and selected for use from data prepared in accordance with the requirements set forth in §1926.652(c), and the use of the data is predicated on the use of the soil classification system set forth in this appendix.

(b) *Definitions.* The definitions and examples given below are based on, in whole or in part, the following: American Society for Testing Materials (ASTM) Standards D653-85 and D2488; The Unified Soils Classification System, The U.S. Department of Agriculture (USDA) Textural Classification Scheme; and The National Bureau of Standards Report BSS-121.

*Cemented soil* means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

*Cohesive soil* means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical sideslopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

*Dry soil* means soil that does not exhibit visible signs of moisture content.

*Fissured* means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

*Granular soil* means gravel, sand, or silt, (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

*Layered system* means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

*Moist soil* means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

*Plastic* means a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.

*Saturated soil* means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or shear vane.

*Soil classification system* means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the environmental conditions of exposure.

*Stable rock* means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

*Submerged soil* means soil which is underwater or is free seeping.

*Type A* means cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

- (i) The soil is fissured; or
- (ii) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
- (iii) The soil has been previously disturbed; or
- (iv) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
- (v) The material is subject to other factors that would require it to be classified as a less stable material.

*Type B* means:

- (i) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
- (ii) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
- (iii) Previously disturbed soils except those which would otherwise be classed as Type C soil.
- (iv) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
- (v) Dry rock that is not stable; or
- (vi) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

*Type C* means:

- (i) Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or
- (ii) Granular soils including gravel, sand, and loamy sand; or
- (iii) Submerged soil or soil from which water is freely seeping; or
- (iv) Submerged rock that is not stable, or

- (v) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

*Unconfined compressive strength* means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

*Wet soil* means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

(c) *Requirements*—(1) *Classification of soil and rock deposits*. Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions set forth in paragraph (b) of this appendix.

(2) *Basis of classification*. The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a competent person using tests described in paragraph (d) below, or in other recognized methods of soil classification and testing such as those adopted by the America Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.

(3) *Visual and manual analyses*. The visual and manual analyses, such as those noted as being acceptable in paragraph (d) of this appendix, shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.

(4) *Layered systems*. In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

(5) *Reclassification*. If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes shall be evaluated by a competent person. The deposit shall be reclassified as necessary to reflect the changed circumstances.

(d) *Acceptable visual and manual tests*.—(1) *Visual tests*. Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.

(i) Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained

material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

(ii) Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.

(iii) Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.

(iv) Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

(v) Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.

(vi) Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

(vii) Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

(2) *Manual tests.* Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

(i) *Plasticity.* Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.

(ii) *Dry strength.* If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

(iii) *Thumb penetration.* The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard

designation D2488—"Standard Recommended Practice for Description of Soils (Visual—Manual Procedure).") Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

(iv) *Other strength tests.* Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.

(v) *Drying test.* The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:

(A) If the sample develops cracks as it dries, significant fissures are indicated.

(B) Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as a unfissured cohesive material and the unconfined compressive strength should be determined.

(C) If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

#### APPENDIX B TO SUBPART P OF PART 1926—SLOPING AND BENCHING

(a) *Scope and application.* This appendix contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. The requirements of this appendix apply when the design of sloping and benching protective systems is to be performed in accordance with the requirements set forth in §1926.652(b)(2).

(b) *Definitions.*

*Actual slope* means the slope to which an excavation face is excavated.

*Distress* means that the soil is in a condition where a cave-in is imminent or is likely

to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and raveling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

*Maximum allowable slope* means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

*Short term exposure* means a period of time less than or equal to 24 hours that an excavation is open.

(c) *Requirements*—(1) *Soil classification*. Soil and rock deposits shall be classified in accordance with appendix A to subpart P of part 1926.

(2) *Maximum allowable slope*. The maximum allowable slope for a soil or rock deposit shall be determined from Table B-1 of this appendix.

(3) *Actual slope*. (i) The actual slope shall not be steeper than the maximum allowable slope.

(ii) The actual slope shall be less steep than the maximum allowable slope, when there are signs of distress. If that situation occurs, the slope shall be cut back to an actual slope which is at least ½ horizontal to one vertical (½H:1V) less steep than the maximum allowable slope.

(iii) When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person shall determine the degree to which the actual slope must be reduced below the maximum allowable slope, and shall assure that such reduction is achieved. Surcharge loads from adjacent structures shall be evaluated in accordance with §1926.651(i).

(4) *Configurations*. Configurations of sloping and benching systems shall be in accordance with Figure B-1.

TABLE B-1  
MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V) [1] FOR EXCAVATIONS LESS THAN 20 FEET DEEP [3]
STABLE ROCK TYPE A [2] TYPE B TYPE C	VERTICAL (90°) ¾ : 1 (53°) 1 : 1 (45°) 1½ : 1 (34°)

NOTES:

1. Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.
2. A short-term maximum allowable slope of 1/2H:1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53°).
3. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

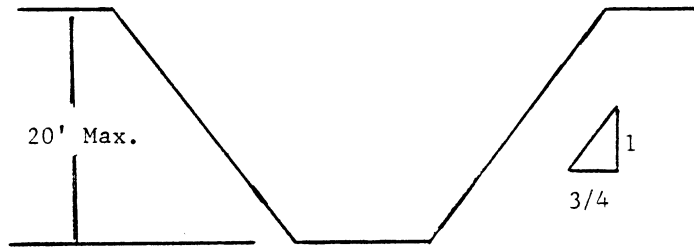
Figure B-1

Slope Configurations

(All slopes stated below are in the horizontal to vertical ratio)

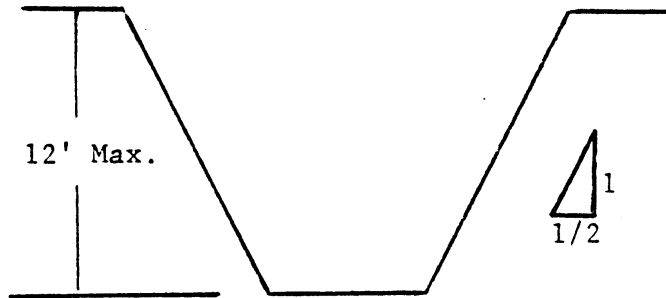
B-1.1 Excavations made in Type A soil.

1. All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of 3/4:1.



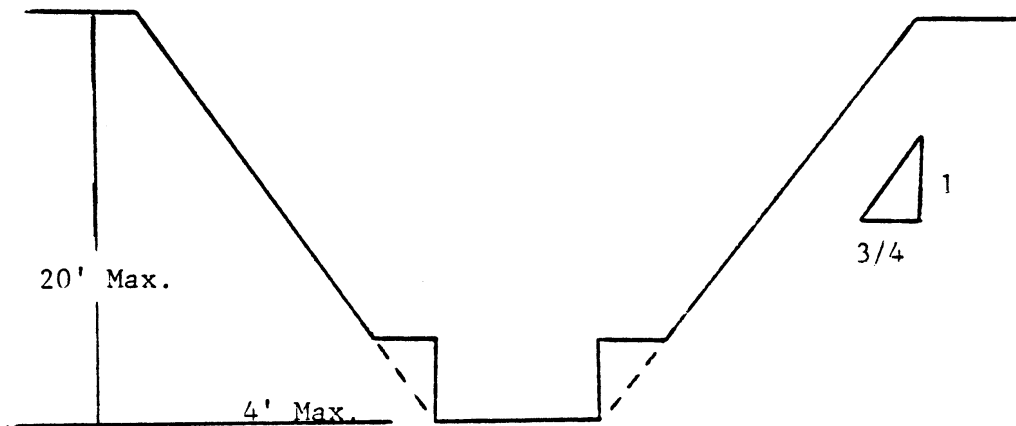
SIMPLE SLOPE—GENERAL

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of 1/2:1.

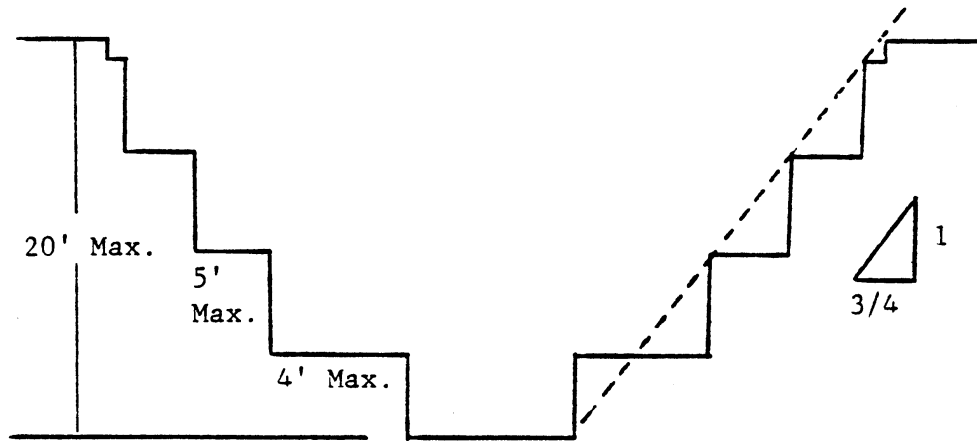


SIMPLE SLOPE—SHORT TERM

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as follows:

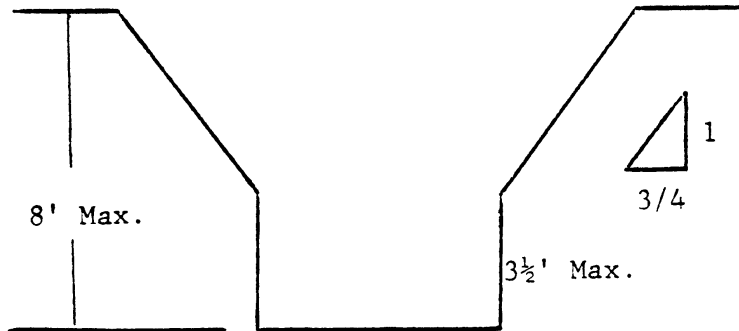


SIMPLE BENCH



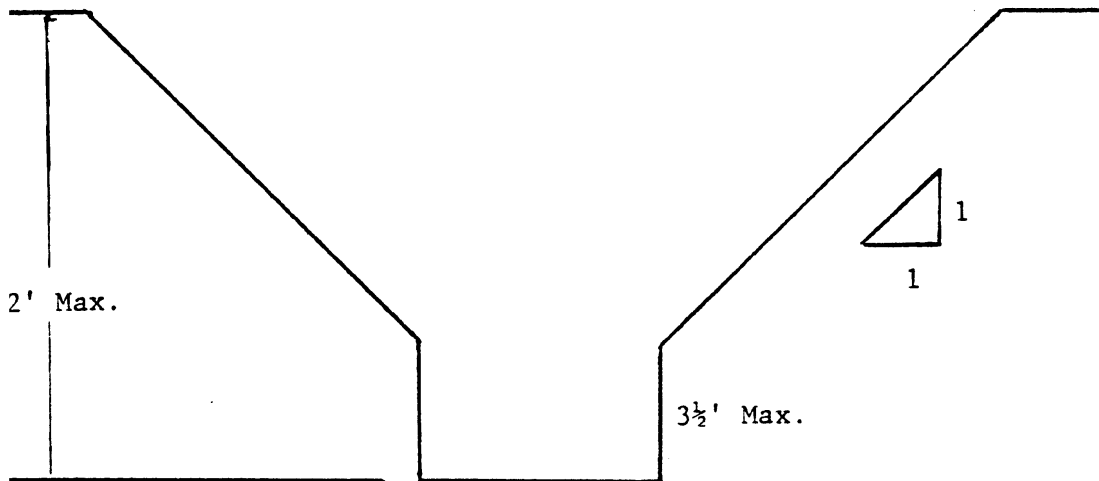
MULTIPLE BENCH

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet.



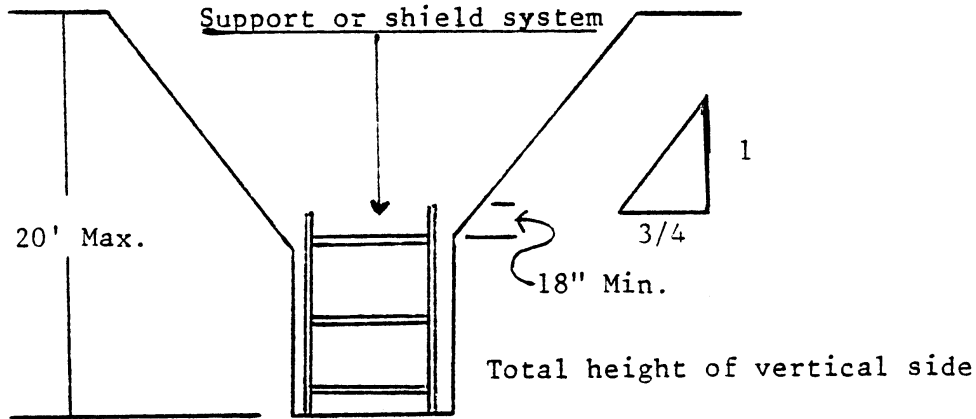
UNSUPPORTED VERTICALLY SIDED LOWER PORTION—MAXIMUM 8 FEET IN DEPTH

All excavations more than 8 feet but not more than 12 feet in depth which unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet.



UNSUPPORTED VERTICALLY SIDED LOWER PORTION—MAXIMUM 12 FEET IN DEPTH

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of 3/4:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

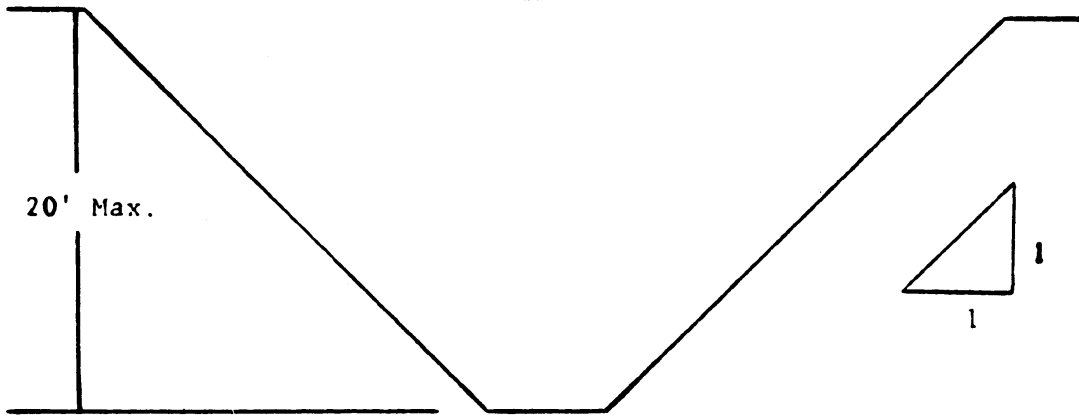


SUPPORTED OR SHIELDED VERTICALLY SIDED LOWER PORTION

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under § 1926.652(b).

B-1.2 Excavations Made in Type B Soil

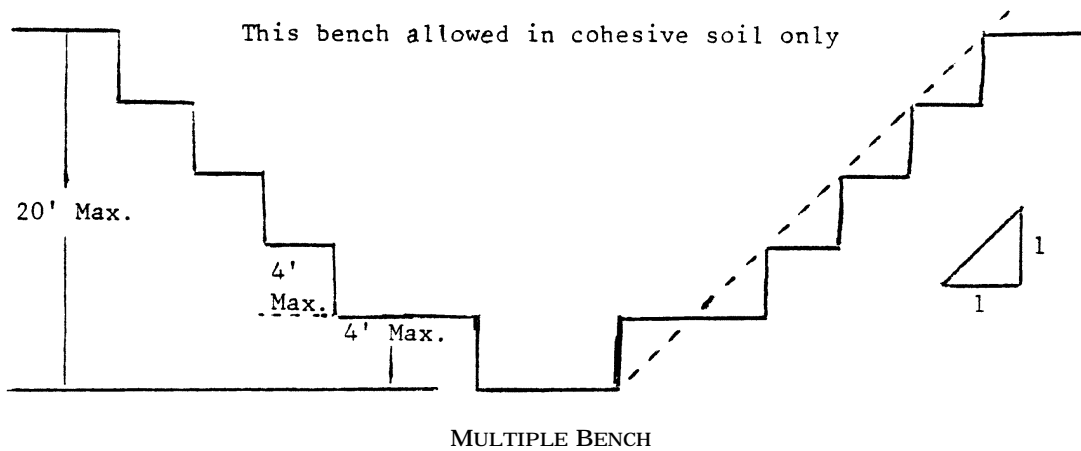
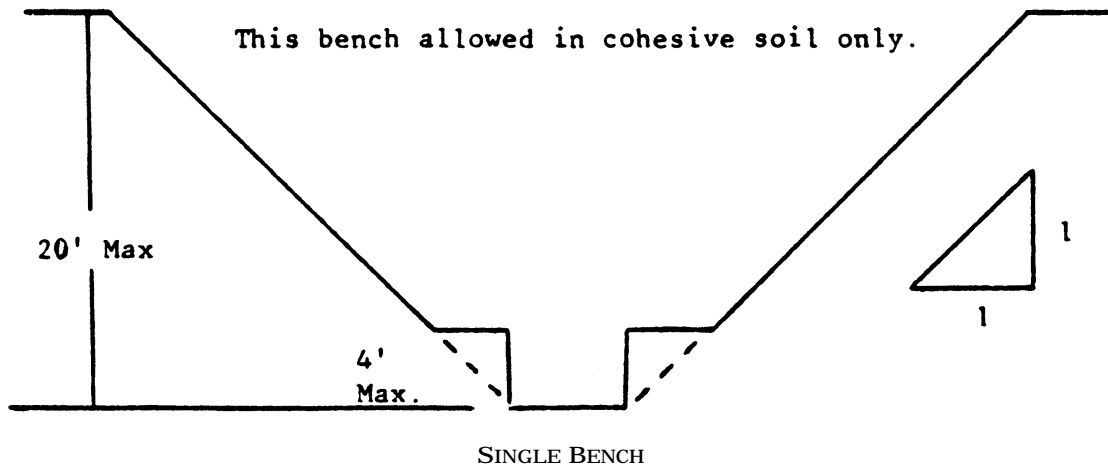
1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.



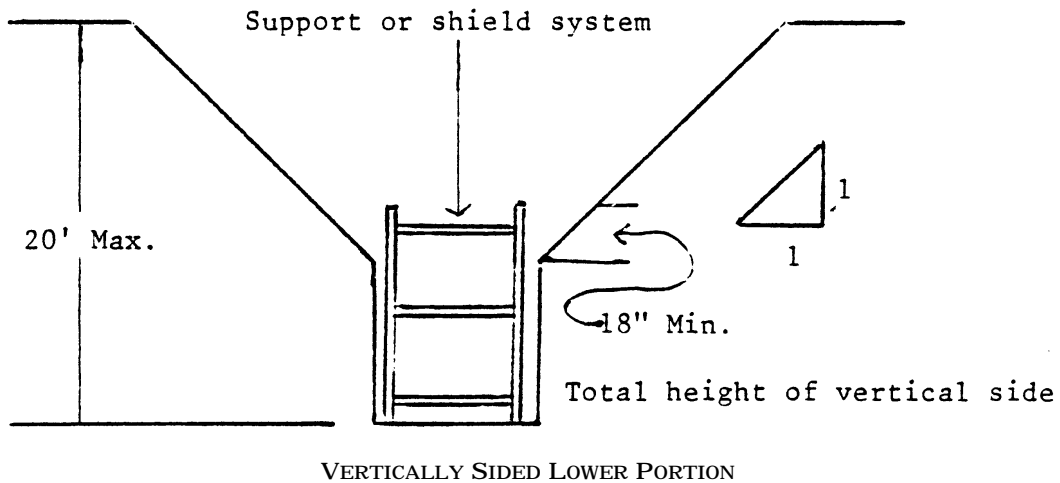
SIMPLE SLOPE

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:





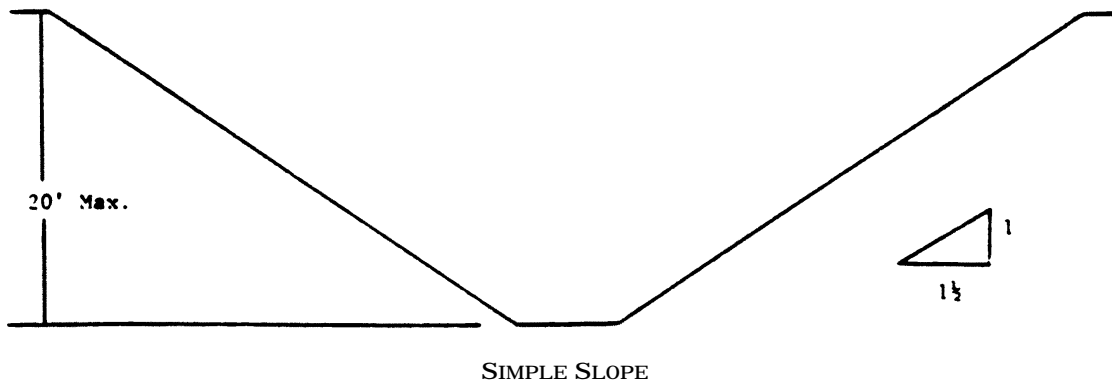
3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.



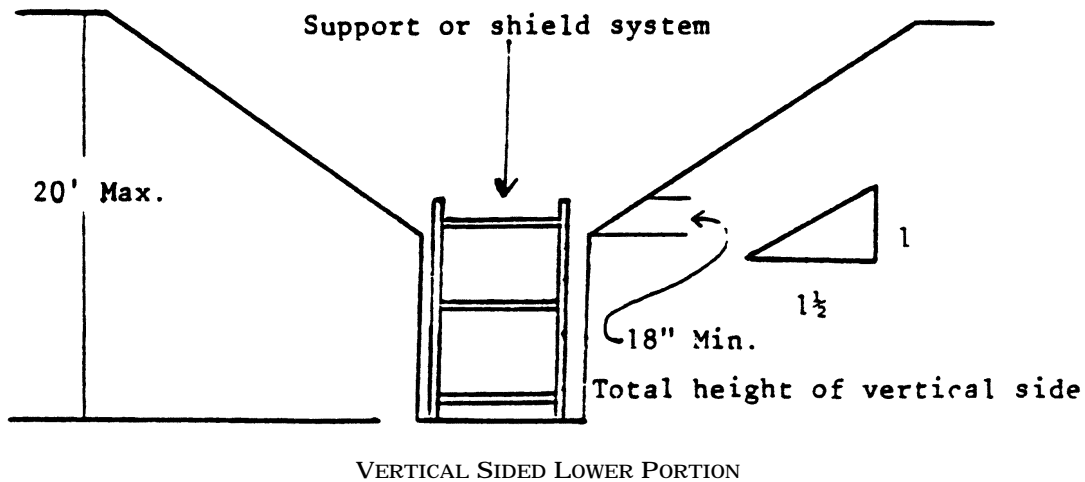
4. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

B-1.3 EXCAVATIONS MADE IN TYPE C SOIL

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1.



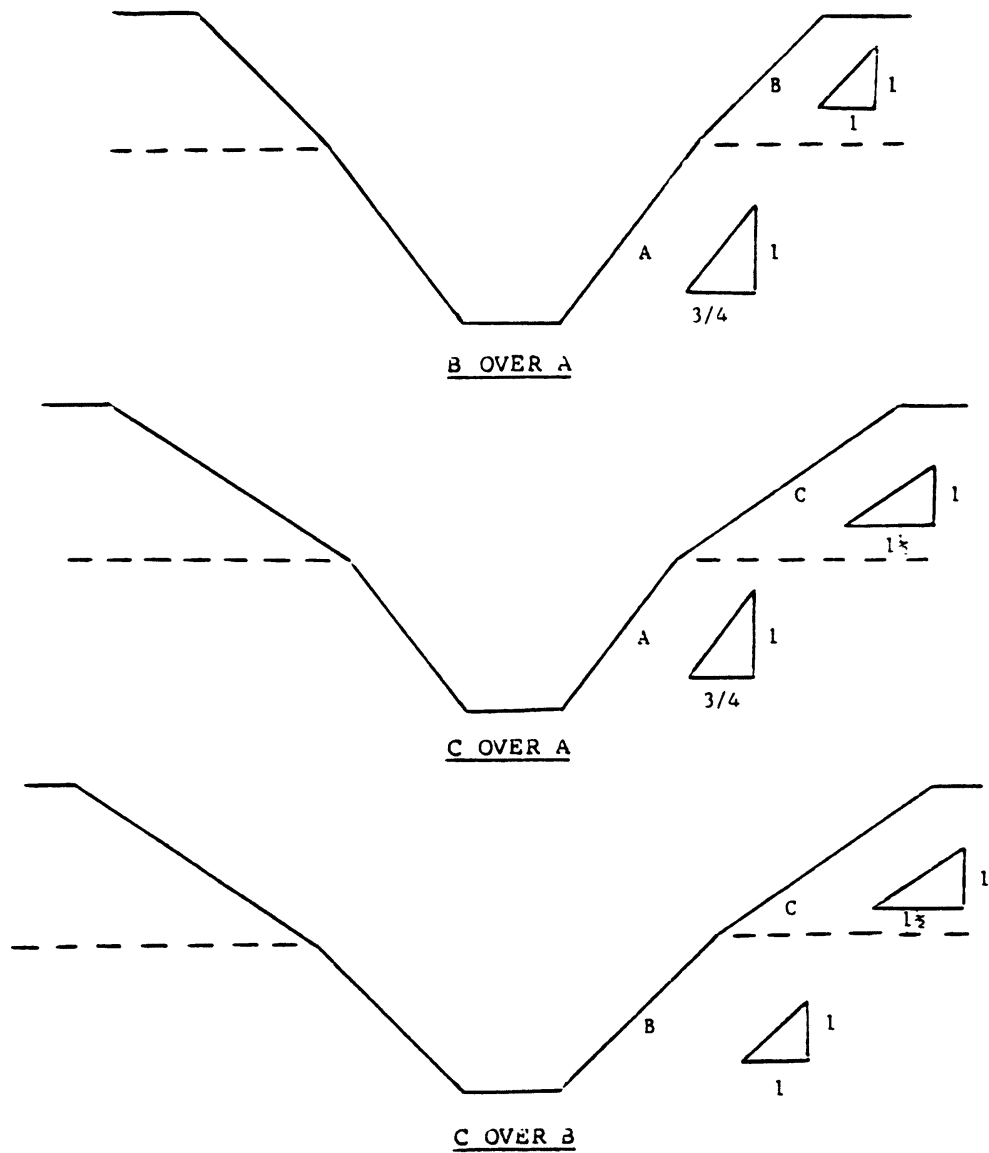
2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

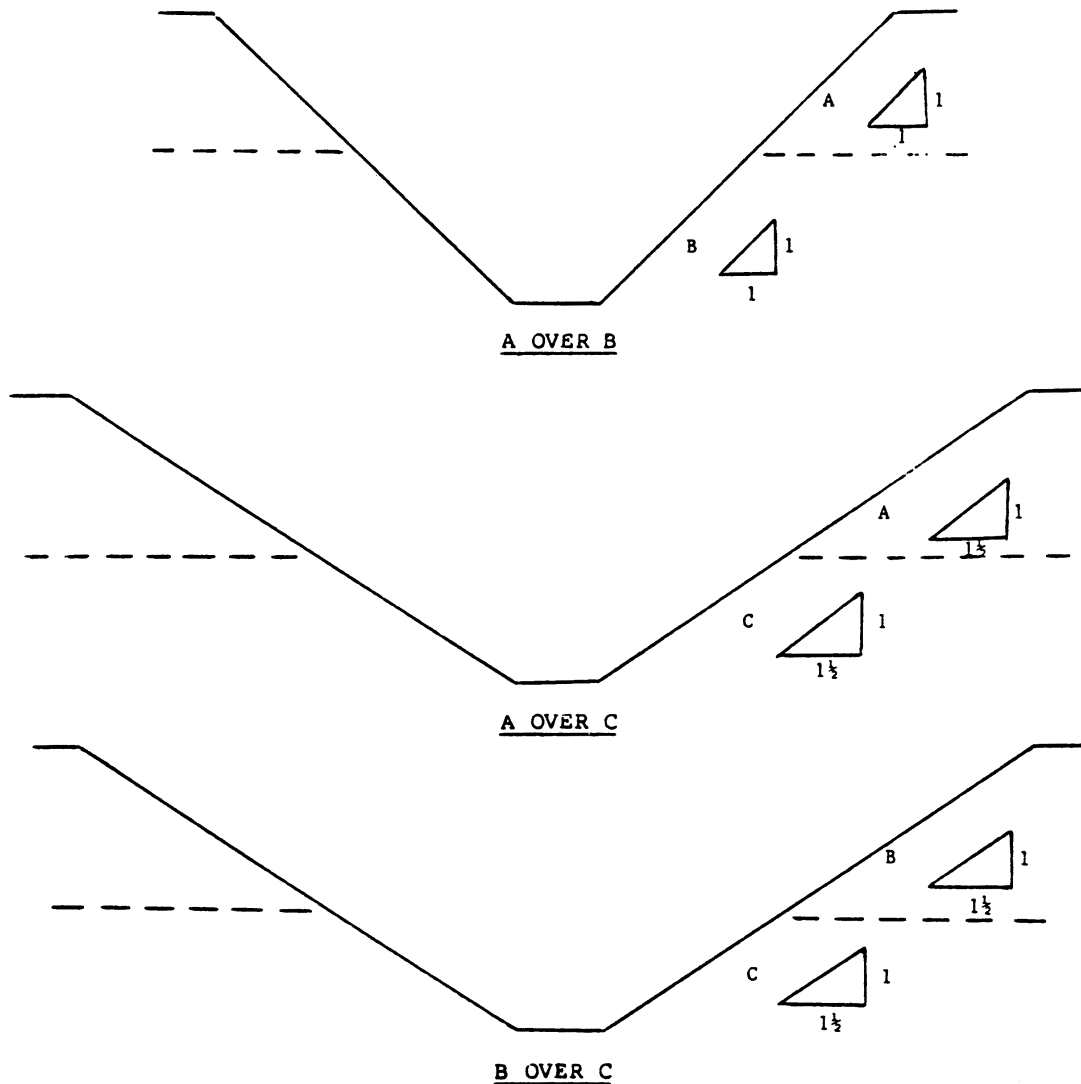


3. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

**B-1.4 Excavations Made in Layered Soils**

1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.





2. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

**APPENDIX C TO SUBPART P OF PART 1926—TIMBER SHORING FOR TRENCHES**

(a) *Scope.* This appendix contains information that can be used timber shoring is provided as a method of protection from cave-ins in trenches that do not exceed 20 feet (6.1 m) in depth. This appendix must be used when design of timber shoring protective systems is to be performed in accordance with §1926.652(c)(1). Other timber shoring configurations; other systems of support such as hydraulic and pneumatic systems; and other protective systems such as sloping, benching, shielding, and freezing systems must be designed in accordance with the requirements set forth in §1926.652(b) and §1926.652(c).

(b) *Soil Classification.* In order to use the data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil classification method set forth in appendix A of subpart P of this part.

(c) *Presentation of Information.* Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables C-1.1, C-1.2, and C-1.3, and Tables C-2.1, C-2.2 and C-2.3 following paragraph (g) of the appendix. Each table presents the minimum sizes of timber members to use in a shoring system, and each table contains data only for the particular soil type in which the excavation or portion of

the excavation is made. The data are arranged to allow the user the flexibility to select from among several acceptable configurations of members based on varying the horizontal spacing of the crossbraces. Stable rock is exempt from shoring requirements and therefore, no data are presented for this condition.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix, and on the tables themselves.

(3) Information explaining the use of the tabular data is presented in paragraph (e) of this appendix.

(4) Information illustrating the use of the tabular data is presented in paragraph (f) of this appendix.

(5) Miscellaneous notations regarding Tables C-1.1 through C-1.3 and Tables C-2.1 through C-2.3 are presented in paragraph (g) of this Appendix.

(d) *Basis and limitations of the data.*—(1) *Dimensions of timber members.* (i) The sizes of the timber members listed in Tables C-1.1 through C-1.3 are taken from the National Bureau of Standards (NBS) report, "Recommended Technical Provisions for Construction Practice in Shoring and Sloping of Trenches and Excavations." In addition, where NBS did not recommend specific sizes of members, member sizes are based on an analysis of the sizes required for use by existing codes and on empirical practice.

(ii) The required dimensions of the members listed in Tables C-1.1 through C-1.3 refer to actual dimensions and not nominal dimensions of the timber. Employers wanting to use nominal size shoring are directed to Tables C-2.1 through C-2.3, or have this choice under §1926.652(c)(3), and are referred to The Corps of Engineers, The Bureau of Reclamation or data from other acceptable sources.

(2) *Limitation of application.* (i) It is not intended that the timber shoring specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be designed as specified in §1926.652(c).

(ii) When any of the following conditions are present, the members specified in the tables are not considered adequate. Either an alternate timber shoring system must be designed or another type of protective system designed in accordance with §1926.652.

(A) When loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by a two-foot soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.

(B) When vertical loads imposed on cross braces exceed a 240-pound gravity load distributed on a one-foot section of the center of the crossbrace.

(C) When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

(D) When only the lower portion of a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

(e) *Use of Tables.* The members of the shoring system that are to be selected using this information are the cross braces, the uprights, and the wales, where wales are required. Minimum sizes of members are specified for use in different types of soil. There are six tables of information, two for each soil type. The soil type must first be determined in accordance with the soil classification system described in appendix A to subpart P of part 1926. Using the appropriate table, the selection of the size and spacing of the members is then made. The selection is based on the depth and width of the trench where the members are to be installed and, in most instances, the selection is also based on the horizontal spacing of the crossbraces. Instances where a choice of horizontal spacing of crossbracing is available, the horizontal spacing of the crossbraces must be chosen by the user before the size of any member can be determined. When the soil type, the width and depth of the trench, and the horizontal spacing of the crossbraces are known, the size and vertical spacing of the crossbraces, the size and vertical spacing of the wales, and the size and horizontal spacing of the uprights can be read from the appropriate table.

(f) *Examples to Illustrate the Use of Tables C-1.1 through C-1.3.*

(1) *Example 1.*

A trench dug in Type A soil is 13 feet deep and five feet wide.

From *Table C-1.1*, for acceptable arrangements of timber can be used.

*Arrangement #B1*

Space 4×4 crossbraces at six feet horizontally and four feet vertically.

Wales are not required.

Space 3×8 uprights at six feet horizontally. This arrangement is commonly called "skip shoring."

*Arrangement #B2*

Space 4×6 crossbraces at eight feet horizontally and four feet vertically.

Space 8×8 wales at four feet vertically.

Space 2×6 uprights at four feet horizontally.

*Arrangement #B3*

Space 6×6 crossbraces at 10 feet horizontally and four feet vertically.

Space 8×10 wales at four feet vertically.

Space 2×6 uprights at five feet horizontally.

*Arrangement #B4*

Space 6×6 crossbraces at 12 feet horizontally and four feet vertically.

Space 10×10 wales at four feet vertically.

Spaces 3×8 uprights at six feet horizontally.

*(2) Example 2.*

A trench dug in Type B soil in 13 feet deep and five feet wide. From Table C-1.2 three acceptable arrangements of members are listed.

*Arrangement #B1*

Space 6×6 crossbraces at six feet horizontally and five feet vertically.

Space 8×8 wales at five feet vertically.

Space 2×6 uprights at two feet horizontally.

*Arrangement #B2*

Space 6×8 crossbraces at eight feet horizontally and five feet vertically.

Space 10×10 wales at five feet vertically.

Space 2×6 uprights at two feet horizontally.

*Arrangement #B3*

Space 8×8 crossbraces at 10 feet horizontally and five feet vertically.

Space 10×12 wales at five feet vertically.

Space 2×6 uprights at two feet vertically.

*(3) Example 3.*

A trench dug in Type C soil is 13 feet deep and five feet wide.

From Table C-1.3 two acceptable arrangements of members can be used.

*Arrangement #B1*

Space 8×8 crossbraces at six feet horizontally and five feet vertically.

Space 10×12 wales at five feet vertically.

Position 2×6 uprights as closely together as possible.

If water must be retained use special tongue and groove uprights to form tight sheeting.

*Arrangement #B2*

Space 8×10 crossbraces at eight feet horizontally and five feet vertically.

Space 12×12 wales at five feet vertically.

Position 2×6 uprights in a close sheeting configuration unless water pressure must be resisted. Tight sheeting must be used where water must be retained.

*(4) Example 4.*

A trench dug in Type C soil is 20 feet deep and 11 feet wide. The size and spacing of members for the section of trench that is over 15 feet in depth is determined using Table C-1.3. Only one arrangement of members is provided.

Space 8×10 crossbraces at six feet horizontally and five feet vertically.

Space 12×12 wales at five feet vertically.

Use 3×6 tight sheeting.

Use of Tables C-2.1 through C-2.3 would follow the same procedures.

*(g) Notes for all Tables.*

1. Member sizes at spacings other than indicated are to be determined as specified in §1926.652(c), "Design of Protective Systems."

2. When conditions are saturated or submerged use Tight Sheeting. Tight Sheeting refers to the use of specially-edged timber planks (e.g., tongue and groove) at least three inches thick, steel sheet piling, or similar construction that when driven or placed in position provide a tight wall to resist the lateral pressure of water and to prevent the loss of backfill material. Close Sheeting refers to the placement of planks side-by-side allowing as little space as possible between them.

3. All spacing indicated is measured center to center.

4. Wales to be installed with greater dimension horizontal.

5. If the vertical distance from the center of the lowest crossbrace to the bottom of the trench exceeds two and one-half feet, uprights shall be firmly embedded or a mudsill shall be used. Where uprights are embedded, the vertical distance from the center of the lowest crossbrace to the bottom of the trench shall not exceed 36 inches. When mudsills are used, the vertical distance shall not exceed 42 inches. Mudsills are wales that are installed at the toe of the trench side.

6. Trench jacks may be used in lieu of or in combination with timber crossbraces.

7. Placement of crossbraces. When the vertical spacing of crossbraces is four feet, place the top crossbrace no more than two feet below the top of the trench. When the vertical spacing of crossbraces is five feet, place the top crossbrace no more than 2.5 feet below the top of the trench.

TABLE C-1.1  
 TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS \*  
 SOIL TYPE A  $P_a = 25 \times H + 72 \text{ psf}$  (2 ft Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS **											
	CROSS BRACES					MALES			UPRIGHTS			
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)				VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	CLOSE	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)		
	UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				4	5	6	8
5	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd				
T0	UP TO 8	4X4	4X4	4X6	6X6	6X6	4	Not Req'd			2X6	
10	UP TO 10	4X6	4X6	4X6	6X6	6X6	4	8X8		2X6		
	UP TO 12	4X6	4X6	6X6	6X6	6X6	4	8X8			2X6	
10	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd				
T0	UP TO 8	4X6	4X6	6X6	6X6	6X6	4	8X8		2X6		
15	UP TO 10	6X6	6X5	6X6	6X8	6X8	4	8X10			2X6	
	UP TO 12	6X6	6X6	6X6	6X8	6X8	4	10X10				3X8
15	UP TO 6	6X6	6X6	6X6	6X8	6X8	4	6X8		3X6		
T0	UP TO 8	6X6	6X6	6X6	6X8	6X8	4	8X8			3X6	
20	UP TO 10	8X8	8X8	8X8	8X10	8X10	4	8X10		3X6		
OVER 20	UP TO 12	8X8	8X8	8X8	8X10	8X10	4	10X10		3X6		

SEE NOTE 1

\* Mixed oak or equivalent with a bending strength not less than 850 psi.  
 \*\* Manufactured members of equivalent strength may be substituted for wood.

TABLE C-1.2

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS \*

SOIL TYPE B P<sub>a</sub> = 45 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS**											UPRIGHTS												
	CROSS BRACES						MALES					MAXIMUM ALLOWABLE HORIZONTAL SPACING												
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)			VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	CLOSE	2	3														
5 TO 10	UP TO 6	4X6	4X6	6X6	6X6	6X6	6X6	6X6	6X6	5	6X8	5												
	UP TO 8	6X6	6X6	6X6	6X6	6X8	6X8	6X8	6X8	5	8X10	5										2X6		
	UP TO 10	6X6	6X6	6X6	6X6	6X8	6X8	6X8	6X8	5	10X10	5										2X6		
10 TO 15	See Note 1																							
	UP TO 6	6X6	6X6	6X6	6X6	6X8	6X8	6X8	6X8	5	8X8	5											2X6	
	UP TO 8	6X8	6X8	6X8	6X8	8X8	8X8	8X8	8X8	5	10X10	5											2X6	
15 TO 20	UP TO 10	8X8	8X8	8X8	8X8	8X10	8X10	8X10	8X10	5	10X12	5											2X6	
	See Note 1																							
	UP TO 6	6X8	6X8	6X8	6X8	8X8	8X8	8X8	8X8	5	8X10	5											3X6	
20 OVER	UP TO 8	8X8	8X8	8X8	8X8	8X10	8X10	8X10	8X10	5	10X12	5												3X6
	UP TO 10	8X10	8X10	8X10	8X10	10X10	10X10	10X10	10X10	5	12X12	5												3X6
	See Note 1																							
OVER 20	SEE NOTE 1																							

\* Mixed oak or equivalent with a bending strength not less than 850 psi.  
 \*\* Manufactured members of equivalent strength may be substituted for wood.



TABLE C-1.3

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS \*  
 SOIL TYPE C P<sub>a</sub> = 80 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS**																
	CROSS BRACES						VERT. SPACING (FEET)			VERT. SPACING (FEET)			UPRIGHTS				
	HORIZ. SPACING (FEET)		WIDTH OF TRENCH (FEET)				UP TO		VERT. SPACING (FEET)		SIZE (IN)		VERT. SPACING (FEET)		MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) (See Note 2)		
	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO
5	UP TO 6	6X8	6X8	6X8	6X8	8X8	8X8	8X8	5	8X10	8X10	5	2X6				
10	UP TO 8	8X8	8X8	8X8	8X8	8X10	8X10	8X10	5	10X12	10X12	5	2X6				
10	UP TO 10	8X10	8X10	8X10	8X10	8X10	10X10	10X10	5	12X12	12X12	5	2X6				
	See Note 1																
10	UP TO 6	8X8	8X8	8X8	8X8	8X8	8X10	8X10	5	10X12	10X12	5	2X6				
15	UP TO 8	8X10	8X10	8X10	8X10	8X10	10X10	10X10	5	12X12	12X12	5	2X6				
	See Note 1																
	See Note 1																
15	UP TO 6	8X10	8X10	8X10	8X10	8X10	10X10	10X10	5	12X12	12X12	5	3X6				
	See Note 1																
20	UP TO 10																
	See Note 1																
OVER 20	SEE NOTE 1																

\* Mixed Oak or equivalent with a bending strength not less than 850 psi.  
 \*\* Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.1  
 TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS \*  
 SOIL TYPE A P<sub>a</sub> = 25 X H ± 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	CROSS BRACES										WALES		UPRIGHTS							
	HORIZ. SPACING (FEET)		WIDTH OF TRENCH (FEET)								VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)						
	UP TO	TO	UP TO	TO	UP TO	TO	UP TO	TO	UP TO	TO				CLOSE	4	5	6	8		
5 TO 10	UP TO 6	TO 8	4X4	4X4	4X4	4X4	4X4	4X4	4X4	4X4	4X4	4	Not Req'd	Not Req'd						
	UP TO 8	TO 10	4X4	4X4	4X6	4X6	4X6	4X6	4X6	4X6	4X6	4	Not Req'd	Not Req'd						4X8
	UP TO 10	TO 12	4X6	4X6	4X6	4X6	4X6	4X6	4X6	4X6	4X6	4	8X8	4		4X6				
10 TO 15	UP TO 6	TO 8	4X4	4X4	4X4	4X4	4X4	4X4	4X4	4X4	4X4	4	Not Req'd	Not Req'd						
	UP TO 8	TO 10	4X6	4X6	4X6	4X6	4X6	4X6	4X6	4X6	4	6X8	4							4X6
	UP TO 10	TO 12	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	4	8X8	4		4X6				
15 TO 20	UP TO 6	TO 8	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	4	8X10	4						
	UP TO 8	TO 10	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	4	6X8	4							4X10
	UP TO 10	TO 12	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	4	8X12	4		4X6				
OVER 20	SEE NOTE 1																			

\* Douglas fir or equivalent with a bending strength not less than 1500 psi.  
 \*\* Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.2

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS \*  
 SOIL TYPE B P<sub>a</sub> = 45 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (S4S) AND SPACING OF MEMBERS **																		
	CROSS BRACES				WALES				UPRIGHTS										
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)			VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	CLOSE	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)			4	6						
UP TO 4		UP TO 6	UP TO 9	UP TO 12					UP TO 15	2	3			4					
5 TO 10	UP TO 6	4X6	4X6	4X6	6X6	6X6	6X6	5	6X8	5									
	UP TO 8	4X6	4X6	6X6	6X6	6X6	6X6	5	8X8	5		3X8			4X8				
	UP TO 10	4X6	4X6	6X6	6X6	6X6	6X6	5	8X10	5				4X8					
	See Note 1																		
10 TO 15	UP TO 6	6X6	6X6	6X6	6X8	6X8	6X8	5	8X8	5	3X6	4X10							
	UP TO 8	6X8	6X8	6X8	8X8	8X8	8X8	5	10X10	5	3X6	4X10							
	UP TO 10	6X8	6X8	8X8	8X8	8X8	8X8	5	10X12	5	3X6	4X10							
	See Note 1																		
15 TO 20	UP TO 6	6X8	6X8	6X8	6X8	6X8	8X8	5	8X10	5	4X6								
	UP TO 8	6X8	6X8	6X8	8X8	8X8	8X8	5	10X12	5	4X6								
	UP TO 10	8X8	8X8	8X8	8X8	8X8	8X8	5	12X12	5	4X6								
	See Note 1																		
OVER 20	SEE NOTE 1																		

\* Douglas fir or equivalent with a bending strength not less than 1500 psi.  
 \*\* Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.3  
 TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS \*  
 SOIL TYPE C P<sub>a</sub> = 80 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (S4S) AND SPACING OF MEMBERS **												
	CROSS BRACES				MALES			UPRIGHTS					
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)			VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING			CLOSE		
		UP TO 4	UP TO 6	UP TO 9				UP TO 12	UP TO 15	(FEET)			
5 TO 10	UP TO 6	6X6	6X6	6X6	8X8	5	8X8	5	8X8	5	3X6		
10 TO 15	UP TO 6	6X6	6X6	8X8	8X8	5	8X8	5	10X10	5	3X6		
15 TO 20	UP TO 6	6X6	8X8	8X8	8X8	5	8X8	5	10X12	5	3X6		
OVER 20	SEE NOTE 1												

\* Douglas fir or equivalent with a bending strength not less than 1500 psi.  
 \*\* Manufactured members of equivalent strength may be substituted for wood.

