

# SPECIFICATIONS AND CONTRACT DOCUMENTS



CONWAY, ARKANSAS

FAULKNER COUNTY

## **MARKHAM ST. JUMP START IMPVTS. (CONWAY) (S)**

Federal Aid Project STPU-9095(33)

ARDOT JOB 080566

Garver Project No. 16017122

Prepared For:

City of Conway

February 2019







000001 – CERTIFICATIONS

**MARKHAM ST. JUMP START IMPVTS. (CONWAY)(S)**  
**ARDOT PROJECT NO. 080566**  
**GARVER PROJECT NO. 16017122**

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 or Landscape Architect 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: 2/22/2019</p>	<p>Project Manager</p> <p>And</p> <p>Roadway Improvements</p>
<p>Adam Wierciak, P.E.</p>  <p>Digitally Signed: 2/22/2019</p>	<p>Drainage Improvements</p>



000001 - CERTIFICATIONS

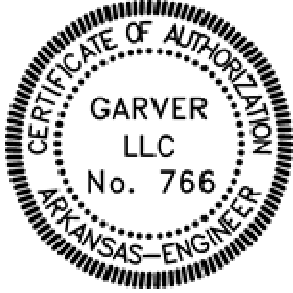
SEAL AND SIGNATURE	APPLICABLE DIVISION OR PROJECT RESPONSIBILITY
<p>Nicholas Holland, P.E.</p>  <p>Digitally Signed: 2/22/2019</p>	<p>Lighting Infrastructure Design</p>
<p>Cinde Drilling, P.L.A.</p> 	<p>Landscape Architecture Design</p>
<p>Mitchell Langley, C.I.D.</p> 	<p>Irrigation Design</p>



000001 – CERTIFICATIONS

**GARVER, LLC CERTIFICATE OF AUTHORIZATION:**

**AR ENGINEERING AND SURVEYING:**



Expiration Date: 12-31-2020





CITY OF CONWAY

MARKHAM ST. JUMP START IMPVTS. (CONWAY) (S)  
FEDERAL AID PROJECT STPU-9095(33)  
ARDOT JOB 080566

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## 010000 - ADVERTISEMENT FOR BIDS

Sealed bids for **MARKHAM ST. JUMP START IMPVTS. (CONWAY) (S)**, to be constructed for CITY OF CONWAY, ARKANSAS, will be received at City Hall Downstairs Conference Room, 1201 Oak Street, Conway, Arkansas 72032 until 3:00 P.M., WEDNESDAY, JULY 10, 2019, 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: Jamie Brice, 1201 Oak Street, Conway, Arkansas, 72032

The project includes, but is not limited to, 1530 LF of roadway reconstruction with curb and gutter, on street parking, adjacent sidewalk and cycle track, landscaping and irrigation, infrastructure for future lighting, and drainage structures including bioretention planters, drop inlets, and reinforced concrete pipe, 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 6402364 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 90 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 **MARKHAM ST. JUMP START IMPVTS. (CONWAY) (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 ninety (90) 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

**"MARKHAM ST. JUMP START IMPVTS (CONWAY) (S)."**

NOW, THEREFORE, if the Principal shall not withdraw said Proposal within ninety (90) 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 **MARKHAM ST. JUMP START IMPVTS. (CONWAY) (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 sixty (360) 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 ninety (90) calendar days after the opening thereof. If written notice of the acceptance of this Proposal is mailed, telegraphed, or delivered to the undersigned within ninety (90) 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**  
**MARKHAM ST. JUMP START IMPVTS. (CONWAY) (S)**  
**ARDOT JOB NO. 080566 - UNIT PRICE SCHEDULE**

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
1	SP02-5.1	Sidewalk (Type Special I)	S.Y.	294		
2	SP04-5.1	Utility Connections & Service Points	L.S.	1		
3	SP04-5.2	Non-Metallic Conduit 2" Schedule 40 PVC	L.F.	3,000		
4	SP04-5.3	Non-Metallic Conduit 2" Schedule 80 PVC	L.F.	700		
5	SP04-5.4	Non-Metallic Conduit 1-1/2" Schedule 40 PVC	L.F.	300		
6	SP04-5.5	Pole Foundation (Type I)	EACH	27		
7	SP04-5.6	Pole Foundation (Type II)	EACH	7		
8	SP04-5.7	Pole Foundation (Type III)	EACH	17		
9	SP5-5.1	Concrete Pull Box	EACH	49		
10	E1-4.1	Site Preparation	L.S.	1		
11	E2-6.1	Unclassified Excavation	C.Y.	2,957		
12	E2-6.2	Embankment Construction	C.Y.	277		
13	E2-6.3	Undercut Excavation and Backfill	C.Y.	7,836		
14	E4-5.1	Trench and Excavation Safety System	L.S.	1		
15	I1-5.1	Maintenance of Traffic	L.S.	1		
16	I3-6.1a	18" Reinforced Concrete Pipe, Class III	L.F.	74		
17	I3-6.1b	18" Reinforced Concrete Pipe, Class V	L.F.	101		



**CITY OF CONWAY**  
**MARKHAM ST. JUMP START IMPVTS. (CONWAY) (S)**  
**ARDOT JOB NO. 080566 - UNIT PRICE SCHEDULE**

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
18	I3-6.1c	24" Reinforced Concrete Pipe, Class III	L.F.	16		
19	I3-6.1d	22"x14" Reinforced Concrete Arch Pipe, Class IV	L.F.	1,073		
20	I3-6.1e	44"x27" Reinforced Concrete Arch Pipe, Class III	L.F.	172		
21	I3-6.1f	44"x27" Reinforced Concrete Arch Pipe, Class IV	L.F.	437		
22	I5-6.1a	Drop Inlet (Type MO)	EACH	15		
23	I5-6.1b	Drop Inlet (Reverse Throat)	EACH	15		
24	I5-6.1c	2' Extension	EACH	1		
25	I5-6.1d	4' Extension	EACH	25		
26	I5-6.1e	Junction Box (Type ST)	EACH	9		
27	I8-5.1	Pavement Repair	S.Y.	150		
28	I12-5.1	Temporary Erosion Control	L.S.	1		
29	I15-5.1	Concrete Island Behind Walk (6")	S.Y.	107		
30	I16-5.1a	Sidewalk	S.Y.	2,121		
31	I16-5.1b	Cycle Track	S.Y.	918		
32	I16-5.1c	Ramps	S.Y.	84		
33	I16-5.1d	Concrete Steps	S.Y.	6		
34	I17-5.1a	Concrete Combination Curb and Gutter (Type A) (1'-6")	L.F.	3,083		



**CITY OF CONWAY**  
**MARKHAM ST. JUMP START IMPVTS. (CONWAY) (S)**  
**ARDOT JOB NO. 080566 - UNIT PRICE SCHEDULE**

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
35	I17-5.1b	Concrete Combination Curb and Gutter (Type A) (6'-6")	L.F.	286		
36	I17-5.1c	Concrete Curb (Type D)	L.F.	73		
37	I18-4.1	Roadway Construction Control	L.S.	1		
38	I20-5.1	Directional Detectable Bar Tile	L.F.	1,500		
39	I21-5.1	Brick Pavers	S.Y.	156		
40	I22-5.1	Brick Paver Crosswalks	S.Y.	155		
41	L1-5.1	Sodding	S.Y.	2,275		
42	L2-5.1	Trees, Plants, and Groundcover	L.S.	1		
43	L3-5.1	Tree Grates	EACH	20		
44	L4-5.1	Bioretention Planters	S.F.	1,764		
45	M3-4.1	Cold Milling Asphalt Pavement	S.Y.	500		
46	M5-5.1	Pipe Embedment	C.Y.	304		
47	P1-5.1	Aggregate Base Course (Class 7)	TON	2,250		
48	P3-5.1a	ACHM Surface Course	TON	1,187		
49	P3-5.1b	ACHM Binder Course	TON	890		
50	P5-5.1a	Concrete Driveway (Type I)	S.Y.	309		
51	P5-5.1b	Concrete Driveway (Type II)	S.Y.	322		





**CITY OF CONWAY**  
**MARKHAM ST. JUMP START IMPVTS. (CONWAY) (S)**  
**ARDOT JOB NO. 080566 - UNIT PRICE SCHEDULE**

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
52	T1-5.1a	Reflectorized Paint Pavement Marking - 4" White	L.F.	1,645		
53	T1-5.1b	Reflectorized Paint Pavement Marking - 4" Yellow	L.F.	1,800		
54	T1-5.1c	Reflectorized Paint Pavement Marking - 6" White	L.F.	1,454		
55	T1-5.1d	Reflectorized Paint Pavement Marking (Bicycle Symbol)	EACH	5		
56	T1-5.1e	Reflectorized Paint Pavement Marking (Directional Arrow)	EACH	5		
57	T1-5.1f	Thermoplastic Pavement Marking - 4" White	L.F.	746		
58	T1-5.1g	Thermoplastic Pavement Marking - 4" Yellow	L.F.	2,735		
59	T1-5.1h	Thermoplastic Pavement Marking - 6" White	L.F.	1,126		
60	T1-5.1i	Thermoplastic Pavement Marking - 12" White	L.F.	65		
61	T1-5.1j	Thermoplastic Pavement Marking - Green	S.F.	2,967		
62	T1-5.1k	Thermoplastic Pavement Marking (Bicycle Symbol)	EACH	18		
63	T1-5.1l	Thermoplastic Pavement Marking (Directional Arrow)	EACH	18		
64	T2-4.1a	Standard Roadside Sign	S.F.	44		
65	T2-4.1b	Street Name Sign	S.F.	29		
66	W1-4.1	Automatic Irrigation System	L.S.	1		
67	W2-5.1	Valve, Meter, or Pull Box Adjusted to Grade	EACH	20		

**Total Bid**



## 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



**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.

If the responses below do not clearly indicate that the contract goal for DBE participation has been achieved, documentation shall be attached to clearly demonstrate to the satisfaction of the Owner that a Good Faith Effort has been made as defined and described in Appendix A of 49 CFR Part 26. Firms qualified as a DBE for this project shall be certified by the Arkansas Department of Transportation.

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 prior to executing the construction contract.

## 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: \_\_\_\_\_

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 **MARKHAM ST. JUMP START IMPVTS. (CONWAY) (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 sixty (360) 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
- d. Instructions to Bidders
- e. Proposal
- f. Unit Price Schedule
- g. Statement of Bidder's Qualifications
- h. List of Proposed Subcontractors
- i. Performance and Payment Bonds
- j. Anti-Collusion and Debarment Certification
- k. Certification for Federal-Aid Contracts
- l. General Conditions
- m. Special Conditions
- n. Special Provisions and Supplemental Specifications
- o. Technical Specifications
- p. Drawings
- q. Certificates of Insurance and Insurance Policies

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 \_\_\_\_\_

\_\_\_\_\_  
(Print the names underneath all signatures) Title: \_\_\_\_\_

## 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, Project State, 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,

**"MARKHAM ST. JUMP START IMPVTS. (CONWAY) (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, Project State, 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,

**"MARKHAM ST. JUMP START IMPVTS. (CONWAY) (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 cited 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 resident 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 INSURER A: <b>Carrier Name (AM Best Rating)</b> INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:		

**COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:**

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

INSR LTR	TYPE OF INSURANCE	ADDITIONAL INSURER	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   OTHER 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	17	2
February	12	1
March	13	0
April	10	0
May	11	1
June	6	0
July	9	1
August	7	0
September	3	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 County, or 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 in 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, 1530 LF of roadway reconstruction with curb and gutter, on street parking, adjacent sidewalk and cycle track, landscaping and irrigation, infrastructure for future lighting, and drainage structures including bioretention planters, drop inlets, and reinforced concrete pipe, 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 sixty (360) 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 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 ArDOT.