APPENDIX D TO SUBPART P OF PART 1926—ALUMINUM HYDRAULIC SHORING FOR TRENCHES

(a) *Scope.* This appendix contains information that can be used when aluminum hydraulic shoring is provided as a method of protection against cave-ins in trenches that

do not exceed 20 feet (6.1m) in depth. This appendix must be used when design of the aluminum hydraulic protective system cannot be performed in accordance with §1926.652(c)(2).

(b) *Soil Classification.* In order to use data presented in this appendix, the soil type or types in which the excavation is made must

first be determined using the soil classification method set forth in appendix A of subpart P of part 1926.

(c) *Presentation of Information.* Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables D-1.1, D-1.2, D-1.3 and E-1.4. Each table presents the maximum vertical and horizontal spacings that may be used with various aluminum member sizes and various hydraulic cylinder sizes. Each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. Tables D-1.1 and D-1.2 are for vertical shores in Types A and B soil. Tables D-1.3 and D-1.4 are for horizontal waler systems in Types B and C soil.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix.

(3) Information explaining the use of the tabular data is presented in paragraph (e) of this appendix.

(4) Information illustrating the use of the tabular data is presented in paragraph (f) of this appendix.

(5) Miscellaneous notations (footnotes) regarding Table D-1.1 through D-1.4 are presented in paragraph (g) of this appendix.

(6) Figures, illustrating typical installations of hydraulic shoring, are included just prior to the Tables. The illustrations page is entitled "Aluminum Hydraulic Shoring; Typical Installations."

(d) *Basis and limitations of the data.*

(1) Vertical shore rails and horizontal wales are those that meet the Section Modulus requirements in the D-1 Tables. Aluminum material is 6061-T6 or material of equivalent strength and properties.

(2) Hydraulic cylinders specifications. (i) 2-inch cylinders shall be a minimum 2-inch inside diameter with a minimum safe working capacity of no less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(ii) 3-inch cylinders shall be a minimum 3-inch inside diameter with a safe working capacity of not less than 30,000 pounds axial compressive load at extensions as recommended by product manufacturer.

(3) Limitation of application.

(i) It is not intended that the aluminum hydraulic specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be otherwise designed as specified in § 1926.652(c).

(ii) When any of the following conditions are present, the members specified in the Ta-

bles are not considered adequate. In this case, an alternative aluminum hydraulic shoring system or other type of protective system must be designed in accordance with § 1926.652.

(A) When vertical loads imposed on cross braces exceed a 100 Pound gravity load distributed on a one foot section of the center of the hydraulic cylinder.

(B) When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

(C) When only the lower portion or a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

(e) *Use of Tables D-1.1, D-1.2, D-1.3 and D-1.4.* The members of the shoring system that are to be selected using this information are the hydraulic cylinders, and either the vertical shores or the horizontal wales. When a waler system is used the vertical timber sheeting to be used is also selected from these tables. The Tables D-1.1 and D-1.2 for vertical shores are used in Type A and B soils that do not require sheeting, Type B soils that may require sheeting, and Type C soils that always require sheeting are found in the horizontal wale Tables D-1.3 and D-1.4. The soil type must first be determined in accordance with the soil classification system described in appendix A to subpart P of part 1926. Using the appropriate table, the selection of the size and spacing of the members is made. The selection is based on the depth and width of the trench where the members are to be installed. In these tables the vertical spacing is held constant at four feet on center. The tables show the maximum horizontal spacing of cylinders allowed for each size of wale in the waler system tables, and in the vertical shore tables, the hydraulic cylinder horizontal spacing is the same as the vertical shore spacing.

(f) *Example to Illustrate the Use of the Tables:*

(1) Example 1:

A trench dug in Type A soil is 6 feet deep and 3 feet wide. From Table D-1.1: Find vertical shores and 2 inch diameter cylinders spaced 8 feet on center (o.c.) horizontally and 4 feet on center (o.c.) vertically. (See Figures 1 & 3 for typical installations.)

(2) Example 2:

A trench is dug in Type B soil that does not require sheeting, 13 feet deep and 5 feet wide. From Table D-1.2: Find vertical shores and 2 inch diameter cylinders spaced 6.5 feet o.c. horizontally and 4 feet o.c. vertically. (See Figures 1 & 3 for typical installations.)

(3) A trench is dug in Type B soil that does not require sheeting, but does experience some minor raveling of the trench face. The

trench is 16 feet deep and 9 feet wide. From Table D-1.2: Find vertical shores and 2 inch diameter cylinder (with special oversleeves as designated by footnote #B2) spaced 5.5 feet o.c. horizontally and 4 feet o.c. vertically, plywood (per footnote (g)(7) to the D-1 Table) should be used behind the shores. (See Figures 2 & 3 for typical installations.)

(4) Example 4: A trench is dug in previously disturbed Type B soil, with characteristics of a Type C soil, and will require sheeting. The trench is 18 feet deep and 12 feet wide. 8 foot horizontal spacing between cylinders is desired for working space. From Table D-1.3: Find horizontal wale with a section modulus of 14.0 spaced at 4 feet o.c. vertically and 3 inch diameter cylinder spaced at 9 feet maximum o.c. horizontally. 3×12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

(5) Example 5: A trench is dug in Type C soil, 9 feet deep and 4 feet wide. Horizontal cylinder spacing in excess of 6 feet is desired for working space. From Table D-1.4: Find horizontal wale with a section modulus of 7.0 and 2 inch diameter cylinders spaced at 6.5 feet o.c. horizontally. Or, find horizontal wale with a 14.0 section modulus and 3 inch diameter cylinder spaced at 10 feet o.c. horizontally. Both wales are spaced 4 feet o.c. vertically. 3×12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

(g) *Footnotes, and general notes, for Tables D-1.1, D-1.2, D-1.3, and D-1.4.*

(1) For applications other than those listed in the tables, refer to §1926.652(c)(2) for use of manufacturer's tabulated data. For trench depths in excess of 20 feet, refer to §1926.652(c)(2) and §1926.652(c)(3).

(2) 2 inch diameter cylinders, at this width, shall have structural steel tube (3.5×3.5×0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

(3) Hydraulic cylinders capacities. (i) 2 inch cylinders shall be a minimum 2-inch inside diameter with a safe working capacity of not less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(ii) 3-inch cylinders shall be a minimum 3-inch inside diameter with a safe work capacity of not less than 30,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(4) All spacing indicated is measured center to center.

(5) Vertical shoring rails shall have a minimum section modulus of 0.40 inch.

(6) When vertical shores are used, there must be a minimum of three shores spaced equally, horizontally, in a group.

(7) Plywood shall be 1.125 in. thick softwood or 0.75 inch. thick, 14 ply, arctic white birch (Finland form). Please note that plywood is not intended as a structural member, but only for prevention of local raveling (sloughing of the trench face) between shores.

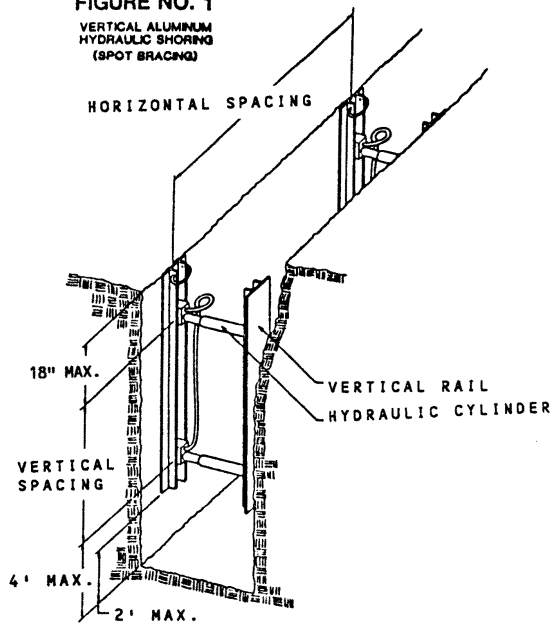
(8) See appendix C for timber specifications.

(9) Wales are calculated for simple span conditions.

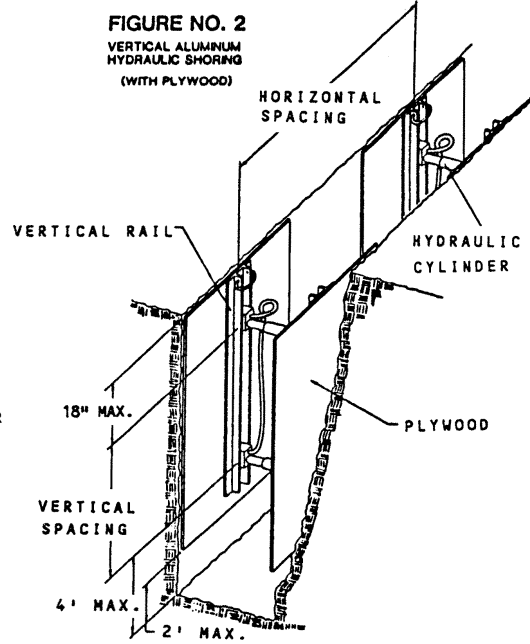
(10) See appendix D, item (d), for basis and limitations of the data.

### ALUMINUM HYDRAULIC SHORING TYPICAL INSTALLATIONS

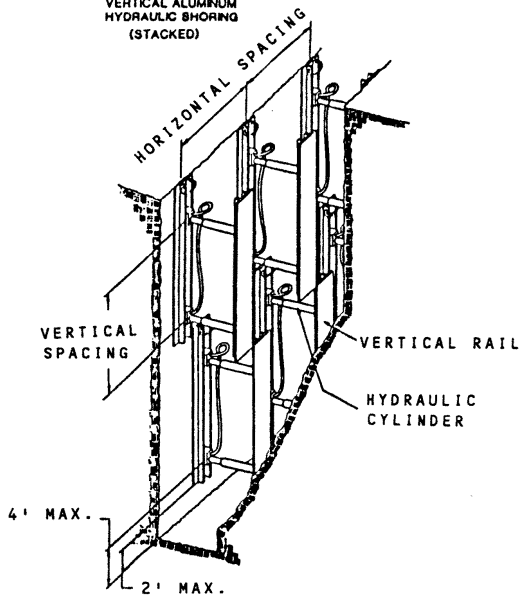
**FIGURE NO. 1**  
VERTICAL ALUMINUM  
HYDRAULIC SHORING  
(SPOT BRACING)



**FIGURE NO. 2**  
VERTICAL ALUMINUM  
HYDRAULIC SHORING  
(WITH PLYWOOD)



**FIGURE NO. 3**  
VERTICAL ALUMINUM  
HYDRAULIC SHORING  
(STACKED)



**FIGURE NO. 4**

ALUMINUM HYDRAULIC SHORING  
WALER SYSTEM  
(TYPICAL)

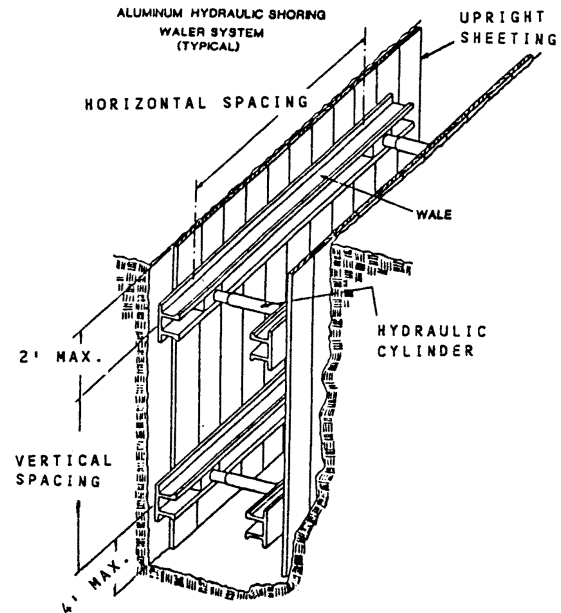


TABLE D - 1.1  
ALUMINUM HYDRAULIC SHORING  
VERTICAL SHORES  
FOR SOIL TYPE A

HYDRAULIC CYLINDERS				
DEPTH OF TRENCH (FEET)	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)	WIDTH OF TRENCH (FEET)	
			UP TO 8	OVER 8 UP TO 15
OVER 5 UP TO 10	8	4	2 INCH DIAMETER	3 INCH DIAMETER
OVER 10 UP TO 15	8		2 INCH DIAMETER NOTE (2)	
OVER 15 UP TO 20	7			
OVER 20			NOTE (1)	

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)  
 Note (1): See Appendix D, Item (g) (1)  
 Note (2): See Appendix D, Item (g) (2)



TABLE D - 1.2  
ALUMINUM HYDRAULIC SHORING  
VERTICAL SHORES  
FOR SOIL TYPE B

HYDRAULIC CYLINDERS				
DEPTH OF TRENCH (FEET)	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)	WIDTH OF TRENCH (FEET)	
			UP TO 8	OVER 8 UP TO 12
OVER 5 UP TO 10	8	4	OVER 12 UP TO 15	
OVER 10 UP TO 15	6.5		OVER 8 UP TO 12	
OVER 15 UP TO 20	5.5		2 INCH DIAMETER	
OVER 20			2 INCH DIAMETER NOTE (2)	
			3 INCH DIAMETER	
			NOTE (1)	

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)

Note (1): See Appendix D, Item (g) (1)

Note (2): See Appendix D, Item (g) (2)

TABLE D - 1.3  
ALUMINUM HYDRAULIC SHORING  
WALER SYSTEMS  
FOR SOIL TYPE B

DEPTH OF TRENCH (FEET)	WALES		HYDRAULIC CYLINDERS						TIMBER UPRIGHTS				
	VERTICAL SPACING (FEET)	SECTION MODULUS (IN <sup>3</sup> ) *	WIDTH OF TRENCH (FEET)						MAX. HORIZ. SPACING (ON CENTER)	SOLID SHEET			
			UP TO 8		OVER 8 UP TO 12		OVER 12 UP TO 15						
OVER 5 UP TO 10	4	3.5	HORIZ. SPACING	8.0	HORIZ. SPACING	8.0	HORIZ. SPACING	8.0	CYLINDER DIAMETER	2 IN	CYLINDER DIAMETER	3 IN	3 FT.
			CYLINDER DIAMETER	2 IN	CYLINDER DIAMETER	2 IN	CYLINDER DIAMETER	NOTE(2)	CYLINDER DIAMETER	3 IN			
			CYLINDER DIAMETER	2 IN	CYLINDER DIAMETER	NOTE(2)	CYLINDER DIAMETER	NOTE(2)	CYLINDER DIAMETER	3 IN			
OVER 10 UP TO 15	4	7.0	HORIZ. SPACING	9.0	HORIZ. SPACING	9.0	HORIZ. SPACING	9.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	3x12
			CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN			
			CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN			
OVER 15 UP TO 20	4	14.0	HORIZ. SPACING	10.0	HORIZ. SPACING	10.0	HORIZ. SPACING	10.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	3x12
			CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN			
			CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN			
OVER 20			NOTE (1)										

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)  
 Notes (1): See Appendix D, item (g) (1)  
 Notes (2): See Appendix D, Item (g) (2)  
 \* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

TABLE D - 1.4  
ALUMINUM HYDRAULIC SHORING  
WALER SYSTEMS  
FOR SOIL TYPE C

DEPTH OF TRENCH (FEET)	WALES		HYDRAULIC CYLINDERS						TIMBER UPRIGHTS				
	VERTICAL SPACING (FEET)	SECTION MODULUS (IN <sup>3</sup> )	WIDTH OF TRENCH (FEET)						MAX. HORIZ SPACING (ON CENTER)	SOLID SHEET			
			UP TO 8		OVER 8 UP TO 12		OVER 12 UP TO 15						
OVER 5 UP TO 10	4	3.5	HORIZ. SPACING	2 IN	HORIZ. SPACING	2 IN	HORIZ. SPACING	2 IN	CYLINDER DIAMETER	3 IN	2 FT.	3 FT.	
			CYLINDER DIAMETER	6.0	CYLINDER DIAMETER	6.0	CYLINDER DIAMETER	NOTE(2)	CYLINDER DIAMETER	3 IN			
			HORIZ. SPACING	6.5	HORIZ. SPACING	6.5	HORIZ. SPACING	NOTE(2)	HORIZ. SPACING	6.5			3 IN
OVER 10 UP TO 15	4	7.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	CYLINDER DIAMETER	3 IN	—	—	
			CYLINDER DIAMETER	10.0	CYLINDER DIAMETER	10.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN			
			HORIZ. SPACING	4.0	HORIZ. SPACING	4.0	HORIZ. SPACING	NOTE(2)	HORIZ. SPACING	4.0			3 IN
OVER 15 UP TO 20	4	14.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	CYLINDER DIAMETER	3 IN	—	—	
			CYLINDER DIAMETER	8.0	CYLINDER DIAMETER	8.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN			
			HORIZ. SPACING	8.0	HORIZ. SPACING	8.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	8.0			3 IN
OVER 20	4	3.5	HORIZ. SPACING	2 IN	HORIZ. SPACING	2 IN	HORIZ. SPACING	2 IN	CYLINDER DIAMETER	3 IN	—	—	
			CYLINDER DIAMETER	3.5	CYLINDER DIAMETER	3.5	CYLINDER DIAMETER	NOTE(2)	CYLINDER DIAMETER	3.5			
			HORIZ. SPACING	5.0	HORIZ. SPACING	5.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	5.0			3 IN
OVER 20	4	7.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	CYLINDER DIAMETER	3 IN	—	—	
			CYLINDER DIAMETER	6.0	CYLINDER DIAMETER	6.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN			
			HORIZ. SPACING	6.0	HORIZ. SPACING	6.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	6.0			3 IN
NOTE (1)													

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)  
 Notes (1): See Appendix D, item (g) (1)  
 Notes (2): See Appendix D, Item (g) (2)  
 \* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

APPENDIX E TO SUBPART P OF PART 1926—ALTERNATIVES TO TIMBER SHORING

Figure 1. Aluminum Hydraulic Shoring

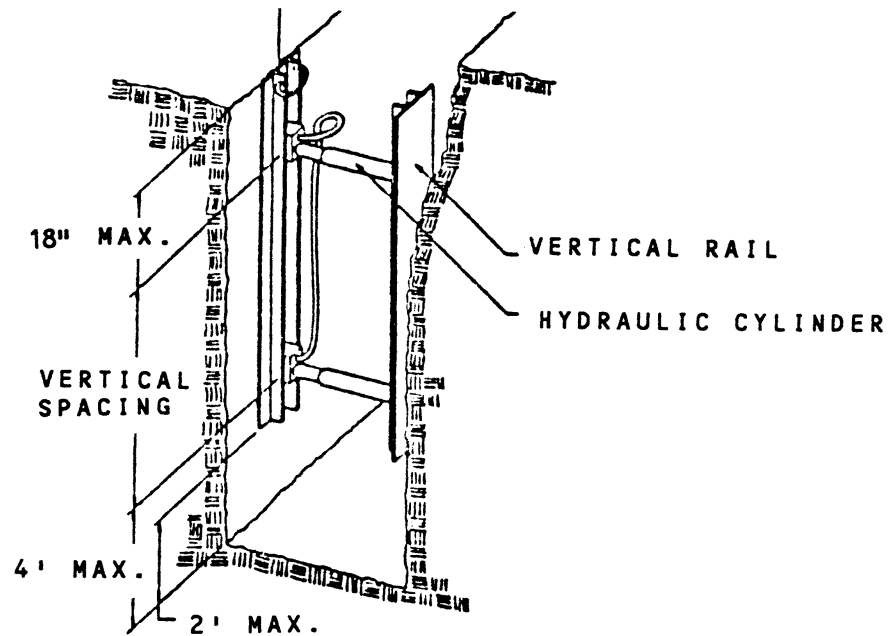


Figure 2. Pneumatic/hydraulic Shoring

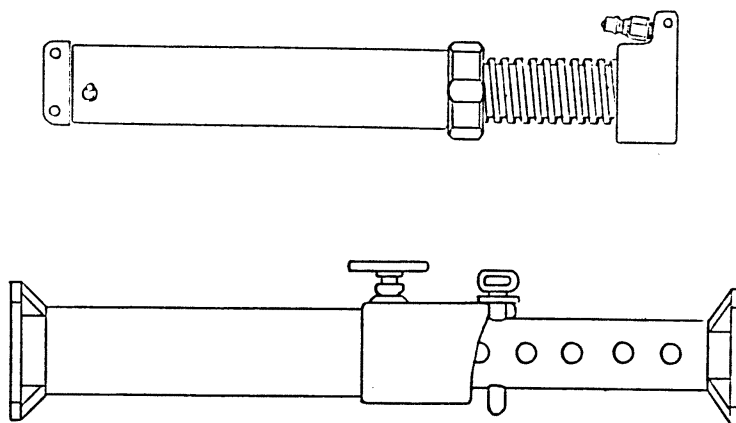


Figure 3. Trench Jacks (Screw Jacks)

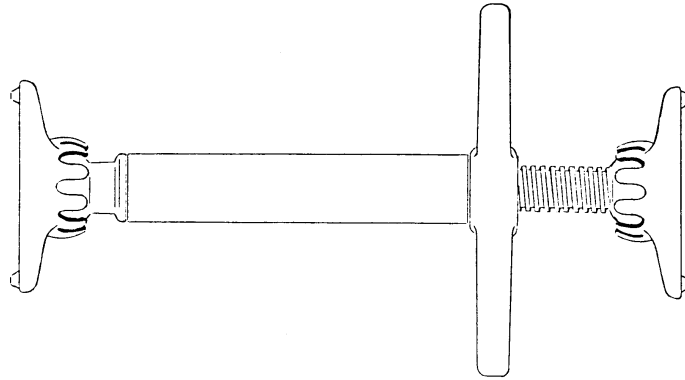
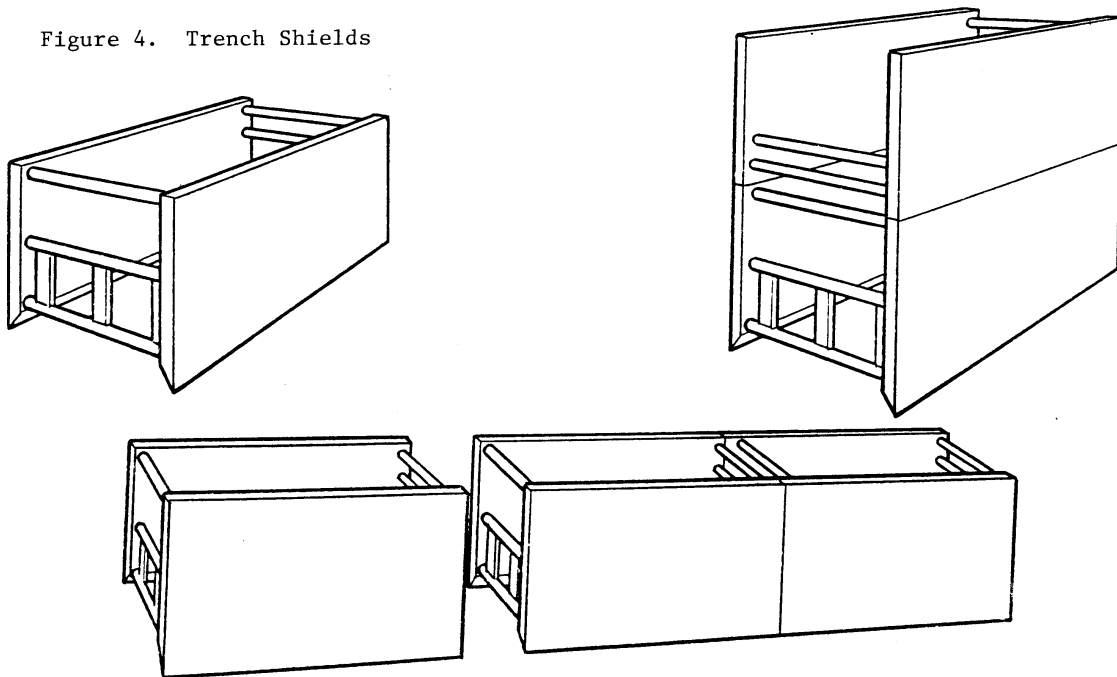


Figure 4. Trench Shields



APPENDIX F TO SUBPART P OF PART 1926—SELECTION OF PROTECTIVE SYSTEMS

The following figures are a graphic summary of the requirements contained in sub-

part P for excavations 20 feet or less in depth. Protective systems for use in excavations more than 20 feet in depth must be designed by a registered professional engineer in accordance with §1926.652 (b) and (c).

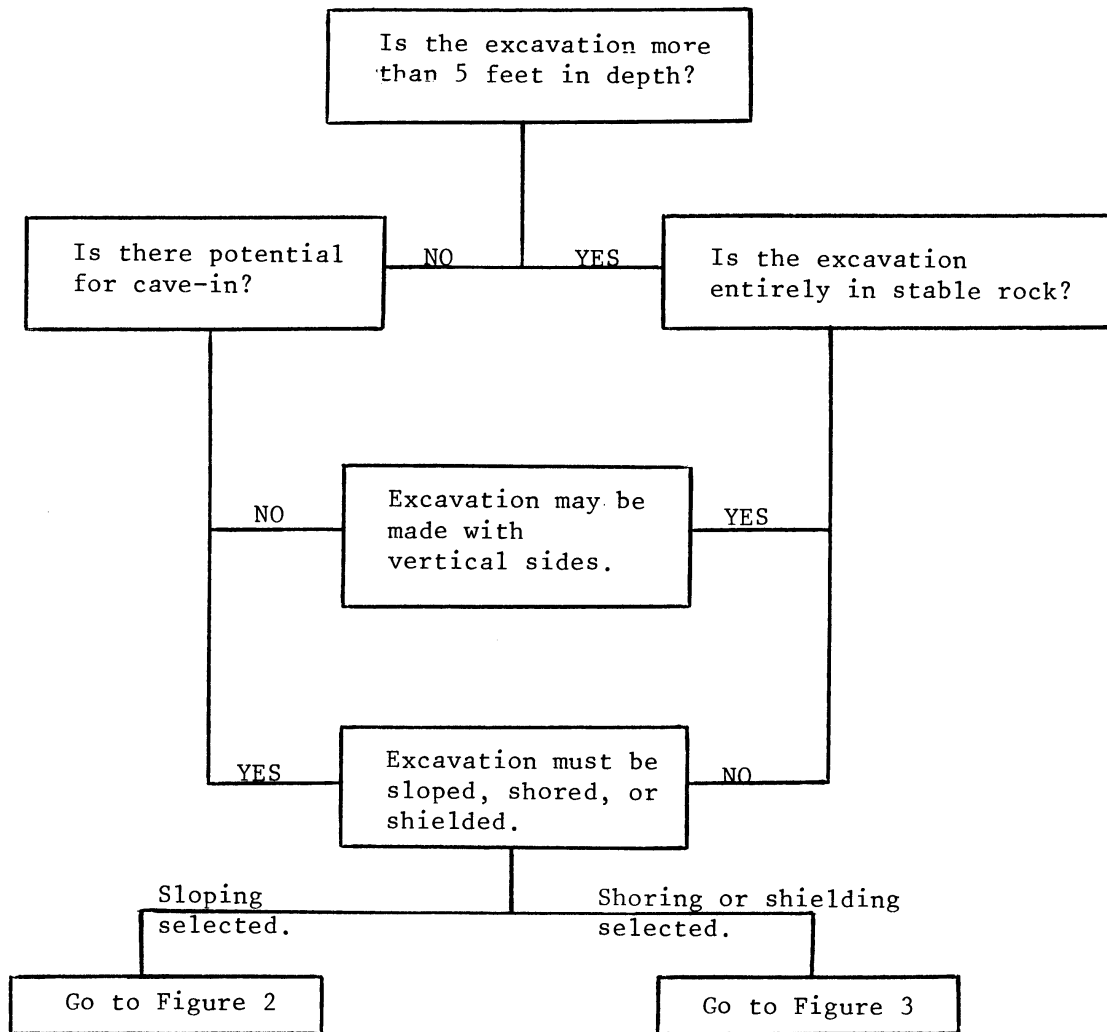


FIGURE 1 - PRELIMINARY DECISIONS

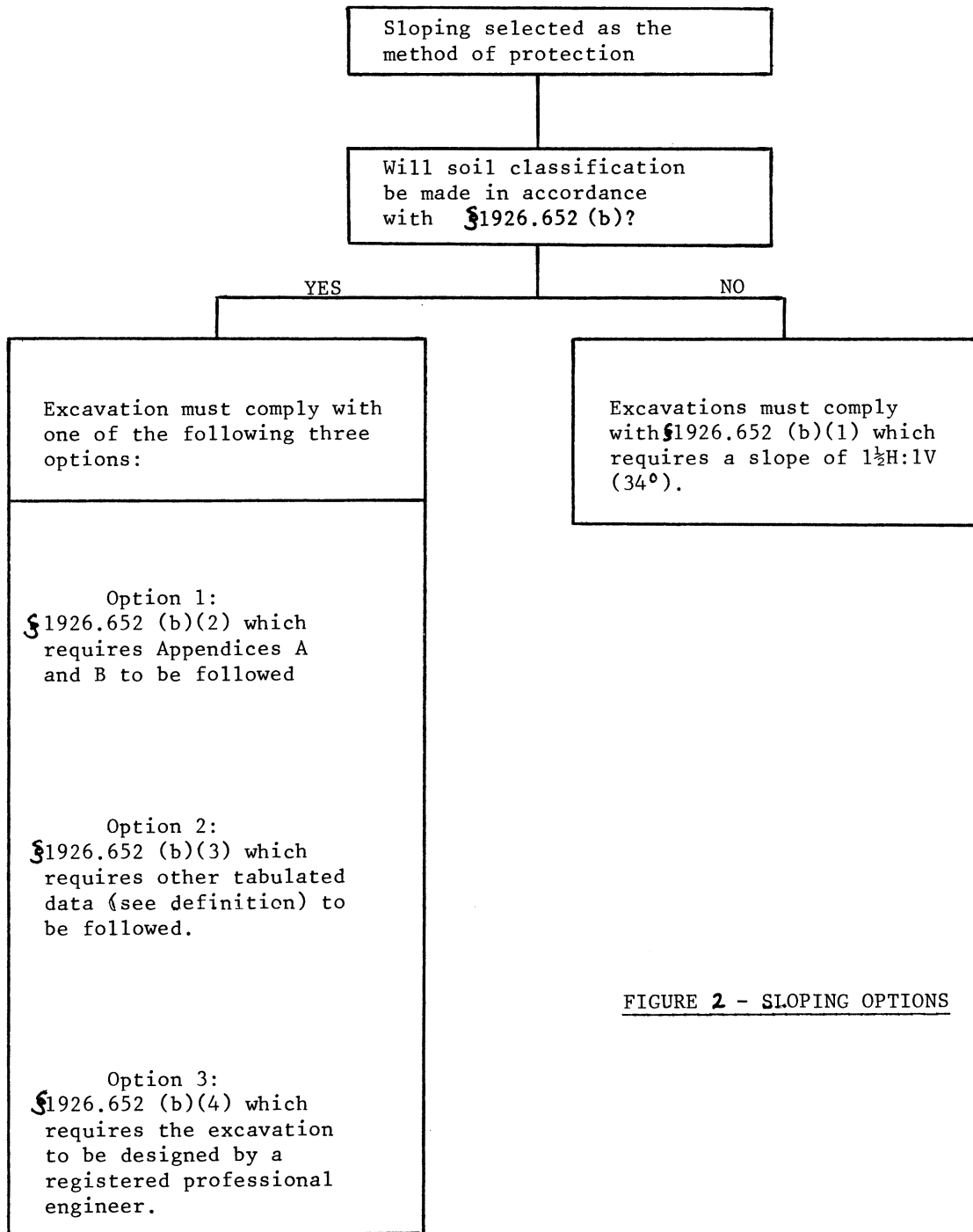


FIGURE 2 - SLOPING OPTIONS

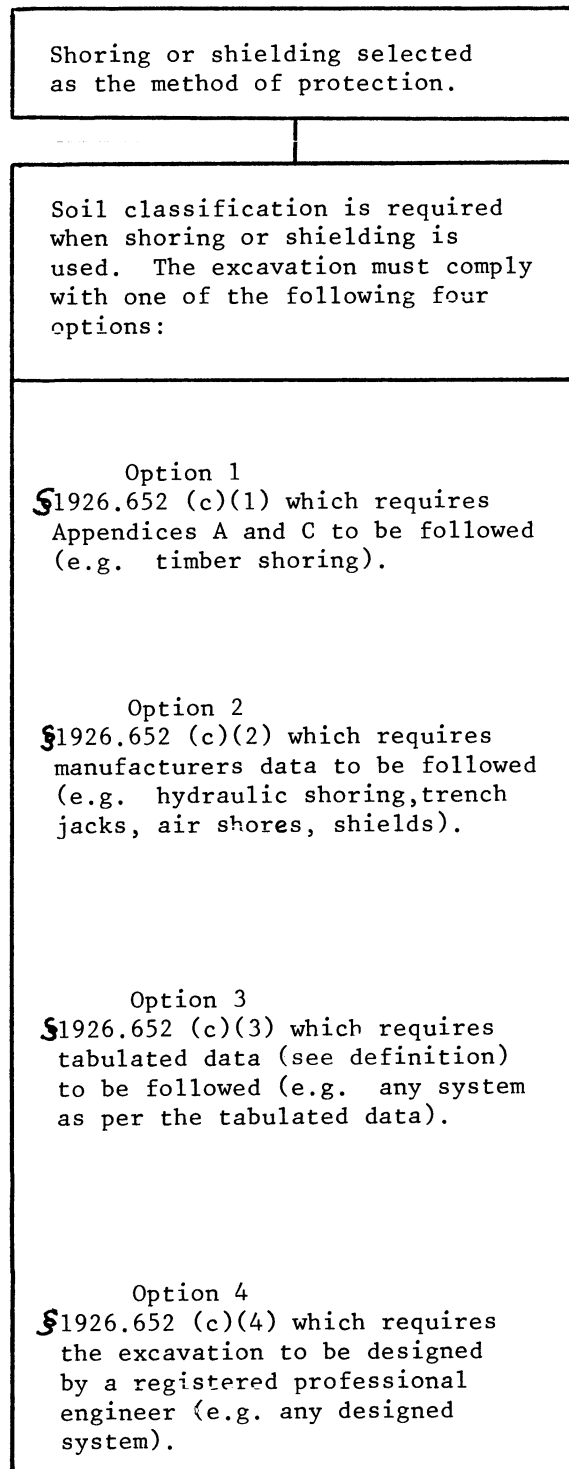


FIGURE 3 - SHORING AND SHIELDING OPTIONS



**SPECIAL PROVISIONS**

**AND**

**SUPPLEMENTAL SPECIFICATIONS**



## ITEM SP-1 – ArDOT SPECIFICATIONS

### GENERAL

SP1-1.1 The standard specifications of the Arkansas Department of Transportation (ArDOT) are bound in a book titled Standard Specifications for Highway Construction, Edition 2014. These specifications are referred to herein as "Standard Specifications." The latest edition shall apply. A copy of these "Standard Specifications" may be obtained from the Arkansas Department of Transportation, Little Rock, Arkansas, at their customary charge.

### INCORPORATION AND MODIFICATION

SP1-2.1 Certain parts of the Standard Specifications are appropriate for inclusion in these Technical Specifications. Such parts are incorporated herein by reference to the proper section or paragraph number. The individual specification numbers noted herein may be different from those in the latest edition of the "Standard Specifications." The most current specification number shall apply. Each such referenced part shall be considered to be a part of these Contract Documents as though copied herein in full.

SP1-2.2 Certain referenced parts of the Standard Specifications are modified in the Specifications that follow. In case of conflict between the Standard Specifications and the Specifications that follow, the Specifications that follow shall govern.

SP1-2.3 Individual material test numbers change from time to time. Use the latest applicable test.

SP1-2.4 The "Buy America" provisions in Section 106.01 of the Standard Specifications apply to steel and iron items utilized on this project.

SP1-2.5 Reference in the Standard Specifications to the "Department" are herein changed to the "Owner".

END OF ITEM SP-1



## ITEM SP-2 – BRIDGE CONSTRUCTION

### DESCRIPTION

SP2-1.1 This item shall consist of providing all labor, tools, equipment and materials necessary for construction of Stone Dam Creek Trail Bridge over Dave Ward Drive as shown on the Plans and as specified herein.

### MATERIALS

SP2-2.1 Bridge Items: All materials shall meet the requirement of the applicable section of the 2014 Edition of the Arkansas Department of Transportation's Standard Specification for Highway Construction and the applicable Special Provisions listed below in Table 1.

TABLE 1

<u>MATERIAL</u>	<u>SECTION</u>
Bridge Construction Control	Section 636
Class S Concrete – Bridge	Section 802
Class S (AE) Concrete – Bridge	Section 802 & SP-12
Textured Coating Finish	Section 802 & SP -10
Reinforcing Steel - Bridge (Grade 60)	Section 804
Epoxy Coated Reinforcing Steel	Section 804
Steel Piling	Section 805 & SP-3
Metal Bridge Railing	Section 806 & SP-4
Structural Steel in Plate Girder Spans	Section 807 & SP-13
Painting Structural Steel	Section 807 & SP-5
Elastomeric Bearings	Section 808
Silicone Joint Sealant	Section 809
Bridge Name Plate	Section 812
Drilled Shaft Foundations	SP-6
Permanent Steel Casing	SP-6
Steel Truss	SP-8
Architectural Finish	SP-11

### CONSTRUCTION METHODS

SP2-3.1 Bridge Items: All work involved with the construction of the bridge components shall be in accordance with the details shown on the plans and the above referenced sections of the Arkansas Department of Transportation's Standard Specification for Highway Construction, unless modified or augmented herein.

SP2-3.2 Piling and Preboring Items: All work required for the preboring and installation of steel piling shall be as specified in SP-3.

SP2-3.3 Bridge Construction Control: All work for this section shall conform to SECTION 636 – BRIDGE CONSTRUCTION CONTROL of the Standard Specifications.

SP2-3.4 Unclassified Excavation: All work for this section shall conform to SECTION 801 – EXCAVATION AND BACKFILLING of the Standard Specifications.

## MEASUREMENT AND PAYMENT

SP2-4.1 All materials, equipment, work and labor involved with the construction of the Stone Dam Creek Trail Bridge over Dave Ward Drive, with the exception of drilled shafts, permanent steel casing, crosshole sonic logging, coring drilled shaft, steel truss and architectural finish, shall be measured in accordance with the applicable section of the 2014 Edition of the Arkansas Department of Transportation's Standard Specification for Highway Construction. Payment shall be made based on individual pay items listed in this section.

Payment made under:

Item SP2-4.1	Bridge Construction Control - per lump sum
Item SP2-4.2	Unclassified Excavation for Structures - Bridge – per cubic yard
Item SP2-4.3	Class S Concrete - Bridge - per cubic yard
Item SP2-4.4	Class S(AE) Concrete - Bridge - per cubic yard
Item SP2-4.5	Reinforcing Steel - Bridge (Grade 60) - per pound
Item SP2-4.6	Epoxy Coated Reinforcing Steel (Grade 60) - per pound
Item SP2-4.7	Structural Steel in Plate Girder Spans (M270-GR. 50) - per pound
Item SP2-4.8	Elastomeric Bearings - per cubic inch
Item SP2-4.9	Silicone Joint Sealant - per linear foot
Item SP2-4.10	Bridge Name Plate (Type C) - per each

END OF SECTION SP-2

## ITEM SP-3 – PILING

### DESCRIPTION

SP3-1.1 This item shall consist of providing all labor, tools, equipment and materials necessary for the installation of the piling for the Stone Dam Creek Trail Bridge over Dave Ward Drive.

### MATERIALS

SP3-2.1 Piling: All work and materials shall meet the requirement of the applicable section, listed below in Table 1, of the Arkansas Department of Transportation's Standard Specification for Highway Construction, latest edition.

TABLE 1

<u>MATERIAL</u>	<u>SECTION</u>
Steel Piling	Section 805
Preboring	Section 805

### CONSTRUCTION METHODS

SP3-3.1 Piling Items: All work involved with the installation of the bridge piling shall be in accordance with the details shown on the plans and the above referenced sections of the Arkansas Department of Transportation's Standard Specification for Highway Construction, unless modified or augmented herein.

SP3-3.2 Driving Points: Approved steel H-pile driving points shall be installed on all piles according to manufacturer's recommendations. Prior to installation of driving points, the Contractor shall submit the type of driving points to the Engineer for approval. The cost for the driving points shall be included in the linear foot price for steel piling.

SP3-3.3 Preboring: Preboring is required to achieve the required minimum penetration as shown on the plans. The prebore diameter shall be the least dimension that is adequate for pile penetration. The prebore annulus shall be backfilled in accordance with Section 805 of the Arkansas Department of Transportation's Standard Specification for Highway Construction, latest edition.

SP3-3.4 Pile Driving Record: A record of every steel pile driven shall be kept. Data including identifying number, locations, driving data, tip elevation, and final resistance to blows shall be recorded. Data shall be entered on a form entitled "Pile Driving Record". The Contractor shall submit three (3) copies of the pile driving record to the Engineer. Prior to driving any pile, the Contractor will be required to mark the entire pile in one (1) foot increments and the last two (2) feet in one (1) inch increments.

The steel piles shall be driven to the bearing capacity shown on the plans. The bearing capacity of the piles shall be determined by Method-A – Empirical Pile Formulas as outlined in Section 805.09 of the Standard Specifications

### MEASUREMENT AND PAYMENT

SP3-4.1 Steel Piling will be measured by the actual number of linear feet of accepted pile remaining in the finished structure after allowance for cut-off or build-up. The allowance for cut-off or build-up shall be in accordance with Section 805.14 (b). The unit bid price shall be full compensation for all

materials, labor, equipment, and tools required to perform all the work. The provisions of this section shall govern over any reference pertaining to payment outlined in the Arkansas Department of Transportation's Standard Specification for Highway Construction, latest edition.

SP3-4.2 Preboring shall be measured and be paid for by the linear foot when specified on the plans or in the Contract. Preboring performed for the Contractor's convenience will not be measured or paid for separately. The unit bid price shall be full compensation for all materials, labor, equipment, and tools required to perform all the work.

Payment shall be made under:

Item SP3-4.1	Steel Piling (HP12x53) - per linear foot
Item SP3-4.2	Preboring - per linear foot

END OF SECTION SP-3



## ITEM SP-4 – METAL HANDRAIL (TYPE H2)

### DESCRIPTION

SP-4-1.1 This item shall consist of providing all labor, materials, and appurtenances necessary for installation of the metal handrail along the bridge and retaining walls in accordance with the details shown on the plans and in strict accordance with the manufacturer's written instructions.

### SUBMITTALS

SP-4-2.1 The following shall be submitted to the Engineer for review:

Manufacturer's installation procedures.

Certificates of compliance for fence materials.

Shop drawings showing the detailed layout of posts and fence panels.

### PRODUCT HANDLING AND STORAGE

SP-4-3.1 Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism, and theft.

### MATERIALS

SP-4-4.1 Manufacturer and Product: The metal handrail shall be MONTAGE MAJESTIC PANEL SERIES fence as manufactured by Ameristar Fence Products, Inc., Tulsa, Oklahoma, or an approved equal. The handrail system shall include all components (i.e., pickets, rails, posts, and hardware) required. The exact rail spacing and top rail configuration shall be determined by the Contractor and shown in the Shop Drawings and shall conform to the spacing requirements detailed in the plans.

SP-4-4.2 Material Specifications: The materials used in the fabrication of the metal handrail components and connections shall be in accordance with the requirements shown in the plans.

Material for handrail pickets shall be a minimum of 0.75" square x 18 ga. tubing. The cross-sectional shape of the rails shall be similar to the Montage™ rail design, manufactured by Ameristar Fence Products, with a minimum outside cross-section dimensions of 1.5" height, 1.4375" width and a minimum thickness of 14 ga. Handrail shall be installed along the bridge and retaining walls as shown in the Plans. Picket holes in the Montage rail shall be spaced approximately 4.69" o.c. to maintain a 4" minimum air gap between pickets. Posts shall be a minimum of 2-1/2" square x 16 ga.

### FABRICATION

SP-4-5.1 The fabrication of the metal handrail shall be in accordance with the following:

Pickets, rails, and posts shall be pre-cut to specified lengths. Montage rails shall be pre-punched to accept pickets. All brackets shall be attached to the fence posts by means to withstand the loading shown in the plans. Interior panels shall be biasable to a 25% change in grade.

Pickets shall be inserted through pre-drilled picket holes and welded to the Montage rails to complete the rigid panel assembly.

PREPARATION

SP-4-6.1 All new installation shall be laid out by the contractor in accordance with the construction plans. Installation shop drawings shall be reviewed and approved by the Engineer prior to beginning fabrication.

INSTALLATION

SP-4-7.1 Metal Handrail posts shall be set in accordance with the approved shop drawings. Montage Majestic panels shall be attached to posts using panel brackets supplied by the bolt-on hardware supplied by manufacturer.

MEASUREMENT AND PAYMENT

SP-4-8.1 Work completed and accepted will be paid for at the contract unit price bid per linear foot for Metal Handrail (Type H2). The bid price and payment shall be full compensation for furnishing materials, fabrication, installation, and for all equipment, tools, labor and incidentals, including design calculations and post spacing layout, necessary to complete the work.

Payment made under:

Item SP4-8.1                      Metal Handrail (Type H2) – per linear foot

END OF SECTION SP-4

## ITEM SP-5 – PAINTING STRUCTURAL STEEL

### DESCRIPTION

SP5-1.1 Section 807 of the Standard Specifications, Edition of 2014, is hereby amended as follows:

Subsection 807.76(c) is hereby deleted and the following substituted therefor:

(c) Finish System. The finish system shall be a one coat system composed of a coat of modified siloxane hybrid paint meeting the material and composition requirements listed in Subsection 807.77. The modified siloxane hybrid coat shall not be applied until the preceding coat or any touch-up has cured for the minimum time as recommended by the manufacturer. The minimum dry film thickness of the modified siloxane hybrid coat shall be 5.0 mils (125  $\mu\text{m}$ ).

Subsection 807.77(b) is hereby deleted and the following substituted therefor:

807.77 Materials. (b) Finish System. The finish system shall be a modified siloxane hybrid paint that is compatible with the previous coat. The finish system shall not blush or excessively chalk, and shall have the following properties:

(1) General. The modified siloxane hybrid paint shall be a two-component, weather resistant topcoat, containing no free oils, and having excellent resistance to splash and spillage of acids, alkalis, solvents, salts, and water. It shall provide adequate hiding when applied in a single coat over the prime coat.