#### 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 – *See FHWA-1273 Supplement – Wage Rate Determination*

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.

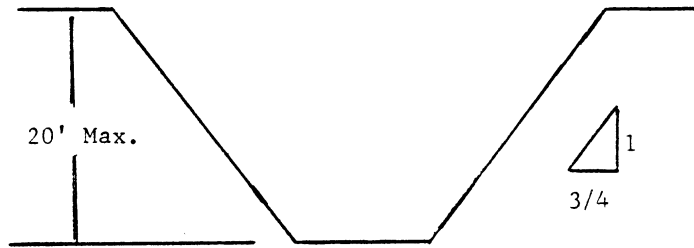
Figure B-1

Slope Configurations

(All slopes stated below are in the horizontal to vertical ratio)

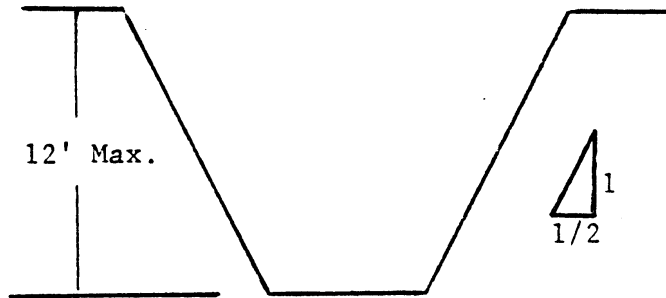
B-1.1 Excavations made in Type A soil.

1. All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of 3/4:1.



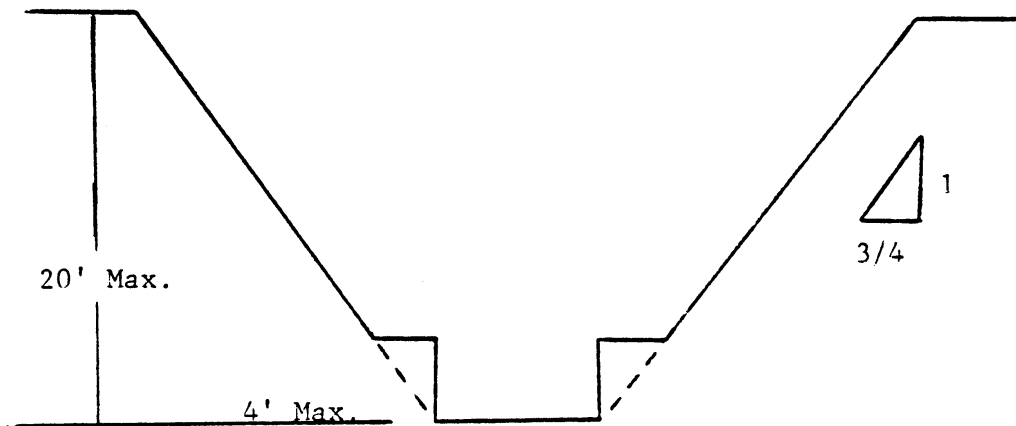
SIMPLE SLOPE—GENERAL

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.



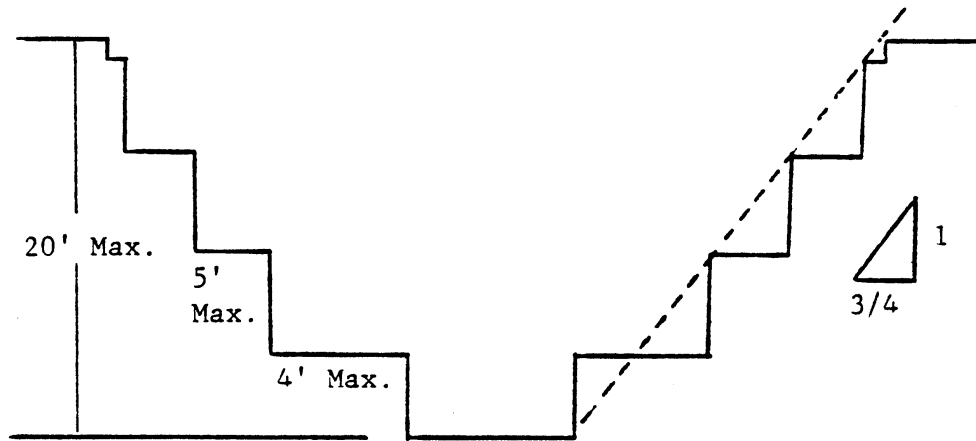
SIMPLE SLOPE—SHORT TERM

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:



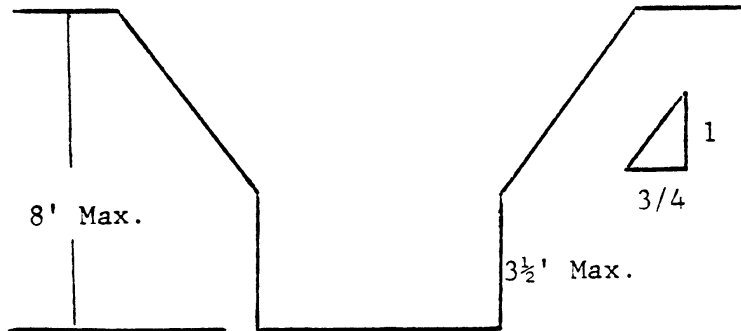


SIMPLE BENCH



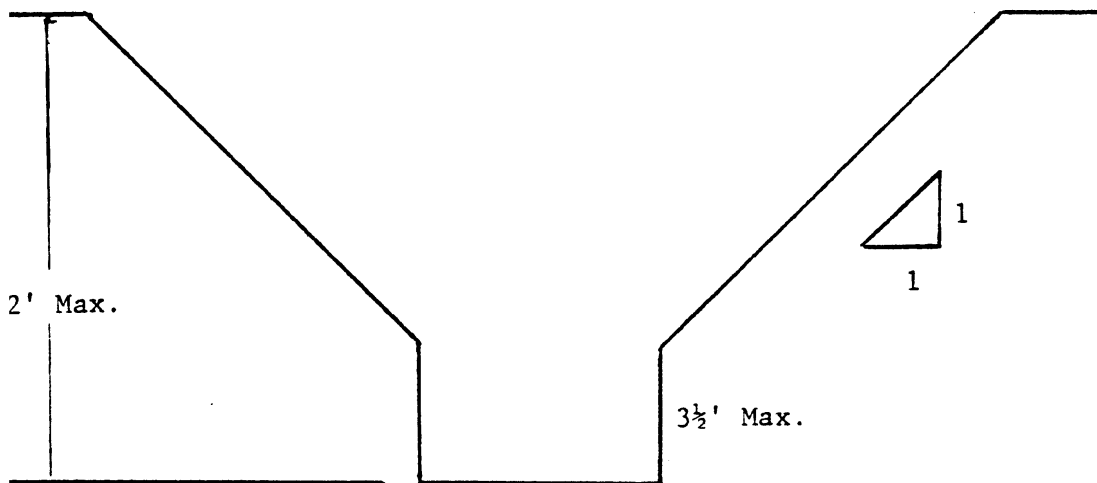
MULTIPLE BENCH

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.



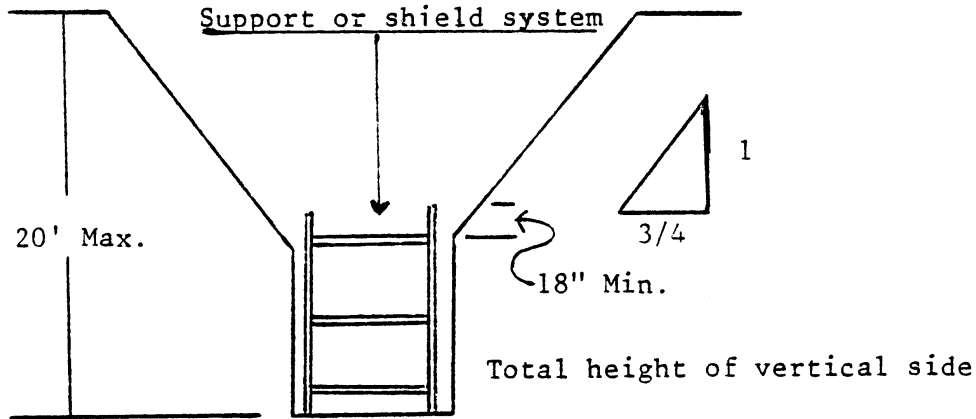
UNSUPPORTED VERTICALLY SIDED LOWER PORTION—MAXIMUM 8 FEET IN DEPTH

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  $\frac{3}{4}$ :1. The support or shield system must extend at least 18 inches above the top of the vertical side.

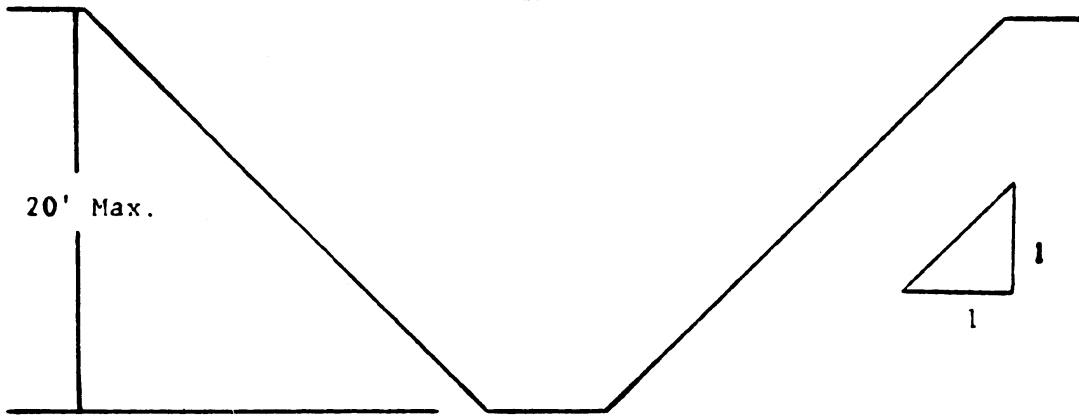


SUPPORTED OR SHIELDED VERTICALLY SIDED LOWER PORTION

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).