The manufacturer will establish a typical density value and tolerance for each component and for the mixed paint. The mixed paint shall have a solids content of not less than 57% by volume.

(2) Color. The color of the paint shall match the Federal Standard 595B Color Chip No. 27038, Black color, unless otherwise specified on the plans.

The Manufacturer's current printed instructions for application of finish system shall be submitted to the Engineer for approval prior to application.

Section 807.78 is hereby deleted and the following substituted therefor:

807.78 Number of Coats. Steel shall receive one shop prime coat and one field finish coat. Previously applied coats which have been damaged or skinned shall be corrected according to the manufacturer's recommendations prior to the application of any succeeding coat. The various coats shall be sufficiently different in color as to permit detection of incomplete application.

### MEASUREMENT AND PAYMENT

SP5-2.1 Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per ton (metric ton) for Painting Structural Steel, which price shall be full compensation for furnishing materials; for cleaning and painting, including touch-up and repair of damaged shop paint; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment made under:

Item SP5-2.1

Painting Structural Steel – per ton

END OF ITEM SP-5

## ITEM SP-6 – DRILLED SHAFT FOUNDATIONS

### DESCRIPTION

SP6-1.1 This work includes the furnishing of all materials and the construction of foundations consisting of reinforced concrete shafts placed within drilled excavations. Such foundations shall be constructed in accordance with the details and governing dimensions shown on the plans, the Standard Specifications, this special provision, and as directed by the Engineer.

### SPECIALTY CONTRACTOR

SP6-1.2 Specialty Contractor: The drilled shafts on this project shall be constructed by a contractor or subcontractor experienced in drilled shaft foundations. The Contractor shall employ a drilled shaft specialty subcontractor unless he can demonstrate sufficient experience in the construction of drilled shaft foundations by his own forces. Documentation containing satisfactory proof of the Contractor's or specialty subcontractor's experience with drilled shaft foundations shall be submitted by the Contractor to the Engineer for approval.

SP6-1.3 Pre-Construction Meeting: A pre-construction meeting shall be scheduled by the Engineer to be held after receipt and review of the complete work plan and specialty contractor qualification submittals. The Engineer; the Contractor, including their Superintendent; the specialty subcontractor, including the listed onsite supervisor, shall attend. Attendance is mandatory. All other parties to be involved with the construction or testing of the drilled shaft foundations may be represented. The meeting will be conducted to clarify the requirements of the work, to coordinate the construction schedule and activities, and to identify the contractual relationships and the delineation of responsibilities amongst the parties involved.

### MATERIALS

SP6-2.1 Concrete: All concrete shall be Class S with a minimum 28-day compressive strength of 3500 psi and shall conform to Section 802 unless modified herein.

The slump of the drilled shaft concrete, at time of placement, shall be 7 inches  $\pm$ 1 inch for concrete placed in the dry or 8 inches  $\pm$ 1 inch for concrete placed underwater. The maximum water cement ratio specified in Subsection 802.05 shall not be increased. **The maximum aggregate size shall not be greater than 1 inch.** An approved admixture may be used to obtain desired workability.

Trial Batch: Each concrete mix design to be used in the drilled shafts shall be submitted to the Engineer a minimum of 10 business days prior to preparing a trial batch. A trial batch for each concrete mix design shall be prepared using the specific materials submitted in the mix design, including any admixtures such as retarders or plasticizers, that are intended for use on the job. Each submitted mix design shall meet the slump requirements at the time of placement and shall maintain a slump of 4" or greater for the anticipated placement time stated in the Contractor's Drilled Shaft Work Plan plus two hours. The Contractor shall prepare a plant batch of at least 3 cubic yards or one-third the rated capacity of the mixer, whichever is greater. The trial batch,

including all sampling and testing, shall be accomplished by the Contractor under the observation of the Engineer. The Contractor and Engineer shall sample and test the trial batch for compliance with the specifications for slump and compressive strength. Additional sampling and testing of the trial batch for slump loss shall be according to the following procedure:

1. The proposed mix shall be prepared for the slump loss test at a temperature consistent with ambient and concrete temperatures expected during actual concrete placement.
2. After initial mixing of 70 to 100 revolutions in accordance with Subsection 802.08, the slump, concrete temperature, and ambient temperature shall be determined. The slump shall be within the required specifications. The test start time is initiated when batch water is introduced to the cement of the mixture (the normal batch time that will be recorded on each concrete delivery ticket).
3. The mix shall remain in the mixer truck, which shall spin at minimum speed for the anticipated or actual time it will take for the mixer truck to travel to the job site. After this time period the mix will again be tested for slump, concrete temperature, and ambient temperature. If a higher slump is desired based on the results of this test, water may be added in accordance with Subsection 802.08, provided that the maximum water to cement ratio and/or the slump does not exceed the limits established by the specifications. The time and amount of water added shall be recorded on the batch ticket.
4. Once the desired slump is obtained a one cubic yard sample of the mixture shall then be deposited into a plastic lined form measuring 3'x 3'x 3' in interior dimensions. A plastic-lined hole in the ground of approximately the same dimensions may be used. The surface of the concrete mixture shall be covered with plastic to prevent evaporation. The form shall not be exposed to direct sunlight for the entire duration of the slump loss test.
5. Using the concrete mixture in the form, tests shall be performed for slump, concrete temperature, and ambient temperature at intervals of 30 minutes until the slump is 4 inches or less, or for the anticipated placement time of the shaft plus two hours. In no case shall slump tests be performed for less than 4 hours. The top 6 inches of the concrete shall be thoroughly mixed using a scoop or shovel immediately prior to each set of tests. Plastic shall remain in place to cover the mixture between test intervals.

A record of the results of all tests performed, including the time of each test, along with a copy of the mix design and a copy of the batch ticket shall be submitted to the Engineer for review and approval.

SP6-2.2 Reinforcing Steel: Reinforcing steel shall be Grade 60 conforming to the requirements of Section 804.

SP6-2.3 Casing: Temporary casing shall conform to ASTM A252, Grade 2 or Grade 3.

Permanent casing shall conform to ASTM A252, Grade 2 or Grade 3. The walls and interior surfaces of the casings shall be carefully washed and cleaned of all sand, gravel, bonded concrete or foreign materials before use.

All casing shall be steel, watertight and of ample strength to withstand handling and/or driving stresses and the pressure of both concrete and the surrounding earth materials. All casing shall be selected by the Contractor to control dimensions and alignment of excavations within tolerances and to execute all other construction operations.

## CONSTRUCTION

SP6-3.1 Work Plan: The Contractor shall submit to the Engineer, for information and record purposes, a Work Plan for each shaft of similar type and setting at least 30 days prior to beginning construction of the drilled shafts. Where drilled shafts are to be constructed at multiple sites, a separate Work Plan shall be submitted for each site. The Work Plan shall include:

1. A thorough and complete description of the proposed drilling equipment including cranes, drills, augers, tremies, concrete pumps, casings, etc.
2. The method of drilling and achieving shaft alignment tolerances and removing obstructions.
3. The method of installation for any permanent casings and the method of installation and removal for any temporary casings. Provisions shall be made for rigidly supporting the casings at locations where the soil that overlies rock is thin or absent or the casing extends above the ground line. The extension of permanent casing into competent rock beyond the depth required to maintain seal is not an acceptable method of rigid support.
4. Details of methods to clean and inspect the shaft excavation including the bottom of the shaft.
5. The method of supporting and centralizing the reinforcing steel.
6. The method and anticipated time required for concrete placement in each shaft.
7. The sequence of drilling and time schedule for completion of each shaft including any non-destructive testing required by the plans or special provisions.
8. Preventative measures for working around any structures, railroad tracks, and utilities in the immediate vicinity.
9. The location of any work roads, detours, and traffic control devices.
10. A pollution prevention plan that shows the method of controlling the discharge of any pollutants including any water that may be used as a drilling fluid. The Contractor's pollution prevention plan will become part of the Owner's Stormwater Pollution Prevention Plan. The Contractor shall ensure compliance with Section 110 of the Standard Specifications.

The drilled shafts shall be constructed in accordance with the Work Plan and no deviation shall be allowed without the written permission of the Engineer. Any change in the Work Plan shall be submitted to the Engineer at least three (3) business days before any work is begun. Acceptance of the Work Plan shall not relieve the Contractor of any other requirements in the Plans and Specifications.

SP6-3.2 Protection of Existing Structures: The Contractor shall control his operations to prevent damage to any existing structures, utilities, and railroad tracks. Preventative measures shall include, but are not limited to, selecting construction methods and procedures that will prevent caving of the shaft excavation and monitoring and controlling the vibrations from construction activities such as the driving of casing or sheeting, or drilling of the shaft. Blasting will not be permitted.

SP6-3.3 Construction Tolerances: The following construction tolerances apply to drilled shafts unless otherwise shown on the plans:

1. The center of the drilled shaft shall be within three (3) inches of plan position in the horizontal plane at the plan elevation for the top of the shaft.
2. The vertical alignment of a vertical shaft excavation shall not vary from the plan alignment by more than 1/4 inch per foot of depth.
3. After all the concrete in a shaft is placed, the top of the reinforcing steel cage shall be no more than four (4) inches above and no more than two (2) inches below plan position.
4. The top elevation of the shaft shall have a tolerance of plus one (1) inch or minus three (3) inches from the plan top of shaft elevation.
5. Excavation equipment and methods shall be designed so that the completed shaft excavation will have a planar bottom. The cutting edges of the excavation equipment shall be normal to the vertical axis of the equipment within a tolerance of  $\pm 3/8$  inch per foot of diameter.
6. The finished diameter of the shaft shall be no less than the specified diameter along the entire length of the drilled shaft.

Drilled shaft excavations and completed shafts not constructed within the required tolerances are unacceptable. The Contractor shall be responsible for correcting all unacceptable shaft excavations and completed shafts to the satisfaction of the Engineer. Materials and work necessary, including engineering analysis and redesign by a Professional Engineer licensed in the State of Arkansas to complete corrections for out of tolerance drilled shaft excavations shall be furnished without either cost to the Owner or an extension of the completion date of the project.

SP6-3.4 Casings:

(1) Temporary Casing. When shown in the plans or as approved by the Engineer, temporary casings shall be used to prevent caving of the excavated shaft, to exclude ground water, or to create a positive seal into impervious material so that no piping of water or other materials occurs into or from the shaft excavation. The Contractor shall remove temporary casing before completion of concreting the drilled shaft. Pre-drilling and/or over-reaming to beyond the outside diameter of the casing may be required to install the casing.

When temporary casings are used in conjunction with permanent casings as shown in the plans or approved by the Engineer, the Contractor shall maintain both alignment of the temporary



casing with permanent casing and a positive, watertight seal between the two casings during excavation and concreting operations.

Before the temporary casing is withdrawn, the level of fresh concrete in the casing shall be a minimum of 5 feet above the hydrostatic water level in the soil or the level of the drilling fluid in the annular space behind the casing, whichever is higher. As the temporary casing is withdrawn, care shall be exercised to maintain an adequate level of concrete in the casing so that fluid trapped behind the casing is displaced upward and discharged at the ground surface without contaminating or displacing the shaft concrete. Insofar as possible, casing extraction shall be done at a slow uniform rate by application of a steady vertical upward pull in the direction of the axis of the shaft. To facilitate extraction, tapping on the casing, exertion of temporary downward pressure, and slight rotation will be permitted provided care is taken to avoid harmful impacts or disturbances to the fresh concrete. Vibration or rodding may not be used to break the casing loose for extraction.

Temporary casings which become bound or fouled during shaft construction and cannot be practically removed shall constitute a defect in the drilled shaft. The Contractor shall be responsible to improve such defective shafts to the satisfaction of the Engineer. Such improvements may consist of, but are not limited to: removal of the shaft concrete and extending the shaft deeper to compensate for loss of frictional capacity in the cased zone, providing saddle shafts to compensate for capacity loss or providing a replacement shaft. All corrective measures, including redesign of the bent caused by the defective shaft, shall be done to the satisfaction of the Engineer by the Contractor without either compensation or an extension of time. In addition, no compensation will be made for the temporary casing left in place.

(2) Permanent Casing. Permanent casing shall be used when shown in the plans. The casing shall be continuous between top and bottom elevations as shown in the plans. The outside diameter of the permanent casing shall be as shown in the plans. When not specified, the outside diameter of the permanent casing shall be sufficient to produce a finished drilled shaft with a diameter no less than the specified diameter along the entire length of the shaft. The inside diameter of permanent casing shall not be greater than the specified diameter of the shaft plus 12 inches unless otherwise approved by the Engineer. Lengths of permanent casing shown on the plans are for estimating quantities only; actual lengths are to be determined in the field. All casings shall be watertight and of ample strength to withstand handling and/or driving stresses and the pressure of both concrete and the surrounding earth materials. All casings used shall be selected by the Contractor to control the dimensions and alignment of excavations within tolerances and to execute all other construction operations.

(3) Temporary Surface Casing. Temporary oversized surface casing may also be required for no more than 10 feet below top of shaft to prevent sloughing of the top of the shaft excavation. Temporary surface casings shall not be removed until after a minimum of 72 hours has elapsed since concrete placement and shall be done in a manner to not cause any damage to the finished drilled shaft.

SP6-3.5 Excavations: The Contractor shall perform the excavation required for the shafts through whatever materials encountered, to the dimensions and elevations shown on the plans or

required by the site conditions. The Contractor's methods and equipment shall be suitable for the intended purpose and materials encountered.

Bottom of shafts shall not be founded at an elevation above that shown on the plans without the approval of the Engineer. The depth that is to be drilled shall be considered an approximation and the Engineer may order, in writing, such changes in depth as may be necessary to secure a satisfactory foundation.

After each drilled shaft excavation has been completed to planned tip elevation, the Contractor shall drill one test hole 1 ½" diameter or larger to a minimum depth of 1.5 times the shaft diameter below planned tip elevation. If voids or soil-filled cavities are encountered within this depth below the planned tip elevation, test hole drilling shall continue from the top of competent rock below the cavity and advanced to a minimum depth of 1.5 times the shaft diameter below the cavity. Conditions encountered shall be recorded and provided to the Engineer for determination of the drilled shaft tip elevation.

At the Contractor's option, one test boring may be drilled prior to the drilled shaft excavation. The test boring shall be positioned as near as practical to the centerline of the shaft. If rock is encountered at an elevation at or above the required embedment above the planned tip elevation, core drilling shall start at the top of competent rock and advanced to a minimum depth of 1.5 times the shaft diameter below the planned tip elevation. If competent rock is encountered at an elevation lower than the required embedment above the planned tip elevation, core drilling shall start at the top of competent rock and advanced to a minimum depth of the required embedment plus 1.5 times the shaft diameter. If voids or soil-filled cavities are encountered below the planned tip elevation, core drilling shall continue from the top of competent rock below the cavity and advanced to a minimum depth of 1.5 times the shaft diameter below the cavity.

Each test boring shall advance using rotary drilling techniques. Test borings shall use temporary casing extending through soil to the top of rock to facilitate diamond core drilling. Hollow stem augers may be considered to meet the definition of temporary casing for drilling purposes. Diamond core drilling shall be done with an NQ-size double-tube swivel-type wireline core barrel or a similar approved larger sized tube swivel-type core barrel.

A completed test boring log for each respective test boring shall be provided to the Engineer. The test boring log shall include station, offset, surface elevation, complete visual description, drilling and sampling methods; and depth of the various soil or overburden layers encountered to top of rock. The test boring log shall also include visual descriptions and conditions of the rock cores, including any voids, soil-filled cavities or other anomalies encountered; Standard Core Recovery (SCR), and Rock Quality Designation (RQD) of each core run. The rock cores shall be removed, boxed, and appropriately marked for elevation.

The test boring logs and rock core samples shall be provided to the Engineer within five business days after completion of the test boring for a determination of the drilled shaft tip elevation. If the bottom shaft elevation is lowered below planned tip elevation, additional core drilling may be required to sample rock below the new drilled shaft tip elevation.

The excavation shall be made without the use of drilling mud. Water may be used as a drilling fluid and to prevent a hydrostatic head from occurring. Drilled shaft excavation shall begin only if the Contractor can complete the excavation, perform foundation inspection and testing, and place the reinforcement and concrete as a continuous operation. If the center-to-center spacing is less than 3 shaft diameters, no two adjacent shafts shall be excavated at the same time and shafts shall not be constructed within 24 hours of the completion of an adjacent shaft. If the excavation will be subjected to vibrations from nearby activities that may cause caving, casing shall be advanced as drilling proceeds to prevent caving.

Material excavated from shafts and not used in the backfill around the compacted pier or abutment shall be disposed of in a manner approved by the Engineer and shall not be placed in a waterway or otherwise impair the efficiency or appearance of the bridge or other parts of the work. Any excavation for the shaft beyond the lines required by the plans shall be filled with Class S Concrete at the Contractor's expense.

When drilled shafts are to be installed in conjunction with embankment placement, the Contractor shall construct drilled shafts after the placement of fills unless otherwise approved by the Engineer.

When drilled shafts are to be installed in conjunction with a footing, excavation to the footing elevation shall be completed before shaft construction begins unless otherwise noted in the plans or approved by the Engineer. Prior to the footing pour, the Contractor shall repair any disturbance to the footing area caused by shaft installation.

No open excavation shall be left unattended. During non-working hours excavations shall be protected by the use of solid, safe covers that are firmly fastened in place.

The Contractor shall provide suitable access, lighting, and equipment for checking the dimensions and alignment of each permanent shaft excavation and for inspecting the excavation. Any mechanical equipment used within the excavation shall be operated by air or electricity. The use of gasoline driven engines or any device that produces toxic fumes or uses atmospheric oxygen, within the excavation for any purpose will not be permitted. All lighting shall be electric and precautions shall be taken in regard to potential short circuits of electric current within ground water. The Contractor shall not allow workers to enter the shaft excavation for any reason, unless both a suitable casing has been installed and adequate safety equipment and procedures have been provided to the workers entering the excavation.

The Contractor shall check the dimensions and alignment of the shaft excavation under the direction of the Engineer. Final shaft depths shall be measured with suitable weighted tape or other approved methods after final cleaning of the excavation.

No concrete shall be placed until the Engineer approves the condition of the excavation. Prior to placing concrete, the shaft excavation shall be cleaned so that a minimum of 50 percent of the base area will have less than ½ inch of sediment and at no place more than 1 ½ inch. The Contractor shall be responsible for showing that the excessive loose material has been removed

from the excavation. Inspection of the bottom of the excavation shall be by camera or other suitable means approved by the Engineer. When the shaft inspection is by camera it shall be capable of viewing the bottom of the excavation at a resolution suitable for determining the bottom condition whether wet or dry construction methods are used. All expenses for inspection shall be included in the price bid for “Drilled Shaft (60” Diameter)”.

If the elevation of the top of shaft is below ground level at the time of concrete placement, an oversized temporary surface casing from ground elevation to a point below the top of the shaft will be required to control caving of any substance into freshly placed concrete and to facilitate construction. The oversized surface casing shall be removed and backfill placed in accordance with Subsection 801.08.

SP6-3.6 Reinforcing Steel: The reinforcing steel cage shall be completely assembled and shall be placed as a unit immediately after the shaft excavation is inspected and accepted, and prior to concrete placement. The cage will consist of the reinforcing shown in the plans, cage stiffener bars as required, spacing devices, and any other appurtenances required to maintain alignment, shape, and clearances. Any internal stiffeners shall be removed as the cage is lowered into the excavation.

The minimum clearance between the edge of the drilled shaft and the vertical reinforcing steel and the minimum length of steel required for lap with the column steel shall be as shown in the plans.

The Contractor shall be responsible for the proper bracing of the reinforcing cage. This bracing shall be sufficient to permit assembly above ground and placing in the shaft as a unit without inducing deforming, twisting, or bending stress. Welding of reinforcing bars will not be permitted.

Concrete spacer blocks shall not be used on the reinforcing cages. Epoxy coated metal “chair” type spacers, epoxy coated bent pieces of steel bars or high density plastic alignment systems shall be placed at sufficient intervals around the steel cage and not exceeding 5 feet along the shaft to ensure concentric spacing of the cage inside the shaft. When the diameter of the longitudinal reinforcing steel exceeds 1 inch, such spacing along the shaft shall not exceed 10 feet. The spacer sizes shall be varied as necessary along the length of the shaft to maintain a concentric spacing within the cased and uncased portions of the shaft.

The cage shall be supported from the top by some positive method to minimize uplift or downward slump during concrete placement and/or extraction of the casing. A minimum of one-half of the vertical bars shall be supported from the top. The support shall be concentric with the cage to prevent racking and distortion of the steel. Setting the cage on the socket bottom without support will not be permitted.

The elevation of the top of the steel cage shall be carefully checked before and after the concrete is placed. Displacement of the steel beyond the specified tolerances will be cause for rejection.

SP6-3.7 Concrete: The work shall be performed in accordance with the provisions of Section 802 and in conformance with the requirements herein.

The maximum subplot size for acceptance sampling and testing of drilled shaft concrete by the Contractor shall be 100 cubic yards or one drilled shaft.

At the time concrete is placed, the excavation shall be free from accumulated seepage water (less than 3 inches above bottom of shaft and 12 inches per hour inflow) unless an underwater pour is authorized by the Engineer. Concrete shall be placed as soon as possible after completion of the excavation, and the inspection and setting of the reinforcing cage, and shall proceed in a continuous operation from the bottom of the shaft to the required top elevation.

After the concrete level has reached the required top elevation, it will be forced to overflow until only fresh uncontaminated concrete is left in the shaft. The concrete waste shall not enter the waterway as required by any applicable Section 404 Permits. The top 10 feet of each drilled shaft shall be vibrated except when more than 10 feet is to be exposed above the ground line or the channel bottom. When more than 10 feet is exposed, the entire exposed portion shall be vibrated. Exposed portions of each drilled shaft shall be cured and any construction joint area shall be treated as prescribed in Section 802.

Placement of drilled shaft concrete underwater shall be done only with permission of the Engineer in strict conformance with the procedures outlined below for underwater pour.

1. Concrete Placed in the Dry. All drilled shaft concrete placed in the dry shall be placed through a tremie or by pumping to prevent segregation of materials. The tremie shall have sufficient length to discharge concrete at the shaft base and shall consist of a rigid tube with a diameter of no more than 14 inches nor less than 10 inches and be fitted with a hopper at the top. The tremie shall not contain aluminum parts that may come in contact with the concrete. The inside and outside surfaces of the tremie shall be clean and smooth to permit flow of concrete and unimpeded withdrawal. It shall be constructed and supported so that it can be moved horizontally to cover the work area and moved vertically to control the concrete flow as the level of the concrete in the shaft is raised. The bottom of the tremie or pump pipe shall be at the bottom of the shaft at the beginning of concrete placement, but will not be required to remain at the bottom of the shaft during the entire pour. The bottom of the tremie must remain below the top of the concrete at all times.

The concrete pump line shall have a minimum diameter of 4 inches with the portion of the line inside the excavation meeting the requirements above, but only that portion of the pump line in contact with the concrete will be required to be rigid. All pump equipment shall be clean and in good operating condition.

2. Concrete Placed Underwater. If it becomes apparent that pumping and other dewatering methods are not adequate to dry the holes, the Engineer may authorize underwater placement of concrete. In this case, the water in the hole shall be

permitted to seek its natural hydrostatic head to prevent any possibility of pressure washing of the concrete being placed.

The tremie and pump line requirements shall be the same as specified above for concrete placed in the dry except tremie and pump lines shall be watertight and constructed so that the discharge end can be sealed closed at the start of work to prevent water from entering the tremie or pump line before the tremie or pump line is filled with concrete. If a plug is used to separate the concrete from the fluid in the hole, the plug shall be removed from the excavation after placement has begun. Concrete placement shall be done in one continuous operation. The discharge orifice shall be at the bottom of the shaft at the beginning of the concrete placement and shall remain at least 5 feet below the top surface of the fluid concrete. The Contractor shall provide equipment and personnel to sound the top of the concrete in the presence of the Engineer in order to verify the location of the concrete surface and the discharge orifice at all times. After concrete placement has started the concrete level in the tremie shall be maintained above the water level in the bore hole to prevent water intrusion into the shaft concrete. When lifting the pump line during concreting, the Contractor shall temporarily reduce line pressure until the orifice has been repositioned at a higher elevation in the excavation. If at any time during the concrete pour the orifice is removed from the fluid concrete and discharges concrete above the rising concrete surface, the entire drilled shaft will be considered defective. In such case, the Contractor shall remove the reinforcing cage and concrete, complete any necessary sidewall cleaning or overreaming as directed by the Engineer, and repour the shaft.

SP6-3.8 Drilled Shaft Log: A record of each shaft construction shall be furnished by the Contractor to the Engineer prior to acceptance of the shaft. This Drilled Shaft Log shall include: information about the drilling procedures and equipment; a log of the excavated material; the as constructed elevations and lengths of all vertical elements of the shaft including reinforcing and casings; depth of final excavation, founding material and bottom condition; concrete volume and a concreting curve showing depth versus volume over the length of the shaft, volume used in overflow and purging; and the date and time of pertinent operations used in constructing the drilled shaft from beginning of excavation to completion of concrete placement.

#### METHOD OF MEASUREMENT

SP6-4.1 Acceptable drilled shafts, complete in place and of the specified diameter, will be measured by the linear foot as constructed to the dimensions shown on the plans or approved by the Engineer from bottom to top of shaft. No additional payment will be made for any excavation or concrete provided beyond the lines required by the plans.

SP6-4.2 Permanent casing for the specified diameter will be measured by the linear foot of the actual accepted length left in place. Measurement will be along the casing from top of casing or top of shaft, whichever is lower, to the bottom of the casing at each shaft location where permanent casing is authorized and used.

SP6-4.3 Temporary steel casing will not be measured for separate payment, but shall be included in the unit price for "Drilled Shaft (60" Diameter)".

BASIS OF PAYMENT

SP6-5.1 Drilled shafts, measured as provided above, will be paid for at the contract unit price bid per linear foot for "Drilled Shaft (60" Diameter)" which shall be full compensation for making and inspecting shaft excavations; for drilling test borings and furnishing logs; for furnishing, placing, and removing temporary casing; for furnishing and placing all concrete and reinforcing steel; for performing mix designs; for preparing trial batches; for keeping the Drilled Shaft Log; for providing and placing necessary materials for nondestructive testing as required by those special provisions; for quality control and acceptance sampling and testing; for all backfilling; and for furnishing all tools, labor, equipment and incidentals necessary to complete the work.

When drilled shafts are carried below elevations shown on the plans at the direction of the Engineer, the additional length of drilled shaft will be measured as provided above and will be paid for in accordance with the following price schedule:

<u>Depth Below Planned Elevation</u>	<u>Price</u>
Not more than 5 feet	Contract Price
Excess of 5 feet and not more than 15 feet	Contract Price + 15%
More than 15 feet	Contract Price + 25%

SP6-5.2 Permanent casing will be paid for at the contract unit price bid per linear foot for "Permanent Steel Casing (66" Diameter)" which shall be full compensation for furnishing and placing the casing above the costs attributed to the work paid for under associated pay items.

Payment will be made under:

Item SP6-5.1	Drilled Shaft (60" Diameter) - per linear foot
Item SP6-5.2	Permanent Steel Casing (66" Diameter) - per linear foot

END OF SECTION SP-6





## ITEM SP-7 – NONDESTRUCTIVE TESTING OF DRILLED SHAFTS

### DESCRIPTION

SP7-1.1 This work shall consist of the Nondestructive Testing (NDT) of drilled shaft foundations, as described herein. All work shall be in accordance with this Special Provision, the details shown in the plans, Standard Specifications, and as directed by the Engineer.

### WORK TO BE PERFORMED:

SP7-2.1 General Requirements: The nondestructive testing method known as Crosshole Sonic Logging (CSL) shall be used on each drilled shaft in this contract. The Contractor shall employ an experienced independent testing organization approved by the Engineer to perform all CSL testing. Information should be supplied showing this independent testing organization has the experience in the kind of work described in this Special Provision and also showing they have the equipment capable of performing the work.

Testing shall not be conducted until at least 24 hours after placement of concrete is concluded in the shaft. Testing of the first shaft placed shall be completed within 7 calendar days after placement of all concrete in the first shaft. A preliminary report describing the integrity of the first shaft shall be provided to the Engineer within 48 hours of testing. The Contractor will not be allowed to place concrete in the remaining shafts or make additional permanent construction on the first shaft until the Engineer has approved the first shaft. The Engineer shall approve the scheduling of subsequent testing.

The approved testing organization shall provide the Engineer a preliminary report describing the integrity of each shaft within 48 hours of testing. Testing on the remaining shafts shall be completed within 14 calendar days of the last shaft placed. Provided the report received meets the requirements of this Specification, the Engineer will provide a response within 10 calendar days of receipt of report.

SP7-1.1 Preparation for Testing: To accommodate the CSL test requirements, the Contractor shall install a number of pipes in each shaft. The number of pipes installed will depend on the diameter of the shaft as specified below:

Shaft Diameter	Minimum Number of Pipes	Pipe Spacing
60"	5	60 Degrees

The pipes shall be ASTM A53 Standard Weight, or an approved equivalent, steel pipe with a minimum inside diameter (ID) of 1.5 or 2 inches. The pipes shall have a round, regular internal diameter free of defects or obstructions including defects at pipe joints; in order to permit the free, unobstructed passage of 1.375 inch diameter source and receiver probes. The pipes shall be watertight and free from corrosion with clean internal and external faces to ensure passage of the probes inside and a good bond with the concrete outside.

Each pipe shall be fitted with a watertight shoe on the bottom and a removable cap or plug on the top. The pipes shall be securely attached to the interior of the reinforcing steel cage. The pipes shall be installed in each shaft in a regular, symmetric pattern such that each pipe is equally spaced from the others around the perimeter of the cage. Prior to construction, the Contractor shall submit his selection of pipes and proposed method of pipe installation to the approved testing organization. The pipes shall be secured to the reinforcing cage at three foot vertical intervals, such that the pipes remain in position during placement of the cage and placement of the concrete.

The pipes shall be as near to parallel as possible. They shall extend from within 0.25 feet above the shaft's excavated bottom to at least 3 feet above the top of shaft. If the length of the excavated shaft varies from the plans, the pipes shall be adjusted to meet the above requirements. No pipe may be allowed to rest on the bottom of a drilled excavation. Any joints required to achieve full length pipes shall be made watertight. Care shall be taken during placement of the reinforcing steel cage so as not to damage the pipes.

After placement of the cage, and before placement of concrete, the pipes shall be filled with potable water and the pipe tops shall be capped or sealed to keep debris or other foreign matter out of the pipes. In a case where conditions make rapid concrete placement imperative, the Engineer may permit the filling of the pipes to be delayed until immediately after the concrete is placed. Care shall be exercised in the removal of caps or plugs so as not to apply excess torque, hammering, or other stresses that could break the bond between the pipes and the concrete.

Upon completion of all CSL testing on a shaft, and after the acceptance of that shaft by the Engineer, the pipes shall be filled by the Contractor with a QPL approved grout such that no air pockets or impurities remain in the pipes. All water shall be removed from the access pipes. The portion of pipe extending above the top of the shaft shall be removed.

SP7-2.2 CSL Test Equipment: The CSL testing equipment shall consist of all necessary supplies, support equipment and power to perform the testing and to record, analyze, and report the results in accordance with this Special Provision.

SP7-2.3 CSL Testing Procedures: Before placement of concrete, the Contractor shall investigate at least one pipe per shaft to ensure there are no bends, crimps, obstructions or other impediments to the free passage of the testing probes. A record of all pipe lengths, including a measurement of the projection of the pipes above the top of the shaft shall be made. Prior to the CSL tests, the Contractor shall provide this information, shaft bottom elevations, top elevations, and construction dates to the approved testing organization and Engineer.

The tests shall be conducted between various pairs of pipes. The approved testing organization shall test between all pairs across the central area of the shaft and between each pipe pair around the perimeter of all tested shafts. Additional pairs may be used to evaluate anomalies/defects as described below, or as required by the Engineer.

The CSL test shall be carried out with the source and receiver probes in the same horizontal plane. Any slack shall be removed from the cables prior to pulling to provide for accurate depth measurements in the CSL records. CSL measurements shall be made at increments of 3 inches or less from the bottom to the top of each shaft. The probes shall be pulled simultaneously over the depth measuring wheel, starting from the bottoms of the pipes.

Any anomalies/defects indicated by longer pulse arrival times and significantly lower amplitude/energy signals shall be reported to the Engineer. Further tests may be required to evaluate

the extent of such anomalies/defects. Additional NDT methods which could be used to evaluate possible defects include: Angled Crosshole Sonic Logging, Crosshole Tomography, Single Hole Sonic Logging, Gamma-Gamma Nuclear Density Logging, and Sonic Echo and Impulse Response tests. Any additional nondestructive testing shall be provided at no cost to the Owner and with no extension of the contract time.

SP7-2.4 CSL Testing Results: The CSL test results shall be compiled into a shaft integrity testing report for each shaft. The report shall summarize and analyze (a) initial pulse arrival time versus depth and (b) pulse energy/amplitude versus depth. In addition, the report shall include a plot of velocity versus depth and a waterfall diagram for each pair of tubes that are tested. A CSL log will be presented for each pair of pipes tested, with any defect zones indicated on the logs and discussed in the report. The logs shall cover the full length of shaft corresponding to the measurements provided by the Contractor. The approved testing organization shall supply two (2) hard copies and one digital copy, in an approved format, of the CSL test report to the Engineer and a copy of each report shall be provided to the Contractor.

SP7-2.5 Evaluation of CSL Test Results: The Engineer will evaluate the CSL test results and will determine whether or not the drilled shaft construction is acceptable. If the Engineer approves the first drilled shaft based upon the results of the CSL tests, then the shaft and the shaft site will be turned back to the Contractor and further construction may proceed.

The acceptance of each of the remaining drilled shafts shall be the decision of the Engineer, based on the results of the shaft integrity testing reports and other information of the shaft placement. If it is determined by the Engineer that any confirmed defect indicated by a NDT test may affect the structural integrity of the shaft, the Engineer may require the Contractor to verify shaft conditions by core drilling in accordance with Subsection G, "Evaluation by Core Drilling."

SP7-2.6 Evaluation by Core Drilling: A drilled shaft that is found to be unacceptable by the CSL tests may be cored by the Contractor using double tube core barrels. Core samples shall be obtained, handled and tested in accordance with AASHTO T 24-15. At the Contractor's option a PQ size core barrel may be used. Core samples will be delivered to the Department's Materials Division where they will be visually inspected and selected samples will be evaluated for compressive strength. Selected samples with compressive strengths less than 0.85 f'c will be considered unacceptable. A core sample shall be taken from each defect location, at a length specified by the Engineer. The methods and equipment used to core the drilled shaft and grout the cored hole shall be approved by the Engineer prior to commencing coring operations. An accurate log of the core shall be kept and the core shall be crated and properly marked showing the shaft depth at each interval of core recovery. The core, along with two copies of the coring log, shall be provided to the Engineer.

If the quality of the shaft, as represented by the core samples, is determined to be acceptable by the Engineer, then the shaft and the shaft site will be turned back to the Contractor and further construction may proceed. If the quality of the shaft is determined to be unacceptable by the Engineer, then the Contractor shall proceed in accordance with Subsection H, "Defective Shaft," below. If a defect is confirmed, the Contractor shall pay for all coring and grouting in the shaft related to a suspected defect. If no defect is encountered, compensation for all coring and grouting in the shaft will be paid for at the contract unit price bid per linear foot for "Coring Drilled Shaft."

SP7-2.7 Defective Shaft: If the Engineer determines that a shaft is unacceptable, the Contractor shall submit a plan for remedial action to the Engineer for approval. Any modifications to the foundation shaft and load transfer mechanisms caused by the remedial action will require calculations

and working drawings stamped and signed by an Arkansas Licensed Professional Engineer for all affected foundation elements. This data shall be submitted to the Engineer for information and record keeping purposes. All labor and materials required to perform remedial shaft action shall be provided at no cost to the Owner and with no extension of the contract time.

#### METHOD OF MEASUREMENT

SP7-3.1 CSL Testing: Acceptable CSL tests shall be measured per each shaft tested of a specified diameter.

SP7-3.2 Coring Drilled Shafts: If no defect is encountered, the coring of shafts shall be measured by the linear foot.

#### BASIS OF PAYMENT:

SP7-4.1 CSL testing shall be paid for at the contract unit price bid per each shaft tested of a specified diameter. The price bid for each shaft tested shall be full compensation for furnishing all equipment and incidentals necessary to perform the required test, performing the tests, analyzing the results, and furnishing the Engineer with the shaft integrity reports, as required.

Furnishing and installing all pipes, dewatering the pipes, removing excess pipe above top of shaft, and filling the tubes with grout will be considered incidental to the unit price bid for “Drilled Shaft (60” Diameter)”.

SP7-4.2 Coring for shafts where no defect is encountered will be paid for at the unit price bid per linear foot of “Coring Drilled Shaft” which price shall be compensation for furnishing all labor, materials, grout, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

Item SP7-4.1	Crosshole Sonic Logging (60” Diameter) - per each
Item SP7-4.2	Coring Drilled Shaft - per linear foot

END OF SECTION SP-7

## ITEM SP-8 – PREFABRICATED STEEL TRUSS

### DESCRIPTION

SP8-1.1 This work includes the design, fabrication, and construction of the prefabricated steel truss span, including the concrete deck on the truss span, shown on the plans. The prefabricated steel truss shall be designed and constructed in accordance with the details and governing dimensions shown on the plans, the Standard Specifications, the 7<sup>th</sup> Edition of the AASHTO LRFD Bridge Design Specifications, the AASHTO LRFD Guide Specification for the Design of Pedestrian Bridges (2009), and this special provision.

### QUALIFIED SUPPLIERS

SP8-2.1 Each bidder is required to identify their intended bridge supplier as part of the bid submittal. Qualified suppliers must have at least 5 years experience fabricating these type structures and shall be certified as an AISC Major Bridge Fabricator.

Pre-approved Manufacturers:

Art Thureson Inc.  
4000 West Walton  
Waterford, MI 48329  
1-248-623-8599

CONTECH Bridge Solutions Inc.  
8301 State Highway 29 North  
Alexandria, Minnesota 56308  
1-800-328-2047

Echo Bridge Manufacturing Co.  
123 Bob Masia Drive  
Pine City, NY 14871  
1-607-734-9456

BIG R Bridge  
19060 Weld County Road  
Greeley, CO 80631-9664  
1-800-234-0734

Excel Bridge Manufacturing Co.  
2001 Shoemaker Avenue  
Santa Fe Springs, CA 90670

Pioneer Bridges  
119 40th Street NE  
Fort Payne, AL 35967  
866-708-5778

Roscoe Bridge  
5405 Momont Road  
Missoula, MT 59808  
1-406-532-7126

DAVE WARD DR. PED. OVERPASS  
(CONWAY) (RTP-15) (S)

SP8-1 (Addendum #1)

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**Suppliers other than those listed above may be used provided the engineer or owner's agent evaluates the proposed supplier and approves the supplier 5 days prior to bid. The contractor must provide the following documentation, for any proposed supplier who is not pre-approved, at least 10 days prior to bid:**

- Product Literature
- All documentation to insure the proposed substitution will be in compliance with these specifications. This shall include:
  - Representative design calculations
  - Representative drawings
  - Splicing and erection procedures
  - Warranty information
  - Inspection and Maintenance procedures
  - AISC Shop Certification
  - Welder Qualifications
- Proposed suppliers must have at least five (5) years experience designing and fabricating these type structures and a minimum of five (5) successful bridge projects, of similar construction, each of which has been in service at least three (3) years. List the location, bridge size, owner, and a contact for reference for each project.

The engineer will evaluate and verify the accuracy of the submittal prior to bid. If the engineer determines that the qualifying criteria have not been met, the contractor's proposed supplier shall be rejected. The engineer's ruling shall be final.

#### GENERAL FEATURES OF DESIGN

SP8-3.1 Bridge over Dave Ward Drive span shall be 100'-0" (straight line dimension) which shall be as measured from the centerline of joint on each end of the span. The width of the bridge shall be 14'-0" clear measured from the inside face of the safety railings at deck level.

Span shall be designed as a Continental Gateway Bridge Closed Box Truss (or equal), that has one (1) diagonal per panel and plumb end vertical members. Interior vertical members may be either plumb or perpendicular to the chord faces.

Bridge over Dave Ward Drive span shall be designed utilizing a Box Section configuration where the floor beams are connected to the sides of the bottom chord members or designed utilizing a configuration where the floor beams are underhung and attached to the bottom of the bottom chord members. If an underhung design is selected, a continuous aesthetic cover plate shall run the full length of the truss hiding the ends of the underhung floor beams for both sides of the truss. The distance from the top of deck to the bottom truss member shall be as shown on the plans. The total depth of the truss shall be minimized at the ends of the truss ensuring that the trail vertical clearance as shown in the plans is met inside the truss and maximized by the shipping requirements at midspan by cambering the top chords of the truss.

SP8-3.2 Member Components: All members of the vertical trusses (top and bottom chords, verticals, and diagonals) shall be fabricated from square and/or rectangular structural steel tubing. Other structural members and bracing shall be fabricated from structural steel shapes or square and rectangular structural

steel tubing. Unless the floor and fastenings are specifically designed to provide adequate lateral support to the top flange of open shape stringers (w-shapes or channels), a minimum of one stiffener shall be provided in each stringer at every floor beam location.

SP8-3.3 Safety Rails and Mesh: The configuration of the safety rails shall conform to the details shown on the plans with a rub plate placed on the structure to a minimum height of 4'-6" above the deck and a kick plate running along 3" above the deck. The safety mesh shall be spaced so as to prevent a 2" sphere from passing through the truss sides and top of the truss. Safety mesh shall be placed on the inside of the structure. Rub and kick plates shall be a hollow shape member to prevent bridge users from cutting or scraping their hands. The safety rails and mesh system shall be designed for an infill loading of 200 pounds, applied horizontally at right angles, to a one square foot area at any point in the system. The horizontal safety rail members shall be designed for a uniform load of 50 pounds per linear foot.

SP8-3.4 Camber: The truss spans shall have a vertical camber dimension at midspan equal to 100% of the full dead load deflection plus additional amounts required to conform to the final vertical profile.

SP8-3.5 Lighting: The truss shall include embedded light fixtures, WE-EF SVO259 LED or approved equal, in all vertical members. Light fixtures shall be designed and wired to operate on a 120V circuit to match the approach lighting system. The fixtures shall be oriented toward the interior of the truss and located on both sides. The centerline of opening for the light fixture shall be 1'-6" measured vertically from the anticipated finished deck elevation. Lighting fixtures, conduit and wiring shall be furnished and shop installed by the truss manufacturer. All conduit and wiring shall be located inside the truss chords and vertical members. Junction boxes shall be located on the north end of the truss span to facilitate field connection to bridge lighting system as directed on the plans. Additional junction boxes shall be provided at the bolted field splice location allowing field connection of wiring.

#### ENGINEERING AND DESIGN LOADING

SP8-4.1 Structural design of the truss shall be performed by or under the direct supervision of a Licensed Professional Engineer and done in accordance with recognized engineering practices and principles.

SP8-4.2 Design Loads: In considering design and fabrication issues, this structure shall be assumed to be statically loaded. No dynamic analysis shall be required nor shall fabrication issues typically considered for dynamically loaded structures be considered for this bridge. However, the fundamental frequency of the truss shall be evaluated in accordance with LRFD Guide Specifications for the Design of Pedestrian Bridges.

**(a) Dead Load.** The bridge structure design shall consider its own dead load (superstructure and concrete deck), as well as the additional loads listed below:

**(b) Pedestrian Uniform Live Load.** Main members shall be designed for a pedestrian live load of 90 pounds per square foot of bridge walkway area. The pedestrian live load shall be applied to those areas of the walkway so as to produce maximum stress in the member being designed. **No reduction in the design live load will be allowed.**

Bridge decks and supporting floor systems, including secondary stringers, floor beams and their connections to main supporting members shall be designed for a live load of 90 pounds per square foot, with no reduction allowed.

**(c) Truck Loading.** The main members, bridge deck and supporting floor system and their connections to main supporting members shall be design for a design truck loading corresponding to the AASHTO H10 vehicle. The total weight of the design vehicle shall be 20,000 pounds with front and rear axle loads of 4,000 and 16,000 pounds, respectively. The distance between the front and rear axle shall be 14'. The transverse spacing between wheel loads of each axle shall be 6'. The truck loading shall be positioned to produce the maximum stress in each component designed.

**(d) Wind Load.**

**Horizontal Forces** - The truss shall be designed for the wind load requirements outlined in Section 3.4 of the LRFD Guide Specifications for the Design of Pedestrian Bridges. The wind load shall be applied horizontally at right angles to the longitudinal axis of the structure. The wind loading shall be considered both in the design of the lateral load bracing system and in the design of the truss vertical members, floor beams and their connections.

**Overtuning Forces** - The effect of forces tending to overturn structures shall be calculated assuming that the wind direction is at right angles to the longitudinal axis of the structure. In addition, an upward force shall be applied at the windward quarter point of the transverse superstructure width. This force shall be 20 pounds per square foot of deck.

**Top Chord/Railing Loads** -The top chord, truss verticals, and floor beams shall be designed for lateral wind loads and for any loads required to provide top chord stability; however, in no case shall the load be less than 50 pounds per linear foot or a 200 pound point load, whichever produces greater stresses, applied in any direction at any point along the top chord or at the top of the safety system (54" above deck level), if higher than the top chord.

**(e) Load Combinations** -The loads listed herein shall be applied in accordance with Section 3.7 of the LRFD Guide Specifications for the Design of Pedestrian Bridges.

#### DESIGN LIMITATIONS

SP8-5.1 Vertical Deflection: The vertical deflection of the main truss shall be investigated at the service limit state using load combination Service I in Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specification and shall not exceed 1/360 of the span. The vertical deflection of cantilever spans of the structure due to service pedestrian live load shall not exceed 1/220 of the cantilever arm length. The deflection of the floor system members (floor beams and stringers) due to service pedestrian live load shall not exceed 1/360 of their respective spans.

The service pedestrian live load shall be 90 PSF without reduction.

Deflection limits due to occasional vehicular traffic shall not be considered.

SP8-5.2 Horizontal Deflection: The horizontal deflection of the structure due to service lateral wind loads shall not exceed 1/360 of the span.

SP8-5.3 Minimum Thickness of Metal: The minimum thickness of all structural steel members shall be 1/4" nominal and be in accordance with the AISC Manual of Steel Constructions' "Standard Mill Practice Guidelines". For ASTM A500 and ASTM A847 tubing, the section properties used for design shall be per the Steel Tube Institute of North America's Hollow Structural Sections "Dimensions and Section Properties".



SP8-5.4 Governing Design Codes and References: Structural members shall be designed in accordance with recognized engineering practices and principles as follows:

- (a) **Structural Steel Stresses:** American Association of State Highway and Transportation Officials (AASHTO). Design Stresses shall be in accordance with the 7<sup>th</sup> Edition of the AASHTO *LRFD Bridge Design Specifications*.
- (b) **Welded Tubular Connections:** American Association of State Highway and Transportation Officials / American Welding Society (AASHTO/AWS) and the Canadian Institute of Steel Construction (CISC).

All welded tubular connections shall be checked, when within applicable limits, for the limiting failure modes outlined in the AASHTO/AWS D1.1 Structural Welding Code or in accordance with the "Design Guide for Hollow Structural Section Connections" as published by the Canadian Institute of Steel Construction (CISC).

When outside the "validity range" defined in these design guidelines, the following limit states or failure modes must be checked:

- Chord face plastification
- Punching shear (through main member face)
- Material failure
  - Tension failure of the web member
  - Local buckling of a compression web member
- Weld failure
  - Allowable stress based on "effective lengths"
  - "Ultimate" capacity
- Local buckling of a main member face
- Main member failure:
  - Web or sidewall yielding
  - Web or sidewall crippling
  - Web or sidewall buckling
  - Overall shear failure

All tubular joints shall be plain unstiffened joints (made without the use of reinforcing plates) except as follows:

- Floor beams which frame directly into the truss verticals (H-Section bridges) may be designed with or without end stiffening plates as required by design.
- Where chords, end floor beams and in high profiles the top end struts weld to the end verticals, the end verticals (or connections) may require stiffening to transfer the forces from these members into the end vertical.
- Truss vertical to chord connections.

NOTE: The effects of fabrication tolerances shall be accounted for in the design of the structure. Special attention shall be given to the actual fit-up gap at welded truss joints.

- (c) **(c) Concrete.** American Association of State Highway and Transportation Officials (AASHTO).

Reinforced concrete shall be designed in accordance with the 7<sup>th</sup> Edition of the AASHTO *LRFD Bridge Design Specifications*.

## MATERIALS

SP8-6.1 Painted Steel. Bridges which are to be painted shall be fabricated from high strength, low alloy, structural steel meeting the requirements of AASHTO M270 Grade 50 or ASTM A500 cold-formed welded square and rectangular tubing.

SP8-6.2 Concrete Deck. The bridge shall be furnished with a stay-in-place galvanized steel form deck suitable for pouring a reinforced concrete slab. The form deck shall be designed to carry the dead load of the wet concrete, weight of the form decking, plus a construction load of 50 PSF uniform load or a 150 pound concentrated load on a 1'-0" wide section of deck. When edge supports are used, deflection is limited to 1/180 of the span or 1/2", whichever is less. Without edge supports, deflection shall be limited to 1/180 of the span or 3/8", whichever is less.

The form deck shall be either smooth or composite. Composite decking shall not be used as reinforcing when designing for vehicular wheel loads. The form deck material shall be supplied in accordance with ASTM A653 and galvanized to a minimum G165 coating weight. The deck slab shall be constructed using concrete meeting the requirements of Class S(AE) Concrete of the Arkansas Department of Transportation's Standard Specification for Highway Construction.

Concrete deck design shall be performed by the bridge manufacturer. Concrete decks shall be designed for concentrated loads as specified in this Special Provision. The concrete deck design shall be performed in accordance with the LRFD Bridge Design Specifications.

SP8-6.3 Welding. Welding and weld procedure qualification tests shall conform to the provisions of AASHTO/AWS D1.1 "Structural Welding Code", 2010 Edition. Filler metal shall be in accordance with the applicable AWS Filler Metal Specification (i.e. AWS A 5.28 for the FCAW Process). For exposed, bare, unpainted applications of corrosion resistant steels (i.e. ASTM A588 and A847), the filler metal shall be in accordance with AWS D1.5, Section 3.7.3.

Welders shall be properly accredited operators, each of whom shall submit certification of satisfactorily passing AWS standard qualification tests for all positions with unlimited thickness of base metal, have a minimum of 6 months experience in welding tubular structures and have demonstrated the ability to make uniform sound welds of the type required.

## SUBMITTALS

SP8-7.1 Submittal Drawings. Schematic drawings and diagrams shall be submitted to the Engineer for their review after receipt of order. Submittal drawings shall be unique drawings, prepared to illustrate the specific portion of the work to be done. All relative design information such as member sizes, bridge reactions, and general notes shall be clearly specified on the drawings. Drawings shall have cross referenced details and sheet numbers. All drawings shall be signed and sealed by a Professional Engineer who is licensed in accordance with Section 3.0.

SP8-7.2 Structural Calculations. Structural calculations for the bridge superstructure shall be submitted by the bridge manufacturer and reviewed by the Engineer. All calculations shall be signed and sealed by a Professional Engineer who is licensed in accordance with this Special Provision. The calculations shall include all design information necessary to determine the structural adequacy of the bridge. The

calculations shall include the following:

- All AASHTO LRFD stress checks for axial, bending and shear forces in the critical member of each truss member type (i.e. top chord, bottom chord, floor beam, vertical, etc.).
- Checks for the critical connection failure modes for each truss member type (i.e. vertical, diagonal, floor beam, etc.). Special attention shall be given to all welded tube on tube connections (see section 3.3.2 for design check requirements).
- All bolted splice connections.
- Main truss deflection checks.
- U-Frame stiffness checks (used to determine K factors for out-of-plane buckling of the top chord) for all half through or "pony" truss bridges.
- Deck design.

NOTE: The analysis and design of triangulated truss bridges shall account for moments induced in members due to joint fixity where applicable. Moments due to both truss deflection and joint eccentricity must be considered.

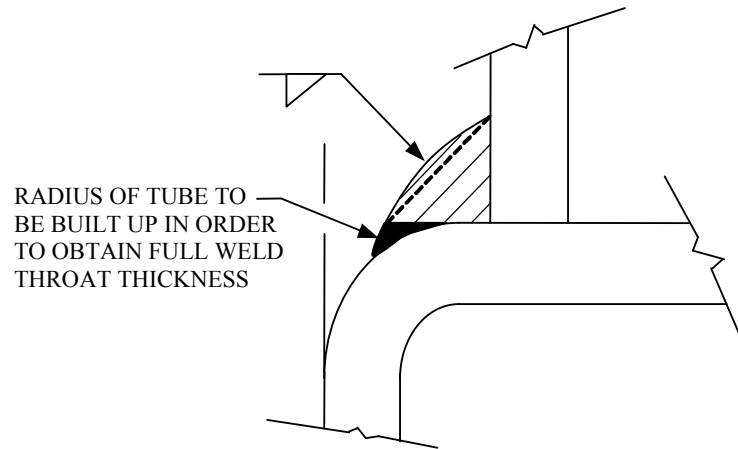
SP8-7.3 Welder Certifications. Welder certifications in compliance with AWS standard qualification tests.

SP8-7.4 Welding Procedures. Welding procedures in compliance with this Special Provision.

### FABRICATION

SP8-8.1 Drain Holes. When the collection of water inside a structural tube is a possibility, either during construction or during service, the tube shall be provided with a drain hole at its lowest point to let water out.

SP8-8.2 Welds. Special attention shall be given to developing sufficient weld throats on tubular members. Fillet weld details shall be in accordance with AWS D1.1, Section 3 (See AWS Figure 3.2). Unless determined otherwise by testing, the loss factor "Z" for heel welds shall be in accordance with AWS Table 2.8. Fillet welds which run onto the radius of a tube shall be built up to obtain the full throat thickness (See Figure 1). The maximum root openings of fillet welds shall not exceed 3/16" in conformance with AWS D1.1, Section 5.22. Weld size or effective throat dimensions shall be increased in accordance with this same section when applicable (i.e. fit-up gaps > 1/16").



**FIGURE 1  
BUILD UP RADIUS WELD**

The fabricator shall have verified that the throat thickness of partial joint penetration groove welds (primarily matched edge welds or the flare-bevel-groove welds on underhung floor beams) shall be obtainable with their fit-up and weld procedures. Matched edge welds shall be “flushed” out when required to obtain the full throat or branch member wall thickness.

For full penetration butt welds of tubular members, the backing material shall be fabricated prior to installation in the tube so as to be continuous around the full tube perimeter, including corners. Backing may be of four types:

- A “box” welded up from four (4) plates.
- Two “channel” sections, bent to fit the inside radius of the tube, welded together with full penetration welds.
- A smaller tube section which slides inside the spliced tube.
- A solid plate cut to fit the inside radius of the tube.

Corners of the “box” backing, made from four plates, shall be welded and ground to match the inside corner radii of the chords. The solid plate option shall require a weep hole either in the chord wall above the “high side” of the plate or in the plate itself. In all types of backing, the minimum fit-up tolerances for backing must be maintained at the corners of the tubes as well as across the “flats”.

SP8-8.3 Quality Certification: Truss(es) shall be fabricated by a fabricator who is currently certified by the American Institute of Steel Construction to have the personnel, organization, experience, capability, and commitment to produce fabricated structural steel for the category “Major Steel Bridges” as set forth in the AISC Certification Program. Quality control shall be in accordance with procedures outlined for AISC certification. For painted structures, the fabricator must hold a "Sophisticated Paint Endorsement" as set forth in the AISC certification program. Furthermore, the bridge(s) shall be fabricated in a facility owned and/or leased by the corporate owner of the manufacturer, and fully dedicated to bridge manufacturing.

## FINISHING

SP8-9.1 PAINTING: All structural steel components of the prefabricated truss shall be painted in accordance with the Special Provision "Painting Structural Steel". The safety mesh panels shall receive a standard, black in color, powder coated finish.

## DELIVERY AND ERECTION

SP8-10.1 Delivery is made to a location nearest the site which is easily accessible to normal over-the-road tractor/trailer equipment. All trucks delivering bridge materials will need to be unloaded at the time of arrival.

The manufacturer will provide detailed, written instruction in the proper lifting procedures and splicing procedures (if required). The method and sequence of erection shall be the responsibility of others.

The bridge manufacturer shall provide written inspection and maintenance procedures to be followed by the bridge owner.

## BEARINGS AND ANCHOR BOLTS

SP8-11.1 Bridge bearings shall consist of a steel setting or slide plate placed on the substructure or grout pad. The bridge bearing plate which is welded to the bridge structure shall bear on this setting plate. One end of the bridge will be fixed by fully tightening the nuts on the anchor bolts at that end. The opposite end will have finger tight only nuts to allow movement under thermal expansion or contraction.

Bridges in excess of 100 feet in length or bridges with dead load reactions of 15,000 pounds or more (at each bearing location) shall have teflon on teflon or stainless steel on teflon slide bearings placed between the bridge bearing plate and the setting plate. The top slide plate shall be large enough to cover the lower teflon slide surface at both temperature extremes.

SP8-11.2 Unless specified otherwise, the bridge manufacturer shall determine the number, diameter, minimum grade and finish of all anchor bolts. The anchor bolts shall be designed to resist all horizontal and uplift forces to be transferred by the superstructure to the supporting foundations. **The anchor bolts shall be designed for the minimum seismic loading shown on the plans as a percentage of the total tributary load at each support. The tributary longitudinal loading at fixed bearings shall consist of the entire dead load of the truss span.** The contractor shall install the anchor bolts in accordance with the manufacturer's anchor bolt spacing dimensions.

Information as to bridge support reactions and anchor bolt locations will be furnished by the bridge manufacturer after receipt of order and after the bridge design is complete.

## WARRANTY

SP8-12.1 The bridge manufacturer shall warrant their steel structure(s) to be free of design, material and workmanship defects for a period of ten years from the date of delivery. This warranty does not include decking, railing attachments, on any other items not part of the steel truss structure.

This warranty shall not cover defects in the bridge caused by abuse, misuse, overloading, accident, improper maintenance, alteration or any other cause not the result of defective materials or

workmanship. This warranty shall be void unless owner's records can be supplied which shall indicate compliance with the minimum guidelines specified in the inspection and maintenance procedures.

Repair or replacements shall be the exclusive remedy for defects under this warranty. The bridge manufacturer shall not be liable for any consequential or incidental damages for breach of any express or implied warranty on their structures.

### MEASUREMENT AND PAYMENT

SP8-13.1 Acceptable prefabricated steel trusses, complete in place and of the specified length, will be measured by each unit as constructed to the dimensions shown on the plans.

Prefabricated Steel Trusses, measured as provided above, will be paid for at the contract unit price bid per each, which shall be full compensation for designing, fabricating, delivering, erecting and painting the steel truss, for furnishing and placing all corrugated metal deck, concrete and reinforcing steel of the concrete deck within the truss span; and for furnishing all tools, labor, equipment and incidentals necessary to complete the work.

Payment will be made under:

Item SP8-13.1                      100' Steel Truss – per each

END OF SECTION SP-8

## ITEM SP – 9 – SPECIAL SAFETY REQUIREMENTS FOR BRIDGES

### DESCRIPTION

SP9-1.1 This specification covers special safety requirements during the construction of the Bridge over Dave Ward Drive. These requirements are intended for the safety of both the traveling public and the workers. Any modifications must meet the approval of the Engineer.

### WORK TO BE PERFORMED

SP9-2.1 Erection of the steel truss, placement and removal of safety platforms, painting and other activities deemed necessary by the Engineer on the span over Dave Ward Drive shall be limited to the hours between 12:00 p.m. and 4:00 a.m. on Sunday through Saturday, but will not be permitted during legal holidays or weekdays/weekends adjacent to these holidays. During this time window, all highway traffic may be stopped for short intervals of time, not to exceed 15 minutes, in order that the above activities can progress without endangering the traveling public. Between closure periods the roadway must be opened for a sufficient time to allow re-establishment of the normal flow of traffic. Time windows are subject to adjustment by the Engineer when necessary to accommodate special events or situations.

SP9-2.2 The Contractor shall notify the Engineer and the Arkansas Department of Transportation Resident Engineer no less than five days before erection of the steel truss or any other activities that will temporarily or permanently reduce the vertical clearance over Dave Ward Drive. Notification is required for each subsequent activity that will reduce the previous existing clearance. A minimum vertical clearance of 14'-0" must be maintained during all activities.

SP9-2.3 Construction of bents and embankments shall be accomplished in such a manner that traffic is maintained on the highway as described above. Sheet piling or other means shall be used to prevent embankment or excavated material from spilling onto the existing highway or to protect the shoulders from bent excavation. Excavation for footings and pouring of concrete shall be accomplished without construction equipment obstructing traffic.

Details of the shoring – complete with dimensions, design calculations, and kind and condition of materials – must be submitted to the Engineer for informational and record purposes prior to construction. These details must be prepared and/or approved by a Professional Engineer registered in Arkansas.

The Contractor shall construct the shoring in accordance with the details submitted to the Engineer and the results obtained by the use of the shoring design are the Contractor's responsibility.

SP9-2.4 During the erection of the steel truss, permanent bents or sufficient falsework shall be provided for support of the steel truss. Highway traffic shall not be allowed to travel under the span while a piece of structural steel on that span is being moved into position or before the steel truss is securely supported by falsework or by a permanent bent. Equipment or materials of any kind shall not be hoisted over highway traffic.

Any falsework or construction equipment required for the erection of the structural steel, or for other activities, shall be protected by precast barriers as shown on Drawing No. TC-4. The precast barriers

may be located to close a shoulder as approved by the Engineer. Appropriate signs must be in place when a shoulder is closed.

SP9-2.5 Immediately after erection of the steel truss, a safety platform shall be constructed directly under the steel truss on the span over the highway for the entire area of construction to protect traffic from falling objects. The Contractor must devise a method of support for the safety platform used under the truss bottom chord members.

Details for the platform construction - complete with dimensions, design calculations, and kind and condition of materials - must be submitted to the Engineer for informational and record purposes prior to construction. These details must be prepared and/or approved by a Professional Engineer registered in Arkansas. The Contractor shall construct the platform in accordance with the details submitted to the Engineer and the results obtained by the use of the platform design are the Contractor's responsibility.

Vehicular traffic shall not be allowed to travel under a portion of platform being installed or removed.

SP9-2.6 Permanent steel deck forms shall be used between floor beams of the truss in span over the highway. Further requirements and details of permanent steel deck forms may be found on Drawing No. 55005 and Subsection 802.14(b) of the Standard Specifications. Permanent steel deck forms will not be considered as part of the required safety platform.

SP9-2.7 The application of the modified siloxane hybrid coat shall be deferred until adjoining concrete work has been placed and finished. If concreting operations damage the primer coat, the surface shall be re-cleaned and repainted. Spray painting will be permitted in applying the coat(s) of paint after erection to the spans over the highway during the work periods described above. The Contractor shall use tarps or similar curtains while spraying spans over the existing highway and when adjacent to traffic to prevent damage to highway traffic from drift. The Contractor shall assume all responsibility for any damage.

### PAYMENT

SP9-3.1 No direct payment will be made for this work. It shall be considered subsidiary to the items of Unclassified Excavation for Structures - Bridge, Class S Concrete - Bridge, and 100' Steel Truss.



## ITEM SP-10 – TEXTURED COATING FINISH

### DESCRIPTION

SP-10-1.1 This item shall consist of providing a textured coating finish, placed in accordance with these Specifications, the Plans or as directed by the Engineer.

Work and materials shall be in accordance with **SUBSECTION 802.19 – FINISHING CONCRETE SURFACES** of the Arkansas Department of Transportation's Standard Specification for Highway Construction, Edition of 2014, except modified as follows:

**(a) General.** After the third paragraph, add:

The Contractor shall use a Class 3, Textured Coating Finish on some parts of Stone Dam Creek Trail Bridge over Dave Ward Drive. Class 1 Protective Surface Treatment shall not be used on the surfaces where the textured coating finish is used. All surfaces shall be cleaned as necessary for bonding of the finish.

**(b) (3) Class 3, Textured Coating Finish.** Delete the second paragraph and replace with:

Unless otherwise directed by the Engineer, the color of the finish from the Federal Color Standard 595B and the areas to which it shall be applied are as follows:

- Gray, equal or close to Shade 36650:
  - Exposed surfaces of end bents, excluding top of cap, top of backwall and front face of backwall.
  - Trail faces, tops, ends, and outer faces of the end bent rails.
  - Exposed surfaces of intermediate bents excluding top of cap.
  - Trail faces, tops, and outer faces of the superstructure parapet rails.
  - Outside faces of the slab and the undersides of the slab outside of exterior girders.
  - Other areas as directed by the engineer.
  - Exposed surfaces of the coping on MSE Retaining Walls.
- Brown, equal or close to Shade 20109:
  - Portions of the end bent pylons as detailed in the drawings.
  - Portions of the intermediate bent columns and pylons as detailed in the drawings.
  - Exposed surfaces of MSE Retaining Wall panels as detailed in the drawings.

Textured coating finish of exposed surfaces of the substructure shall be applied to final ground lines.

### METHOD OF MEASUREMENT

SP-10-2.1 Textured Coating Finish applied at the direction of the Engineer will be measured by the square yard. Measurement will be made of the actual area covered as directed. The quantities shown on the plans for Textured Coating Finish will be considered as the final quantities and no further measurement will be made unless, in the opinion of the Engineer or upon evidence furnished by the

Contractor, substantial variations exist between quantities shown on the plans and actual quantities due to changes in alignment or dimensions or to apparent errors.

BASIS OF PAYMENT

SP-10-3.1 Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per square yard for Textured Coating Finish, which price shall be full compensation for furnishing materials; for cleaning surfaces and application; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

Item SP10-3.1      Textured Coating Finish – per square yard

END OF SECTION SP-10

**ITEM SP-11 – ARCHITECTURAL FINISH**

DESCRIPTION

SP11-1.1 This item shall consist of providing pattern finish to concrete surfaces in accordance with these specifications and in conformity with the locations, dimensions and lines shown on the plans.

GENERAL

SP11-2.1 The pattern shall be either Brick Finish or Stone Finish as detailed in the plans. Prior to construction, the Contractor shall submit a work plan to the Engineer for approval showing materials, construction methods and other features affecting the pattern construction. The work performed shall be according to the approved work plan.

SP11-2.2 BRICK FINISH. The Brick pattern shall be similar to the Fitzgerald Formliners pattern 16940 “4”x12” Wire Brick” and shall have faux mortar joints approximately 3/8” wide by 1/4” deep. The Brick pattern shall have a wire texture. Before construction of the bents and any retaining wall panel, approval of the Brick Architectural Finish will be required. Approval will be based on a sample panel with approximate dimensions of 5 feet by 5 feet. Prior to construction of the bents and retaining walls, a work plan showing the materials, construction methods and other features affecting the finish shall be submitted to the Engineer for approval. The work performed shall be according to the approved plan.

SP11-2.3 STONE FINISH. The Stone pattern shall be similar to the Fitzgerald Formliners pattern 17991 “Ohio Chiseled Limestone” and shall have faux mortar joints approximately 3/8” wide by 1/4” deep. The Stone pattern shall have a light sandstone texture. Before construction of any portion of the bents, approval of the Stone Architectural Finish will be required. Approval will be based on a sample panel with approximate dimensions of 5 feet by 5 feet. Prior to construction of the bents and retaining walls, a work plan showing the materials, construction methods and other features affecting the finish shall be submitted to the Engineer for approval. The work performed shall be according to the approved plan.

MEASUREMENT AND PAYMENT

SP11-3.1 Method of Measurement. Except for Architectural Finish applied to retaining wall panels, Architectural Finish will be measured by the square foot. The quantities shown on the plans for Architectural Finish will be considered as the final quantities and no further measurement will be made unless, in the opinion of the Engineer or upon evidence furnished by the Contractor, substantial variations exist between quantities shown on the plans and actual quantities due to changes in alignment or dimensions or to apparent errors.

SP11-3.2 Basis of Payment. Except for work associated with Architectural Finish applied to retaining wall panels, work completed and accepted and measured (if necessary) as provided above will be paid for at the contract unit price bid per square foot for Architectural Finish, which price shall be full compensation for furnishing materials; form liners; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment shall be made under:

Item SP11-3.2 Architectural Finish - per square yard

For payment for Architectural Finish applied to retaining wall panels, see Special Provision  
“RETAINING WALLS.”

END OF ITEM SP-11

**ITEM SP-12 – CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT  
AND CLASS S(AE) CONCRETE**

GENERAL

**The following is added as the last paragraph of Subsections 501.04(a) and 802.06(a):**

If the contractor elects to use Class C fly ash as a partial replacement for cement in Portland Cement Concrete Pavement or in Class S(AE) concrete and the plant producing the fly ash uses powdered activated carbon to meet EPA mercury emission requirements (as indicated in the Qualified Products List), an increased frequency for contractor quality control testing for air content will be required. As a minimum, an air content test must be taken at the beginning of placement and at intervals during placement not to exceed 20 cubic yards. The Engineer may require more frequent testing if wide ranges occur in the air content test results. No additional payment will be made for additional air content testing, but full compensation will be considered included in the contract unit prices bid for Portland Cement Concrete Pavement or Class S(AE) Concrete.

END OF ITEM SP-12



## ITEM SP-13 – DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES

### DESCRIPTION

SP-13-1.1 This item consists of the optional use of compressible-washer-type direct tension indicators to indicate bolt tension in high strength bolted assemblies in accordance with these specifications and in conformity with the plans. All references to Division, Section, and Subsection refer to the Arkansas Department of Transportation Standard Specifications for Highway Construction (2014 Edition).

### GENERAL

*Subsection 807.06(a) is amended to include the following paragraph for Direct Tension Indicators (DTI):*

Direct tension indicators shall be used in conjunction with bolts, nuts and washers as specified above. Direct tension indicators shall conform to the requirements of ASTM F959. Direct tension indicators for plain Type 1 high strength bolts shall be plain or galvanized. Galvanizing for direct tension indicators shall be by mechanical deposition in accordance with ASTM B695, Class 50. Direct tension indicators for Type 3 high strength bolts shall be Type 3.

*Subsection 807.06(b) is modified as follows for Direct Tension Indicators (DTI): The first paragraph is deleted and the following substituted therefore:*

**(b) Required Tests. (1) Rotational Capacity.** High strength fasteners, plain and galvanized, shall be subjected to a rotational capacity test according to ASTM A325, Section 6.3, and shall meet the following requirements:

*Subsection 807.06(b) is modified as follows for Direct Tension Indicators (DTI): The third paragraph is deleted and the following substituted therefore:*

**(2) Verification Testing for Direct Tension Indicators.** Verification testing shall be performed in a calibration bolt tension device. A special flat insert shall be used in place of the normal bolt head holding insert. Three verification tests shall be required for each combination of fastener assembly rotational-capacity lot, direct tension indicator lot, and direct tension indicator position relative to the turned element to be used on the project. The fastener assembly shall be installed in the tension measuring device with the direct tension indicator located in the same position as in the work. The element intended to be stationary shall be restrained from rotation.

The verification test shall be conducted in two stages. The bolt, nut and direct tension indicator assembly shall be installed in a manner so that at least three and preferably not more than five threads are located between the bearing face of the nut and the bolt head. The bolt shall first be tensioned to the load equal to that listed in Table 807-3 under Verification Tension for the specified bolt. If an impact wrench is used, the tension developed using the impact wrench shall be no more than two-thirds of the required tension. Final tensioning shall be attained using a manual wrench. The number of refusals of the 0.005" (0.125 mm) feeler gage in the spaces between the protrusions shall be recorded. The number of refusals for uncoated direct tension indicators under a stationary or turned element, or coated direct tension indicators under a stationary element, shall not exceed the number listed under Maximum Verification Refusals in Table 807-3 for the specified bolt. The maximum number of verification refusals for coated direct tension indicators, when used under a turned element, shall be no more than the number of spaces on the direct tension indicator less one. The direct tension

indicator lot shall be rejected if the number of refusals exceeds the values in Table 807-3, or for coated if the gage is refused at all spaces.

After the number of refusals is recorded at Verification Tension, the bolt shall be further tensioned until the 0.005" (0.125 mm) feeler gage is refused at all the spaces and a visible gap exists in at least one space. The load at this condition shall be recorded and the bolt removed from the tension-measuring device. The nut shall be able to be run down freely by hand the complete thread length excluding thread run-out. If the nut cannot be run down for this thread length, the direct tension indicator lot shall be rejected unless the load recorded is less than 95 percent of the average load measured in the rotational capacity test of the fastener lot as specified in Subsection 807.06(b)(1) Rotational Capacity.

If the bolt is too short to be tested in the calibration device, the direct tension indicator lot shall be verified on a long bolt in a calibrator to determine the number of refusals at the Verification Tension listed in Table 807-3, the number of refusals shall not exceed the values listed under Maximum Verification Refusals in Table 807-3. Another direct tension indicator from the same lot shall then be verified with the short bolt in a convenient hole in the work. The bolt shall be tensioned until the 0.005" (0.125 mm) feeler gage is refused in all spaces and a visible gap exists in at least one space. The bolt shall be removed from the work and the nut shall be able to be run down freely by hand the complete thread length of the bolt excluding thread run-out. The direct tension indicator lot shall be rejected if the nut cannot be run down this thread length.

**(3) Test Reports.** The Engineer shall be furnished with a Manufacturer's certified test report for each production lot for all high strength bolts, nuts, washers, and direct tension indicators used on the project. This certification shall provide a lot number, shop order number, or other identification such that the heat number from which the items were made can be traced. This identifying number shall also appear on the sealed shipping containers. The certification shall indicate when and where all testing was done, including the rotational capacity tests, and include the zinc thickness when galvanized bolts, nuts, washers and direct tension indicators are used. The certification for direct tension indicators shall also include compression test loads, gap clearance, nominal size and type.

*Subsection 807.71(b) is modified as follows for Direct Tension Indicators (DTI): The first paragraph is deleted and the following substituted therefore:*

**(b) Bolts, Nuts, Washers, and Direct Tension Indicators.** Fastener components shall conform to the requirements of Subsection 807.06.

*Subsection 807.71(d) is deleted and the following substituted therefore:*

**(d) Installation. (1) Bolt Tension.** Compressible-washer-type direct tension indicators shall be used to indicate bolt tension. They shall be subject to the verification testing specified in Subsection 807.06 (b)(2) and installed in accordance with the method below. Bolt lengths shall be sufficient to accommodate direct tension indicators and any additional washers required. Direct tension indicators will be required at all high strength bolted connections. Direct tension indicator type and manufacturer shall not be mixed within a project.

Unless approved by the Engineer direct tension indicator shall be installed under the head of the bolt and the nut turned to tension the bolt. The Manufacturer's recommendations shall be followed for the proper orientation of the direct tension indicator and any additionally required washers. Installation of a direct tension indicator under the turned element may be permitted if a washer is used to separate the turned element from the direct tension indicator. The reuse of direct tension indicators will not be



allowed. If it becomes necessary to loosen a previously tensioned bolt, the direct tension indicator shall be replaced.

Installation of fastener assemblies using direct tension indicators shall be in two stages. The stationary element shall be held against rotation during both stages. The connection shall first be brought to a snug tight condition with bolts installed in all holes. Snug tight, for bolt assemblies using direct tension indicators, exists when the plies of the joint are in firm contact and the number of spaces in which a 0.005” (0.125 mm) feeler gage is refused does not exceed that listed under Maximum Verification Refusals in Table 807-3. If the number of refusals exceeds the value listed under Maximum Verification Refusals in the Table 807-3 the direct tension indicator shall be replaced and the fastener assembly brought to a snug tight condition as specified above.

After all bolts in the connection have been properly brought to a snug tight condition, for uncoated direct tension indicators under a turned or stationary element and for coated direct tension indicators under a stationary element, the bolt assembly shall be further tensioned until the number of refusals of the 0.005” (0.125 mm) feeler gage is equal to or greater than the number listed under Minimum Installation Refusals in Table 807-3. If the bolt assembly is tensioned so that no visible gap remains in any space, the bolt assembly shall be removed and replaced by a new bolt and direct tension indicator that is properly tensioned. When coated direct tension indicators are used under a turned element, the 0.005” (0.125 mm) feeler gage shall be refused in all spaces, but a visible gap must remain in any space.

**(2) Power Wrench Tightening.** When power wrenches are used to provide the bolt tension specified Table 807-3, their setting shall be such that the requirements of Subsection 807.71(d)(1) are met. Wrenches shall be of adequate capacity to perform the required tightening of each bolt assembly in less than 10 seconds.

**TABLE 807-3  
DIRECT TENSION INDICATOR REQUIREMENTS**

U.S. Standard		METRIC (SI)				
Bolt Size (Inches)	Verification Tension (kips)	Bolt Size	Verification Tension (kN)	Maximum Verification Refusals	DTI Spaces	Minimum Installation Refusals
1/2	13			1	4	2
5/8	20	M16	96	1	4	2
3/4	29	M20	149	2	5	3
7/8	41	M22	185	2	5	3
1	54	M24	215	2	6	3
1 1/8	59	M27	280	2	6	3
1 1/4	75	M30	342	3	7	4
1 3/8	89	M36	499	3	7	4
1 1/2	108			3	8	4

***Subsection 807.71(e) is deleted and the following substituted therefore:***

**(e) Inspection. (1)** The Engineer will observe the installation and tightening of bolts to determine that all bolts are tightened as specified. Where direct tension indicators are used the Engineer will examine at least 10 percent, but no less than 2 bolt assemblies in each connection for gap requirements and acceptability in accordance with the requirements of paragraph (d)(1). If any bolt assembly fails to meet these requirements all bolt assemblies in the connection shall be examined by the Engineer and the Fabricator or Erector shall retighten or replace bolt assemblies according to paragraph (d)(1).

**(2)** At the direction of the Engineer the Contractor may be required to inspect tightened bolt assemblies in a connection using an inspection wrench (only calibrated torque wrench will be acceptable). The inspection shall be conducted before loss of lubricant or corrosion influences the tightening torque.

The inspection wrench shall be calibrated by tightening three typical sample bolt assemblies of the same grade, size and condition as those under inspection in a calibration bolt tension device. A special flat insert shall be used in place of the normal bolt head holding insert. Each sample bolt assembly shall be individually placed in the calibration device and tightened to the verification tension specified in Table 807-3 for the grade and size being inspected. The fastener assembly shall be installed in the tension measuring device with the direct tension indicator located in the same position as in the work. The element intended to be stationary shall be restrained from rotation and there shall be a washer under the turned element of each sample bolt assembly. The inspecting wrench shall be applied to the tightened sample bolt assembly and the torque necessary to turn the nut or head 5° (approximately 1" [25 mm] at 12" [300 mm] radius) in the direction of tensioning shall be determined. The average of the torque measured in the testing of the three sample bolt assemblies shall be taken as the job inspection torque.

Where directed by the Engineer bolt assemblies represented by the sample bolt assembly and that have been tightened in the structure shall be inspected by applying the inspection wrench and its job inspection torque. If no nut or bolt head is turned by this application of the job inspecting torque, the connection will be accepted as properly tightened. If any nut or bolt head is turned by the application of the job inspecting torque, this torque shall be applied to all bolts in the connection, and all bolt assemblies whose nut or head is turned by the job inspecting torque shall be tightened and reinspected, or alternatively, the Fabricator or Erector, at his option, may retighten all of the bolt assemblies in the connection and resubmit the connection for the specified inspection.

**MEASUREMENT AND PAYMENT**

All costs incurred in complying with this Special Provision including all costs for furnishing, installing, and testing of Direct Tension Indicators will not be measured or paid for separately, but shall be considered subsidiary to the lump sum item of "Bridge Construction".

END OF ITEM SP-13

## ITEM SP-14 – RETAINING WALLS

### DESCRIPTION

SP14-1.1 This item shall consist of the construction of mechanically stabilized earth walls in accordance with these specifications and in conformity with the locations, dimensions, lines and grades shown on the plans. Modular Block wall systems will not be considered. All references to Division, Section, and Subsection refer to the Arkansas Department of Transportation Standard Specifications for Highway Construction (2014 Edition).

SP14-1.2 General. The same type retaining wall system shall be used at all locations. Any approved retaining wall system, except Modular Block Walls, on the Qualified Products List (QPL) will be acceptable provided that:

1. The maintenance-free life expectancy shall be at least seventy-five (75) years.
2. Retaining walls shall be designed by an Arkansas Registered Professional Engineer. The design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications and this Special Provision.
3. The basic wall geometry, including top and bottom of wall face, grade lines, length, and limits of walls shall be as shown on the plans.
4. Structural elements of the wall shall not interfere with the location of roadway drainage structures and end bent piling as shown on the plans.
5. A “wire brick” architectural finish as stated in the Special Provision “Architectural Finish”, or an approved equivalent, will be required for the concrete wall face.
6. The wall system design shall comply with requirements for global stability as determined by the Engineer.
7. The passive resistance of the soil at the front face of the wall shall be neglected in the analysis of external stability for sliding.
8. The factored bearing resistance shown in the plans is recommended for the foundation material based on an estimated width of the reinforced zone. The Engineer will evaluate factored bearing pressures in excess of the recommended factored bearing resistance and in any undercut areas upon submittal of the wall system design.
9. The wall supplier shall provide strap reinforcing to accommodate the end bent loading shown in the plans. The strap reinforcing and end bent devices shall be designed by the supplier.

## MATERIALS

SP14-2.1 Concrete Facing Panels: The reinforced concrete facing panels shall be rectangular or square in shape, fabricated in accordance with Subsection 802.21 and Section 804. The materials shall meet the requirements of Subsections 802.02 and 804.02 with the following additions and modifications:

1. The Contractor shall submit his concrete mix design to the Engineer for approval. The Portland cement concrete shall have a minimum 4000 psi compressive strength at 28 days; with a minimum cement factor of 6 bags per cubic yard, an air content of  $6\% \pm 2\%$ , and a maximum aggregate size of 1 inch.
2. The units shall be fully supported by the forms until the concrete reaches a minimum compressive strength of 2500 psi as evidenced by test cylinders cured in the same manner as the panels and tested in accordance with AASHTO T 22.
3. All units shall be handled, stored, and shipped in such a manner as to eliminate the dangers of chipping, discoloration, cracks, fractures, and excessive bending stresses. Stored panels shall be supported in firm blocking to protect the panel connection devices and the exterior finish.
4. Panel connection devices shall be positioned within a tolerance of 1 inch. Panel squareness, as determined by the difference between the two diagonals, shall not exceed 0.5 inch.
5. Units shall be rejected because of failure to meet any of the requirements specified above. In addition, any or all of the following shall be sufficient cause for rejection:
  - Imperfections.
  - Honeycombing or open texture concrete.
  - Cracked or severely chipped panels.
  - Color variation on front face of panel due to excess form oil or other causes.
6. The manufacturer shall have a Quality Control program whereby representative samples of raw materials (cement, aggregates, reinforcement) are tested and/or reviewed for conformity to specifications. In addition, quality control tests (slump, air content, concrete temperature, compressive strength, and gradations, as applicable) shall be conducted by the manufacturer during casting operations. Quality control tests shall be conducted in accordance with the AASHTO Testing Procedures. The frequency of quality control tests shall be a minimum of one (1) set of tests per pouring day for each type product (panels or coping).

Records of materials used in the manufacture of reinforced concrete facing panels and quality control tests shall be maintained by the manufacturer. The Engineer shall reserve the right to review records for compliance with all applicable specifications and to reject any non-conforming units. Reinforced concrete facing panels shall not be shipped nor incorporated into the job until all testing has been completed. Copies of the manufacturer's quality control and inspection records shall be provided to the Engineer upon request.

The Engineer shall reserve the right to observe all manufacturing processes and conduct random quality assurance tests to determine compliance. If deemed necessary, drilled cores shall be taken at the direction of the Engineer to verify the compressive strength.

All reinforced concrete facing panels manufactured for use on Owner projects shall be legibly marked on their back side with the cast date and a distinct identification number.

7. The manufacturer shall furnish a Certificate of Delivery for each shipment stating that the listed products conform to all applicable specifications. The information on the Certificate of Delivery shall include the state job number (or state purchase order number), consignee, destination, number of pieces, cast dates, identification numbers, and plant of origin. One copy of the Certificate of Delivery and shipping papers shall be furnished to the Engineer.

SP14-2.2 Soil Reinforcing and Attachment Devices: All reinforcing and attachment devices shall be carefully inspected to ensure they are true to size and free from defects that may impair their strength and durability. Metallic reinforcements and attachment devices shall be galvanized in accordance with AASHTO M 111.

SP14-2.3 Select Granular Backfill:

(1) Method A Construction. When Method A Construction is shown in the plans, all backfill material used within the reinforcement zone shall be granular having an angle of internal friction greater than 28 degrees as determined by the standard direct shear test AASHTO T-236 on the portion finer than the No. 10 sieve, using a sample of the material compacted to 95 percent of AASHTO T-99 and shall have no cohesion. Aggregates meeting the material requirements of Section 302 for Selected Material (Class SM-1) or the material requirements of Section 303 for Aggregate Base Coarse (Class 7) are acceptable backfill materials and shall be placed and compacted in accordance with Subsections 210.07, 210.09, and 210.10. The Contractor shall perform quality control and acceptance sampling and testing of the backfill in accordance with Section 306, with the exception that the minimum frequency of acceptance testing shall be one lot test for density, moisture content, gradation, and plasticity index for each 3000 cubic yards of backfill material placed except that at least one set of tests shall be performed on each layer of backfill. If the material used for Select Granular Backfill is Aggregate Base Coarse (Class 7) and the source remains consistent, testing requirements for gradation and plasticity index shall meet the minimum frequency of one test per 3000 cubic yards. The Engineer may waive PI testing as outlined in Section 306. Construction requirements outlined in Subsection 302.02 shall apply.

Drainage fill material placed immediately behind the wall shall conform to the requirements of a Class 3 mineral aggregate as specified in Subsections 403.01 and 403.02. As shown on the plans, drainage fill material shall be placed for a minimum width of 12 inches behind the wall, for the full height of wall, in 10 inch loose lifts and compacted in such a manner as to avoid any damage or distortion of wall materials or wall alignment. The Contractor shall perform quality control and acceptance sampling and testing of the drainage fill material in accordance with Section 306, with the exception that the minimum frequency of acceptance testing shall be one lot test for gradation and decantation loss for each 500 cubic yards of drainage fill material.

The Contractor shall sample and test the backfill material for Dry Rodded Unit Weight in accordance with AASHTO T-19 and angle of internal friction prior to wall construction. The angle of internal friction used in the wall system design shall not exceed the angle of internal friction of the backfill material within the reinforcement zone. The Contractor shall conduct one additional shear test on a sample taken during the wall construction at a location as determined by the Engineer. If the backfill material source changes and/or material properties change during wall construction from the original sample tested, the angle of internal friction shall be re-verified. If the additional test result or the re-verified test result is less than the value utilized in the design of the wall, the material shall be removed and replaced with acceptable backfill material.

(2) Method B Construction. When Method B Construction is shown in the plans, all backfill material used within the reinforcement zone shall be mechanically crushed natural rock or stone of igneous, sedimentary, and/or metamorphic origin produced from a solid geological formation by quarrying methods meeting the requirements of Subsection 802.02(c) Coarse Aggregate for Class S concrete. The direct shear requirements may be waived in lieu of an assumed 34 degree soil angle of internal friction. The Contractor shall perform quality control and acceptance testing for gradation at a frequency of one test per 3000 cubic yards. The Contractor shall sample and test the backfill material for Dry Rodded Unit Weight in accordance with AASHTO T-19 prior to wall construction.

SP14-2.3 Filter Fabric: All joints between panels on the back face of the wall shall be covered with a geotextile filter fabric meeting the requirements of Subsection 625.02, Type 2. The minimum width and lap shall be 12 inches. Additional Type 2 geotextile filter fabric shall be placed as shown in the plans. The geotextile fabric and reinforcing elements used in the wall construction shall be able to resist deterioration when exposed to the properties of the concrete in the wall facing panels and the backfill material selected. Geotextile fabric shall be protected from sunlight during storage.

SP14-2.4 Coping: Concrete for coping shall comply with the requirements of Section 802 for Class S(AE) Concrete. Reinforcing steel shall comply with the requirements of Section 804.

SP14-2.5 Buy America Requirements: All iron and steel material used on Owner projects must be in compliance with “Buy America” requirements and Subsection 106.01. All manufacturing processes of the iron or steel in a product (i.e., smelting/remelting, and any subsequent process which alters the steel material’s physical form or shape or changes its chemical composition) must occur within the United States to be considered of domestic origin. This includes, but is not limited to, such processes such as rolling, extruding, machining, bending, grinding, drilling, and applying coatings. The use of pig iron or processed, pelletized, and reduced iron ore manufactured outside of the United States is permitted in the domestic manufacturing process for steel and/or iron materials. All steel and iron mill test reports must include a statement certifying that all manufacturing processes for the iron or steel product occurred in the United States. Each supplier/fabricator of an intermediate product shall also certify that the product complies with “Buy America” requirements.

SP14-2.6 Working Drawings: At least 30 calendar days prior to fabrication of the concrete panels, the Contractor shall submit four (4) copies of design calculations, working drawings, and material and construction specifications to the Engineer for review. This will be used to verify compliance with design requirements. The drawings shall include details that provide for flexibility, differential settlement, and aesthetics at changes in direction of the wall alignment. Test results for gradation, plasticity index, unit weight and angle of internal friction of the Select Granular Backfill shall be submitted with the Working Drawings for all proposed sources. These results shall state Method A Construction or Method B Construction. The wall design engineer shall review all proposed Select Granular Backfill sources and shall state in writing that the materials meet the wall manufacturer’s recommendations regarding Electrochemical Properties. The above verification process shall not

relieve the Contractor of any of his responsibility under the contract for the successful completion of the work.

SP14-2.7 Brick Architectural Finish: Before production of the precast concrete panels may begin, approval of the “wire brick” architectural finish will be required. Approval will be based on a sample panel with approximate dimensions of 6 feet by 6 feet. In lieu of a sample panel, the Engineer may accept proof of previous work performed with similar size panels and finishes. Prior to construction of any panels, a work plan showing the materials, construction methods, name and pattern number of form liner manufacturer, and other features affecting the finish shall be submitted to and approved by the Engineer. All panels shall be constructed according to the approved plan.

### CONSTRUCTION METHODS

SP14-3.1 The Contractor will be required to have an experienced manufacturer’s representative knowledgeable in the design and construction of the retaining wall system available throughout the construction period. The Construction Method shall not change during wall construction. The Contractor shall furnish a certification that the components of the wall system were manufactured in compliance with the approved design and that the materials furnished comply with the specifications.

SP14-3.2 Prior to wall construction, the foundation shall be compacted as directed by the Engineer. Any unsuitable foundation material shall be excavated and backfilled according to the undercutting requirements of this special provision. At each foundation level, a cast-in-place unreinforced concrete leveling pad shall be provided. The leveling pad shall be in place a minimum of 24 hours before panel erection begins and have a minimum earth cover as shown on the plans. Concrete for the leveling pad shall comply with the requirements of Section 802 for Class A or higher strength concrete as required by the wall supplier’s construction requirements.

SP14-3.3 Precast concrete panels shall be placed so that their final position is vertical as shown on the plans. As drainage and backfill material are placed behind the panels, the panels shall be maintained in position by means of temporary wedges or bracing according to the wall supplier’s recommendations. Concrete facing vertical tolerances and horizontal alignment tolerances shall not exceed 0.75 inch per ten (10) feet of length. During construction, the maximum allowable offset in any panel joint shall be 0.75 inch. The completed overall vertical tolerance of the wall (top to bottom) shall not exceed 0.5 inch per ten (10) feet of wall height.

SP14-3.4 As shown on the plans, drainage fill material shall be placed for a minimum width of 12 inches behind the wall, for the full height of the wall, in 10 inch loose lifts and compacted in such a manner as to avoid any damage or distortion of wall materials or wall alignment.

SP14-3.5 Select Granular Backfill placement shall closely follow the erection of each lift of panels. Backfill material within the reinforcement zone shall be compacted and placed in conformance with the applicable provisions of Subsection 302.03. At each reinforcement level, the backfill shall be placed to the level of the connection. Backfill placement methods near the facing shall assure that no voids exist directly beneath the reinforcing elements.

SP14-3.6 Backfill shall be placed in such a manner as to avoid any damage or disturbance of the wall materials or misalignment of the facing panels or reinforcing elements. Any damage or distortion of the wall materials during backfill placement shall be corrected at the Contractor’s expense. Construction traffic will not be permitted on wall reinforcement unless a minimum backfill cover of 8 inches is provided.