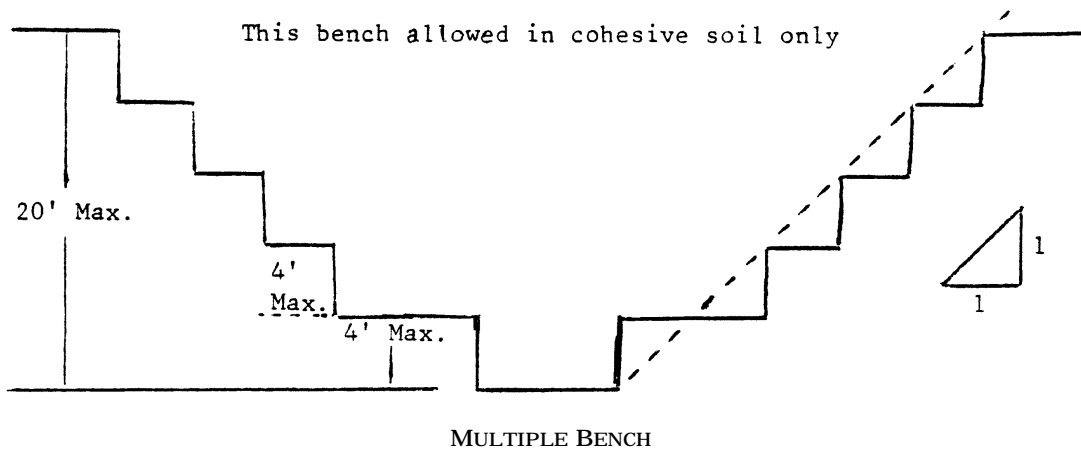
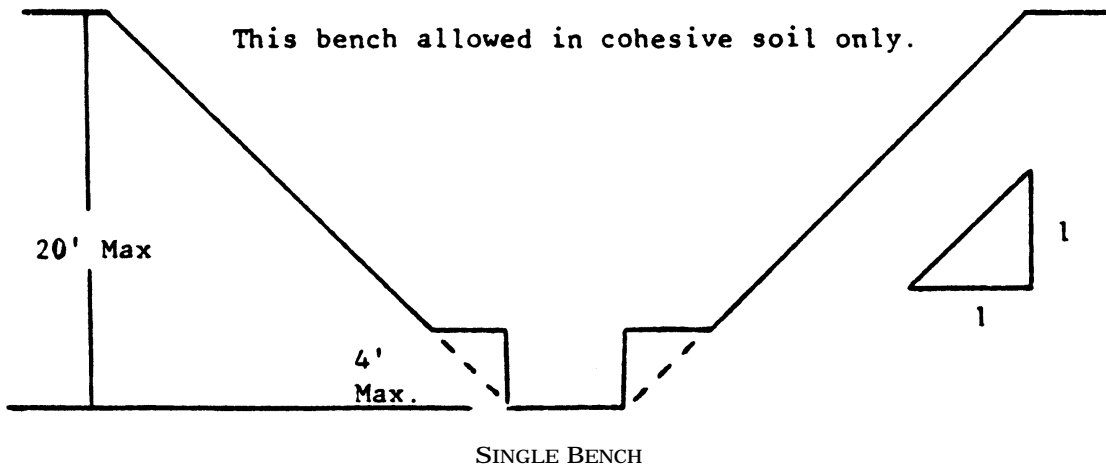
B-1.2 Excavations Made in Type B Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

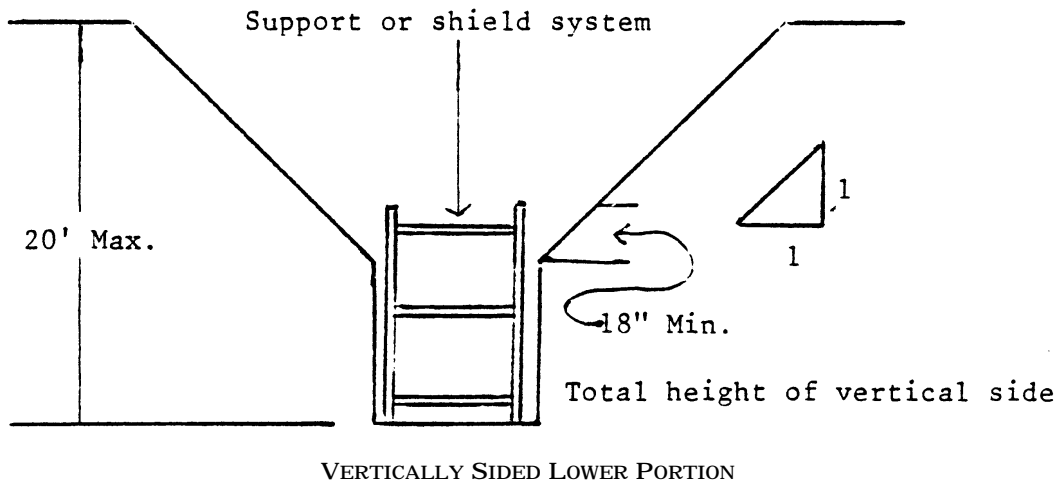


SIMPLE SLOPE

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:



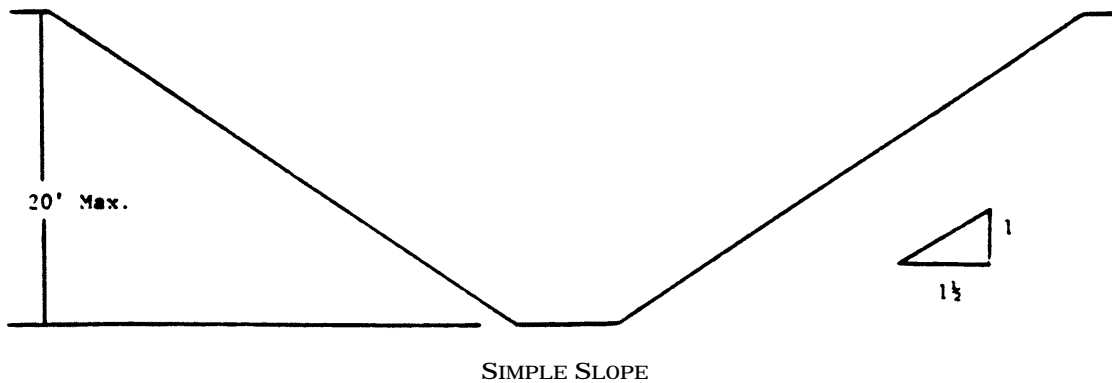
3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.