SP14-3.7 The Contractor shall be responsible for preventing surface water or rainwater from damaging the retaining walls during construction. This shall include shaping the backfill to prevent water from ponding or flowing on the backfill or against the wall face. Any damage or movement caused by erosion, sloughing, or saturation of the retaining wall or embankment backfill shall be repaired at the Contractor's expense.

SP14-3.8 Unless otherwise noted in the plans, the exposed surfaces of the coping on the top of the wall shall receive a Class 2 Rubbed Finish in accordance with Subsection 802.19.

SP14-3.9 Undercutting. All material within any undercut areas shown in the plans shall be excavated to the limits shown. Additional soft and unstable materials shall be excavated as directed by the Engineer. Unless otherwise shown in the plans, all undercut areas shall be backfilled with granular material meeting the requirements specified in the plans. The granular backfill material shall be placed and compacted in accordance with Subsections 210.07, 210.09 and 210.10. The Contractor shall perform quality control and acceptance sampling and testing of the backfill in accordance with Section 306, with the exception that the minimum frequency of acceptance testing shall be one lot test for density, moisture content, gradation and plasticity index for each 3000 cubic yards of backfill material placed except that at least one set of tests for density and moisture content shall be performed on each layer of backfill.

SP14-3.10 Stone backfill shall be placed if and where directed by the engineer. Stone backfill material shall meet the requirements of Section 207 Stone Backfill. The Stone Backfill shall be encapsulated with a geotextile filter fabric meeting the requirements of Subsection 625.02, Type 5.

#### METHOD OF MEASUREMENT

SP14-4.1 Retaining walls will be measured by the square foot of front surface area between the top of the leveling pad at the face of the wall and the top of the wall including any coping required.

SP14-4.2 All backfill and drainage fill material placed behind retaining walls within the reinforcement zone will be measured as Select Granular Backfill in its final position in accordance with Subsection 210.12(c).

SP14-4.3 All excavation and backfill, excluding areas of stone backfill directed by the Engineer, within the limits of any undercut areas will be measured as MSE Wall Undercut and Backfill. All excavation and backfill within the limits of any undercut areas with stone backfill directed by the Engineer will be measured as MSE Wall Undercut and Stone Backfill. Only the amount of stone backfill directed by the Engineer will be measured for payment of MSE Wall Undercut and Stone Backfill.

SP14-4.4 All excavation directly over any undercut areas, outside the limits of the reinforcement zone, within the reinforcement zone and for the leveling pad will be measured as Unclassified Excavation.

SP14-4.5 All backfill placed directly over the limits of any undercut areas and outside the limits of the reinforcement zone will be measured as Embankment Construction.

#### BASIS OF PAYMENT

SP14-5.1 Retaining walls completed, accepted and measured as provided above will be paid for at the contract unit price bid per square foot for Retaining Wall, which price shall be full compensation



for designing; submittals; for quality control and acceptance sampling and testing; for furnishing all materials except backfill and drainage fill materials but including pipe underdrains and joint materials; for constructing the leveling pad, the wall, and the coping; and for all labor, equipment, tools, and incidentals necessary to complete the work.

SP14-5.2 All backfill and drainage fill material placed behind retaining walls within the reinforcement zone, including quality control and acceptance sampling and testing, will be paid for as Select Granular Backfill in accordance with this Special Provision.

SP14-5.3 All excavation and backfill, excluding areas of stone backfill directed by the Engineer, within the limits of any undercut areas will be paid for at the contract unit price bid per cubic yard for “MSE Wall Undercut and Backfill”. This price shall be full compensation for all excavation; for disposal or placement of unsuitable material including loading, hauling, spreading, and compaction; for compaction and preparation of subgrade; for the refilling, rolling, and compaction of all undercut areas; including quality control and sampling and testing; and for all equipment, tools, labor, and incidentals necessary to complete the work.

SP14-5.4 All excavation and backfill within the limits of any undercut areas with stone backfill directed by the Engineer will be paid for at the contract unit price bid per cubic yard for “MSE Wall Undercut and Stone Backfill”. This price shall be full compensation for all excavation; for disposal or placement of unsuitable material including loading, hauling, spreading, and compaction; for compaction and preparation of subgrade; for the refilling, rolling, and compaction of all undercut areas; including quality control and sampling and testing; and for all filter fabric, equipment, tools, labor, and incidentals necessary to complete the work.

SP14-5.5 All excavation directly over any undercut areas outside the limits of the reinforcement zone, within the reinforcement zone and for the leveling pad will be paid for as Unclassified Excavation in accordance with Section E-2 – EXCAVATION AND EMBANKMENT.

SP14-5.6 All backfill directly over the limits of any undercut areas and outside the limits of the reinforcement zone, including quality control and sampling and testing, will be paid for as Embankment Construction in accordance E-2 – EXCAVATION AND EMBANKMENT.

SP14-5.7 The Contractor shall comply with applicable Federal, State, and local laws governing safety in accordance with Subsection 107.01(b) in any and all excavation and/or shoring operations. Any shoring and additional excavation with replacement backfill outside the reinforcement zone or outside the limits and not directly over any undercut areas will not be paid for directly, but will be considered subsidiary to the unit price bid per square foot for Retaining Wall.

Payment will be made under:

Item SP14-5.1	Retaining Wall- per square foot
Item SP14-5.2	Select Granular Backfill – per cubic yard
Item SP14-5.3	MSE Wall Undercut and Backfill – per cubic yard
Item SP14-5.4	MSE Wall Undercut and Stone Backfill – per cubic yard

END OF SECTION SP-14



## ITEM SP-15 – ROADWAY ILLUMINATION POLE

### DESCRIPTION

SP15-1.1 This work consists of furnishing all materials, constructing and erecting same to insure a properly operating roadway lighting system in accordance with the plans and specifications. All references to Division, Section, and Subsection refer to the Arkansas Department of Transportation Standard Specifications for Highway Construction (2014 Edition).

### MATERIALS

SP15-2.1 Pole and hardware, unless superseded by this special provision or the detail sheet(s), shall meet the minimum requirements under the Standard Specifications for Highway Construction, Arkansas State Highway and Transportation Department, latest edition (Standard Specifications).

Section 714 "Traffic Signal Mast Arm and Pole with Foundation" of the Standard Specifications shall apply to all units of steel design as well as hardware and foundation requirements for units of other material.

Section 724 "Overhead, Bridge Mount, and Cantilever Sign Structure" of the Standard Specifications shall apply to poles and mast arms for units of aluminum design.

Aluminum alloy surfaces contacting concrete foundations and steel surfaces shall be coated with or bedded in, an aluminum caulking compound such as alumilastic or other suitable material approved by the Engineer

### CONSTRUCTION METHODS

SP15-3.1 The Contractor shall contact the local utility companies in order to determine the location of underground utilities in the area where the new foundation is to be located and shall be responsible for repairing, to the satisfaction of the utility company, any damaged utilities. This work shall be approved by the job engineer.

SP15-3.2 Pole. All poles and arms in a job must be of the same shape.

Bridge Mount Pole: 10' height, tapered, octagonal, composite pole. This pole will be an anchor base style with a decorative cover. All material will be painted black (or approved equal). A set of (4) 3/4" anchor bolts will be provided.

Independent Ground Mount Pole: 14' height, tapered, octagonal, composite pole. This pole will be an anchor base style with a decorative cover. All material will be painted black (or approved equal). A set of (4) 3/4" anchor bolts will be provided.

Design Specifications: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, latest edition.

Minimum Structural Requirements: As a minimum, the diameter of the upper end of the shaft shall not be less than 5.0" with 0.14" taper. Poles shall be one-piece.

Hand Hole: Size (Inside Dim.)- - 2.5" width x 5" height

Construction Specifications: Arkansas Department of Transportation Standard Specifications for Highway Construction (latest edition) with applicable Supplemental Specifications and Special Provisions.

Base Wind Speed: 90 mph

SP15-3.3 Luminaire Wind Loading. Design shall support the maximum luminaire properties for the pole type specified for attachment of the following luminaire(s):

LED Acorn:

Luminaire:       Maximum EPA: 1.25 sq. ft.  
                      Maximum Weight: 40 lb.

SP15-3.4 Luminaire. Luminaire type (with accessories) shall be supplied in one style or model number from one manufacturer only. The Contractor shall submit manufacturer's brochures with illustrations and data to the Engineer for approval of luminaires, accessories as well as manufacturer's recommended installation details. Luminaire shall be of the LED Acorn type meeting the following requirements:

Luminaire Design: Luminaire shall be a traditional style decorative acorn fixture provided with decorative cast aluminum castings. Luminaire shall be 16" wide and 40 1/2" OAH. Luminaire shall be supplied with line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 standards. Luminaire shall have a minimum IP65 rating.

Fitter: The fitter shall be heavy wall die cast aluminum with tool-less access for ease of maintenance. The housing shall be fully gasketed.

Driver: The LED driver shall be mounted inside the fitter, on a tool-less removable tray. The LED driver shall have overload as well as short circuit protection. The LED driver shall have minimum efficiency of 90%. The LED driver shall be supplied with a quick-disconnect electrical connector on the power supply. The LED driver shall be a DC voltage output, Class A constant current driver with an IP66 rating. The LED driver shall have a minimum rating of 50,000 lifetime hours. The LED driver shall be warranted for 7 years.

Light Sources: The LEDs shall be mounted in arrays, on printed circuit boards designed to maximize heat transfer to the heat sink surface. The LEDs shall be attached to the printed circuit board with not less than 90% pure silver to insure optimal electrical and thermal conductivity. The LEDs and printed circuit boards shall be protected from moisture and corrosion with a conformal coating of 1 to 3 mils. The LEDs and printed circuit board construction shall be environmentally friendly and 100% recyclable. They shall not contain lead, mercury or any other hazardous substances and shall be RoHS compliant. The LED life rating data shall be determined in accordance with IESNA LM-80-08.

Optics: The luminaire shall be provided with individual, acrylic, refractor type optics applied to each LED individually. The luminaire shall provide a light distribution per the IESNA classifications. Testing shall be done in accordance with IESNA LM-79-08.

Photometry shall be provided with an independent test report and IES files from an approved DOE certified testing laboratory.

Performance: The LED arrays are built in series parallel circuits which maintain overall light output in the event of single LED failures. The LED's and LED driver shall operate over a -40 degree C to +50 degree C ambient air temperature range. The High Performance white LED's

will have a life expectancy of approximately 100,000 hours with not less than 70% of original brightness (lumen maintenance), rated at 25C.

The High Brightness, High Performance LED's shall be 4500K color temperature with a minimum of 70 CRI. The (6) ARC 4500K luminaire shall have an initial delivered lumen output of 9,375 with a total fixture wattage of no more than 96 watts.

Warranty: The fixture must be fully manufactured, assembled and shipped out of the United States. The LED luminaire shall be free from all defects in materials and workmanship for a period of 7 years from the date of manufacture. The luminaire manufacturer shall warrant the LED boards/system, during the stated warranty period.

Finish: Prior to coating, the luminaire shall be chemically cleaned and etched in a 5 stage washing system which includes alkaline cleaning, rinsing, phosphoric etching, reverse osmosis water rinsing and non-chrome sealing to ensure corrosion resistance and excellent adhesion for the finish coat. The finish coat shall be an electro-statically applied semi-gloss, super durable polyester powder coat, baked on at 400 degrees F. The finish coat shall be applied at the same facility where luminaire is manufactured. The finish warranty shall be for (5) years.

Type A. Utilize an IES Type 3R (Roadway) light distribution, 96W, 10' pole.

Type B. Utilize an IES Type 3R (Roadway) light distribution, 96W, 14' pole.

Photo Cell. The luminaires shall be controlled by a single photo cell at the service point not on the luminaire. Photo cell shall be Fisher-Pierce Model #7790-B (105-285 VAC) or as approved. Photo cell shall operate at the same voltage rating as the luminaire.

SP15-3.5 Wiring. Poles with luminaires shall include wiring and connection of the source by means of two (2) #10 AWG copper with one (1) #10 AWG ground (E.G.C.), as shown in the details which shall run through the shaft to the pole base, where an approved, dual rated for copper and aluminum connections, splice kit should be used to terminate the wires in the pole base or adjacent pull box if available. Wire shall be of a UF (underground feeder) or USE (underground service entrance) rating.

Service shall be connected by means of a rubberized aluminum bar suitable for 120 volt (or greater) service. The contractor shall utilize a multi-seal splice such as a "Homac RXL series" or equivalent. The leads for the connectors shall be attached in accordance with the connector manufacturer's instructions. All connectors shall be located in the pole base or adjacent pull box.

All wire and wiring requirements for poles with luminaires shall be considered subsidiary to the special provision Roadway Illumination Pole.

#### METHOD OF MEASUREMENT

SP15-4.1 Work completed and accepted under this item shall be measured by the unit. Pole "Type" shall refer to the requirement to furnish unit with LED Luminaire; of the wattage specified, and all associated hardware and wiring. Height (Ht.) shall refer to the nominal height of the pole including base.

#### BASIS OF PAYMENT

SP15-5.1 Equipment and labor supplied under this item shall be measured separately by the unit; which price shall be full compensation for furnishing and installing the pole and luminaire(s); for excavation,

backfill, compaction, and removal of surplus material; for furnishing and placing reinforcing steel and concrete; and for all materials, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item SP15-5.1 a	Roadway Illumination Pole (Type A, 10', Decorative Base) – per Each
Item SP15-5.1b	Roadway Illumination Pole (Type B, 14', Decorative Base) – per Each

END OF SECTION SP-15

## ITEM SP-16 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

### DESCRIPTION

SP16-1.1 This item includes grounding and bonding systems and equipment, plus the following special applications:

1. Ground bonding common with handrail system.
2. Foundation steel electrodes.

### MATERIALS

#### SP16-2.1 GENERAL

Electrical Components, Devices, and Accessories shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application. Products shall comply with UL 467 for grounding and bonding materials and equipment.

#### SP16-2.2 MANUFACTURERS

A. Subject to compliance with requirements, provide products by one of the following:

1. Advanced Lightning Technology, Ltd.
2. Burndy; Part of Hubbell Electrical Systems.
3. ERICO International Corporation.
4. Harger Lightning & Grounding.
5. O-Z/Gedney; a brand of Emerson Industrial Automation.
6. SIEMENS Industry, Inc.; Energy Management Division.
7. Thomas & Betts Corporation; A Member of the ABB Group.

#### SP16-2.3 CONDUCTORS

- A. Insulated Conductors: Copper, tinned-copper, or aluminum, as specified on plans, wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
1. Solid Conductors: ASTM B 3.
  2. Stranded Conductors: ASTM B 8.
  3. Tinned Conductors: ASTM B 33.
  4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
- C. Grounding Bus: Predrilled rectangular bars of annealed copper. Stand-off insulators for mounting.

#### SP16-2.4 CONNECTORS

- A. Shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
  - 1. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
  - 2. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.
  - 3. Cable-to-Cable Connectors: Compression type, copper, copper alloy, or other as required to prevent galvanic corrosion between dissimilar metals.
  - 4. Conduit Hubs: Mechanical type, terminal with threaded hub.

#### SP16-2.5 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.
- B. Ground Plates: 1/4 inch thick, hot-dip galvanized.

### CONSTRUCTION METHODS

#### SP16-3.1 CONDUCTORS

- A. Typical: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, size as indicated on plans.
  - 1. Bury at least 24 inches below grade.
  - 2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.
- C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

#### SP16-3.2 GROUNDING BUS

- A. Install bus horizontally, on insulated spacers, within junction box as indicated in plans.

#### SP16-3.3 CONDUCTOR TERMINATIONS AND CONNECTIONS

- A. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
- B. Underground Connections: Exothermic welded connections unless otherwise indicated.
- C. Connections to Ground Rods: Exothermic welded connections unless otherwise indicated.



- D. Connections to Structural Steel: Exothermic welded connections unless otherwise indicated.

#### SP16-3.4 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

- A. Comply with IEEE C2 grounding requirements.
- B. Grounding Handholes: Install a driven ground rod through handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before handhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into handhole through a waterproof sleeve in wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, nonshrink grout.

#### SP16-3.5 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

#### SP16-3.6 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.
- C. Ground Rods: Drive rods until tops are 6 inches below finished floor or final grade unless otherwise indicated.
  - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
  - 2. Use exothermic welds for all below-grade connections.
- D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit. Install using vandalism protection methods coordinated with City of Conway and Engineer.
  - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
  - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.

3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- E. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet apart.
- F. Concrete-Encased Grounding Electrode (Ufer Ground): Fabricate according to NFPA 70; use a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG.
1. If concrete foundation is less than 20 feet long, coil excess conductor within base of foundation.
  2. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building's grounding grid or to grounding electrode external to concrete.
- G. Concrete-Encased Grounding Electrode (Ufer Ground): Fabricate according to NFPA 70; using electrically conductive coated steel reinforcing bars or rods, at least 20 feet long. If reinforcing is in multiple pieces, connect together by the usual steel tie wires or exothermic welding to create the required length.
- H. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
  2. Make connections with clean, bare metal at points of contact.
  3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
  4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
  5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

### SP16-3.7 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at individual ground rods. Make tests at ground rods before any conductors are connected.
  - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural

drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

Grounding system will be considered defective if it does not pass tests and inspections.

Prepare test and inspection reports.

Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System: 10 ohms.
2. Bridge Handrail Grounding System: 10 ohms
3. Handhole and Pole Grounds: 10 ohms.

Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and include recommendations to reduce ground resistance.

#### METHOD OF MEASUREMENT

SP16-4.1 The quantity of grounding systems to be paid for shall consist of the overall handrail and bridge grounding system consisting of all grounding components not included as subsidiary to other pay items, and as identified on the plans. This shall include the embedded ground wiring to the bridge structure, connections to handrail sections, connections to truss and truss components, connection to lighting grounding system, ground bars, ground rods, and all appurtenances as required, accepted and ready for operation. This item does not include individual ground rods at independent pole mounted lighting, equipment grounding conductors for lighting circuits, and internal pole grounding for light fixtures.

#### BASIS OF PAYMENT

SP16-5.1 Payment will be made at the contract unit price for each complete item, measured as provided above, and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the Engineer.

Payment will be made under:

Item SP16-5.1            Bridge Grounding System - per Lump Sum



## ITEM SP-17 – CONCRETE PULL BOX

### DESCRIPTION

SP17-1.1 This item consists of furnishing and installing a concrete pull box in-ground.

### MATERIALS

SP17-2.1 The pull boxes shall be constructed with Portland Cement Concrete reinforced with welded wire or shall be polymer concrete reinforced with heavyweave fiberglass. No fiberglass shall be exposed. All exposed portions of the pull box shall be non-electrically conductive.

The minimum inside dimensions measured across the center of the box (horizontally) just below the lid support lip shall be as follows:

Concrete Pull Box – Type HD:  
18" (457 mm) wide x 24" (610 mm) long, open bottom

The depth measured from the top of the lid shall be a minimum of 18" (762 mm).

A non-metal electrically insulated cover shall be provided for each pull box. The covers shall have a skid resistant surface on top and a lifting eye.

The pull box and cover shall be constructed in such a manner that the assembly will support light vehicular traffic. The cover with pull box shall meet or exceed the following test loading:

Type	Test Load		Design Load		Load Area	
	Lbs.	Kg.	Lbs.	Kg.	Sq. inch	Sq. mm
HD	33750	15300	22500	10200	20	13000

Pull box with cover in place shall comply with the National Electric Code for exposed boxes rated at voltages up to 480 VAC.

### CONSTRUCTION METHODS

SP17-3.1 All heavy-duty concrete pull boxes are to be installed as shown on the plans with an apron of concrete 12" (305 mm) wide and 6" (152 mm) in depth. The concrete shall comply with Section 802 for Class S Concrete. The Department will perform all acceptance sampling and testing at the frequencies shown for the Contractor acceptance testing in Subsection 802.06. Reinforcement consisting of 6" x 6" W1.4 x W1.4 (150 mm x 150 mm MW10 x MW10) welded wire fabric complying with the requirements of Subsection 804.02(b) is required to be placed in the concrete as shown in the plans.

The pull box shall be permanently labeled with the manufacturer's name and model identifier, and have "AHTD", "ELECTRIC", "ALUMINUM", centered on the lid.

Each pull box shall be furnished with a McCain vandal resistant pullbox insert, or approved equivalent.

Stainless steel vandal resistant Penta-head bolts shall be supplied for each pullbox. Two Penta-head sockets shall be provided and turned over to Conway.

METHOD OF MEASUREMENT

SP17-4.1 Completed and accepted Concrete Pull Boxes will be measured by the unit.

BASIS OF PAYMENT

SP17-5.1 Work completed and accepted and measured as provided above will be paid for at the contract unit price bid each for Concrete Pull Box of the type specified, which price shall be full compensation for furnishing and installing the pull box; for excavation, backfill, compaction, removal of surplus materials and replacement of the existing surface; for furnishing and placing the bedding material; for furnishing and placing welded wire fabric and concrete; and for all materials, labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

Item SP17-5.1      Concrete Pull Box (Type Special HD) – per Each

END OF SECTION SP-17

## ITEM SP-18 – ELECTRICAL CONDUCTORS-IN-CONDUIT, ALUMINUM

### DESCRIPTION

SP18-1.1 This item consists of furnishing and installing electrical conductors from point to point as indicated on the plan sheets.

### MATERIALS

SP18-2.1 The electrical conductors shall consist of cables of the gauge and number of conductors specified on the plan sheets, which shall consist of stranded aluminum with 600 volt XLP insulation. Insulation shall comply with NEMA designation Type RHH or RHW for installation in duct in wet or dry locations or Type USE for installation in duct or direct burial. Electrical conductors shall be stranded aluminum, made of an AA-8000 series electrical grade aluminum alloy conductor material. Where specified E.G.C. (Equipment Ground Conductor), conductor shall be a green insulated aluminum safety ground of the size and quantity shown.

### CONSTRUCTION METHODS

SP18-3.1 Splices are allowed at pole bases, in pull boxes, or as approved by the Engineer. All splices shall be waterproof, utilizing an UL listed splice kit, rated for submersible locations and dual rated for copper to aluminum splices. When taping is required, the wire shall be covered with six (6) layers of plastic electrical tape and sealed with "Scotch-Coat" or other similar electrical sealing material. Electrical insulating putty may be used to round off sharp corners of wire or connectors before applying tape. Slack cable (3 ft. min.) shall remain at each splice location.

### METHOD OF MEASUREMENT

SP18-4.1 Electrical Conductors-In-Conduit, Aluminum shall be measured by the linear foot. Multiple conductors shall not be measured singularly and added together.

### BASIS OF PAYMENT

SP18-5.1 Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per linear foot for Electrical Conductors-in-Conduit, Aluminum, of the "number of conductors" and "size" called for on the plans, which price shall be full compensation for furnishing and installing the electrical conductors in all conduits, pull boxes and pole bases including making all necessary taps and connections to complete the circuits as shown on the plans and as directed by the Engineer, along with all equipment, tools, labor and incidentals required to complete the work. All of the same provision apply where E.G.C. (Electrical Ground Conductor) is cited.

Payment will be made under:

Item SP18-5.1a Electrical Conductors-In-Conduit, Aluminum (2C/4 A.W.G., E.G.C.) – per Linear Foot  
Item SP18-5.1b Electrical Conductors-In-Conduit, Aluminum (2C/6 A.W.G., E.G.C.) – per Linear Foot

END OF SECTION SP-18





## ITEM SP-19 BASIC ELECTRICAL REQUIREMENTS

### DESCRIPTION

SP19-1.1 This item shall consist of furnishing and installing complete electrical systems as defined in the plans and in these specifications. The work includes the installation, connection and testing of new electrical systems, equipment and all required appurtenances to construct and demonstrate proper operation of the completed electrical systems.

SP19-1.2 The Contractor shall maintain current copies of all referenced and applicable standards on the job site. The Contractor is responsible to make known to the Engineer any conflict between plans and specifications that he observes or of which he is made aware.

### MATERIALS

#### SP19-2.1 STANDARDS.

- a. Applicable National Fire Protection Association (NFPA) codes, including but not limited to:
  - (1) NFPA 70 - National Electrical Code.
  - (2) NFPA 70E - Standard for Electrical Safety in the Workplace.
  - (3) NFPA 101 - Life Safety Code.
  - (4) Internet Website: <http://www.nfpa.org>
- b. Applicable Code of Federal Regulations (CFR) codes, including but not limited to:
  - (1) 29 CFR 1910 - Occupational Safety and Health Standards (OSHA)
  - (2) 29 CFR 1926 - Safety and Health Regulations for Construction.
  - (3) Internet Website: <http://www.gpoaccess.gov/cfr/index.html>
- c. ANSI/IEEE C2 - National Electrical Safety Code.
- d. NECA 1 – Standard for Good Workmanship in Electrical Construction.
- e. Applicable Federal, State and Local Electrical Codes.
- f. Applicable Federal, State and Local Energy Codes.
- g. Applicable Federal, State and Local Building Codes.
- h. Applicable Federal, State and Local Fire Codes.
- i. Applicable City Electrical Code.
- j. Applicable City Ordinances pertaining to electrical work.
- k. Applicable Federal, State and Local - Environmental, Health and Safety Laws and Regulations.

Contractor shall utilize the most current editions of standards, which are current at time of bid and as recognized by the Authority Having Jurisdiction for the respective standard.

#### SP19-2.2 GENERAL.

All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the Engineer. All equipment and materials shall be new and meet applicable manufacturer's standards. All electrical components and products shall be tested and listed by an OSHA accepted, nationally recognized testing laboratory (NRTL) to conform to the standards indicated in these contract documents and to the industry standards required in the NEC, NEMA, IEEE, UL, and applicable FAA advisory circulars.

Manufacturer's certifications shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

All materials and equipment used to construct this item shall be submitted to the Engineer for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components or electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals.

The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the Contract Documents plans and specifications. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

After approval of submitted equipment, the Contractor shall supply the following Electrical Operation and Maintenance Manual documentation to the Owner. Two (2) complete sets of documentation shall be supplied for each model of equipment. The documentation shall be securely bound in heavy-duty 3-ring binders. The information for each piece of equipment shall be indexed using typewritten label tabs. The spine of each binder shall have a typewritten label, which indicates the included equipment types. The documentation shall include:

- (1) Approved Submittals and Shop Drawings
- (2) State Contractors License with Electrical Classification
- (3) Master, Journeyman and Apprentice Electrician Licenses and Certifications
- (4) Lockout/Tagout Program
- (5) Installation Manuals
- (6) Operation Manuals
- (7) Maintenance Manuals
- (8) Parts Lists, including recommended spare parts. Recommended spare parts shall be furnished with the respective equipment.

After approval of the O&M Manuals, the Contractor shall provide three (3) complete electronic copies of all documentation in Adobe PDF file format on CD-R (non-rewriteable) discs storage media. The electronic files shall contain searchable text and include a hyperlink index for ease in locating information with the PDF file.

All requirements herein Item SP-19 shall be applicable to all referenced sections in these contract documents and applicable to all sections, which reference Item SP-19.

SP19-2.3 OPERATION AND MAINTENANCE DATA.

Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment. Provide bound hard copies and electronic copies as noted in section SP-19-2.2.

Certificate of Substantial Completion, Release and Contractor's Affidavit, executed copies.

Final approved equipment submittals, including product data sheets and shop drawings, clearly labeled.

Installation manuals: Description of function, installation and calibration manuals, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts.

Operations manuals: Manufacturer's printed operating instructions and procedures to include start-up, break-in, routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; summer and winter operating instructions; and all programming and equipment settings.

Maintenance manuals: Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.

SP19-2.4 SWITCHES. Main disconnect switches 600 volt or less shall be UL service entrance rated, industrial circuit breaker type, pad-lockable, heavy duty type with neutral and ground kits and poles and ratings as indicated on the drawings and suitable for the application indicated. Exterior switches shall be NEMA 3R rated.

#### SP19-2.5 OVERCURRENT PROTECTIVE DEVICES.

Circuit Breakers: Circuit breakers shall be the molded-case type, as indicated, with each pole equipped with inverse time and instantaneous overcurrent tripping devices. Circuit breakers shall be UL listed. Single pole breakers shall be full module size; two poles shall not be installed in a single module. Multi-pole breakers shall be of the common-trip type having a single operating handle, and for sizes of 50 amperes or less may consist of single pole breakers permanently assembled at the factory into a multi-pole unit. Circuit breakers used for motor disconnects and not in sight of the motor controller shall be capable of being locked in the open position. Minimum interrupting rating shall be as shown.

Fuses: All fuses shall be Bussman; Gould-Shawmut, or equal. Plug fuses are not acceptable. Cartridge fuses shall be rated at 250 or 600 volts, as applicable, and shall conform to the requirements of UL 198 and NEMA Standard FU-1. 600 volt or less fuses shall be rated at 200,000 Amperes Interrupting Capacity.

SP19-2.6 PANELBOARDS. Furnish and install panelboards as indicated on the Drawings. Breakers shall be bolted type and have available fault current interrupting capacity as scheduled. Single pole breakers shall be full module size; two poles shall not be installed in a single module. All multi-pole breakers shall be common trip.

Panels shall be fully rated; series rated panels are not acceptable.

The panels shall be load balanced by measuring the loads and making circuit changes. Record the load readings before and after changes and submit test records. Differences exceeding 20 percent between phase

loads, within a panelboard, are not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

The panel shall be UL listed, service entrance rated, and fully bussed with copper bussing, copper neutral bussing, and copper ground bar. All bolts used to connect current carrying parts together shall be front accessible. The panel shall have a securely attached metal nameplate listing the manufacturer, shop order number, panel type, voltage, ampacity and short circuit withstand rating. An individual terminal or lug shall be provided for each neutral allowing one wire per terminal.

The panel shall be surface mounted with semi-flush locking doors and matching keys. The Contractor shall provide a typed directory and install the same in the holder behind the transparent protective covering in the panels. Provide an exterior nameplate with panel and name, mounted at the top of the panel above the door. Doors shall match enclosures. Indoor surface mounted enclosures shall have pre-punched knockouts. The panels shall be General Electric, Square D, Cutler Hammer, or approved equal.

Panelboards and breakers shall conform to the requirements of Fed. Spec. W-P-115.

#### SP19-2.7 SURGE PROTECTIVE DEVICES.

Provide a surge protective device at the panelboard as indicated in the plans and make all final connections. Lead lengths shall not exceed 18 inches.

SPD Type 2 (building exterior or interior mounted adjacent to panelboard; see plans for locations; coordinate exact installation requirements in the field with the Engineer prior to work):

- a. 240/120-volt, 1-phase, 3-wire; connected via dedicated circuit breaker to panelboard.
- b. UL 1449 Third Edition Type 2 Listed
- c. UL 1283 Listed for Type 2
- d. Voltage protection rating 700V for 240V systems L-N
- e. Surge rating 100,000 amps per phase minimum
- f. SCCR: Equal or exceed 200 kA
- g. Inominal Rating: 10 kA
- h. Undervoltage detection, phase and power loss monitoring
- i. LED status indicator lights, audible alarm, transient counter, dry contacts
- j. NEMA 3R enclosure
- k. 5 year warranty

Provide surge protective devices to protect incoming voltage power circuits from field equipment.

SP19-2.8 CONTROL AND TIMING RELAYS. All relays shall be plug-in type relays and shall be furnished with socket base and all required mounting accessories; provide Allen-Bradley Bulletin 700 Type or approved equal. Provide relays with contacts meeting the ampacity rating requirements as indicated in the plans and as required for the equipment load to be connected and controlled.

SP19-2.9 CONDUIT. Rigid steel conduit and fittings shall conform to the requirements of Section 709 of the 2014 Edition of the Arkansas Department of Transportation's Standard Specification for Highway Construction.

SP19-2.10 PLASTIC CONDUIT (for use below grade only). Plastic conduit and fittings shall conform to the requirements of Section 710 of the 2014 Edition of the Arkansas Department of Transportation's Standard Specification for Highway Construction.

SP19-2.11 TAPE. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88, respectively, as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal.

The electrical installation shall conform to the requirements of the latest edition of National Fire Protection Association, NFPA-70, National Electrical Code.

Copies of the National Electrical Code may be obtained from the National Fire Protection Associations, Inc., One Batterymarch Park, Quincy, Massachusetts 02269.

### CONSTRUCTION METHODS

SP19-3.1 LOCKOUT/TAGOUT PROGRAM. The Contractor shall provide a complete copy of an electrical energy source Lockout/Tagout Program to the Owner, with copy to the Engineer. The document shall clearly identify the on-site master electricians and their contact information, including office and mobile telephone numbers.

The Lockout/Tagout Program shall comply with Part 1910 – Occupational Safety and Health Standards (OSHA) Subpart S – Electrical, and meet the requirements of 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout), including requirements listed in 1910.331 through 1910.335.

Implementation of the Lockout/Tagout Program and all other related safety requirements are the sole responsibility of the Contractor.

SP19-3.2 SAFETY PROGRAM. The Contractor shall implement an electrical safety program that complies with NFPA 70E and 29 CFR 1926.

Implementation of the Electrical Safety Program, determining and providing proper Personal Protective Equipment (PPE), training and enforcing personnel to wear the prescribed PPE, conducting work area safety inspections (including correcting deficiencies), and all other related safety requirements are the sole responsibility of the Contractor.

All work involved in the preparation and implementation of the safety program will not be measured for separate payment, but will be considered subsidiary to the lockout/tagout bid item.

### SP19-3.3 GENERAL.

The Contractor shall be responsible for coordinating all electrical work with the Utility. The Contractor shall provide temporary service conductors and raceway system. The Contractor shall then provide and connect permanent service conductors and raceway system after the completion.

All secondary conductors and controls, signaling and lighting shown in or on buildings are included in this project. Electrical service shall be extended from the service equipment as indicated.

In general, the various electrical equipment and material to be installed by the various trades under this specification shall be run as indicated, as specified herein, as required by particular conditions at the site, and as required to conform to the generally accepted standards so as to complete the work in a neat and satisfactory manner. The following is a general outline concerning the running of various systems and is to be excepted where the drawings or conditions at the buildings necessitate deviating from these standards.

The drawings and specifications are complementary; any work required by one, but not by the other, shall be performed as though required by both.

All conduits shall be run exposed in the equipment rooms, or run concealed as indicated.

The construction details of the building are illustrated on the drawings. Each Contractor shall thoroughly acquaint himself with the details before submitting his bid as no allowances will be made because of the Contractor's unfamiliarity with these details.

The electrical plans do not give exact locations, etc., and do not show all the offsets, control lines, junction boxes, and other installation details. Each Contractor shall carefully lay out his work at the site to conform to the job conditions, to conform to details of installation supplied by the manufacturers of the equipment to be installed, and thereby to provide complete operating systems.

The electrical plans show diagrammatically the locations of the various electrical outlets and apparatus and the method of circulating and controlling them. Exact locations of these outlets and apparatus shall be determined by reference to the general plans and to all detail drawings, etc., by measurements at the buildings, and in cooperation with other crafts, and in all cases shall be subject to the approval of the Engineer. The Engineer reserves the right to make any reasonable change in location of any outlet or apparatus before installation, without additional cost to the Owner.

These Specifications and the accompanying Drawings are intended to cover systems which will not interfere with the structure of the buildings, which will fit into the several available spaces, and which will insure complete and satisfactory systems. Each bidder shall be responsible for the proper fitting of his material and apparatus into the buildings.

Should the particular equipment which any bidder proposes to install require other space conditions than those indicated on the Drawings, he shall arrange for such space with the Engineer before submitting his bid. Should changes become necessary on account of failure to comply with this clause, the Contractor shall make such changes at the Contractor's expense.

Should the particular equipment which any bidder proposes to install require other installation methods, such as larger light base junction structures, etc., he shall include all such equipment and appurtenances in his bid. Should changes become necessary on account of failure to coordinate equipment requirements and comply with this clause, the Contractor shall make such changes at the Contractor's expense.

The Contractor shall be responsible to see that each party furnishes electrical equipment which meets the electrical requirements specified herein and that all systems work together to produce the specified operation.

Where two or more units of the same kind or class of equipment are required, these shall be products of a single manufacturer; however, the component parts need not be the products of one manufacturer.

Each Contractor shall submit working scale drawings of all his apparatus and equipment which in any way varies from these Specifications and Plans, which shall be checked by the Engineer and approved before the work is started, and interferences with the structural conditions shall be corrected by the Contractor before the work proceeds.

Electrical equipment, such as switchgear, switchboards, panelboards, load centers and other power supply equipment, shall not be used as a common enclosure, pull box or junction box for routing conductors of

different systems, unless the equipment is specifically designed for this purpose and indicated as such on the Plans.

All electrical equipment shall be securely mounted as indicated in the plans, as required by the contract specifications, as required by guidelines and codes, and as required by the manufacturer using hardware compliant with the environmental conditions.

Interior components of electrical enclosures shall be securely mounted using appropriate hardware within the enclosure. Adhesives or adhesive tapes/strips are not allowed and are prohibited.

Electrical components, including but not limited to, relays, circuit boards, electronics, etc, shall be installed within approved enclosures.

The Contractor shall keep ends of conduits, including those extending through roofs, equipment and fixtures covered or closed with caps or plugs to prevent foreign material from entering during construction.

Where portions of raceways are known to be subjected to different temperatures, where condensation is a problem, and where passing from interior to exterior of a building, the portion of raceway or sleeve shall be filled with an approved material to prevent the circulation of air, prevent condensation, and prevent moisture entry. Sealing of raceways shall not occur until after the conductors and cables have been installed, tested and accepted by the Engineer.

The Contractor shall install any temporary lines and connections required to maintain electric services and safely remove and dispose of them when complete.

All temporary wiring shall conform to OSHA standards. Remove temporary services when work is complete. Any damage to electrical equipment caused by the Contractor shall be repaired at no cost to the Owner.

All non-current carrying parts and neutrals shall be grounded as indicated on the Drawings or as required by the Codes.

White and/or gray outer finish conductors may only be used as grounded conductors or neutral conductors in accordance with NEC.

Install insulated green equipment grounding conductors with all feeder and branch circuits.

Provide separate insulated equipment grounding conductors from grounding system to each electrical equipment, telecommunication equipment, other special electrical system equipment, and appurtenance item location in accordance with NFPA 70 and other applicable standard requirements.

The bidder shall inspect the site, thoroughly acquaint himself with conditions to be met and work to be accomplished. Failure to comply with this shall not constitute grounds for any additional payments.

Where electrical equipment is installed that causes electrical noise interference with other systems either existing or installed under this contract, the offending equipment shall be equipped with isolating transformers, filters, reactors, shielding, or any other means as required for the satisfactory suppression of the interferences, as determined by the Engineer.

All junction boxes, expansion joints, flexible connections, instruments and similar items requiring servicing or repairs shall be installed in an accessible location.

All salvage and equipment removed by the work shall remain the property of the Owner. Material removed from the project shall be stored on the project site where and as directed. Debris shall be removed from the job site and disposed of by the Contractor.

The Contractor shall maintain his work area clean and orderly at all times. Debris shall be removed promptly. The electrical system shall be thoroughly cleaned inside and outside of all enclosures to remove all metal shavings or other work debris, dust, concrete splatter, plaster, paint and lint.

The Contractor shall do all excavating and backfilling made necessary by electrical work and shall remove all surplus or supply any earth required to establish the proper finished grade.

The Contractor shall do all cutting and patching made necessary by electrical work, but in no case shall he cut through or into any structural member without written permission of the Engineer.

All steel conduits, supports, channels, fittings, nuts, bolts, etc. shall be galvanized, corrosion-resistant type unless otherwise noted.

An approved anti-seize compound shall be used on all threads to prevent equipment and thread damage.

Equipment shall be installed in accordance with manufacturer's recommendation. Make all final electrical connections and coordinate all items with other trades.

Correct unnecessary damage caused due to installation of work, brought about through carelessness or lack of coordination. All openings, sleeves, and holes to be properly sealed, fire proofed and water proofed. Any water leaks arising from project construction will be immediately corrected to the satisfaction of the Owner and the Engineer.

SP19-3.4 POWER SUPPLY EQUIPMENT. Electrical equipment, such as switchgear, switchboards, panelboards, load centers, and other power supply equipment, shall not be used as a common enclosure, pull box or junction box for routing conductors of different systems, unless the equipment is specifically designed for this purpose and indicated as such on the Plans.

If shown in the plans, the power supply equipment shall be set on concrete housekeeping pads to provide a minimum space of 3-1/2 inches between the equipment and the floor. All equipment shall be secured to the floor or wall in accordance with the manufacturer's recommendations and these contract document requirements.

SP19-3.5 DUCT AND CONDUIT. Conduits shall be galvanized rigid steel unless otherwise indicated or specified. Refer to one-line diagram conduit notes for specific requirements.

Conduit runs shall be one trade size continuously with no reducers allowed. Changing of conduit size is only permitted at manholes, handholes, and boxes and conduit bodies used as outlet, device, junction, or pull boxes, including approved, listed fittings with removable covers.

Use an approved, listed adapter/coupling to convert to other types of conduit. Reducer couplings are not allowed.

For underground service entrance, feeder and branch circuit raceways, offsets and bends over 30 degrees and elbows in Schedule 40 PVC conduit runs shall be Schedule 80 PVC conduit. Underground service



entrance PVC conduits shall be concrete encased unless otherwise noted. Underground PVC conduits shall be concrete encased under driveways, roadways, parking lots and other paved areas.

Non-encased conduits shall convert to concrete encased ducts under all paved areas and shall extend at least 3 feet beyond the edges of the pavement unless otherwise noted.

The Contractor shall provide a staked centerline or offset for the duct and manhole system - utilizing the drawings and a site inspection of the existing grounds, grades and utility crossings. The Owner and Engineer shall approve the staking plan that shall be indicated on a drawing submitted for approval before starting any excavation for the ducts. The staking plan shall indicate the proposed location, elevation and dimensions of manholes and handholes. The Engineer reserves the right to adjust duct, manhole and handhole locations and elevations before installation at no additional cost to the Owner.

The bottom surface of trenches shall be essentially smooth and free from coarse aggregate.

Install grounding-and-bonding type bushings and bonding jumpers on all service entrance conduits and on all feeder and branch circuit conduits.

Use conduit bushings at each conduit termination. Where No. 4 AWG or larger ungrounded wire is installed, use insulated bushings.

When EMT is allowed, utilize only steel compression fittings. Die-cast and set-screw fittings shall not be used.

Use double lock nuts at each conduit termination. Use weather tight hubs in damp and wet locations. Sealing lock nuts shall not be used.

Grounding continuity to rigid metal conduit shall be accomplished by grounding bushings/adapters with lugs for connection to grounding counterpoise and/or grounding electrode conductor as defined by NEC.

All exposed wiring shall be run in not less than 1/2 inch (12 mm) galvanized rigid steel conduit. All conduits shall be installed to provide for drainage. Conduit shall be attached to wooden structures with galvanized pipe straps and fastened with galvanized wood screws not less than No. 8 nor less than 1-1/4 inches (31 mm) long. There shall be at least two fastenings for each 10-foot (3 m) length.

Existing ducts may require clearing before use. It is the responsibility of the Contractor to locate the existing ducts, identify empty or partially empty conduits and clear the conduits as required. Where new cable is to be installed in existing duct, the full length of the duct shall be cleared of debris by mechanical means before the installation of the new cable. Acceptable methods of clearing existing ducts include "hydro-jetting" and "roto-rooting." All existing cables in each re-used duct shall be replaced for the length of the duct and properly spliced in a method approved by the Engineer. Clearing of existing duct banks or conduits is incidental to the cable pay item.

For concrete markers, the impression of letters shall be done in a manner, approved by the Engineer, to effect a neat, professional appearance. The letters shall be stenciled neatly. After placement, all markers shall be given one coat of high-visibility aviation orange paint, as approved by the Engineer.

SP19-3.6 BACKFILL, COMPACTION, AND RESTORATION. Refer to the requirements within SECTION E-2 – EXCAVATION AND EMBANKMENT where other compaction requirements are specified (under pavements, embankments, etc.)

Trenches shall be backfilled and compacted in 6" layers to 90% maximum density for cohesive soils and to 100% maximum density for non-cohesive soils, as determined by ASTM D1557. The in-place field density shall be determined in accordance with ASTM D1556, D2167, or D6938.

Backfilling from two directions will not be allowed. No backfilling will be accomplished without the approval of the Engineer or Construction Observer. The Contractor shall ensure all trenches are inspected prior to being covered and prior to encasement. Any uninspected trenches which are prematurely covered shall be exposed for inspection at the Engineer and Owner's convenience at no additional cost to the Owner. The Construction Observer will coordinate with the Contractor for advance scheduling of trench inspection.

SP19-3.7 CABLE AND UTILITY COORDINATION. The proposed locations of lighting circuit cabling are approximate. The Contractor shall be responsible for field locating and identifying existing circuits and utilities to determine their exact routing. The Contractor shall proactively and expeditiously accomplish this cable identification work prior to performing any site work. Coordinate identification work with the Utility and Engineer and make all corrections, additions, etc. on the as-built drawings.

Underground cable and utilities exist within and adjacent to the limits of construction. An attempt has been made to locate these cables and utilities on the Plans. All existing cable and utilities may not be shown on the Plans and the location of the cables and utilities shown may vary from the location shown on the Plans. Prior to beginning of any type of excavation, the Contractor shall contact the utilities and other organizations as required and make arrangements for the location of the utilities on the ground. The Contractor shall maintain the cable and utility location markings until they are no longer required.

The Contractor shall replace or repair any underground cable or utility that has been damaged by the Contractor during excavation to the satisfaction of the owner of the cable or utility at no additional cost to the Owner.

SP19-3.8 WIRING. The Contractor shall furnish all labor and materials and shall make complete electrical connections in accordance with the wiring diagram furnished with the project plans. The electrical installation shall conform to the requirements of the latest edition of National Fire Protection Association, NFPA-70, National Electrical Code.

Provide color-coding for phase identification.

Colors for 240/120V Circuits:

- a. Phase A: Black
- b. Phase B: Red
- c. Neutral: White

Colors for 208Y/120V Circuits:

- a. Phase A: Black
- b. Phase B: Red
- c. Phase C: Blue
- d. Neutral: White

Colors for 480Y/277V Circuits:

- a. Phase A: Brown
- b. Phase B: Orange
- c. Phase C: Yellow
- d. Neutral: Gray

All new electrical cable shall be marked using color-coded plastic electrical tape, which is specifically designed for application on polyethylene-jacketed cable. The tape shall be applied as detailed on the Plans. Marking tape shall be Scotch 35 Vinyl Plastic tape or approved equal.

SP19-3.9 MARKING AND LABELING. Properly identify all electrical equipment.