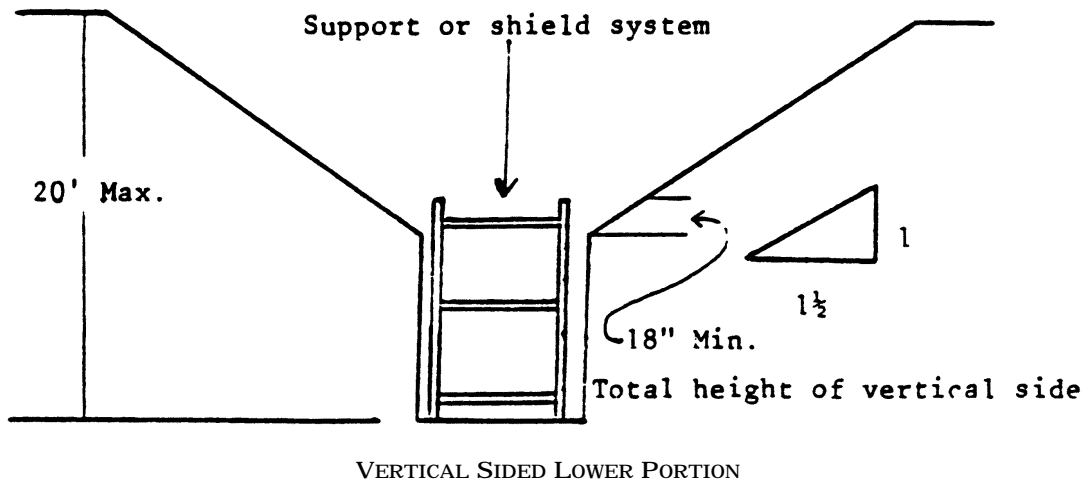
4. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

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.



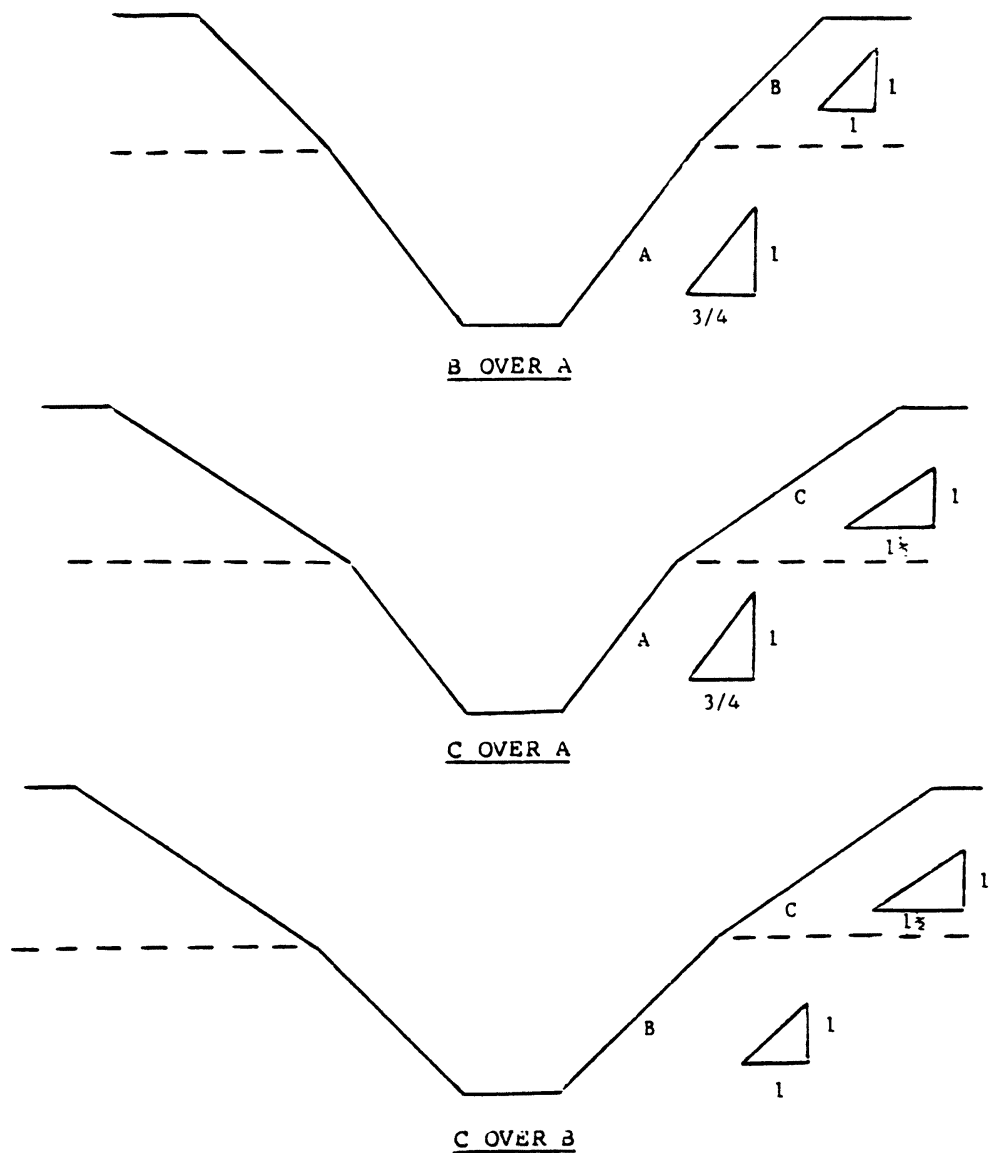
2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

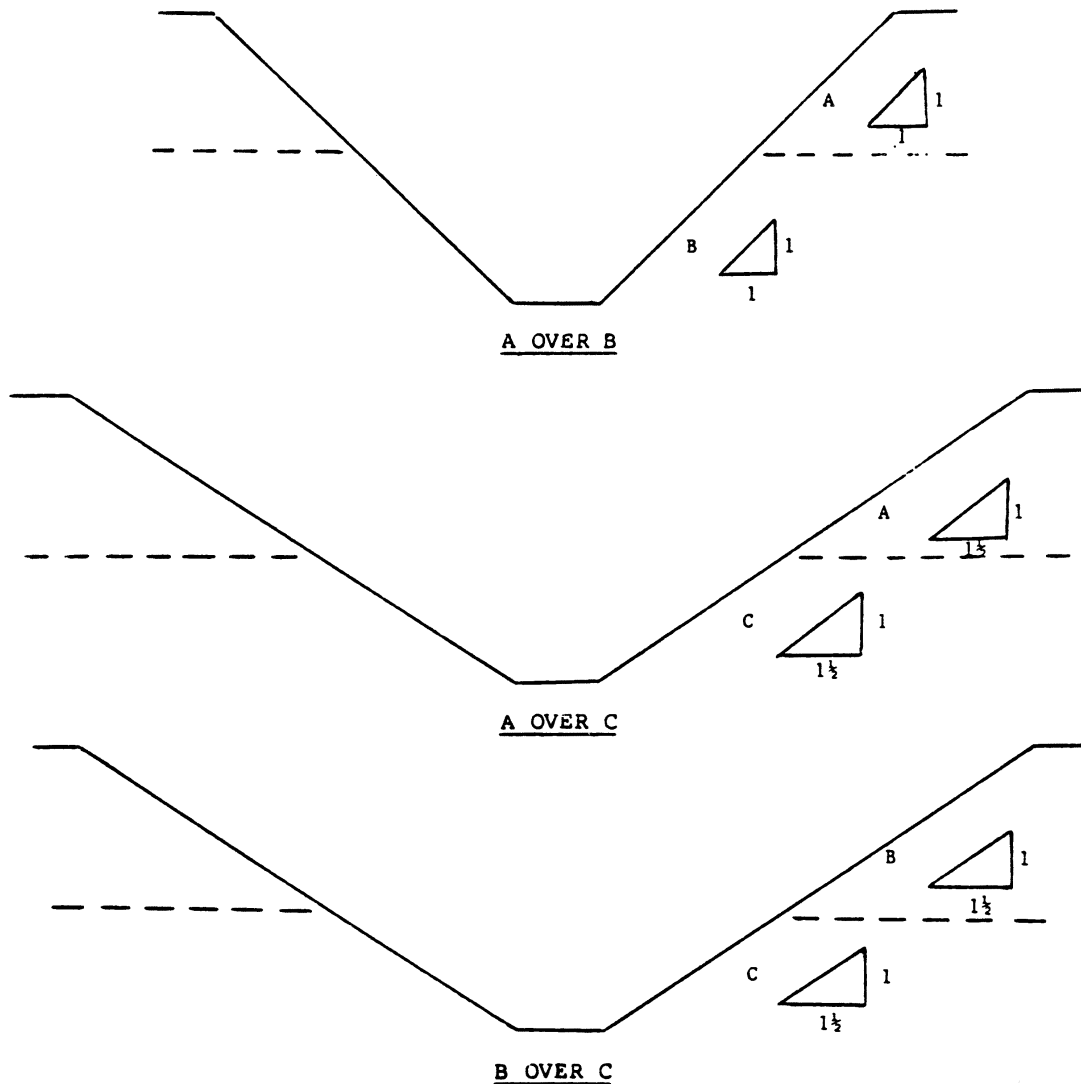


3. All other sloped excavations shall be in accordance with the other options permitted in §1926.652(b).

**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)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)			
	UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	4	5	6	8
5	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---			2X6	
T0	UP TO 8	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---				2X8
10	UP TO 10	4X6	4X6	4X6	6X6	6X6	4	8X8	4		2X6		
	UP TO 12	4X6	4X6	6X6	6X6	6X6	4	8X8	4			2X6	
10	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---			3X8	
T0	UP TO 8	4X6	4X6	6X6	6X6	6X6	4	8X8	4	2X6			
15	UP TO 10	6X6	6X5	6X6	6X8	6X8	4	8X10	4		2X6		
	UP TO 12	6X6	6X6	6X6	6X8	6X8	4	10X10	4			3X8	
15	UP TO 6	6X6	6X6	6X6	6X8	6X8	4	6X8	4	3X6			
T0	UP TO 8	6X6	6X6	6X6	6X8	6X8	4	8X8	4	3X6			
20	UP TO 10	8X8	8X8	8X8	8X8	8X10	4	8X10	4	3X6			
	UP TO 12	8X8	8X8	8X8	8X8	8X10	4	10X10	4	3X6			
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-1.2