Wire/Cable Designation Tape Markers:

a. Indoor Dry Locations: UL Recognized Materials, vinyl or vinyl-cloth, self-adhesive, wraparound, self-laminating, cable/conductor markers with computer printer-generated numbers and letters, minimum 1" width. Provide Brady B-427 with thermal transfer print type, or approved equal.

b. Outdoor Locations and Indoor Wet and Damp Locations: White polyolefin, non-adhesive, full circle, heat-shrinkable sleeve, cable/conductor markers with computer printer-generated numbers and letters, minimum 1" width. Provide Brady B-342 with thermal transfer print type, or approved equal.

Properly identify all electrical equipment, including but not limited to the following:

- a. Switchgear, switchboards, and control panels.
- b. Main distribution panel and individual devices within it.
- c. Panelboards and individual devices within it.
- d. Safety switches and disconnects.
- e. Contactors and lighting control center, including all branch circuits.
- f. Individually mounted circuit breakers.
- g. Starters and relays.
- h. Transformers.
- i. Generators and automatic transfer switches.

Use permanently attached black phenolic plates with 3/8" white engraved lettering on the face of each, attached with minimum two sheet metal screws. Starters and relays connected under this Specification shall be identified whether furnished under this Specification or under other Specifications of this contract. Plates shall be indoor or outdoor rated as required by installation location.

Panelboard identification plates shall indicate panel by identification name, voltage system, ampacity rating and type, AIC rating, and feeder source description.

Identify each receptacle, light switch, junction box, etc. with panelboard identification and circuit number. For all wiring device covers, use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

Identify fire alarm junction boxes with red covers and mechanical control junction boxes with blue covers.

Install all identification as required by current adopted editions of the NFPA 70 - National Electrical Code and NFPA 70E - Standard for Electrical Safety in the Workplace.

SP19-3.10 AS-BUILT DRAWINGS. Before work is started, the Contractor shall obtain at his expense one (1) full-sized set of prints for As-Built records; the Engineer will supply the tracings at printing cost to the Contractor.

The Contractor shall locate all underground and concealed work, identifying all equipment, conduit, circuit

numbers, motors, feeders, breakers, switches, and starters. The Contractor will certify accuracy by endorsement. As-Built drawings shall be correct in every detail, so Owner can properly operate, maintain, and repair exposed and concealed work.

The As-Built drawings shall indicate all control system labeling and marking.

The Contractor shall store the As-Built drawings on the site. Drawings shall not be rolled. Make corrections, additions, etc., with pencil, with date and authorization of change.

As-Built drawings must be submitted to Engineer before project will be accepted.

Minor deviations from the Plans and Specifications shall be as approved by the Engineer.

Upon completion of the installation, the Contractor shall adjust the systems to the satisfaction of the Engineer.

SP19-3.11 INSPECTION FEES AND PERMITS. The Contractor shall obtain and pay for all necessary construction permits, licenses, government charges, and inspection fees necessary for prosecution of the Work. Unless otherwise noted, the Contractor shall pay all charges of utility owners for connections for providing permanent service to the Work, ready for subsequent utility account transfer to the Owner after final acceptance.

#### SP19-3.12 WORK SUPERVISION.

State of Arkansas: The electrical contractor (whether the general contractor or a subcontractor) shall be a licensed contractor in the state of Arkansas having an electrical classification suitable for performing the work required in these contract documents.

The Contractor shall designate in writing the qualified electrical supervisor who shall provide supervision to all electrical work on this project. The minimum qualifications for the electrical supervisor shall be a master electrician as defined by Arkansas Board of Electrical Examiners. The supervisor or his appointed alternate possessing at least a journeyman electrician license shall be on site whenever electrical work is being performed. The qualifications of the electrical supervisor shall be subject to approval of the Owner and the Engineer.

All master and journeyman electricians shall be licensed in accordance with Arkansas Code Title 17 Chapter 28 - Electricians. The website located at <http://www.arkleg.state.ar.us> publishes the text of this statutory requirement. No unlicensed electrical workers shall perform electrical work on this project. Apprentice electricians in a ratio of not more than one apprentice per journeyman electrician will be allowed if the apprentices are licensed and actively participating in an apprenticeship program recognized and approved by the Arkansas Board of Electrical Examiners.

### METHOD OF MEASUREMENT

SP19-4.1 The quantity of lockout/tagout procedures to be paid for shall consist of all lockout/tagout procedure work and all constant current regulator calibration work completed in place, accepted and ready for operation. This item does not include measurement for constant current regulator equipment.

SP19-4.2 The quantity of utility connections to be paid for under this item shall consist of all utility connection and modification work, constructed in place and accepted as a complete and functional unit. This work consists of all electrical work which is not paid separately by other items, including but not

limited to all electrical power distribution work including all supporting structures and apparatuses, switches, breakers, meters, enclosures, contactors, controls, connections, connectors, feeders, conduit, grounding, power system modifications / additions, testing and methods required to complete the work to the satisfaction of the Owner and the Engineer.

SP19-4.3 Galvanized Steel Conduit will be measured by the linear foot measured along the axis of the conduit in its final position. It will not be considered complete until backfill and compaction have been satisfactorily performed. All necessary conduit fittings will be included as part of the conduit run and will not be measured separately.

SP19-4.4 Non-Metallic Conduit will be measured by the linear foot measured along the axis of the conduit in its final position. It will not be considered complete until backfill and compaction have been satisfactorily performed. All necessary conduit fittings will be included as part of the conduit run and will not be measured separately.

#### BASIS OF PAYMENT

SP19-5.1 Payment will be made at the contract unit price for each complete item, measured as provided above, and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the Engineer.

Payment will be made under:

Item SP19-5.1	Lockout/Tagout Procedures - per Lump Sum
Item SP19-5.2	Utility Connections & Service Point - per Lump Sum
Item SP19-5.3	Galvanized Steel Conduit 1-1/2" - per Linear Foot
Item SP19-5.4	Non-Metallic Conduit 1-1/2" - per Linear Foot

#### MATERIAL REQUIREMENTS

Commercial Item Description A-A-59544	Cable and Wire, Electrical (Power, Fixed Installation)
Fed. Spec. W-P-115	Panel, Power Distribution
Fed. Std. 595	Colors
CFR 1910	Occupational Safety and Health Regulations
CFR 1926	Safety and Health Regulations for Construction
ANSI/IEEE C2	National Electrical Safety Code
NFPA 70	National Electrical Code (NEC)
NFPA 70E	Standard for Electrical Safety in the Workplace

NFPA 101	Life Safety Code
NFPA 780	Standard for the Installation of Lightning Protection Systems
29 CFR 1910	Occupational Safety and Health Standards (OSHA)
29 CFR 1926	Safety and Health Regulations for Construction

**END OF ITEM SP-19**

**GROUND ROD IMPEDANCE TEST REPORT**

Owner / Sponsor: \_\_\_\_\_

Engineer: Garver, LLC \_\_\_\_\_

Airport: \_\_\_\_\_

Contractor: \_\_\_\_\_

Project Title: \_\_\_\_\_

Garver Project Number: \_\_\_\_\_

Date: \_\_\_\_\_

Weather / Site Conditions: \_\_\_\_\_

Fall-of-Potential Style Tester (F):  
 Manufacturer: \_\_\_\_\_

Model #: \_\_\_\_\_

Clamp-On Style Tester (C):  
 Manufacturer: \_\_\_\_\_

Model #: \_\_\_\_\_

Ground Rod #	Test Equipment Style (F or C)	Impedance Value (Ohms)	Ground Rod #	Test Equipment Style (F or C)	Impedance Value (Ohms)
Tested By:					
Engineer Witness:					

Provide signature/date in the fields above.





## **SP-20 – CONCRETE BARRIER WALL**

### DESCRIPTION

SP20-1.1 This item shall consist of the construction of concrete barrier walls in accordance with this special provision and in conformity with the location, dimensions, lines, and grades as shown on the plans, or as directed by the Engineer.

### MATERIALS

SP20-2.1 Materials used for the construction of the concrete barrier wall shall be in accordance with SECTION 631 – CONCRETE BARRIER WALL of the Standard Specifications.

### CONSTRUCTION REQUIREMENTS

SP20-3.1 The subgrade upon which the concrete barrier wall will be constructed shall meet the requirements of SECTION 212 – SUBGRADE of the Standard Specifications. The foundation shall be prepared to the required depth and forms shall be set rigidly to the proper line and grade. All soft and yielding material shall be removed prior to placing the concrete.

SP20-3.2 The Metal Handrail shall be constructed on the concrete barrier wall within limits of the MSE retaining walls as shown in the plans. This work shall be performed in accordance with SP-04 METAL HANDRAIL (TYPE H2).

SP20-3.3 Trail faces, tops, ends, and outer faces of the concrete barrier wall rails constructed along the MSE retaining walls shall receive a textured coating finish. This work shall be performed in accordance with SP-10 TEXTURED COATING FINISH.

### MEASUREMENT AND PAYMENT

SP20-4.1 Concrete Barrier Walls will be measured by the linear foot.

SP20-4.2 The Metal Handrail (Type H2) will be measured and paid for separately in accordance with SP-04 METAL HANDRAIL (TYPE H2).

SP20-4.3 The texture coating finish shall be measured and paid for separately in accordance with SP-10 TEXTURED COATING FINISH.

SP20-4.4 Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per linear foot, which price shall be full compensation for excavation and backfill; for furnishing materials including concrete, reinforcing steel, joint material; for performing mix designs and quality control and acceptance sampling and testing; for replacing shoulder materials, and the preparation and placing of all materials; for preparing the subgrade and forming; for mixing, placing, finishing and curing concrete.

Payment will be made under:

Item SP20-4.1 Concrete Barrier Wall (Parapet Type Special II) – per linear foot

END OF ITEM SP-20



## ITEM SP-21 – CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS

### GENERAL

SP21-1.1 This special provision limits the temporary construction operations in Special Flood Hazard Areas (SFHA) as required by the National Flood Insurance Program (NFIP) and administered by the local community.

SP21-2.1 Temporary construction operations include all work and material necessary to access and construct the permanent bridge(s), culvert(s) and roadway embankment within the SFHA. These operations may include work ramps, haul roads, temporary crossings, detour roads, levees, diversion channels, retaining walls, cofferdams, forms, storage of materials, storage of large equipment, and other related work.

SP21-3.1 This project crosses a regulatory floodway, regulatory floodplain, or SFHA as shown on the community's Flood Insurance Rate Map published by the FEMA. The regulatory floodway, regulatory floodplain, or SFHA limits are shown on the plan and profile sheet(s).

SP21-4.1 The project is permitted under a "Floodplain Development Permit" issued by the local community. The requirements of the "Floodplain Development Permit" and related regulations for construction within SFHA's are in the local community's "Flood Damage Prevention Ordinance." The NFIP's regulations are set forth at Title 44, Chapter 1, Parts 59-77, of the United States Code of Federal Regulations (CFR).

SP21-5.1 The following special conditions must be complied with for the "Floodplain Development Permit" to be valid:

- Temporary operations are to be used during the low flow season when possible.
- Temporary operations shall be designed and constructed so as not to result in a significant increase in flood elevations within the community during passage of a major flood.
- Temporary operations shall not obstruct a significant portion of an existing or proposed waterway opening.
- All temporary fills and temporary obstructions to the existing or proposed hydraulic structure (bridge(s) or box culvert(s)) must be removed in their entirety, and the affected areas returned to their preconstruction or designed elevation and condition, upon completion of the construction project.

- The contractor is responsible for preventing equipment and materials within the floodplain from becoming buoyant and floating downstream during a significant flood event. In the event this flood starts to occur, the contractor shall remove and/or anchor materials and equipment by means approved by the Engineer at the Preconstruction Conference.

#### MEASUREMENT AND PAYMENT

SP21-6.1 All work, including labor, materials, tools, and equipment necessary to complete the requirements of this special provision shall not be paid for directly, but will be considered subsidiary to other items in the contract.

END OF SECTION SP-21

## ITEM SP-22 – UTILITY ADJUSTMENTS

### GENERAL

SP22-1.1 Utility facilities at the locations noted below will be removed, relocated and/or adjusted in accordance with separate agreements between the Owner and the respective utility owners.

SP22-1.2 In accordance with Subsection 105.07, Cooperation with Utilities, of the Standard Specifications, the Contractor is forewarned that such work may be underway concurrently with the work under this contract.

SP22-1.3 The following utility forces may be working within the construction limits covered by the contract:

1. Owner – CenterPoint Energy  
Facilities – Natural Gas line  
Location – Underground gas line parallels Dave Ward Dr. (Highway 60) along the right of way on the south side within the project limits.  
Status – No conflicts anticipated

*Contact Grace Grubb, 501-377-4851, grace.grubb@centerpointenergy.com*

2. Owner – AT&T  
Facilities – Underground telephone (fiber)  
Location – Underground telephone lines parallel Dave Ward Dr. (Highway 60) along the right of way on the north and south sides within the project limits.  
Status – No conflicts anticipated

*Contact Lanny Page, 501-218-6842, LP1318@att.com*

3. Owner – Conway Corporation  
Facilities – Power lines  
Location – Overhead electric lines parallel Dave Ward Dr. (Highway 60) along the right of way on the north and south sides within the project limits.  
Status – Work order issued to relocate overhead electric underground on the north and south sides of Dave Ward Dr. (Highway 60). North side relocation complete with an estimated completion date of March 30, 2018 for the south side.

*Contact Dale Gottsponer, 501-450-6050, dale.gottsponer@conwaycorp.com*

4. Owner – Conway Corporation  
Facilities – Water/Wastewater  
Location – Water line parallels Dave Ward Dr. (Highway 60) along the right of way on the north and south sides.

Sanitary Sewer line parallels Dave Ward Dr. (Highway 60) on the north side. Sewer line parallels Stone Dam Creek Trail on the west side and cross Dave Ward Dr. (Highway 60) within the project limits.

Status – 21” sanitary sewer in conflict with bridge substructure and retaining wall south of Dave Ward Dr. (Highway 60). Relocation to the west edge of existing shared use path complete. Concrete encasement of existing 6” sanitary sewer service line required as shown in plans. No additional conflicts anticipated.

*Contact Brett McDaniel, 501-450-6052 (Office), brett.mcdaniel@conwaycorp.com*

5. Owner – Conway Corporation

Facilities – CATV

Location – Overhead CATV lines parallel Dave Ward Dr. (Highway 60) on the south side within the project limits.

Status - Work order issued to relocate overhead CATV lines on the south side of Dave Ward Dr. (Highway 60) with an estimated completion date of March 30, 2018.

*Contact Tony Vanpelt, 501-450-6000, tony.vanpelt@conwaycorp.com*

The completion dates were based on information received from the utility companies and the most current information available at this time; therefore, the dates are subject to change.

The utility relocations will be taking place during construction. It shall be the responsibility of the Contractor to verify the work has been done. It may be necessary for the contractor to coordinate work with and around utility adjustments.

In case there is a delay beyond the estimated completion dates as set forth above, and should such delay necessarily cause a delay in 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.

**The Contractor should make every effort to locate buried utilities including, but not limited to, calling Arkansas One Call Center (800) 482-8998.**

END OF ITEM SP-22

## SP-23 – VIDEO INSPECTION

### GENERAL

SP23-1.1 This section covers a cash allowance the Contractor shall include in his proposal to pay Conway Corporation for pre and post-construction video inspection of the existing sanitary sewer line running adjacent to the project and crossing Dave Ward Dr. (Highway 60).

SP23-1.2 The following Conway Corporation personnel should be contacted to provide video inspection services prior to construction activities at the site and immediately preceding final inspection and acceptance by the Owner.

Conway Corporation  
Mark Ferguson  
501-450-6050  
[Mark.Ferguson@conwaycorp.com](mailto:Mark.Ferguson@conwaycorp.com)

SP23-1.3 Owner, Engineer, Conway Corporation, and Contractor representatives shall be present during the inspections and be provided a summarized condition report within 5 days of the inspections.

SP23-1.4 Any additional damage found by final video inspection occurring during and as a result of construction activities shall be immediately repaired at the cost of the Contractor prior to final acceptance of the project by the Owner.

### ALLOWANCES

SP23-2.1 The Contractor shall include the following cash allowance in his proposal:

Video Inspection: Allow \$2,000.00 to pay the costs for the services of video inspection by Conway Corporation pre and post-construction.

Payment will be made under:

Item SP23-2.1	Video Inspection - \$2,000
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END OF ITEM SP-23





**SP-24 - CARGO PREFERENCE ACT REQUIREMENTS**

The requirements of the Cargo Preference Act (CPA) and implementing regulations (46 CFR 381.7(a)-(b)) are applicable to this contract. For additional information, see the FHWA's web page:

<https://www.fhwa.dot.gov/construction/cqit/cargo.cfm>



**SP-25 - DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED  
BUSINESS ENTERPRISES**

Although this contract does not have a Disadvantaged Business Enterprise (DBE) Goal, in accordance with Subsection 103.08(a) of the Standard Specifications all payments made to DBE Contractors, suppliers, manufacturers, and/or non-construction service firms must be reported by the Prime Contractor.

As required by Subsection 103.08(h), the Prime Contractor must use the appropriate DBE Payment Log form included in this Special Provision during the progress of the Contract. Listed below are the instructions on when each form is required to be submitted.

- The Prime DBE Payment Log (page 3) must be submitted by the Prime Contractor when he/she is a certified DBE Contractor and work was performed by their own forces or money was earned by the DBE Prime Contractor for work performed by a Subcontractor during the estimate period.
- The DBE Subcontractor Payment Log (page 2) must be submitted by the Prime Contractor when a Subcontractor is a certified DBE Contractor and work was performed by a Subcontractor or money was earned by a Subcontractor for work performed by a Second-tier Subcontractor during the estimate period.
- The 2nd Tier DBE Payment Log (page 4) must be submitted by the Prime Contractor when a 2nd Tier Subcontractor is a certified DBE Contractor and work was performed by a 2nd Tier Subcontractor during the estimate period.
- The 2nd Tier DBE Payment Log (page 4) must be submitted by the Prime Contractor when payments are made to a Department Certified DBE supplier, manufacturer, and/or non-construction service firm by the Prime Contractor or any Subcontractor or 2nd Tier Subcontractor during the estimate period.

A separate DBE Payment Log form is required for each DBE firm receiving payments for work completed or services provided during each estimate period. The DBE Payment Log forms, along with instructions for their use, are available on the Department's website at:

[http://arkansashighways.com/Construc/SpecBK03/DBE\\_Log.xls](http://arkansashighways.com/Construc/SpecBK03/DBE_Log.xls)

All certifications of payments must be received by the Resident Engineer within thirty-five (35) calendar days following the end of each estimate period. Facsimile or scanned copies of the completed original payment log forms are acceptable to fulfill this requirement.

Upon completion of the contract, a final certificate of payments to all DBE firms -- page 5 of this Special Provision -- is required by Subsection 103.08 (h). The final amount paid to each DBE firm shall match the total to date reported on the last DBE payment log submitted for each firm. If necessary, an additional DBE payment log shall be submitted with the certificate of payment itemizing all payments made to DBE firms since the last estimate period. A signed, original of the Final Certificate of Payment must be furnished to the Resident Engineer.













## ITEM SP-26 – SHORING FOR CULVERTS

**DESCRIPTION:** Work under this item shall consist of the design, construction, and removal of a shoring or bracing system that may be required to retain the existing, temporary, or new roadway embankment and to maintain traffic during construction of culverts. The shoring system shall provide sufficient clearance for excavation and construction work and shall ensure the safety of the traveling public and workmen at all times.

**WORK TO BE PERFORMED:** Prior to construction of the shoring system, the Contractor shall submit the design and details of the system to the Engineer for informational and record purposes. Such submission shall include the design calculations, the kind and condition of materials to be used, working drawings showing all dimensions, and the procedure for installation of the system. The design and details submitted shall be prepared and/or approved by a Professional Engineer registered in Arkansas.

The Contractor shall be responsible for the adequacy of the temporary shoring during the entire period of construction. The Contractor shall be responsible for any and all damages and/or claims, including injury or death, arising out of the construction and use of temporary shoring.

The Contractor shall construct the shoring in accordance with the details submitted to the Engineer for informational purposes. Unless otherwise permitted by the Engineer, all components of the shoring system shall be removed upon completion of their use and shall remain the property of the Contractor.

**PAYMENT:** No direct payment will be made for work described in this special provision (which includes preparation of necessary design details and drawings, construction and removal of shoring, and for all materials, labor, tools, equipment, and incidentals necessary to complete the work) but shall be considered subsidiary to other pay items in the contract.

END OF ITEM SP-26



## **SP-27 - SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS**

Division 106 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is hereby added to **Subsection 106.04, Acceptance of Materials:**

All ACHM Contractor Acceptance Tests shall be submitted electronically by use of the ACHM Microsoft Excel Spreadsheet for Contractors / Suppliers and on paper.

The ACHM Microsoft Excel Spreadsheet for Contractors / Suppliers can be downloaded from the following website: [http://www.arkansashighways.com/contracts/contractor\\_information/contractor.aspx](http://www.arkansashighways.com/contracts/contractor_information/contractor.aspx).

To download this file and the supporting documentation, click on the link labeled Contractor\_ACHM.exe which is listed under User Help File and Utilities on the website noted above.

Use of this file requires Microsoft Excel 2000, 2003 or 2007.

The preferred method of transmitting the file is to e-mail the completed ACHM Microsoft Excel Spreadsheet for Contractors / Suppliers to the Department's ACHM Plant Inspector assigned to the project. It is also acceptable to transmit the file by Compact Disk (CD) or other electronic device. Regardless of the method of transmission used, the signed paper acceptance tests must be provided to the Resident Engineer.

Any questions or issues arising from the use of this file should be referred to the Resident Engineer.



## SP-28 - WARM MIX ASPHALT

**DESCRIPTION:** The Department will allow the use of Warm Mix Asphalt (WMA). All provisions for the production and placement of conventional HMA mixtures as stipulated in Section 410 Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses of the Standard Specifications for Highway Construction, Edition 2014, are applicable except as noted below.

**Section 410 Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Section 410.03:** Replace the third sentence with “WMA production temperatures at the plant shall be according to the Contractor’s approved mix design, but may be adjusted based on recommendations of the WMA additive/process manufacturer.”

Add the following paragraph: “Implementation of best management practices in the control of aggregate moisture content prior to introduction to the drying or mixing drum is highly recommended in order to achieve the maximum benefit of WMA technology.”

**Section 410.07:** Replace the last sentence of the first paragraph with “Spreading and finishing temperatures shall be according to the Contractor’s approved mix design, but in no case shall the WMA be placed at a temperature less than 220° F.”



## Title VI CONTRACT PROVISIONS APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the “contractor”) agrees as follows:

(1) Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(2) Nondiscrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(3) Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(4) Information and Reports: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

- (a) Withholding of payments to the contractor under the contract until the contractor complies, and/or
- (b) Cancelling, terminating or suspending a contract, in whole or in part.

(6) Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

## TITLE VI CONTRACT PROVISIONS APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

### **Pertinent Non-Discrimination Authorities:**

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC§ 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681et seq)



**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**SUPPLEMENTAL SPECIFICATION**

**ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS**

Errors noted in the printed book of Standard Specifications for Highway Construction, Edition of 2014, are listed below and this publication is hereby revised as follows:

- Page 195: The sixth paragraph of subsection 303.02 should read: For Classes 1 through 8 materials, the fraction passing the #200 (0.075 mm) sieve shall not be greater than three-fourths of the fraction passing the #40 (0.425 mm) sieve. For Classes 3 through 8 the fraction passing the #40 (0.425 mm) sieve shall have a liquid limit not greater than 25.
- Page 363: In the second paragraph of Subsection 502.02, the reference to ASTM 775 should be replaced by “ASTM A 775”.
- Page 636: In the second paragraph of Subsection 730.02, the references to AASHTO M 183 should be replaced with ASTM A36.
- Page 637: The last sentence of the second paragraph of Subsection 730.03 should read: All bolts, nuts, and washers shall be galvanized according to AASHTO M 232 or ASTM B 695, Class 40 or 50.
- Page 767: In the fourth paragraph of Subsection 807.06(a), the reference to ASTM B595 should be replaced by “ASTM B695”.
- Page 841: Subsection 817.04(a) should read: The treatment of lumber and timber shall meet the applicable requirements of the current edition of the AWPA, Standards U1, Commodity Specification E, Use Category UC4C.



**REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

**ATTACHMENTS**

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

**II. NONDISCRIMINATION**

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

**I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this

contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of

paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will

notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## 2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

## 3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### 4. Apprentices and trainees

##### a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

##### b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.



d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

#### **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

#### **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

##### **1. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\* \* \* \* \*

## **2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

### **2. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this

transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

\* \* \* \* \*

**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS  
PREFERENCE FOR APPALACHIAN DEVELOPMENT  
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS  
ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

**FHWA-1273 SUPPLEMENTAL SPECIFICATION****EQUAL EMPLOYMENT OPPORTUNITY – NOTICE TO CONTRACTORS**

Elsewhere in this contract are three Supplemental Specifications on Equal Employment Opportunity designated as PR-1273 Supplements. They are (1) Specific Equal Employment Opportunity Responsibilities (23 U.S.C. 140), (2) Equal Employment Opportunity – Goals and Timetables, and (3) Equal Employment Opportunity – Federal Standards. This notice is to clarify the responsibilities for review of compliance and enforcement for these separate supplemental specification requirements.

The first of the Supplemental Specifications cited above covers the requirements for the equal employment opportunity program under Title 23 for which the sponsor is responsible. The sponsor performs the necessary compliance review and enforcement of this supplemental Specification which is applicable to all contractors holding Federal-aid highway contracts.

The latter two Supplemental Specifications are for the specific equal opportunity requirements for Executive Order 11246 which is the sole responsibility of the Office of Federal Contract Compliance Programs (OFCCP), Department of Labor. Review and enforcement under these Supplemental Specifications is performed by OFCCP.

OFCCP has, under Paragraph 8 of the EEO Federal Standards Supplemental Specification, recognized the Arkansas AGC Heavy Highway Affirmative Action Plan as meeting the provisions of that Supplemental Specification and Supplemental Specification (2) cited above. With this recognition, those contractors signatory to the AGC Plan have been waived from individual review by OFCCP. However, OFCCP retains the right to review any such contractors whenever circumstances warrant. Also, contractors non-signatory to the AGC Plan are subject to OFCCP review under EO 11246.

ARDOT and OFCCP have agreed to work towards eliminating duplicative reviews on individual contractors; however, each agency may make reviews at any time notwithstanding the cited agreement.





**FHWA-1273 SUPPLEMENTAL SPECIFICATION**  
**SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES**  
**(23 U.S.C. 140)**

**1. General.**

a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required Contract Provisions (Form FHWA-1273 and Supplements) and these Special Provisions which are imposed pursuant to Section 140 of Title 23, U.S.C., as established by Section 22 of the Federal-Aid Highway Act of 1968. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions. The initial measure of the contractor's good faith efforts to comply with these Special Provisions shall be its efforts to meet the goals set forth in the 'Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)' for minority and female participation expressed in percentage terms for the contractor's work force in each trade on this project.

b. The contractor will work with the sponsor and the Federal Government in carrying out equal employment opportunity obligations and in their review of his/her activities under the contract.

c. The contractor and all his/her subcontractors holding subcontracts not including material suppliers, of \$10,000 or more, will comply with the following minimum specific requirement activities of equal employment opportunity: (The equal employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection I of the Federal-Aid Highway Program Manual, are applicable to material suppliers as well as contractors and subcontractors.) The contractor will include these requirements in every subcontract of \$10,000 or more with such modification of language as is necessary to make them binding on the subcontractor.

**2. Equal Employment Opportunity Policy.**

The contractor will accept as his operating policy the following statement which is designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex, age, disability, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program:

It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, age, disability, or national origin. Such action shall include: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training.

**3. Equal Employment Opportunity Officer.**

The contractor will designate and make known to the sponsor contracting officers an equal employment opportunity officer (hereinafter referred to as the EEO Officer) who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so.

**4. Dissemination of Policy.**

a. All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

**FHWA-1273 SUPPLEMENTAL SPECIFICATION****SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES  
(23 U.S.C. 140)**

(1) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's equal employment opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

(2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official covering all major aspects of the contractor's equal employment opportunity obligations within thirty days following their reporting for duty with the contractor.

(3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate company official in the contractor's procedures for locating and hiring minority and female employees.

b. In order to make the contractor's equal employment opportunity policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the contractor will take the following actions:

(1) Notices and posters setting forth the contractor's equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment, and potential employees.

(2) The contractor's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**5. Recruitment**

a. When advertising for employees, the contractor will include in all advertisements for employees the notation: 'An Equal Opportunity

Employer.' All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

b. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants, including, but not limited to, State employment agencies, schools, colleges, and minority group organizations. To meet this requirement, the contractor will, through his EEO Officer, identify sources of potential minority and female employees, and establish with such identified sources procedures whereby minority and female applicants may be referred to the contractor for employment consideration.

In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with equal employment opportunity contract provisions. (The U.S. Department of Labor has held that where implementation of such agreements has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority and female applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority and female applicants will be discussed with employees.

**6. Personnel Actions.**

Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race,

**FHWA-1273 SUPPLEMENTAL SPECIFICATION**

**SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES**  
**(23 U.S.C. 140)**

color, religion, sex, age, disability, or national origin. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

**7. Training and Promotion.**

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the

event the Optional Training Special Provision is provided under this contract, this subparagraph will be superseded by that Special Provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

**8. Unions.**

If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the union and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below,

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, age, disability, or national origin.

c. The contractor is to obtain information as to the referral practices and policies of the labor union, except that to the extent such information is within the exclusive ion of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the sponsor and shall set forth what efforts have been made to obtain such information.

## FHWA-1273 SUPPLEMENTAL SPECIFICATION

### SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, age, disability, or national origin, making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the sponsor.

#### **9. Subcontracting.**

a. The contractor's attention is called to the Special Provision on Disadvantaged Business Enterprises in Federal-Aid Highway Construction.

b. The contractor will use his best efforts to ensure subcontractor compliance with their equal employment opportunity obligations.

#### **10. Records and Reports.**

a. The contractor will keep such records as are necessary to determine compliance with the contractor's equal employment opportunity obligations. The records kept by the contractor will be designed to indicate:

(1) the number of minority and non-minority group members and women employed in each work classification on the project,

(2) the progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to contractors who rely in whole or in part on unions as a source of their work force),

(3) the progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and

(4) the progress and efforts being made in securing the services of Disadvantaged Business Enterprises or subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the sponsor and the Federal Highway Administration.

c. The contractors will submit an annual report to the State Highway agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR 1391.

#### **11. Corrective Action Plans.**

The contractor understands that a designated representative of the sponsor will periodically review compliance by the contractor with all contractual provisions incorporated pursuant to Executive Order 11246, as amended, and Federal Highway Administration Equal Employment Opportunity Special Provisions implementing the Federal-Aid Highway Act of 1968, where applicable.

In the event that the designated representative of the sponsor finds that the contractor has failed to comply with any of the aforementioned contractual provisions, he will notify the contractor of this finding in writing. A declaration of default will result in the suspension of all future payments. No declaration of default will be made if the sponsor and the contractor formally agree to enter into a corrective action plan setting out the specified steps and timetables the contractor will be contractually obligated to perform in order to re-establish his

**FHWA-1273 SUPPLEMENTAL SPECIFICATION****SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES  
(23 U.S.C. 140)**

compliance. This collective action plan, in order to be accepted by the sponsor, shall include the following mandatory enforcement language:

“If, at any time in the future, the Office of Federal Contract Compliance Programs or the Federal Highway Administration or the Arkansas State Highway Commission or their successor(s) believe that (name of contractor) has violated any portion of this agreement, (name of contractor) shall be promptly notified of the fact in writing. This notification shall include a statement of the facts and circumstances relied upon in forming that belief. In addition, the notification shall provide (name of contractor) with 15 days to respond in writing to the notification except where the Office of Federal Contract Compliance Programs, the Federal Highway Administration or the Arkansas State Highway Commission alleges that such delay would result in irreparable injury. It is understood that enforcement proceedings for violation of this agreement may be initiated at any time after the 15-day period has elapsed (or sooner if irreparable injury is alleged) without issuance of a show cause notice.”

“It is recognized that where the Office of Federal Contract Compliance Programs and/or the Federal Highway Administration and/or the Arkansas State Highway Commission believes that (name of contractor) has breached this agreement, evidence regarding the entire scope of (name of contractor) alleged noncompliance from which this agreement resulted, in addition to evidence regarding (name of contractor) alleged violation of this agreement, may be introduced at the enforcement proceeding.”

“Violation of this agreement may subject (name of contractor) to sanctions pursuant to the Arkansas State Highway Commission contract administration procedures. It is further recognized that liability for violation of this agreement may also subject (name of contractor) to sanctions set forth in Section 209 of Executive Order 11246, as amended, and/or appropriate relief.”

The contractor will submit quarterly reports to the sponsor as a result of any deficiencies cited during an equal employment opportunity compliance

review. The reports will indicate the affirmative action steps taken to correct the deficiencies. Instructions for submission of the reports will be furnished by the Equal Employment Opportunity Section.



**FHWA-1273 SUPPLEMENTAL SPECIFICATION****EQUAL EMPLOYMENT OPPORTUNITY – GOALS & TIMETABLES****NOTICE OF REQUIREMENT FOR AFFIRMATIVE  
ACTION TO ENSURE EQUAL EMPLOYMENT  
OPPORTUNITY (EXECUTIVE ORDER 11246)**

1. The Bidder's attention is called to the 'Equal Opportunity Clause' and the 'Standard Federal Equal Employment Specifications' set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in covered area, are as follows:

MINORITIESCOUNTY

Arkansas	16.4%	Lee	26.5%
Ashley	16.4%	Lincoln	16.4%
Baxter	3.3%	Little River	19.7%
Benton	3.3%	Logan	6.6%
Boone	3.3%	Lonoke	16.4%
Bradley	16.4%	Madison	3.3%
Calhoun	16.4%	Marion	3.3%
Carroll	3.3%	Miller	19.7%
Chicot	16.4%	Mississippi	26.5%
Clark	16.4%	Monroe	16.4%
Clay	26.5%	Montgomery	16.4%
Cleburne	16.4%	Nevada	20.2%
Cleveland	16.4%	Newton	3.3%
Columbia	20.2%	Ouachita	16.4%
Conway	16.4%	Perry	16.4%
Craighead	26.5%	Phillips	26.5%
Crawford	5.6%	Pike	20.2%
Crittenden	32.3%	Poinsett	26.5%
Cross	26.5%	Polk	6.6%
Dallas	16.4%	Pope.	16.4%
Desha	16.4%	Prairie	16.4%
Drew	16.4%	Pulaski	15.7%
Faulkner	16.4%	Randolph	26.5%
Franklin	6.6%	Saline	15.7%
Fulton	16.4%	Scott	6.6%
Garland	16.4%	Searcy	3.3%
Grant	16.4%	Sebastian	5.6%
Greene	26.5%	Sevier	20.2%
Hempstead	20.2%	Sharp	16.4%
Hot Spring	16.4%	Stone	16.4%
Howard -	20.2%	St. Francis	26.5%
Independence	16.4%	Union	16.4%
Izard	16.4%	Van Buren	16.4%
Jackson	16.4%	Washington	3.3%
Jefferson	31.2%	White	16.4%
Johnson	16.4%	Woodruff	16.4%
Lafayette	20.2%	Yell	16.4%
Lawrence	26.5%		

<b>FEMALES</b> Statewide – 6.9%
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**FHWA-1273 SUPPLEMENTAL SPECIFICATION****EQUAL EMPLOYMENT OPPORTUNITY – GOALS & TIMETABLES****NOTICE OF REQUIREMENT FOR AFFIRMATIVE  
ACTION TO ENSURE EQUAL EMPLOYMENT  
OPPORTUNITY (EXECUTIVE ORDER 11246)**

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in the Notice, and in the contract resulting from this solicitation, the 'covered area' is as described in the Proposal Form for this project.



**FHWA-1273 SUPPLEMENTAL SPECIFICATION****EQUAL EMPLOYMENT OPPORTUNITY – FEDERAL STANDARDS****STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY  
CONSTRUCTION CONTRACT SPECIFICATIONS  
(EXECUTIVE ORDER 11246)**

1. As used in these specifications:

a. “Covered area” means the geographical area described in the solicitation from which this contract resulted;

b. “Director” means Director, Office of Federal Contract Compliance Programs United States Department of Labor, or any person to whom the Director delegates authority;

c. “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. “Minority” includes:

- i. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
- ii. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
- iii. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
- iv. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations and on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall Good Faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor’s or Subcontractor’s failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective

**FHWA-1273 SUPPLEMENTAL SPECIFICATION****EQUAL EMPLOYMENT OPPORTUNITY – FEDERAL STANDARDS****STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY  
CONSTRUCTION CONTRACT SPECIFICATIONS  
(EXECUTIVE ORDER 11246)**

bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees before the start of work and then not less often than once every six months; and by posting the company EEO policy on bulletin

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boards accessible to all employees at each location where construction work is performed.

g. Review the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site and then not less often than once every six months. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above describing the openings, screening procedures, and test to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from disadvantaged business enterprise construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the

**FHWA-1273 SUPPLEMENTAL SPECIFICATION****EQUAL EMPLOYMENT OPPORTUNITY – FEDERAL STANDARDS****STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY  
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employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, national origin, age or disability.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Employment Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

16. In addition to the reporting requirements set forth elsewhere in this contract, the contractor and the subcontractors holding subcontracts not including material suppliers, of \$10,000 or more, shall submit for every month of July during which work is performed employment data as contained under Form PR-1391 (Appendix C to 23 CFR, Part 230), and in accordance with the instructions included thereon.

- Rev. 2/11/98
- Rev. 2/20/03
- Rev. 7/27/06
- Rev. 10/24/06
- Rev. 9/16/13
- Rev. 8/22/17

**FHWA-1273 SUPPLEMENTAL SPECIFICATION**

**POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS**

<b>POSTER OR DOCUMENT REQUIRED</b>	<b>REQUIRED BY</b>	<b>WHERE TO OBTAIN</b>
1. Equal Employment Opportunity is the Law	U.S. Department of Labor (OFCCP)	ARDOT Resident Engineer
2. "EEO is the Law" Poster Supplement	U.S. Department of Labor (OFCCP)	ARDOT Resident Engineer
3. Company EEO Policy (prepared by the Contractor on the Company's letterhead)	U. S. Department of Labor (OFCCP)	Contractor to Prepare: <ul style="list-style-type: none"> <li>a. EEO policy statement.</li> <li>b. Notice encouraging employees to refer minority and female applicants for employment.</li> <li>c. Notice informing employees of an available training program and the entrance requirements.</li> <li>d. Complaint procedures</li> <li>e. Notice identifying company EEO officer by name, including address and telephone number where EEO officer can be located.</li> <li>f. Work environment statement.</li> <li>g. Certification of nonsegregated facilities</li> <li>*h. Notice to unions disseminating EEO commitments and responsibilities and requesting their cooperation.</li> </ul>
4. Current Wage Rates (PR-1273 Supplement) or SS Revisions of PR-1273 for Off-System Projects	*Union Contractors Only  U. S. Department of Labor	Contained in contract. Extra copies may be obtained from Program Management Division – ARDOT

- Rev. 2/11/98
- Rev. 2/20/03
- Rev. 7/27/06
- Rev. 10/24/06
- Rev. 9/16/13
- Rev. 8/22/17

**FHWA-1273 SUPPLEMENTAL SPECIFICATION  
POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS**

<b>POSTER OR DOCUMENT REQUIRED</b>	<b>REQUIRED BY</b>	<b>WHERE TO OBTAIN</b>
5. "Employee Rights Under the Davis-Bacon Act" (WH 1321)	U. S. Department of Labor	ARDOT Resident Engineer
6. "Employee Rights Under the Davis-Bacon Act" (WH 1321 SPA)	U. S. Department of Labor	ARDOT Resident Engineer
7. Minimum Wage Rate (WH 1088)	U. S. Department of Labor	ARDOT Resident Engineer
8. "NOTICE" Federal Aid Projects (PR-1022)	U. S. Department of Transportation (FHWA)	ARDOT Resident Engineer
9. Job Safety and Health Protection OSHA 3165	U. S. Department of Labor (OSHA)	ARDOT Resident Engineer
10. Job Safety and Health Protection OSHA 3167	U. S. Department of Labor (OSHA)	ARDOT Resident Engineer
11. Emergency Phone Numbers of Doctors, Hospital and Ambulance near Job Site for referring injured employees.	U. S. Department of Labor (OSHA)	ARDOT Resident Engineer
12. WCC Form AR-P Workers Compensation Notice and Instructions to Employers and Employees	State of Arkansas	Insurance Carrier
Self-Insurer	State of Arkansas	Administrator - Self-Insured Group

- Rev. 2/11/98
- Rev. 2/20/03
- Rev. 7/27/06
- Rev. 10/24/06
- Rev. 9/16/13
- Rev. 8/22/17

**FHWA-1273 SUPPLEMENTAL SPECIFICATION  
POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS**

<b>POSTER OR DOCUMENT REQUIRED</b>	<b>REQUIRED BY</b>	<b>WHERE TO OBTAIN</b>
13. Log and Summary of Occupational Injuries and Illnesses (OSHA Form 300). The Summary portion must be posted from February 1 to April 30, of the year following the year covered by the form.	U. S. Department of Labor (OSHA) Public Law 91-596	ARDOT Resident Engineer
14. Family and Medical Leave Act of 1993 (WH-1420) Employers who employ 50 or more employees for at least 20 workweeks in the current or preceding calendar year.	U. S. Department of Labor	ARDOT Resident Engineer
15. Employee Polygraph Protection Act (WH-1462)	U. S. Department of Labor	ARDOT Resident Engineer
16. Your Rights Under USERRA (The Uniformed Services Employment and Reemployment Rights Act)	U. S. Department of Labor	ARDOT Resident Engineer
17. Arkansas Department of Labor Notice to Employer & Employee	Arkansas Department of Labor	ARDOT Resident Engineer
18. Pay Transparency Nondiscrimination Provision	U.S. Department of Labor (OFCCP)	ARDOT Resident Engineer





**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**  
**SUPPLEMENTAL SPECIFICATION**  
**CONTRACTOR'S LICENSE**

**Section 102** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The third paragraph of **Subsection 102.01, Prequalification of Bidders** is hereby deleted and the following substituted thereof:

The attention of prospective bidders is directed to Ark. Code Ann. §17-25-101 et seq., Act 150 of the 1965 Acts of Arkansas, being an "Act Regulating the Practice of Contracting in the State of Arkansas", and any subsequent amendments made thereto. When the work offered is financed in whole with State funds and is estimated to cost \$50,000 or more, the prospective bidder must show evidence of license with the Contractors Licensing Board for the State of Arkansas before being furnished with a proposal form.

The third paragraph of **Subsection 108.01, Subletting of Contract** is hereby deleted and the following substituted thereof:

It shall be the responsibility of the Contractor to determine that all parties performing work amounting to \$50,000 or more are currently licensed by the Contractors Licensing Board for the State of Arkansas.



**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT****SUPPLEMENTAL SPECIFICATION****DEPARTMENT NAME CHANGE**

All references to the Arkansas State Highway and Transportation Department contained within the Standard Specifications for Highway Construction (Edition of 2014), the Qualified Products List, the Manual of Field Sampling and Testing Procedures, plan sheets, Supplemental Specifications, and all Special Provisions contained in this proposal are hereby deleted and replaced with the title of Arkansas Department of Transportation.

All references to AHTD contained within the Standard Specifications for Highway Construction (Edition of 2014), the Qualified Products List, the Manual of Field Sampling and Testing Procedures, plan sheets, Supplemental Specifications, and all Special Provisions contained in this proposal are hereby deleted and replaced with the abbreviation ARDOT.

All references to the Arkansas State Highway Commission contained within the Standard Specifications for Highway Construction (Edition of 2014), the Qualified Products List, the Manual of Field Sampling and Testing Procedures, the Standard Drawings, plan sheets, Supplemental Specifications, and all Special Provisions contained in this proposal remain in effect.



**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**SUPPLEMENTAL SPECIFICATION**

**ISSUANCE OF PROPOSALS**

**Section 102** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Subsection 102.04(j)** is hereby deleted and the following is substituted therefore:

(j) If the prospective bidder is the Contractor on a current Contract with the Commission on which Liquidated Damages are being assessed, and there are no pending time extensions warranted to remove the project from Liquidated Damages.

**Subsection 102.04(k)** is hereby deleted and the following is substituted therefore:

(k) If the prospective bidder has a current Contract in default.



**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
SUPPLEMENTAL SPECIFICATION****WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER**

**Section 108** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Subsection 108.02(b)(2)** is hereby deleted and the following is substituted therefore:

(2) The delivery to the Department for execution of the Contract and bonds properly executed on behalf of the Contractor and surety and the minimum 72 hours advance notice as required above shall constitute the Contractor's authority to begin the following items of work:

- Mobilization;
- Preparation of shop drawings and other required submissions;
- Ordering, fabrication, assembly, and/or stockpiling of materials;
- Driving Test Piling; and
- Contract surveying, when Roadway and/or Bridge Construction Control is included in the Contract.
- Erection of advance warning signs.
- Installation of netting on structures to prevent nesting of migratory birds in accordance with applicable Special Provisions (if included in the Contract).
- Set up, installation, and testing of Automated Work Zone Information Systems (if included in the Contract).
- Off-site area approval process per Section 107.10(c).

Such advance work shall be subject to the Contractor's assumption of the risk of cancellation of the award and the following:

- The Contractor shall, on commencing such operations, take all precautions required for public safety and shall observe all the provisions in the Contract;
- In the event of cancellation of the award, the Contractor shall at Contractor expense do such work as necessary to leave the site in a neat condition to the satisfaction of the Engineer;
- In the event of cancellation of the award, all work performed shall be deemed to be at the Contractor's expense; and
- All work done under this subsection in accordance with the Contract before its execution by the Commission will, when the Contract is executed, be considered authorized work and will be paid for as provided in the Contract.

Unless otherwise notified in writing, no time will be assessed for work performed prior to the effective date of a Work Order.

No payments will be made prior to the date established by the Engineer under Subsection 109.07, which date will be after the effective date of a Work Order.

The Contractor shall not be entitled to any additional compensation or an extension of time for any delay, hindrance, or interference caused by or attributable to commencement of work before the effective date of a Work Order.





**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**SUPPLEMENTAL SPECIFICATION**

**Aggregate Base Course**

**Section 303** of the Standard Specification for Highway Construction, Edition 2014, is hereby amended as follows:

The second paragraph of **Subsection 303.02, Materials** is hereby deleted and the following substituted therefor:

The Contractor shall have the option of using any higher numbered class Aggregate Base Course than that specified, provided that payment will be for the class specified. Acceptance criteria shall be for the class specified. Different classes of Aggregate Base Course shall not be mixed in the same location.



**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**SUPPLEMENTAL SPECIFICATION**

**CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF  
ASPHALT CONCRETE PLANT MIX COURSES**

**Section 410, Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses**, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby modified as follows:

**Subsection 410.10 Incentives** is hereby deleted.



**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**  
**SUPPLEMENTAL SPECIFICATION**  
**RETROREFLECTIVE SHEETING FOR**  
**TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES**

**Section 604** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is inserted after the first paragraph of Subsection 604.02(b):

Retroreflective sheeting used on traffic drums shall meet the requirements of ASTM D4956 for Type III or IV with the additional requirements for Reboundable Sheeting. Retroreflective sheeting for delineators shall comply with section 728.

Retroreflective sheeting shall be applied to a properly treated substrate with mechanical equipment and in a manner specified by the sheeting manufacturer. Sign material (substrate) shall be of sufficient thickness and stability to maintain a substantial, effective sign for the duration of the project. One splice will be allowed in retroreflective sheeting on sign blanks. "Left", "Right", "Distances", and "Ahead" will be allowed on signs as inserts. All letters and numerals on inserts shall be of the same size and series as those on the sign face.



**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
SUPPLEMENTAL SPECIFICATION**

**Mulch Cover**

**Section 620** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

Subsection **620.02 Materials (d)** is hereby deleted and the following substituted therefore:

**(d) Mulch cover.** Shall be a mulch cover system as listed on the Department's Qualified Products List (QPL) or shall consist of straw from threshed rice, oats, wheat, barley, or rye; of wood excelsior; or of hay obtained from various legumes or grasses, such as lespedeza, clover, vetch, soybeans, bermuda, carpet sedge, bahia, fescue, or other legumes or grasses; or a combination thereof. Mulch shall be dry and reasonably free from Johnson grass or other noxious weeds, and shall not be excessively brittle or in an advanced state of decomposition. All material will be inspected and approved prior to use.

The following is inserted after Subsection **620.03 Construction Requirements (c) Seeding (3) Hydro-seeding:**

**(4) Mulch Cover.** If a mulch cover system listed on the Department's Qualified Products List (QPL) is used then the mulch cover and the seed may be incorporated into one operation.

Subsection **620.03 Construction Requirements (d)** is hereby deleted and the following substituted therefore:

**(d) Mulch Cover.** If a Mulch Cover system listed on the Department's Qualified Products List (QPL) is used then refer to the application rate listed in the QPL otherwise the mulch cover shall be applied at the rate of 4000 pounds per acre (4500 kg/ha). If the mulch cover and seed are not incorporated into one operation then apply the mulch cover immediately after seeding and spread the mulch cover uniformly over the entire area by approved power mulching equipment. When approved by the Engineer, the Contractor may use hand methods to apply mulch cover to small or inaccessible areas. If the Contractor so elects, an approved mulching machine may be used, whereby the application of mulch cover and tackifier may be combined into one operation. If this method is used, no change in application rates will be allowed. In its final position, the anchored mulch shall be loose enough to allow air to circulate, but compact enough to partially shade the ground and reduce the impact of rainfall on the surface of the soil. Care shall be taken to prevent tackifier materials from discoloring or marking structures, pavements, utilities, or other plant growth. Removal of any objectionable discoloration shall be at no cost to the Department.

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
SUPPLEMENTAL SPECIFICATION**

**Mulch Cover**

The first paragraph of subsection **620.03 Construction Requirements (e)** is hereby deleted and the following substituted therefore:

**(e) Mulch Anchoring.** If a mulch cover system is selected from the Department's Qualified Products List (QPL) then no additional anchoring is needed. If a mulch cover system is not used then immediately following or during the application of mulch cover on seeded areas, the mulch shall be anchored by one of the following methods.



# **TECHNICAL SPECIFICATIONS**



## SECTION E-1 – SITE PREPARATION

### DESCRIPTION

E1-1.1 This item covers the preparation of the site for construction of the proposed improvements. The attention of the bidder is directed to the necessity for careful examination of the entire project site to determine, at the time of bid preparation, the full extent of work to be done under the item "SITE PREPARATION."

E1-1.2 The item "SITE PREPARATION" shall include:

1. Mobilization
2. Contractor's Staging Areas
3. Contractor's Access/Haul Roads
4. Clearing and Grubbing
5. Removal and Disposal of Structures
6. Clean Up

### CONSTRUCTION METHODS

E1-2.1 MOBILIZATION: The Contractor shall consider and include his cost for providing personnel, equipment, materials, bonds, etc. required for prosecution of the work under this item.

E1-2.2 CONTRACTOR'S STAGING AREAS: The area designated in the Plans as the Contractor's staging area shall be used by the Contractor to locate the field office, to store materials, for employee parking, and for other purposes necessary to perform the work on this project. All areas used or otherwise occupied by the Contractor for his operations shall be cleaned and restored to their original condition prior to the final acceptance of the project by the Owner. All work involved in the preparation and restoration of areas used or occupied by the Contractor will not be measured for separate payment, but will be considered subsidiary to the bid item "SITE PREPARATION."

E1-2.3 CONTRACTOR'S ACCESS/HAUL ROADS: The Contractor shall layout, construct, maintain, remove and/or reshape all access/haul roads needed to construct the work. Work, including all materials and labor, involved in the layout, construction, maintenance, repair, and removal (including re-seeding of the area occupied by the road), and/or re-shaping of the Contractor's access/haul roads will not be measured for separate payment, but will be considered subsidiary to the bid item "SITE PREPARATION."

Before final acceptance of the project, any damage to the existing roads caused by the Contractor shall be repaired as directed by the Engineer. The repair of the existing roads will not be measured for separate payment but will be considered subsidiary to the item "SITE PREPARATION."

E1-2.5 CLEARING AND GRUBBING: This work shall consist of cutting, removing from the ground, and properly disposing of trees, stumps, hedge, brush, roots, weeds, rubbish, and other materials within the limits of the project or other designated areas that interfere with the work or are considered objectionable.

The project site shall be cleared except those objects designated to remain shall be carefully protected from abuse, marring, or damage during construction operations.

Holes remaining after removal of trees, stumps, etc., shall be backfilled with material approved by the Engineer and compacted as directed except in areas to be excavated. The Contractor shall complete the operation by blading, bulldozing, or other approved methods, so that the project site shall be free of holes, ditches, or other abrupt changes in elevations that resulted from the clearing and grubbing operations.

The project site shall be cleared of stumps, brush, rubbish, trees, and shrubs, with the exception of such trees, shrubs, and areas designated on the Plans or by the Engineer for preservation. Grubbing will not be required in areas that will have a fill height of 3 feet or more above undisturbed stumps cut within 6 inches of the natural ground.

Debris shall be removed from the project site and disposed of at an off-site location. The entire job site shall be cleared of all debris, of whatever nature, and made ready in all respects for the construction of the proposed improvements.

The Contractor shall make all necessary arrangements with the property owner for obtaining suitable disposal locations. The costs involved in clearing and grubbing, obtaining disposal sites, hauling, and final cleanup will not be paid for directly but will be considered subsidiary to "SITE PREPARATION."

E1-2.6 REMOVAL AND DISPOSAL OF STRUCTURES: This work shall consist of the removal and satisfactory disposal of utility poles; signs, sign supports, sign foundations; traffic rail; fence; curb and curb and gutter; portland cement concrete or asphalt concrete pavement, parking areas, sidewalks, and steps; driveways; retaining walls; manholes; drainage structures; concrete or masonry foundations (including foundations of poles or signs to be removed) or slabs; culverts; and sanitary sewer, all of which are not designated or permitted to remain. The Contractor shall make his own estimate of the work required for the removal of structures which conflict with the proposed construction. All structures required to be removed may not be designated as such in the plans.

The provisions of this section shall not apply to underground petroleum storage tanks.

The attention of the bidder is directed to the necessity for careful examination of the entire site to determine, at the time of bid preparation, the full extent of work to be accomplished. The entire site shall be cleared of all man-made obstructions and debris, of whatever nature, and prepared in all respects for the construction.

The Contractor shall not unnecessarily interfere with the use of any adjacent sidewalks, streets, or roads.

Materials removed will become the property of the Contractor and shall be removed from the job site, unless specifically designated otherwise.

All surface items such as curb, curb and gutter, driveways, parking areas, walks, steps, asphalt and PCC pavement, and walls shall be separated or broken away from the adjacent part of any structure designated to remain in place by a vertical saw cut along the line designated by the Engineer. The edge of the structure left in place shall be approximately vertical with no abrupt changes in alignment. Any damage to or removal of the structure designated to remain in place shall be repaired or replaced at no cost to the Owner.

Holes, ditches, or other abrupt changes in elevation caused by the removal operations that could obstruct drainage or be considered hazardous or unsightly shall be backfilled, compacted, and left in a workmanlike condition.

Existing culverts or parts thereof that interfere with the new construction shall be removed.

Where existing pipe culverts are to be extended or otherwise incorporated into the new work, only such part of the existing structure shall be removed as to provide a proper connection to the new work.

The connecting edges or joints shall be cut, chipped, and trimmed to the required lines and grades without weakening or damaging the part of the structure to be retained.

For a pipe culvert extension, the headwall and the attached end joint of concrete pipe or the flared end section on all types of pipe shall be removed to accommodate the extension. This work will not be paid

for directly but will be considered included in the items involved in the culvert extension.

Trenches or voids resulting from the removal or demolition of existing culverts or other structures shall be filled with approved material placed in layers in accordance with SECTION E-2. For structures, including abandoned sanitary sewer lines, that are located within the limits of MSE wall undercut, the backfill shall be an approved material placed in accordance with SP-14 – RETAINING WALLS.

Masonry and reinforced concrete foundations shall be obliterated, or if in fill sections, may be left in place if covered by not less than 2 feet of embankment.

Concrete foundations for poles to be removed shall be obliterated to a depth of 2 feet below finished grade or as required to accommodate new construction.

Existing manholes to be abandoned shall be modified according to details shown in the plans. The excavated area above the revised manhole top elevation shall be backfilled with approved material placed in layers in accordance with SECTION E-2.

The removal and disposal of the various items covered by this specification will not be measured for separate payment, but will be subsidiary to the bid item "SITE PREPARATION."

E1-2.7 CLEAN UP: From time to time, the Contractor shall clean up the site in order that the site presents a neat appearance and that the progress of work will not be impeded. One such clean up shall immediately precede final inspection.

Immediately following acceptance of the work by the Owner, the Contractor shall remove all temporary equipment, surplus materials, and debris resulting from his operations, and leave the site in a condition fully acceptable to the Owner.

#### METHOD OF MEASUREMENT

E1-3.1 Site Preparation will be measured as a lump sum complete item.

#### BASIS OF PAYMENT

E1-4.1 Work completed and accepted under this item will be paid for at the contract lump sum price bid for "SITE PREPARATION," which price shall be full compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer.

Payment will be made under:

Item E1-4.1 Site Preparation - per Lump Sum

END OF SECTION E-1



## SECTION E-2 – EXCAVATION AND EMBANKMENT

### DESCRIPTION

E2-1.1 This section addresses the requirements of all earthwork necessary for the construction of streets, driveways, parking areas, sidewalks, trails, curb and gutter, ditches, and sitework within the project area in accordance with the Plans. The work shall be in conformity with the lines, grades, thicknesses, and typical sections as shown in the Plans or established by the Engineer.

E2-1.2 This section does not include the excavation and backfill of structures and pipe. Excavation and backfill of structures and pipe is included under SECTION E-3 – EXCAVATION FOR STRUCTURES of these specifications.

E2-1.3 This section does not include the undercut and backfill for the MSE wall. MSE Wall Undercut and Backfill is included under SP-14 – RETAINING WALLS of these specifications.

### STANDARDS

E2-2.1 All materials and work (including testing) shall be in accordance with the lines and grades shown on the Plans, or as directed by the Engineer, and with applicable portions of SECTION 210 – EXCAVATION AND EMBANKMENT and SECTION 212 – SUBGRADE of the Standard Specifications, except as modified or augmented herein.

### MATERIALS

E2-3.1 Excavation performed under this Section, regardless of the material encountered, shall be classified as unclassified excavation.

Unless otherwise noted in the Plans or directed by the Engineer all excavated material shall become the property of the Contractor and shall be disposed of at an off-site location.

E2-3.2 BORROW MATERIAL: Additional requirements for borrow material utilized under pavements are described in paragraph E2-4.4.

The Contractor shall maintain the haul route free from spillage by his vehicles. He shall clean the haul route surface as often as necessary to avoid the creation of a public nuisance. He shall repair and restore the surface of all haul roads which have been damaged by his operations.

### CONSTRUCTION METHODS

E2-4.1 STRIPPING AND TOPSOIL: Before beginning any excavation or embankment, the areas where the excavation and/or the embankment are to be made shall be stripped to a minimum depth of 6 inches. Stripping will not be measured for separate payment, but will be considered subsidiary to the item “UNCLASSIFIED EXCAVATION.”

Topsoil obtained from the stripping operation shall be salvaged and stockpiled for later use. Topsoil salvaged from the stripping operation, and then later rehandled, will not be measured for separate payment, but will be considered subsidiary to the item “UNCLASSIFIED EXCAVATION.”

E2-4.2 USE OF SUITABLE EXCAVATION: Suitable excavation shall be used for embankment construction, and where needed, for backfilling. The suitability of material to be placed in embankments shall be subject to approval by the Engineer. Suitable excavation not needed for the work shall be disposed of by the Contractor off-site. Excavation unsuitable for use shall be disposed of by the Contractor off-site.

The Contractor is expected to construct embankment from suitable excavated material, and it may be necessary to stockpile a portion or all of this material for later use. The stockpiling and rehandling will not be paid for separately but will be subsidiary to "UNCLASSIFIED EXCAVATION." The Contractor will be required to replace with suitable borrow material, at no additional compensation, any suitable excavated material needed for the work which was wasted by the Contractor.

#### E2-4.3    COMPACTION OF EARTHWORK:

All compaction shall be to a density not less than ninety-five percent (95%) of maximum density, at optimum moisture, obtained in the laboratory. The moisture-density relationship of the material shall be determined in the laboratory in accordance with AASHTO Designation T 99.

#### E2-4.4    SUBGRADE:

Subgrade for paved areas shall be compacted to a density not less than ninety-five percent (95%) of maximum density, at optimum moisture, obtained in the laboratory. The moisture-density relationship of the material shall be determined in the laboratory in accordance with AASHTO Designation T 99.

The Contractor shall keep the subgrade properly drained at all times by the use of temporary ditches and/or pumps as required. Improperly drained subgrade will not be justification for undercut. The Engineer may require the exposed surface to dry before any judgment is rendered to the quality or workmanship of the exposed soils. The Contractor may be required to scarify/disk (to promote drying) and recompact the subgrade prior to determining whether undercut will be permitted. Regraded, recompacted, or reworked subgrade will not be considered for additional payment. Alternatively, the Contractor may elect to undercut saturated subgrade material at his own expense.

No contract time extensions will be granted to the Contractor for reworking wet subgrades retaining water due to improper grading or negligence by the Contractor. If proper drainage is not maintained during earthwork operations, the potential for undercut may be increased. Additional undercut required due to Contractor negligence will not be considered for payment.

Subgrade for concrete sidewalks and steps shall be in accordance with requirements specified in SECTION I-16 – CONCRETE SIDEWALKS.

Preparation of subgrade will not be measured for separate payment, but shall be considered subsidiary to "UNCLASSIFIED EXCAVATION."

Imported material for fill or backfill under pavements should consist of low-plasticity clayey gravel (GC) approved by the Engineer. Fill and backfill may consist of unclassified borrow free of organics and other deleterious materials, as per ArDOT Standard Specifications Section 210.06. All fill and backfill should be free of organic materials and durable rock fragments in excess of about 6-inch dimension. Utility trenches shall be backfilled with crushed aggregate base (AHTD Standard Specifications Section 303, Class 7) or flowable fill (ArDOT Standard Specifications Section 206).

Subgrade preparation should comply with ArDOT Standard Specifications Section 212. Embankments should be constructed in accordance with ArDOT criteria (ArDOT Standard Specifications Section 210). Fill and backfill should be placed in nominal 6- to 8-in.-thick loose lifts. All fill and backfill must be placed in horizontal lifts. Where fill is placed against existing slopes, short vertical cuts should be "notched" in the existing slope face to facilitate bonding of horizontal fill lifts. The in-place density and water content should be determined for each lift and should be tested to verify compliance with the specified density and water content prior to placement of subsequent lifts.



Unsuitable subgrade soils shall be undercut to a depth determined by the Engineer and removed from the trail section or improved by a designed method of stabilization accepted by the City Engineer. Other soils which the Engineer determines cannot be properly compacted shall also be undercut to a specified depth. This excavated unsuitable material shall be disposed of off-site.

Backfill for undercut areas shall meet the requirements described above. Other materials exceeding these requirements may be used as backfill, subject to the approval of the Engineer. Backfill shall be placed and compacted in 8-inch maximum lifts in accordance with the density requirements in this specification.

E2-4.5 The ditch excavation for channel changes or to bring ditches to minimum required section shall be in accordance with applicable portions of the Standard Specifications referred to above. All ditch excavation shall be completed to the required grade shown on the Plans or as directed by the Engineer.

E2-4.6 OVER-EXCAVATION: Where excavation is carried below or beyond that required, the space shall be filled to grade with suitable material and thoroughly compacted as directed by the Engineer. The Contractor will not be entitled to additional compensation for such over-excavation or the necessary refilling, unless the Owner or its representative is responsible for the error.

E2-4.7 Those areas outside of the pavement areas in which the top layer of soil material has become compacted, by hauling or other activities of the Contractor, shall be scarified and disked to a depth of 4 inches, in order to loosen and pulverize the soil.

E2-4.8 If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the Engineer, who shall arrange for their removal if necessary. The Contractor shall, at his/her own expense, satisfactorily repair or pay the cost of all damage to such facilities or structures which may result from any of the Contractor's operations during the period of the contract.

#### METHOD OF MEASUREMENT

E2-5.1 Measurement of Unclassified Excavation and Embankment Construction shall be based on plan quantities. Quantities were calculated by measuring the amount of cut or fill between the original cross section and the neat lines of the cut or fill on the proposed cross section, and using the average end area method. Existing ground cross sections were generated from field surveyed cross sections translated to computer generated contours and cross sections. These cross sections are included in the Plans. The plan quantity of Unclassified Excavation is the amount of cut calculated, measured as stated above. The Contractor shall make his own determination as to the amount of unsuitable excavated material which may be encountered, and the resulting additional borrow material required for the construction of the embankment.

In cut sections, the additional cut required to construct the topsoil layer to the plan grade has not been measured and will not be measured for separate payment, but will be subsidiary to Unclassified Excavation. In fill sections, the additional fill required to replace the stripped material has not been measured and will not be measured for payment, but will be subsidiary to Unclassified Excavation.

Measurements of earthwork will be changed to reflect changes in grade or section directed by the Engineer.

No allowance has been made for shrinkage in the measurement of embankment construction. The Contractor shall make his own determination as to the amount of shrinkage involved in the construction of the embankment.

Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

E2-5.2 Undercut Excavation and Backfill, outside areas of MSE wall construction, shall be measured from the surface of the ground, after stripping has been accomplished, or from the bottom of the planned excavation, to the depth of the undercut as directed by the Engineer. Measurements will be taken by the Engineer, and the volume of undercut will be calculated by the average end area method. The necessary refilling of undercut areas will not be measured for separate payment, but will be subsidiary to Undercut Excavation and Backfill. Only that amount of undercut directed by the Engineer will be measured for payment.

E2-5.3 Trench excavation for drainage pipe or excavation for drainage structures will not be measured for separate payment, but will be subsidiary to the drainage pipe or structure installation pay item.

#### BASIS OF PAYMENT

E2-6.1 Unclassified excavation shall be paid for at the contract unit price bid per cubic yard for "UNCLASSIFIED EXCAVATION," which price shall be full compensation for all excavation, including drainage ditch excavation; for the formation of embankment (including topsoil) using this excavated material, including hauling, spreading, and compaction; for removal and disposal of structures; for disposal of unsuitable material; and for all equipment, tools, labor and incidentals necessary to complete the work.

E2-6.2 Embankment construction shall be paid for at the contract unit price bid per cubic yard for "EMBANKMENT CONSTRUCTION," which price shall be full compensation for the formation of embankment (including topsoil), including loading, hauling, spreading, and compaction; for compaction and preparation of subgrade; for the refilling, rolling, and compaction of all undercut areas; and for all equipment, tools, labor, and incidentals necessary to complete the work.

E2-6.3 Undercut Excavation and Backfill shall be paid for at the contract unit price bid per cubic yard for "UNDERCUT EXCAVATION AND BACKFILL," which price shall be full compensation for all excavation; for disposal or placement of unsuitable material including loading, hauling, spreading, and compaction; for compaction and preparation of subgrade; for the refilling, rolling, and compaction of all undercut areas; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Periodic payments will be made under the following items in proportion to amount of work accomplished as determined by the Engineer.

Payment will be made under:

- |             |  |
|-------------|--|
| Item E2-6.1 | Unclassified Excavation -- per cubic yard          |
| Item E2-6.2 | Embankment Construction -- per cubic yard          |
| Item E2-6.3 | Undercut Excavation and Backfill -- per cubic yard |

END OF SECTION E-2

## SECTION E-3 – EXCAVATION FOR STRUCTURES

### DESCRIPTION

E3-1.1 This section covers the removal of all materials of whatever nature necessary for the construction of retaining walls, wingwalls, headwalls, pipe culverts, storm drainage piping, inlets and other structures. All work shall be in accordance with details shown on the Plans, or as directed by the Engineer, and with these specifications.

E3-1.2 The work involved in unclassified excavation for structures shall be in accordance with SECTION E-2 – EXCAVATION AND EMBANKMENT, except as modified or augmented herein.

### MATERIALS

E3-2.1 Backfill materials shall meet the applicable requirements of SECTION E-2 of these specifications. Such material shall be free from frozen material, trash, lumber, broken pieces of concrete having any dimension greater than two (2) inches, broken concrete in nests regardless of dimensions, or other debris. Such material shall be susceptible to proper compaction.

### CONSTRUCTION METHODS

#### E3-3.1 EXCAVATION FOR STORM DRAINAGE PIPE AND OTHER STRUCTURES:

Trench width at the horizontal centerline of a pipe shall not exceed outside diameter of the pipe plus two (2) feet where earth backfill is used.

Areas of excavation for inlets and junction boxes shall be selected by the Contractor, except that areas shall be large enough to permit proper construction of the structures, and except that they shall not extend more than eighteen (18) inches outside the structures, unless authorized by the Engineer.

E3-3.2 BACKFILL: Backfill shall be made from suitable available structural excavation materials, and from suitable available roadway excavation materials if and as needed.

Backfill shall be compacted to a density not less than ninety-five (95) percent of the maximum density, at optimum moisture, obtained in the laboratory in accordance with AASHTO Designation T99. Samples for laboratory tests and field determinations will be taken by the Contractor.

Backfill shall not be placed against concrete structures until the expiration of the curing periods specified in SECTION S-1 – STRUCTURAL CONCRETE of these specifications.

Compacting shall be obtained by the use of pneumatic or mechanically actuated tampers. Gravity hand tampers will not be acceptable. Backfill material shall be sprinkled or aerated as necessary to assure the required density.

Backfill of structures, other than pipe, shall be made with reasonable uniformity around and along the structure. It shall be placed in 6 inch layers, loose measurement and each layer compacted.

Backfill of storm drainage pipe shall be in accordance with SECTION I-3 - PIPE CULVERTS of these specifications and SECTION 606 – PIPE CULVERTS of the Standard Specifications.

Backfill will not be measured for separate payment. Placing and compacting of backfill shall be considered subsidiary work pertaining to structural excavation.

E3-3.3 DISPOSAL OF EXCAVATED MATERIAL: Excavated material unsuitable for use, or in excess of needs, shall be disposed of by the Contractor off-site.

MEASUREMENT AND PAYMENT

E3-4.1 Excavation for structures, including but not limited to storm drainage pipe, flared end sections, inlets, junction boxes, box culverts, retaining walls, etc. will not be measured for separate payment, but will be considered subsidiary work pertaining to the construction of the items.

END OF SECTION E-3

## SECTION E-4 – TRENCH AND EXCAVATION SAFETY SYSTEMS

### DESCRIPTION

E4-1.1 This item covers the compliance with Act 291 of 1993 which requires the inclusion, in the bid, of a separate pay item for "TRENCH AND EXCAVATION SAFETY SYSTEMS."

### STANDARDS

E4-2.1 All work under this item shall conform to the current edition of Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System, 29 CFR 1926, Subpart P (copy attached).

"Competent Person" as defined in the Standard Specifications shall be the General Contractor's General Superintendent.

### CONSTRUCTION METHODS

E4-3.1 NOTIFICATIONS REQUIRED: The Contractor, prior to beginning any excavation, shall notify the State Department of Labor (Safety Division) that work is commencing on a project with excavations greater than five feet.

The Contractor shall notify all Utility Companies and Owners in accordance with OSHA Administration 29 CFR 1926.651(b)(2) for the purpose of locating utilities and underground installations.

E4-3.2 EXISTING STRUCTURES AND UTILITIES: Where the trench or excavation endangers the stability of a building, wall, street, highway, utilities, or other installation, the Contractor shall provide support systems such as shoring, bracing, or underpinning to ensure the stability of such structure or utility.

The Contractor may elect to remove and replace or relocate such structures or utilities with the written approval of the owner of the structure or utility and the Project Owner.

### METHOD OF MEASUREMENT

E4-4.1 Trench or excavation safety systems shall be measured as a complete unit.

### BASIS OF PAYMENT

E4-5.1 Trench and excavation safety systems shall be paid for at the lump sum price bid for "TRENCH AND EXCAVATION SAFETY SYSTEM," which price shall be full compensation for benching, sloping, sheeting, shoring, shielding, or any other protective system that provides the necessary protection to comply with Act 291 of 1993.

Payment will be made under:

Item E4-5.1 Trench and Excavation Safety System - per lump sum

END OF SECTION E-4



## SECTION I-1 – MAINTENANCE OF TRAFFIC

### DESCRIPTION

I1-1.1 This item shall include the erection of signs, barricades, temporary markings, and the maintenance of, or noninterference with, traffic in accordance with details shown on the Plans and with these Specifications, or as directed by the Engineer.

I1-1.2 This item shall also include the temporary relocation of traffic and street signs, the maintenance of the temporarily relocated signs through the construction of the project, and the permanent relocation of any sign relocated due to construction signage after the construction is complete.

### STANDARDS

I1-2.1 Maintenance of traffic as described above shall be accomplished in accordance with the applicable portions of SECTION 603 – MAINTENANCE OF TRAFFIC AND TEMPORARY STRUCTURES of the Standard Specifications, except as modified or augmented herein.

I1-2.2 Traffic control devices shall be in accordance with SECTION 604 – TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES of the Standard Specifications, except as modified or augmented herein.

### CONSTRUCTION METHODS

I1-3.1 The Contractor shall implement and maintain all maintenance of traffic devices as shown on the Plans or submit his own Plan to the Owner and Engineer for review and approval. Upon approval by the Owner in writing, the Contractor shall supply the Fire Chief and the Police Chief one (1) copy each for their files. Two (2) copies shall be supplied to the Engineer. The Contractor shall initiate and maintain all necessary labor and materials necessary to construct the project in a manner which will guarantee public safety with a minimum of inconvenience. Additional work shall be performed by the Contractor during construction as directed by the Owner or Engineer if necessary to insure the above standards.

I1-3.2 CONTRACTOR PERSONNEL: The Contractor shall designate a traffic control supervisor to furnish continuous surveillance over traffic control operations. This supervisor shall be available at night and weekends to respond to calls involving traffic control. The name of the traffic control supervisor shall be provided at the preconstruction conference and to local police.

The Contractor's personnel who are used to maintain traffic flow, such as flagmen or any other person who verbally communicates with or gives directions to the motorized public, shall speak English fluently.

I1-3.3 DRIVEWAYS: Maintenance of driveways shall be as approved by the Engineer. It shall be the Contractor's responsibility to maintain adequate access to private and commercial property at all times, except as required for construction across the driveway as approved by the Engineer. During the construction of driveways or at any time that a property owner cannot use his driveway, the Contractor shall notify the property owner (one week in advance, minimum) when the driveway will be closed and the approximate length of time that it will be closed. The intent of this section of the Specifications is to cause as little inconvenience as possible to private property owners.

I1-3.4 RELOCATION AND REPLACEMENT OF TRAFFIC SIGNS AND PAVEMENT STRIPING: During the construction of the project, the temporary relocation of street signs and traffic control signs will be performed by the Contractor. The Contractor shall maintain the signs at highly visible locations as near as practicable to the original locations. The latest edition of the Manual of Uniform Traffic Control Devices published by the Federal Highway Administration shall be used as a guide to the placement of signs during construction.

Immediately after the construction of any part of the project reaches a stage of completion such that the relocation of the street signs and traffic control signs is no longer necessary, the Contractor shall permanently relocate the street signs and traffic control signs. Removing any construction signage must be approved by the Engineer.

Street signs and traffic control signs shall be removed from such area of work as necessary to permit work on the project. Each sign shall be temporarily relocated in a secure manner by driving the sign into the ground with equipment approved by the Engineer, or otherwise installed as approved to prevent damage to underground utilities. Street signs no longer necessary shall be salvaged in good condition and restored to their original use or returned to the Owner if no longer needed.

I1-3.5 SUSPENSION OF WORK: If the Owner or the Engineer determines that provisions for safe traffic control are not being provided or maintained, the work will be suspended. In cases of serious or willful disregard for safety of the public or construction workers, the Owner will place the traffic control devices in proper condition and deduct the costs from monies due the Contractor.

#### METHOD OF MEASUREMENT

I1-4.1 Maintenance of Traffic will be measured as a complete item.

#### BASIS OF PAYMENT

I1-5.1 Work performed under this section, acceptably completed as provided above, will be paid for at the control lump sum bid price for "MAINTENANCE OF TRAFFIC," which price shall be full compensation for this item. Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer.

Payment will be made under:

Item I1-5.1 Maintenance of Traffic – per lump sum

END OF SECTION I-1



## SECTION I-2 – CONCRETE DITCH PAVING

### DESCRIPTION

I2-1.1 This item shall consist of the construction of concrete ditch paving, according to these Specifications and in conformity with the locations, lines, and grades shown on the Plans, or as directed by the Engineer.

### STANDARDS

I2-2.1 Material and work for this section shall be in accordance with SECTION 605 – CONCRETE DITCH PAVING of the Standard Specifications, unless modified or augmented herein.

### METHOD OF MEASUREMENT

I2-3.1 Concrete Ditch Paving constructed within the limits shown on the Plans or as directed will be measured by the square yard of exposed surface.

### BASIS OF PAYMENT

I2-4.1 Work completed and accepted and measured as provided above will be paid for at the contract unit price bid per square yard for “CONCRETE DITCH PAVING” of the type specified, which price shall be full compensation for furnishing materials, including joint filler; for constructing the concrete ditch paving and concrete slope paving; for excavation and backfilling; and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

Item I2-4.1 Concrete Ditch Paving – per square yard

END OF SECTION I-2



## SECTION I-3 – PIPE CULVERTS

### DESCRIPTION

I3-1.1 This section covers reinforced concrete pipe and flared end sections constructed at the locations shown on the Plans or as directed by the Engineer.

### STANDARDS

I3-2.1 Materials and work shall be in accordance with SECTION 606 – PIPE CULVERTS of the Standard Specifications, except as modified or augmented herein.

### MATERIALS

I3-3.1 Concrete pipes shall be of the bell and spigot or tongue and groove type, as approved by the Engineer, and shall conform to the specifications of ASTM Designation C 76 (for circular pipe) and C 506 (for arch pipe), latest editions, for the sizes and classes of pipes shown on the Plans and listed in the Unit Price Schedule. The class of pipe and date of manufacture shall be marked on each joint of pipe. Pipe shall be at least ten (10) days old before it is delivered to the project.

I3-3.2 Flared end sections shall be reinforced concrete conforming to the requirements of ASTM C 76.

I3-3.3 Jointing material for reinforced concrete pipe shall be rubber gaskets conforming to the requirements of ASTM C 443.

### CONSTRUCTION METHODS

I3-4.1 TRENCHING AND BACKFILL: Trenching and backfill shall be in accordance with applicable requirements of SECTION 606 – PIPE CULVERTS of the Standard Specifications and SECTION E-3 – UNCLASSIFIED EXCAVATION FOR STRUCTURES and SECTION E-4 – TRENCH AND EXCAVATION SAFETY SYSTEMS of these specifications, except as modified or augmented herein.

Where unsuitable material is encountered, excavation shall continue until a firm material is reached and the over-excavation filled to grade with a special bedding material in accordance with the provisions of SECTION M-5 – PIPE EMBEDMENT.

I3-4.2 INSTALLATION OF PIPE: The installation of pipe shall be in accordance with SECTION 606 – PIPE CULVERTS of the Standard Specifications, except as modified or augmented herein.

The pipe ends where jointing occurs shall be cleaned and maintained clean. The joint shall be constructed as recommended by the manufacturer of the pipe. Each section of pipe shall be examined carefully before being laid, and the defective or damaged sections shall not be used. Pipelines shall be laid to the grades and alignment indicated, or as directed by the Engineer. Pipe laying shall proceed upgrade. The "bell" ends of concrete pipe shall point upgrade.

Proper facilities shall be provided for lowering sections of pipe into trenches. Under no circumstances shall pipe be laid in water, and no pipe shall be laid when trench conditions or weather are unsuitable for such work. Full responsibility for the diversion of drainage and for dewatering of trenches during construction shall be borne by the Contractor.

All pipe in place shall be approved by the Engineer before being backfilled. In all backfilling operations, the Contractor shall be responsible for preventing damage to or misalignment of the pipe.

Pipe embedment if required shall be furnished, placed, and shaped as described in SECTION M-5 – PIPE EMBEDMENT.

## METHOD OF MEASUREMENT

I3-5.1 Pipe culverts will be measured by the linear foot in place, completed and accepted. Length shall not be measured through inlets, junction boxes, or other drainage structures. Separate measurements will be made by the sizes and classes shown on the Plans and listed in the Unit Price Schedule. Measurements will be taken to the nearest linear foot.

I3-5.2 Flared end sections will be measured by the unit (each) and will include the curtain wall, complete in place.

I3-5.3 Excavation and backfill will not be measured separately, but will be considered subsidiary to constructing the pipe.

I3-5.4 Special bedding material, used at the direction of the Engineer, will be measured and paid for as specified in SECTION M-5 – PIPE EMBEDMENT.

## BASIS OF PAYMENT

I3-6.1 Pipe culverts acceptably completed and measured as provided above will be paid for at the contract unit price per linear foot bid respectively for "REINFORCED CONCRETE PIPE," of the sizes and classes shown on the Plans and listed in the Unit Price Schedule; which prices, in each case, shall be full compensation for furnishing all materials, except special bedding material; for all trenching, backfilling, and compacting; and for all equipment, tools, labor, and incidentals necessary to complete the work.

I3-6.2 Flared end sections acceptably completed and measured as provided above will be paid for at the contract unit price per each bid respectively for "FLARED END SECTION," of the sizes shown on the Plans and listed in the Unit Price Schedule; which prices, in each case, shall be full compensation for furnishing all materials, except special bedding material; for all excavation, backfilling, and compacting; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item I3-6.1a	18" Reinforced Concrete Pipe, Class III - per linear foot
Item I3-6.1b	18" Reinforced Concrete Pipe, Class IV – per linear foot
Item I3-6.1c	30" Reinforced Concrete Pipe, Class III - per linear foot
Item I3-6.2	18" Reinforced Concrete Flared End Section - per each

END OF SECTION I-3

## SECTION I-5 – DROP INLETS AND JUNCTION BOXES

### DESCRIPTION

I5-1.1 This section covers all work in connection with the construction of the various types and sizes of inlets and junction boxes in accordance with the locations and details shown on the Plans and with these Specifications.

### STANDARDS

I5-2.1 All work under this section shall be done in accordance with SECTION 609 – DROP INLETS AND JUNCTION BOXES of the Standard Specifications, except as modified or augmented herein.

### MATERIALS

I5-3.1 Cement, aggregate, water, additives, and reinforcing steel shall conform to the requirements for materials as provided in SECTION S-1 – STRUCTURAL CONCRETE of these specifications.

I5-3.2 Materials other than those described above shall be in conformity with paragraph 609.02 – Materials of the Standard Specifications.

### CONSTRUCTION METHODS

I5-4.1 Forms, concrete, and reinforcing steel shall be in accordance with applicable requirements of SECTION S-1 – STRUCTURAL CONCRETE and with additional stipulations as follows:

1. Inside wall forms shall be removed prior to the erection of forms for top slabs. The supports for top slab forms shall be positioned in such a manner that will result in a minimum of interference with the free flow of water.
2. Manhole rings and covers shall conform to the details in the Plans and to applicable portions of SECTION 609 – DROP INLETS AND JUNCTION BOXES of the Standard Specifications.

### METHOD OF MEASUREMENT

I5-5.1 Completed and accepted inlets and junction boxes will be measured by the completed structure.

### BASIS OF PAYMENT

I5-6.1 Work completed and accepted under this section and measured as provided above will be paid for at the Contract Unit Price bid for each for the items listed below, which price shall be full compensation for constructing the item; for all excavation and backfill; and for all materials, equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item I5-6.1      Area Inlet - per Each

END OF SECTION I-5



## SECTION I-12 – TEMPORARY EROSION CONTROL AND CONSTRUCTION POLLUTION PREVENTION PLAN

### DESCRIPTION

112-1.1 This section covers the application of Temporary Erosion Control items at locations shown on the Plans, as directed by the Engineer, and as required for permit compliance, and the **requirement** of the Contractor to produce, execute, and maintain a specific Construction Pollution Prevention Plan (CPPP) for the project. The Contractor will also be required to request and obtain all necessary federal, state, and local permits. The temporary erosion control measures shown in the Plans does **not** represent the extent of work and coordination required by the Contractor under this item.

### STANDARDS

112-2.1 Items and materials for this section shall be in accordance with SECTION 621 – TEMPORARY EROSION CONTROL ITEMS AND DEVICES of the Standard Specifications, except as modified or augmented herein.

### CONSTRUCTION METHODS

112-3.1 Providing the temporary erosion control items and devices shown on the Plans is intended to minimize the erosion of soils during construction. However, the items and devices shown are not intended to represent all of the necessary items or procedures required to be implemented by the Contractor. The plans and specifications show the Engineer's estimate of a minimum effort needed to maintain proper erosion control during construction. Additional effort and materials may be required by the Contractor to minimize the erosion of soils during construction. It shall be the Contractor's responsibility to install and maintain all the items shown in the Plans and to coordinate, submit, obtain, and comply with all necessary Federal, State, and local permits. The coordination with governing agencies shall include, but not limited to the following:

- Filing the Notice of Intent with the Arkansas Department of Environmental Quality (ADEQ),
- Producing and maintaining an ADEQ approved Storm Water Pollution Prevention Plan,
- Coordinating and obtaining all local permits regarding grading operations for the proposed improvements, Contractor's staging area, spoil placement and any other grading operations related to the project as directed by the local governing agency.

112-3.2 Heavy Duty silt fencing (with welded wire in the fabric) may be required on steep slopes if the Engineer determines that the silt fence used by the Contractor is not performing satisfactory.

### METHOD OF MEASUREMENT

112-4.1 Temporary erosion control will be measured as a complete item.

### BASIS OF PAYMENT

112-5.1 Temporary erosion control acceptably completed will be paid for at the contract lump sum price bid for "TEMPORARY EROSION CONTROL," which prices shall be full compensation for furnishing all materials, tools, equipment, labor, and incidentals necessary to complete the work. Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer. Payment for "TEMPORARY EROSION CONTROL" will also include obtaining and compliance with the Construction Pollution Prevention Plan, which shall include compensation for drainage-way inspections, report preparation, housekeeping practices, cleaning and maintenance, and other actions outlined in the Construction Pollution Prevention Plan prepared by the Contractor necessary to execute the Plan.

Payment will be made under:

Item I12-5.1 Temporary Erosion Control – per lump sum

END OF SECTION I-12



## SECTION I-13 – SOLID SODDING

### DESCRIPTION

I13-1.1 This section covers the furnishing and placing of approved Bermuda sod, fertilizer, and water to form solid mats on areas shown on the Plans or as directed by the Engineer.

### STANDARDS

I13-2.1 Materials and work shall be in accordance with SECTION 624 – SOLID SODDING of the Standard Specifications, except as herein modified or augmented.

### CONSTRUCTION METHODS

I13-3.1 Areas to be sodded shall be shaped and graded, including four inches of topsoil, to an elevation in such manner that they will, after placement of sod, conform to the typical sections.

I13-3.2 Immediately following the sodding operations, all gutters, sidewalks, driveways, street pavement, yards, or other areas shall be cleaned of all debris, excess sod, topsoil, or other objectionable matter. All such clean-up operations shall be completed before sodded areas are measured for payment as described below.

### METHOD OF MEASUREMENT

I13-4.1 Areas covered by living sod completed and accepted will be measured by the square yard to the nearest square yard.

I13-4.2 Topsoil will not be measured for separate payment, but will be subsidiary to the item or items under SECTION E-2 – EXCAVATION AND EMBANKMENT in accordance with SECTION I-14 - TOPSOIL.

### BASIS OF PAYMENT

I13-5.1 Solid sodding acceptably completed, and measured as provided above, will be paid for at the contract unit price per square yard bid for “SODDING,” which price shall be full compensation for furnishing and placing all materials, including sod, fertilizer, and water; for clean-up work; and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item I13-5.1 Sodding - per square yard

END OF SECTION I-13



## **SECTION I-14 – TOPSOIL**

### DESCRIPTION

I14-1.1 This section covers the furnishing and placing topsoil on completed slopes and ditches as shown in the typical sections and other areas shown on the Plans or as described by the Engineer.

### STANDARDS

I14-2.1 Materials and work shall be in accordance with SECTION 628 – TOPSOIL FURNISHED AND PLACED of the Standard Specifications, except as modified or augmented herein.

### CONSTRUCTION METHODS

I14-3.1 Immediately following the topsoiling operations, all gutters, sidewalks, driveways, street pavement, yards or other areas shall be cleaned of all excess topsoil.

### MEASUREMENT AND PAYMENT

I14-4.1 Topsoil will not be measured for separate payment, but will be subsidiary to the item or items under SECTION E-2 – EXCAVATION AND EMBANKMENT.

END OF SECTION I-14



## SECTION I-16 – CONCRETE SIDEWALKS

### DESCRIPTION

I16-1.1 This item shall consist of the construction of reinforced and unreinforced Portland Cement concrete sidewalks in accordance with the lines, grades, and construction details shown on the Plans or as directed by the Engineer. All materials and work shall be in accordance with details shown on the Plans and with these Specifications.

### STANDARDS

I16-2.1 Materials and work for sidewalks shall be in accordance with SECTION 633 - CONCRETE WALKS, CONCRETE STEPS, AND HANDRAILING of the Standard Specifications, except as modified by SECTION S-1 – STRUCTURAL CONCRETE of these specifications, and except as modified or augmented herein.

### CONSTRUCTION METHODS

I16-3.1 Final finishing of the surface shall be by steel trowel finish followed by light brushing or brooming to attain a slightly roughened texture. Transverse (contraction) joints in the walks shall be sawcut (to a depth of T/4) at intervals not greater than the width of the walk, or as directed, in accordance with details in the Plans.

I16-3.2 Transverse expansion joints in sidewalks shall be constructed opposite expansion joints in curb and gutter, where sidewalk abuts other concrete structures, and as otherwise directed by the Engineer, except that no space shall be left between the sidewalk and adjacent curb.

I16-3.3 Curing compound meeting SECTION 802 – CONCRETE FOR STRUCTURES of the Standard Specifications shall be used on all sidewalks.

### METHOD OF MEASUREMENT

I16-4.1 Concrete for sidewalks will be measured by the horizontal square yard. Quantity includes 55 square yards to be used if and where directed by the engineer.

### BASIS OF PAYMENT

I16-5.1 Work acceptably completed and measured as provided above, will be paid for at the contract unit price bid per square yard for "SIDEWALK", at the specified thickness, which price shall be full compensation for subgrade preparation; for formwork; for furnishing and placing all materials, including expansion joint material; and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item I16-5.1 Sidewalk - per square yard

END OF SECTION I-16



## SECTION I-17 – CURB AND GUTTER

### DESCRIPTION

I17-1.1 This section shall consist of the construction of curb and curb and gutter at the locations shown on the Plans or as directed by the Engineer.

### STANDARDS

I17-2.1 Materials and work (including testing) for Concrete Curb and Concrete Curb and Gutter shall be in accordance with SECTION 634 - CURBING of the Standard Specifications, except as modified by SECTION S-1 - STRUCTURAL CONCRETE of these Specifications, and except as modified or augmented in this section of the Specifications.

### CONSTRUCTION METHODS

I17-3.1 FORMS: Article 634.03(b) of Standard Specifications shall be augmented as follows:

1. Form for curb and gutter on tangent shall be steel forms, taking into consideration standard lengths of such forms.
2. Forms in curved sections may be substantially built wood forms.
3. The Engineer shall approve all forms before they are used on the job and shall inspect them periodically. When forms appear to be unsatisfactory in any way, either before forms are used, during forming operations, or during the placing of concrete, the Engineer shall order the work stopped until the defects have been corrected or the defective forms are replaced by satisfactory ones.

I17-3.2 PLACING AND FURNISHING: That part of Article 634.03(c)(1) of the Standard Specifications which relates to placing and finishing shall be replaced by the following requirements:

1. Concrete shall be dry enough to permit early removal of face forms, if used, for the curb section; it shall not be so dry but what adequate tamping and spading will ensure adequate compaction and surfaces free from honeycomb. The subgrade shall be wetted before placing the concrete.
2. The surface shall be shaped to the required section, finished with a steel trowel, and lightly brushed to produce a uniform surface of slightly roughened texture. The exposed edge of the gutter at the front form, and the exposed edge of the curb at the back form, shall be edged with an edging tool having a radius of approximately 1/8 inch.
3. At the Contractor's option, shaping may be done by a steel screen, shaped to exact curb and gutter section, riding upon the tops of front metal template. The Contractor shall be responsible for construction within the tolerances allowed by this section. The shaping operation shall be repeated as often as necessary to attain the required results.
4. If templates are used to control shape, they shall be of metal and securely fastened in position at intervals not exceeding ten (10) feet. Templates shall be normal to the grade of the gutter and to the centerline of roadway.

I17-3.3 JOINTS: Article 634.03(d), Joints, Standard Specifications, for Concrete Curb and Concrete Curb and Gutter shall be deleted in its entirety, and substituted therefore shall be the following:

1. Premolded expansion joint material shall be placed between the curb and gutter and any concrete construction that otherwise would abut against it. Joint material shall be 1/2 inch

thick. Premolded joint material shall be of the nonextruding type, and shall conform to AASHTO designation M 213.

2. Expansion joints shall be constructed at the ends of curb and gutter, at the points of curvature of returns to streets and driveways. Intermediate expansion joints shall be constructed so that the maximum distance between joints is sixty (60) feet or as otherwise controlled by details on the Plans. The joint material shall extend entirely through the curb and gutter section and, before the joint can be considered completed, must be trimmed to curb and gutter section.
3. Contraction joints shall be 1/8" to 3/8" (width) x 1-1/2" (depth) and shall be placed at fifteen (15) foot intervals between expansion joints or as otherwise controlled by details on the Plans. Contraction joints shall be formed by sawing, unless otherwise specified, and sealed with a non-sag sealant meeting the requirements of the Standard Specifications.
4. Joints shall be normal to the grade for gutter and the centerline of the roadway. Where curb and gutter is constructed adjacent to rigid pavement, and at sidewalks, the location and width of joints shall coincide with those in the pavement, where practicable. All joints shall be sealed with material meeting the requirements of SECTION 501 – PORTLAND CEMENT CONCRETE PAVEMENT, Article 501.03(h) of the Standard Specifications.

I17-3.4 PLACEMENT: Concrete curb and concrete curb and gutter shall be one-course, monolithic, between expansion joints.

#### METHOD OF MEASUREMENT

I17-4.1 Work required by this Section shall be measured by the linear foot. Each continuous section of the curb and/or curb and gutter of the type constructed, will be measured along the back edge of the curb; measurements shall include the space occupied by all joints. Measurements shall not include the distance across inlet structures. The quantity on the estimate will be the sum of the several measurements, to the nearest linear foot.

#### BASIS OF PAYMENT

I-17-5.1 Work performed and accepted under this item and measured as provided above will be paid for at the contract unit price bid per the items listed below. These prices shall be full compensation for furnishing all materials, including joint material; for all reinforcing steel; for all excavating, fine grading, and backfilling; for placing, finishing, sawing, and curing; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item I17-5.1      Concrete Border Curb - per linear foot

END OF SECTION I-17



## SECTION I-18 – ROADWAY CONSTRUCTION CONTROL

### DESCRIPTION

I18-1.1 This item shall consist of furnishing and maintaining all lines, grades, survey points, and measurements necessary for the proper execution of the work under the Contract, all in accordance with the Plans and Specifications.

### STANDARDS

I18-2.1 All work for this section will conform to SECTION 635 – ROADWAY CONSTRUCTION CONTROL, of the Standard Specifications, except as modified or augmented herein.

### METHOD OF MEASUREMENT

I18-3.1 Roadway Construction Control will be measured as a complete unit.

### BASIS OF PAYMENT

I18-4.1 Work completed and accepted and measured as provided above will be paid for at the contract lump sum price bid for Roadway Construction Control, which price shall be full compensation for furnishing and maintaining all necessary lines, grades, survey points, and measurements; and for furnishing all engineering personnel, equipment, materials, tools, and incidentals necessary to complete the work.

No adjustments in the lump sum price bid will be made for Roadway Construction Control required due to normal increases or decreases in contract quantities. However, if the amount of Roadway Construction Control required is increased or decreased in connection with a change order, compensation will be adjusted accordingly.

Partial payments for ROADWAY CONSTRUCTION CONTROL will be made in proportion to the amount of work accomplished on this item.

No additional payment will be made for restaking needed to maintain the control.

Payment will be made under:

Item I18-4.1 Roadway Construction Control - per lump sum.

END OF SECTION I-18



## SECTION I-20 – PIPE BOLLARDS

### DESCRIPTION

I20-1.1 This item shall consist of providing all labor, materials, and appurtenances necessary for installation of pipe bollards, in accordance with the types, locations and details in the Plans, or as directed by the engineer.

I20-1.2 The Manufacturer's installation procedures and Shop Drawings showing the installation details shall be submitted to the Engineer for review.

### MATERIALS

I20-2.1 The pipe bollards shall be similar or equal to the Model SPR-V pipe bollard manufactured by FairWeather Site Furnishings.

Materials used for the pipe bollard shall conform to ASTM A53, Schedule 40 pipe. The pipe bollards shall be hot dip galvanized in accordance with AASHTO A123 after the fabrication. Galvanized surfaces shall be prepared in accordance with subsection 807.87.

### CONSTRUCTION METHODS

I20-3.1 Pipe bollards shall be installed in accordance with the approved shop drawings and the manufacturer's recommendations.

### METHOD OF MEASUREMENT

I20-4.1 Work completed and accepted will be paid for at the contract unit price bid per each for Pipe Bollard.

### BASIS OF PAYMENT

I20-5.1 The bid price and payment shall be full compensation for furnishing materials, fabrication, installation, foundation, drainage base material, galvanizing, and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item I20-5.1 Pipe Bollard - per each

END OF SECTION I-20



## SECTION M-5 - PIPE EMBEDMENT

### DESCRIPTION

M5-1.1 This section covers the furnishing of all labor, equipment, and materials necessary for placing pipe foundations as required on the Plans or as deemed necessary by the Engineer.

### MATERIALS

M5-2.1 Bedding for Reinforced Concrete Pipe may be Class 5 or Class 7 Aggregate Base in accordance with SECTION 303 – AGGREGATE BASE COURSE of the Standard Specifications.

### CONSTRUCTION METHODS

M5-3.1 Pipe embedment will be required for the storm drainage pipe in areas deemed necessary by the Engineer. The excavated trench shall be inspected by the Engineer and may be deemed acceptable for pipe placement. In such cases no compensation will be made to the Contractor for bedding material. If the Engineer determines that bedding is required, then the minimum bedding under storm drainage pipe will be a 6-inch thickness of bedding material in the trench bottom. The width of the pipe embedment shall extend the full width of the trench bottom, but not beyond the maximum trench width as specified in SECTION E-3 – EXCAVATION FOR STRUCTURES of these specifications. The Contractor will not be paid for extra bedding placed in trenches that are excessive in width and/or exceed the limits shown in the Plans.

M5-3.2 Excavation for pipe embedment shall be carried to a specified depth below the pipe flow line to allow adequate bedding materials to be placed in accordance with details shown on the Plans and as required by the Engineer.

M5-3.3 Additional excavation will be required in soft, mucky areas where the specified bedding will not adequately support the pipe. Where such areas as determined by the Engineer are excavated, the additional depth of trench shall be backfilled with Class 7 Base or Class "C" Ballast Stone. The Contractor will not be paid for any additional excavation required, but will be paid for the additional backfill required. No additional compensation will be given to the Contractor unless the Engineer has measured and verified the additional excavation prior to the placement of the bedding.

### METHOD OF MEASUREMENT

M5-4.1 Pipe Embedment will be measured by the cubic yard as calculated by the Engineer. Excavation for embedment will not be measured for separate payment, but will be subsidiary to Pipe Embedment.

### BASIS OF PAYMENT

M5-5.1 Pipe Embedment acceptably completed and measured as provide above, will be paid for at the contract unit price bid per cubic yard for "PIPE EMBEDMENT," which price shall be full compensation for furnishing the material; for hauling, excavating, placing, spreading, and compacting; and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item M5-5.1 Pipe Embedment - per cubic yard

END OF SECTION M-5



## SECTION M-7 – WATER FOR DUST CONTROL

### DESCRIPTION

M7-1.1 This item shall consist of the furnishing and placing of water for the purpose of dust control during periods of dry weather.

### CONSTRUCTION METHODS

M7-2.1 Control of dust is of extreme importance to the health and welfare of the project residents and it is the intent of this specification that the Contractor will, upon 24-hour notice by the Engineer, furnish a water truck and adequate personnel to control dust on the project as directed by the Engineer and to maintain the availability of the equipment on the job during periods of dry weather.

The Contractor may be required to spray trees and other shrubs as required by the City.

### MEASUREMENT AND PAYMENT

M7-3.1 Water will not be measured for separate payment, but will be considered subsidiary work pertaining to the construction of the items.

END OF SECTION M-7





## SECTION M-8 – CONCRETE ENCASEMENT

### DESCRIPTION

M8-1.1 This item shall consist of placing concrete encasement when called for on the plans or as directed by the engineer.

### MATERIALS

M8-2.1 Concrete encasement shall be made of concrete having a compressive strength of not less than 3000 psi after 28 days. The concrete encasement shall be placed in accordance with the details shown on the plans.

### CONSTRUCTION METHODS

M8-3.1 When concrete encasement is shown on the plans or when directed by the Engineer, the trench shall be excavated and fine graded to a depth conforming with details and sections shown on the plans. The pipe shall be supported by precast concrete blocks of the same strength as the concrete for encasement and securely tied down to prevent floatation. Encasement shall then be placed to a depth and width conforming with details and sections shown on the plans.

### MEASUREMENT AND PAYMENT

M7-4.1 Concrete encasement, including furnishing and placing all materials, manipulation, labor, tools, and incidentals necessary to complete the work, will not be measured for separate payment, but will be considered subsidiary work pertaining to the item or items under Special Provision "RETAINING WALLS".

END OF SECTION M-8



## SECTION P-1 – AGGREGATE BASE COURSE

### DESCRIPTION

P1-1.1 This section covers all work in connection with the construction of aggregate base course in accordance with the lines, grades, thicknesses, and typical sections as shown in the Plans or directed by the Engineer. Material shall be Class 7 unless otherwise specified in the Plans.

### STANDARDS

P1-2.1 Material and work (including testing) for aggregate base course shall be in accordance with SECTION 303 – AGGREGATE BASE COURSE of the Standard Specifications for Class 7, except as modified or augmented herein.

### CONSTRUCTION METHODS

P1-3.1 TESTS: Material will be acceptable from quarries or crushing plants which currently are, or recently have been, supplying material meeting the Standard Specifications for Aggregate Base Course. In-place density shall be determined by AASHTO T 310, Direct Transmission of not less than 98% of maximum density determined in the laboratory by AASHTO T 180, Method D.

P1-3.2 MAINTENANCE: The Contractor shall maintain the base course until and during the construction of the subsequent base or surface course. Defects that develop in the base course shall be repaired by the Contractor at the Contractor's expense.

### METHOD OF MEASUREMENT

P1-4.1 Aggregate Base Course will be measured by the ton of two thousand (2,000) pounds, as determined by weighing on accurate, approved scales as described in Article 109.01(f), Standard Specifications. Each truck shall bear a plainly legible identification number and, upon being weighed, shall be given two (2) copies of a delivery ticket which will have on it the number of the truck, time of departure, truck weight, combined weight, and project name. The Engineer shall receive a copy of each delivery ticket for the computation of pay quantities. Aggregate base course used in the construction of other items which are measured separately shall not be measured in this item. Quantity includes 23 ton to be used if and where directed by the engineer.

### BASIS OF PAYMENT

P1-5.1 Aggregate Base Course, acceptably completed and measured as provided above, will be paid for at the contract unit price per ton for "AGGREGATE BASE COURSE" for the class specified, which price shall be full compensation for furnishing the material; for hauling, placing, spreading, and compacting; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment for "AGGREGATE BASE COURSE" will be made in proportion to amount of work completed to date in accordance with the following payment schedule:

### PAYMENT SCHEDULE

	<u>Partial Estimates</u>
(1) Aggregate Base Course Dumped and Spread	Tons of Base Course Dumped and Spread to date x 50%

(2) Aggregate Base  
Course Compacted

Tons of Base  
Course Compacted  
to date x 50%

Payment will be made under:

Item P1-5.1 Aggregate Base Course (Class 7) - per ton

END OF SECTION P-1

## SECTION P-3 – ASPHALT SURFACE

### DESCRIPTION

P3-1.1 This section covers construction of the Asphalt Concrete Hot Mix Surface Course in accordance with the lines, grades, thicknesses, and typical sections shown in the Plans, or as directed by the Engineer.

### STANDARDS

P3-2.1 SURFACE COURSE: Materials, equipment, and construction methods for ASPHALT CONCRETE HOT MIX SURFACE COURSE shall be in accordance with SECTIONS 407, 409, AND 410 of the Standard Specifications, except as modified or augmented herein. The asphalt binder shall be PG 64-22.

### CONSTRUCTION METHODS

P3-3.1 The Design and Quality Control of Asphalt Mixtures shall be in accordance with SECTION 404 of the Standard Specifications, except as modified herein.

P3-3.2 Standard Specification Modifications and Augmentations:

1. SECTION 404.01(b) Design Requirements: The number of design gyrations ( $N_{MAX}$ ) shall be 115.
2. SECTION 410.09(a) General: Samples for all properties except density, thickness, and the investigation of segregation shall be obtained from trucks at the plant. The testing agency shall clearly mark the load ticket of each sampled truck to indicate that the load has been sampled.
3. SECTION 410.09(b)(2) Pavement Smoothness: The Contractor shall provide the straight-edge.
4. TABLE 410-1: Table 410-1 is amended to add thickness tolerances as shown at the end of this section. When lots and subplot divisions for initial and final courses do not coincide, the Contractor may be required to take additional samples (full-depth) at his expense at locations agreed upon by the Engineer to potentially avoid penalties or rejection of his work.
5. SECTION 410.09(d) Adjustments: (5) For thickness of each course layer, the contract price shall be reduced by 10% if the thickness is outside the Compliance Limits but within the Price Reduction Limits. For overall thickness, the contract price shall be reduced by an additional 10% if the thickness is outside the Compliance Limits but within the Price Reduction Limits.

For thickness of each course layer and/or total pavement thickness in excess of the amount specified and beyond the Compliance Limits, the payment shall be reduced by the amount of excess quantity of material placed, as determined by the Engineer. The intent of this section is to prevent the Owner from paying for excess and unauthorized quantities of material placed. However, if the elevations, cross slopes, or other characteristics are unacceptable to the Owner based on the requirements in the Contract Documents, the Contractor may be required to remove and replace pavement as determined by the Engineer.

6. SECTION 410.10 Incentives: Delete entirely.

### METHOD OF MEASUREMENT

3-4.1 Asphalt Concrete Hot Mix Surface Course will be measured by the ton (2,000 pounds) of each mixture used in the accepted work. Recorded batch weights or truck scale weights will be used to

determine the basis for the tonnage. Load tickets shall be provided as directed by the Engineer. Measurements shall include only the actual amounts placed within the lines shown on the Plans, or as directed by the Engineer. Quantity includes 11 ton to be used if and where directed by the engineer.

**BASIS OF PAYMENT**

**3-5.1** Asphalt Concrete Hot Mix Surface Course, acceptably completed, and measured as provided above, will be paid for at the contract unit prices per ton bid for “ACHM SURFACE COURSE” which prices shall be full compensation for furnishing, placing and compacting all materials; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item P3-5.1      ACHM Surface Course – per ton

**Addition to Table 410-1 in Standard Specifications**

<b>Property</b>	<b>Compliance Limits</b>	<b>Price Reduction Limits</b>	<b>Lot Rejection Limits</b>	<b>Sublot Rejection Limits</b>
Thickness (variation from specified)				
Base	+/- 1/2 inch	1/2 inch to 3/4 inch deficient in thickness	more than 3/4 inch deficient in thickness	more than 3/4 inch deficient in thickness
Binder	+/- 3/8 inch	3/8 inch to 1/2 inch deficient in thickness	more than 1/2 inch deficient in thickness	more than 1/2 inch deficient in thickness
Surface	+/- 1/4 inch	1/4 inch to 3/8 inch deficient in thickness	more than 3/8 inch deficient in thickness	more than 3/8 inch deficient in thickness
Total Pavement	+/- 1/4 inch	1/4 inch to 3/8 inch deficient in thickness	more than 3/8 inch deficient in thickness	more than 3/8 inch deficient in thickness

END OF SECTION P-3

## SECTION S-1 – STRUCTURAL CONCRETE

### DESCRIPTION

S1-1.1 This section covers concrete and reinforcing steel for the construction of drainage structures, sidewalks, islands, curbs, curb and gutter, foundations, footings, retaining walls, and other miscellaneous concrete structures conforming to the lines, grades, dimensions, and details shown on the Plans or as directed by the Engineer.

S1-1.2 Additional requirements are as specified in the sections of the specifications covering the several items involved with concrete and reinforcing steel.

### STANDARD SPECIFICATIONS

S1-2.1 Concrete and reinforcing steel construction shall be accomplished in accordance with the applicable portions of SECTION 802 – CONCRETE FOR STRUCTURES and SECTION 804 – REINFORCING STEEL FOR STRUCTURES of the Standard Specifications, except as modified or augmented herein.

### MEASUREMENT AND PAYMENT

S1-3.1 Concrete and reinforcing steel will not be measured for separate payment but will be considered subsidiary to the items involved.

END OF SECTION S-1





## SECTION T-1 - PAVEMENT MARKINGS

### DESCRIPTION

T1-1.1 This item shall consist of furnishing and placing pavement markings of the color and type specified. Pavement markings shall be in accordance with these Specifications and in conformity with the dimensions and at the locations shown on the Plans or as directed by the Engineer. In general, the work shall meet the requirements of the Manual on Uniform Traffic Control Devices for Streets and Highways.

### STANDARDS

T1-2.1 Materials and work for reflectorized paint pavement markings shall conform to SECTION 718 – REFLECTORIZED PAINT PAVEMENT MARKING of the Standard Specifications, except as modified or augmented herein.

### CONSTRUCTION METHODS

T1-3.1 Crosswalk stripes applied to the roadway surface shall be preformed (one piece) hot-applied. Crosswalk stripes can not be applied in sections.

T1-3.2 Arrows applied to the roadway surface shall be preformed (one piece) hot-applied. Arrows can not be applied in sections

### METHOD OF MEASUREMENT

T1-4.1 Pavement markings will be measured by the linear foot of material actually placed or per each symbol, as applicable. Sand or water blasting as surface preparation will not be measured and paid for directly but will be considered a part of the item Pavement Marking.

### BASIS OF PAYMENT

T1-5.1 Pavement Markings completed and accepted and measured as provided above will be paid for at the contract unit price per linear foot in place, of the width and color specified, or at the contract unit price per each for symbols for each type as specified; which price shall be full compensation for furnishing and installing markings; and for all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Item T1-5.1	Reflectorized Paint Pavement Marking - 4" Yellow - per linear foot
-------------	--

END OF SECTION T-1



# **APPENDIX A**



# SITE WITH AUTOMATIC COVERAGE (LESS THAN 5 ACRES) CONSTRUCTION SITE NOTICE

FOR THE  
Arkansas Department of Environmental Quality (ADEQ)  
Storm Water Program  
**NPDES GENERAL PERMIT NO. ARR150000**

The following information is posted in compliance with **Part I.B.8.A** of the ADEQ General Permit Number **ARR150000** for discharges of stormwater runoff from sites with automatic coverage. Additional information regarding the ADEQ stormwater program may be found on the internet at:

*www.adeq.state.ar.us/water/branch\_npdes/stormwater*

Permit Number	ARR150000
Contact Name: Phone Number:	_____ _____
Project Description (Name, Location, etc.): Start Date: End Date: Total Acres:	<u>Dave Ward Dr. Ped. Overpass (Conway)</u> <u>(RTP-15) (S)</u> _____ _____ _____
Location of Stormwater Pollution Prevention Plan:	_____

For Construction Sites Authorized under **Part I.B.6.A** (Automatic Coverage) the following certification must be completed:

I \_\_\_\_\_ (Typed or Printed Name of Person Completing this Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part I.B.2. of the ADEQ General Permit Number ARR150000. A stormwater pollution prevention plan has been developed and implemented according to the requirements contained in Part II.A.2.B & D of the permit. I am aware there are significant penalties for providing false information or for conducted unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

\_\_\_\_\_  
Signature and Title

\_\_\_\_\_  
Date



Stormwater Pollution Prevention Plan (SWPPP) for Construction Activity  
for Small Construction Sites

National Pollutant Discharge Elimination System (NPDES)  
General Permit # ARR150000

Prepared for:  
City of Conway

Date:  
August 11, 2017

Prepared by:  
Garver

Project Name and Location: DAVE WARD DR. PED. OVERPASS (CONWAY) (RTP-15) (S)

Property Parcel Number (Optional): \_\_\_\_\_

Operator Name and Address: City of Conway, 1201 Oak Street, Conway, AR 72032

A. Site Description

- a. Project description, intended use after NOI is filed: This project will include construction activities consistent with constructing a pedestrian bridge over Dave Ward Drive for pedestrian and bicycle use.
- b. Sequence of major activities which disturb soils:

General Sequence of activities:

- 1. Obtain all necessary permits (if required).
- 2. Know and maintain an Arkansas Department of Environmental Quality (ADEQ) approved Storm Water Pollution Prevention Plan implemented for construction sites.
- 3. Inform all personnel and subcontractors of SWPPP and relate where to post the Construction Site Notice and house SWPPP.
- 4. Have all existing utilities located.
- 5. Install erosion and sediment control devices in accordance with the Plans and this SWPPP.
- 6. Construct Improvements (see Plan Set). Maintain erosion and sediment control devices as needed.
- 7. Grade all areas to final grade.
- 8. Stabilize all areas, place topsoil, landscaping, and sod.
- 9. When all construction is completed, the site is 100% stabilized at 80% density, and approved by the Engineer, remove all temporary erosion and sediment control features. Stabilize with sodding or seeding any areas disturbed by their removal.

c. Total Area: 2.11 acres

Disturbed Area: 1.37 acres

B. Responsible Parties

*Be sure to assign all SWPPP related activities to an individual or position; even if the specific individual is not yet known (i.e. contractor has not been chosen).*

Individual/Company	Phone Number	Service Provided for SWPPP (i.e., Inspector, SWPPP revisions, Stabilization Activities, BMP Maintenance, etc.)
City of Conway	501-450-6100	Garver/ Contractor



To Be Determined		SWPPP revisions, Stabilization Activities, BMP Maintenance, etc.
------------------	--	--

C. Receiving Waters

- a. The following waterbody (or waterbodies) receives stormwater from this construction site: Stone Dam Creek
- b. Is the project located within the jurisdiction of an MS4?  Yes  No
  - i. If yes, Name of MS4: City of Conway
- c. Ultimate Receiving Water:
  - Red River
  - Ouachita River
  - Arkansas River
  - White River
  - St. Francis River
  - Mississippi River

D. Site Map Requirements (Attach Site Map):

- a. Pre-construction topographic view;
- b. Direction of stormwater flow (i.e., use arrows to show which direction stormwater will flow) and approximate slopes anticipated after grading activities;
- c. Delineate on the site map areas of soil disturbance and areas that will not be disturbed under the coverage of this permit;
- d. Location of major structural and nonstructural controls identified in the plan;
- e. Location of main construction entrance and exit;
- f. Location where stabilization practices are expected to occur;
- g. Locations of off-site materials, waste, borrow area, or equipment storage area;
- h. Location of areas used for concrete wash-out;
- i. Location of all surface water bodies (including wetlands) with associated natural buffer boundary lines. Identify floodplain and floodway boundaries, if available;
- j. Locations where stormwater is discharged to a surface water and/or municipal separate storm sewer system if applicable,
- k. Locations where stormwater is discharged off-site (should be continuously updated);
- l. Areas where final stabilization has been accomplished and no further construction phase permit requirements apply;
- m. A legend that identifies any erosion and sediment control measure symbols/labels used in the site map and/or detail sheet; and
- n. Locations of any storm drain inlets on the site and in the immediate vicinity of the site.

E. Stormwater Controls

a. Initial Site Stabilization, Erosion and Sediment Controls, and Best Management Practices:

- i. Initial Site Stabilization: Construction will progress as indicated in the sequence of major activities noted in the Plan Set. Erosion and sediment control measures shall be installed prior to beginning any construction activities as noted on the Erosion Control Sheets. Erosion control devices will be maintained throughout construction activities.
- ii. Erosion and Sediment Controls: Stabilized construction entrances, concrete washout areas, riprap, rock ditch checks, silt fences, and drop inlet silt fences.
- iii. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the operator will replace or modify the control for site situations: Yes No  
If No, explain: \_\_\_\_\_  
\_\_\_\_\_
- iv. Off-site accumulations of sediment will be removed at a frequency sufficient to minimize off-site impacts: Yes No  
If No, explain: \_\_\_\_\_  
\_\_\_\_\_
- v. Sediment will be removed from sediment traps or sedimentation ponds when design capacity has been reduced by 50%: Yes No  
If No, explain: \_\_\_\_\_  
\_\_\_\_\_
- vi. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges: Yes No  
If No, explain: \_\_\_\_\_  
\_\_\_\_\_
- vii. Off-site material storage areas used solely by the permitted project are being covered by this SWPPP: Yes No  
If Yes, explain additional BMPs implemented at off-site material storage area: \_\_\_\_\_  
\_\_\_\_\_

b. Stabilization Practices

- i. Description and Schedule: Temporary seeding and mulch cover shall be utilized as the primary stabilization practice. Seeding shall be performed by hydro-seeding, by hand, or by a mechanical broadcasting method. Seeding rates and types shall be in accordance with the Contract

Documents on which construction activities have ceased (temporarily or permanently). Sodding shall be placed in accordance with the project plans. Exposed bare earth sections should be protected by evenly distributed hay, straw or wood mulch before a rain event. Dust shall be controlled by sufficiently wetting dusty areas, as needed. To all extents possible, construction activities shall be isolated as to limit areas of disturbance. Areas where construction ceases for more than 14 days shall be stabilized with a seed/straw mulch at a coverage rate of 2 tons/acre. Accumulated sediment and erosion control devices will be removed after 100% stabilization at 80% density.

- ii. Are buffer areas required? Yes No

If Yes, are buffer areas being used? Yes No

If No, explain why not: \_\_\_\_\_  
\_\_\_\_\_

If Yes, describe natural buffer areas: \_\_\_\_\_  
\_\_\_\_\_

- iii. A record of the dates when grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included with the plan.

Yes No

If No, explain: \_\_\_\_\_  
\_\_\_\_\_

- iv. Deadlines for stabilization:

1. Stabilization procedures will be initiated 14 days after construction activity temporarily ceases on a portion of the site.
2. Stabilization procedures will be initiated immediately in portions of the site where construction activities have permanently ceased.

- c. Structural Practices

i. Describe any structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site: Stabilized construction entrances, rock ditch checks, silt fences, and drop inlet silt fences.

ii. Describe Velocity Dissipation Devices: Rock ditch checks.

- iii. Sediment Basins:

Are 10 or more acres draining to a common point? Yes No

Is a sediment basin included in the project? Yes No

If Yes, what is the designed capacity for the storage?

3600 cubic feet per acre = : \_\_\_\_\_

or

10 year, 24 hour storm = : \_\_\_\_\_

Other criteria were used to design basin: \_\_\_\_\_

If No, explain why no sedimentation basin was included and describe required natural buffer areas and other controls implemented instead: Not Required.

F. Other Controls

a. Solid materials, including building materials, shall be prevented from being discharged to Waters of the State:  Yes  No

b. Off-site vehicle tracking of sediments and the generation of dust shall be minimized through the use of:

A stabilized construction entrance and exit

Vehicle tire washing

Other controls, describe: \_\_\_\_\_

c. Temporary Sanitary Facilities: Portable sanitary waste systems will be required at all times during construction. All sanitary waste will be collected from the portable units as necessary or as required by local regulation by a licensed sanitary waste management contractor.

d. Concrete Waste Area Provided:

Yes

No. Concrete is used on the site, but no concrete washout is provided.

Explain why: \_\_\_\_\_

N/A, no concrete will be used with this project

e. Fuel Storage Areas, Hazardous Waste Storage, and Truck Wash Areas: At a minimum, any products in the following categories shall be considered hazardous: paints, acids for cleaning masonry surfaces, cleaning solvents, asphalt products, chemical additives for soil stabilization, or concrete curing compounds and additives. In the event of a spill which may be hazardous, the spill coordinator designated by the Contractor should be contacted immediately. The City of Conway shall also be notified immediately following notification of the spill coordinator. All hazardous waste materials will be disposed of as specified by local or state regulations or by the product manufacturer. Fuel storage will be at least 300 feet from known wetlands or other waterbodies and shall have secondary containment as required by state and federal law. Products will be kept in original containers in covered areas unless they are not resealable.

Original labels and material safety data will be retained; they contain important product information. If surplus products must be disposed of, manufacturers' or local and State recommended methods for proper disposal will be followed.

G. Non-Stormwater Discharges

- a. The following allowable non-stormwater discharges comingled with stormwater are present or anticipated at the site:

- Fire-fighting activities;
- Fire hydrant flushings;
- Water used to wash vehicles (where detergents or other chemicals are not used) or control dust in accordance with Part II.A.4.H.2;
- Potable water sources including uncontaminated waterline flushings;
- Landscape Irrigation;
- Routine external building wash down which does not use detergents or other chemicals;
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled materials have been removed) and where detergents or other chemicals are not used;
- Uncontaminated air conditioning, compressor condensate (See Part I.B.12.C of the permit);,
- Uncontaminated springs, excavation dewatering and groundwater (See Part I.B.13.C of the permit);
- Foundation or footing drains where flows are not contaminated with process materials such as solvents (See Part I.B.13.C of the permit);

- b. Describe any controls associated with non-stormwater discharges present at the site: To all extents possible, non-stormwater discharges shall be minimized. Discharges shall be monitored and terminated as soon as possible.

- H. Applicable State or Local Programs: The SWPPP will be updated as necessary to reflect any revisions to applicable federal, state, or local requirements that affect the stormwater controls implemented at the site.  Yes  No

I. Inspections

- a. Inspection frequency:

Every 7 calendar days

or

At least once every 14 calendar days and within 24 hours of the end of a storm even 0.25 inches or greater (a rain gauge must be maintained on-site)

- b. Inspections:

Completed inspection forms will be kept with the SWPPP.

ADEQ's inspection form will be used (See Appendix B)

or

A form other than ADEQ's inspection form will be used and is attached  
(See inspection form requirements Part II.A.4.L.2)

- c. Inspection records will be retained as part of the SWPPP for at least 3 years from the date of termination.
- d. It is understood that the following sections describe waivers of site inspection requirements. All applicable documentation requirements will be followed in accordance with the referenced sections.
  - i. Winter Conditions (Part II.A.4.L.4)
  - ii. Adverse Weather Conditions (Part II.A.4.L.5)

J. Maintenance:

The following procedures to maintain vegetation, erosion and sediment control measures and other protective measures in good, effective operating condition will be followed: All erosion and sediment controls shall be maintained in good working order. If a repair is necessary, it shall be done at the earliest date possible, but no later than three (3) calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to creeks and drainage ways shall have priority followed by devices protecting any drainage ditches.

Any necessary repairs will be completed, when practicable, before the next storm event, but not to exceed a period of 3 business days of discovery, or as otherwise directed by state or local officials.

K. Employee Training:

The following is a description of the training plan for personnel (including contractors and subcontractors) on this project: Training shall be given by a knowledgeable and qualified trainer to all project related personnel prior to them working at the project site. The Contractor shall be required to have a qualified individual as defined in the permit.

**\*\*Note, Formal training classes given by Universities or other third-party organizations are not required, but recommended for qualified trainers; the permittee is responsible for the content of the training being adequate for personnel to implement the requirements of the permit.**

Certification

"I certify under penalty of law that this document and all attachments such as Inspection Form were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Responsible or Cognizant Official: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**ARR150000 Inspection Form**

Appendix A

Inspector Name: \_\_\_\_\_

Date of Inspection: \_\_\_\_\_

Inspector Title: \_\_\_\_\_

Date of Rainfall: \_\_\_\_\_

Duration of Rainfall: \_\_\_\_\_

Days Since Last Rain Event: \_\_\_\_\_ days

Rainfall Since Last Rain Event: \_\_\_\_\_ inches

Description of any Discharges During Inspection: \_\_\_\_\_

Location of Discharges of Sediment/Other Pollutant (specify pollutant & location): \_\_\_\_\_

Locations in Need of Additional BMPs: \_\_\_\_\_

**Information on Location of Construction Activities**

Location	Activity Begin Date	Activity Occuring Now (y/n)?	Activity Ceased Date	Stabilization Initiated Date	Stabilization Complete Date

**Information on BMPs in Need of Maintenance**

Location	In Working Order?	Maintenance Scheduled Date	Maintenance Completed Date	Maintenance to be Performed By

Changes required to the SWPPP: \_\_\_\_\_

Reasons for changes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SWPPP changes completed (date): \_\_\_\_\_

"I certify under penalty of law that this document and all attachments such as Inspection Form were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Responsible or Cognizant Official: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_



# BMP Consideration Checklist

The BMPs listed here should be considered for every project. Those BMPs that are not included in the SWPPP should be checked as “Not Used” with a brief statement describing why it is not being used.

**Note: Appendix B and C do not have to be submitted with the SWPPP. These attachments are for use during the development of the SWPPP.**

<b>EROSION CONTROL BMPs</b>				
<b>BMP</b>	<b>BMP Considered for project</b>	<b>BMP Used</b>	<b>BMP Not Used</b>	<b>If not used, state reason</b>
EC-1 Scheduling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-2 Preservation of Existing Vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-3 Hydraulic Mulch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-4 Hydroseeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-5 Soil Binders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-6 Straw Mulch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-7 Geotextiles & Mats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-8 Wood Mulching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-9 Earth Dikes & Drainage Swales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-10 Velocity Dissipation Devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-11 Slope Drains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EC-12 Stream bank Stabilization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>SEDIMENT CONTROL BMPs</b>				
<b>BMP</b>	<b>BMP Considered for project</b>	<b>BMP Used</b>	<b>BMP Not Used</b>	<b>If not used, state reason</b>
SE-1 Silt Fence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-2 Sediment Basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-3 Sediment Trap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-4 Check Dam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-5 Fiber Rolls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-6 Gravel Bag Berm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-7 Street Sweeping and Vacuuming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-8 Sand Bag Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-9 Straw Bale Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-10 Storm Drain Inlet Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SE-11 Chemical Treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>WIND EROSION CONTROL BMPs</b>				
<b>BMP</b>	<b>BMP Considered for project</b>	<b>BMP Used</b>	<b>BMP Not Used</b>	<b>If not used, state reason</b>
WE-1 Wind Erosion Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

# BMP Consideration Checklist

TRACKING CONTROL BMPs				
BMP	BMP Considered for project	BMP Used	BMP Not Used	If not used, state reason
TR-1 Stabilized Construction Entrance/Exit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TR-2 Stabilized Construction Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TR-3 Entrance/Outlet Tire Wash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NON-STORM WATER MANAGEMENT BMPs				
BMP	BMP Considered for project	BMP Used	BMP Not Used	If not used, state reason
NS-1 Water Conservation Practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-2 Dewatering Operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-3 Paving and Grinding Operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-4 Temporary Stream Crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-5 Clear Water Diversion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-6 Illicit Connection/ Discharge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-7 Potable Water/Irrigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-8 Vehicle and Equipment Cleaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-9 Vehicle and Equipment Fueling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-10 Vehicle and Equipment Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-11 Pile Driving Operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-12 Concrete Curing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-13 Concrete Finishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-14 Material and Equipment Use Over Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-15 Demolition Adjacent to Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NS-16 Temporary Batch Plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPs				
BMP	BMP Considered for project	BMP Used	BMP Not Used	If not used, state reason
WM-1 Material Delivery and Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-2 Material Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-3 Stockpile Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-4 Spill Prevention and Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-5 Solid Waste Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-6 Hazardous Waste Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-7 Contaminated Soil Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-8 Concrete Waste Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-9 Sanitary/Septic Waste Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WM-10 Liquid Waste Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## **APPENDIX B**



FLOODPLAIN DEVELOPMENT PERMIT  
APPLICATION FORM FOR CITY OF CONWAY

OFFICE USE ONLY	
Date Received:	<u>7/26/2017</u>
File Number:	<u>17-001</u>

**SECTION I: Applicant and Project Information**

**GENERAL INFORMATION**

1. No work of any kind may begin in a floodplain area designated as A, A1-30, AE, AO, AH, or B until a floodplain development permit is issued.
2. The permit may be revoked if any false statements are made in this application.
3. If revoked, all work must cease until a permit is re-issued.
4. The development may not be used or occupied until a **Certificate of Compliance** is issued.
5. The permit will expire if no work is commenced within 6 months of the date of issue.
6. The permit will not be issued until any other necessary local, state or federal permits have been obtained.
7. By signing and submitting this application, the Applicant gives consent to the local Floodplain Administrator or his/her representative to make reasonable inspections prior to the issuance of a **Certificate of Compliance**.
8. By signing and submitting this application, the Applicant certifies that all statements contained in SECTION I of the application, and in any additional attachments submitted by the Applicant, are true and accurate.

**OWNER INFORMATION**

Property owner(s): City of Conway Mailing address: 1201 Oak Street, Conway, AR 72034  
Telephone number: 501-450-6100  
Fax number: 501-450-6145 e-mail address: bart.castleberry@cityofconway.org

Signature(s) of property owner(s) listed above<sup>1</sup>

\_\_\_\_\_  
\_\_\_\_\_

<sup>1</sup>Attached forms if there are additional property owners. This permit application will not be accepted without the signature of all property owners. The signature is an acknowledgement and consent to this floodplain development permit application.

**APPLICANT INFORMATION**

Applicant: City of Conway Notes: Prepared and submitted on  
Telephone number: 501-450-6100 behalf of the City of  
Fax number: 501-450-6145 Conway by Garver

Signature of applicant listed above

Dustin Tackett

Dustin Tackett, PE  
501-537-3293

**PROJECT INFORMATION**

Project	<u>Dave Ward Dr. Ped. Overpass</u>	Lot	<u>N/A</u>	Block	<u>          </u>
Address	<u>Approximate 2400 block</u>	Subdivision	<u>N/A</u>		
	<u>Dave Ward Drive, Conway, AR</u>	Legal Description	<u>(Attach to this document)</u>		

**A. Structural development** (Please check all that apply.)

## Type of Structure

- Residential (1 to 4 families)  
 Residential (More than 4 families)  
 Non-Residential  
      Elevated  
      Floodproofed  
 Combined Use (Residential and Non-Residential)  
 Manufactured (mobile) Home  
      Located within a Manufactured Home Park  
      Located outside a Manufactured Home Park

## Type of Structural Activity

- New Structure  
 Addition to Existing Structure<sup>2</sup>  
 Alteration of Existing Structure<sup>2</sup>  
 Relocation of Existing Structure<sup>2</sup>  
 Demolition of Existing Structure  
 Replacement of Existing Structure

<sup>2</sup>Estimate Cost of Project \$3,200,000**B. Other Development Activities**

- Excavation (not related to a Structural Development listed in Part A.)  
 Clearing  
 Placement of fill material  
 Grading  
 Mining  
 Drilling  
 Dredging  
 Watercourse alteration  
 Drainage improvement (including culvert work)  
 Individual water or sewer system  
 Roadway or bridge construction  
 Other development not listed above (specify) \_\_\_\_\_

<sup>2</sup>If the value of an addition or alteration to a Structure equals or exceeds 50% of the value of the structure before the addition or alteration, the entire structure must be treated as a substantially improved structure. A relocated structure must be treated as new construction.

**SIGNATURE**

I certify that to the best of my knowledge the information contained in this application is true and accurate.

Dustin Tackett  
(PRINTED name)

Dustin Tackett  
(SIGNED name)

7-26-17  
(Date)

**SECTION II: (To be completed by Floodplain Administrator)****FLOOD INFORMATION**

1. The proposed development is located on FIRM map panel: 05045C0279H (number and suffix)
2. The date on the FIRM 12/19/2006
3. The proposed development is located in AE (A, A1-30, AE, AO, AH, B, C, D, or X)
4. Is the proposed development located in either of the following zones? A, A1-30, AE, AO, AH, B, or shaded X  
 YES     NO    *If NO, no permit floodplain development is required.*

5. If the proposed development is located in Zone B or shaded Zone X, a floodplain development permit is only required if the Development is a "critical facility" as defined in the Flood Damage Prevention Ordinance.

***Otherwise, no floodplain development permit is required in Zone B or shaded Zone X.***

6. If the proposed development is located within either Zone A1-30 or Zone AE, is it also located within a "regulatory floodway"?  YES     NO
7. If YES, a **No Rise Certificate** is necessary before proceeding.
8. If NO, continue.

***If the proposed development is located within Zones A, A1-30, AE, AO, AH, B or shaded X (critical facilities only), apply the criteria of the Flood Damage Prevention Ordinance to minimize flood damages to the proposed Development and to adjacent properties as well.***

For structures, the provisions of the ordinance specify that the lowest floor, including utilities, be elevated 2 ft above the base flood elevation. Therefore, it is necessary that the following information be provided:

1. Base flood elevation at the 296.0' feet above mean sea level (MSL) site:
2. Vertical datum used in the Flood Insurance Study, on flood maps and in surveys is NAVD 88
3. Source of the base flood elevation (BFE)  FIRM (flood map)  
 Flood Insurance Study Profile # \_\_\_\_\_  
 Other sources of the BFE (specify): \_\_\_\_\_
4. Proposed lowest floor elevation (including utilities): N/A feet above MSL  
(This elevation must be greater than the BFE. For non-residential structures, floodproofing may be used for protection. See ordinance for details.)

The following documents may be required.    ***Check applicable.***

- Maps and plans of the development
- An **Elevation Certificate**<sup>3</sup> – required for all structures
- A **Floodproofing Certificate**<sup>3</sup> – required if floodproofing a non-residential structure
- A **No-Rise Certificate**<sup>3</sup> – if the proposed development is in a "regulatory floodway"
- An elevation study showing BFEs on developments exceeding 50 lots or 5 acres in Zone A
- A copy of **Wetlands Permit** from the U.S. Army Corps of Engineers if required; and other local, state, federal permits. Other permits: \_\_\_\_\_

<sup>3</sup>Certificates require completion by a Professional Land Surveyor or Registered Professional Engineer, as indicated.

**SECTION III : (Forms which may be required by the Floodplain Administrator)**

**ELEVATION CERTIFICATE**

Attached. *Submit only if required to do so by the Floodplain Administrator.*

**FLOODPROOFING CERTIFICATE**

Attached. *Submit only if required to do so by the Floodplain Administrator.*

**NO-RISE CERTIFICATE**

Attached. *Submit only if required to do so by the Floodplain Administrator.*



NATIONAL FLOOD INSURANCE PROGRAM  
**ENGINEERING "NO-RISE" CERTIFICATE**  
 FOR ARKANSAS COMMUNITIES

SITE INFORMATION

Community <u>City of Conway, Arkansas</u>	County <u>Faulkner</u>
Applicant <u>City of Conway, Arkansas</u>	Date <u>July 11, 2017</u>
Address <u>1201 Oak Street, Conway, AR 72032</u>	Engineer <u>Kathryn L. McCoy, PE</u>
Telephone <u>501-450-6100</u>	Address <u>4701 Northshore Drive, North Little Rock, AR 72118</u>
Project Address <u>Approximate 2400 block Dave Ward Drive, Conway, AR</u>	Telephone <u>501-376-3633</u>
	Lot <u>N/A</u> Block <u>          </u>
	Subdivision <u>N/A</u>
	Legal Description <u>N/A</u>

PROJECT INFORMATION

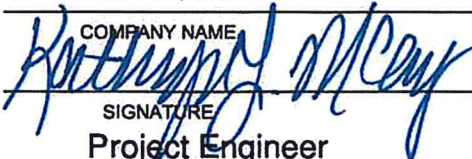
Description of Development:	<u>Pedestrian overpass over Dave Ward Drive and associated trail approaches</u>
Principal Use of Premises:	<u>Public use by pedestrians and cyclists to cross over highway</u>

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

NFIP map(s) and panel(s) affected:	<u>Map Number 05045C0279H</u>
Effective date of map:	<u>December 19, 2006</u>
Base Flood Elevation on FIRM:	<u>296 feet NAVD88</u>
Name of flooding source:	<u>Stone Dam Creek</u>

CERTIFICATION

This is to certify that I am a duly qualified Professional Engineer licensed to practice in the State of Arkansas. I further certify that the attached engineering data supports the fact the proposed development would not result in any increase in flood levels within the community during the occurrence of a base flood event.

Kathryn L. McCoy  
 CERTIFIER'S NAME  
Garver, LLC  
 COMPANY NAME  
  
 SIGNATURE  
Project Engineer  
 TITLE

16446  
 LICENSE NUMBER  
7-11-2017  
 DATE



ARKANSAS FLOODPLAIN DEVELOPMENT PERMIT

OFFICE USE ONLY	
Date Issued:	9/18/2017
File Number :	17-001

**SECTION IV : (To be completed by the Floodplain Administrator)**

**PERMIT DETERMINATION**

I have determined that the proposed development

- IS
- IS NOT (non-conformances to be described in a separate document)

in conformance with local Flood Damage Prevention Ordinance Number 0-06-128,  
dated 9/26/2006

The Floodplain Development Permit

- IS
- IS NOT (reasons for denial to be described in a separate document)

issued, subject to any conditions attached to and made part of this permit.

[Signature]  
SIGNATURE

9/18/2017  
DATE

*The applicant is reminded that this document is a development permit only. An inspection must be performed and a Compliance Certificate must be issued before the development can be occupied or used.*

# CERTIFICATE OF COMPLIANCE

OFFICE USE ONLY	
Date Issued:	<u>9/18/2017</u>
File Number :	<u>17-001</u>

## SECTION V : CERTIFICATE OF COMPLIANCE

### “AS-BUILT” ELEVATION (to be completed by the applicant after construction)

*The following information must be provided for structures that are part of this application. This section must be completed by a Professional Land Surveyor or a Professional Engineer (or attach a certification to this application).*

- (1) The Actual (“As-Built”) elevation of the top of the lowest floor, including the basement, is \_\_\_\_\_ Feet above MSL (vertical datum: \_\_\_\_\_).
- (2) The Actual (“As-Built”) elevation of floodproofing protection is \_\_\_\_\_ Feet above MSL (vertical datum: \_\_\_\_\_).

### COMPLIANCE ACTION (to be completed by the Local Floodplain Administrator)

*The Floodplain Administrator will complete this section as applicable based on inspection of the development to ensure compliance with the community’s local flood damage prevention ordinance.*

Inspections:	Date: _____	By: _____	Deficiencies?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Date: _____	By: _____	Deficiencies?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Date: _____	By: _____	Deficiencies?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Date: _____	By: _____	Deficiencies?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	Date: _____	By: _____	Deficiencies?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

### CERTIFICATE OF COMPLIANCE (to be completed by the Local Floodplain Administrator)

Certificate of Compliance issued.

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

*This Certificate of Compliance indicates that structures may now be occupied and non-structural developments may be utilized.*