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	UP TO 6	4X6	4X6	6X6	6X6	6X6	6X6	5	6X8	5							
TO	UP TO 8	6X6	6X6	6X6	6X8	6X8	6X8	5	8X10	5							2X6
10	UP TO 10	6X6	6X6	6X6	6X8	6X8	6X8	5	10X10	5							2X6
	See Note 1																
10	UP TO 6	6X6	6X6	6X6	6X8	6X8	6X8	5	8X8	5							2X6
TO	UP TO 8	6X8	6X8	6X8	8X8	8X8	8X8	5	10X10	5							2X6
15	UP TO 10	8X8	8X8	8X8	8X8	8X10	8X10	5	10X12	5							2X6
	See Note 1																
15	UP TO 6	6X8	6X8	6X8	8X8	8X8	8X8	5	8X10	5							3X6
TO	UP TO 8	8X8	8X8	8X8	8X8	8X10	8X10	5	10X12	5							3X6
20	UP TO 10	8X10	8X10	8X10	8X10	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)		VERT. SPACING (FEET)		VERT. SPACING (FEET)		VERT. SPACING (FEET)		MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) (See Note 2)		UPRIGHTS		
	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	UP TO	CLOSE				
5	UP TO 6	6X8	6X8	6X8	8X8	8X8	8X8	5	8X10	5	2X6				
10	UP TO 8	8X8	8X8	8X8	8X10	8X10	8X10	5	10X12	5	2X6				
10	UP TO 10	8X10	8X10	8X10	8X10	10X10	10X10	5	12X12	5	2X6				
	See Note 1														
10	UP TO 6	8X8	8X8	8X8	8X8	8X10	8X10	5	10X12	5	2X6				
15	UP TO 8	8X10	8X10	8X10	8X10	10X10	10X10	5	12X12	5	2X6				
	See Note 1														
	See Note 1														
15	UP TO 6	8X10	8X10	8X10	8X10	10X10	10X10	5	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
5 TO 10	UP TO 6	TO 8	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	4	Not Req'd	Not Req'd				4X8
	UP TO 10		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	4	Not Req'd	Not Req'd				
	UP TO 8	TO 10	4X6	4X6	4X6	4X6	4X6	4X6	4X6	4X6	4	8X8	4				4X6
	UP TO 10	TO 12	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	4	6X8	4	4X6			
15 TO 20	UP TO 6	TO 8	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	4	8X8	4				
	UP TO 8	TO 10	6X6	6X6	6X6	6X6	6X6	6X6	6X6	6X6	4	8X10	4				4X10
	UP TO 10	TO 12	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 **													
	HORIZ. SPACING (FEET)	CROSS BRACES						VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	UPRIGHTS			
		WIDTH OF TRENCH (FEET)									MAXIMUM ALLOWABLE HORIZONTAL SPACING			
	UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15					CLOSE	2	3	4	6
5 TO 10	UP TO 6 4X6	UP TO 6 4X6	UP TO 6 4X6	UP TO 6 6X6	UP TO 6 6X6	UP TO 6 6X6	5	6X8	5			3X12 4X8		4X12
10 TO 15	UP TO 8 4X6	UP TO 8 4X6	UP TO 8 6X6	UP TO 8 6X6	UP TO 8 6X6	UP TO 8 6X6	5	8X8	5		3X8		4X8	
15 TO 20	UP TO 10 4X6	UP TO 10 4X6	UP TO 10 6X6	UP TO 10 6X6	UP TO 10 6X8	UP TO 10 6X8	5	8X10	5			4X8		
OVER 20	See Note 1													
5 TO 10	UP TO 6 6X6	UP TO 6 6X6	UP TO 6 6X6	UP TO 6 6X8	UP TO 6 6X8	UP TO 6 6X8	5	8X8	5		3X6		4X10	
10 TO 15	UP TO 8 6X8	UP TO 8 6X8	UP TO 8 6X8	UP TO 8 8X8	UP TO 8 8X8	UP TO 8 8X8	5	10X10	5		3X6		4X10	
15 TO 20	UP TO 10 6X8	UP TO 10 6X8	UP TO 10 8X8	UP TO 10 8X8	UP TO 10 8X8	UP TO 10 8X8	5	10X12	5		3X6		4X10	
20 TO 25	UP TO 6 6X8	UP TO 6 6X8	UP TO 6 6X8	UP TO 6 6X8	UP TO 6 8X8	UP TO 6 8X8	5	8X10	5		4X6			
25 TO 30	UP TO 8 6X8	UP TO 8 6X8	UP TO 8 6X8	UP TO 8 8X8	UP TO 8 8X8	UP TO 8 8X8	5	10X12	5		4X6			
30 TO 35	UP TO 10 8X8	UP TO 10 8X8	UP TO 10 8X8	UP TO 10 8X8	UP TO 10 8X8	UP TO 10 8X8	5	12X12	5		4X6			
OVER 35	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			UPRIGHTS				
		UP TO 4	UP TO 6	UP TO 9				UP TO 12	UP TO 15	CLOSE					
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	10X10	5	10X12	5	3X6				
15 TO 20	UP TO 6	6X8	8X8	8X8	8X8	5	10X10	5	12X12	5	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.

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.

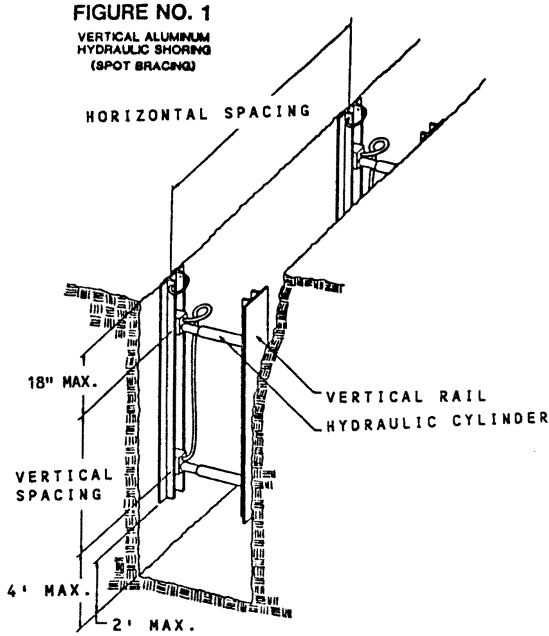
(9) Wales are calculated for simple span conditions.

(10) See appendix D, item (d), for basis and limitations of the data.

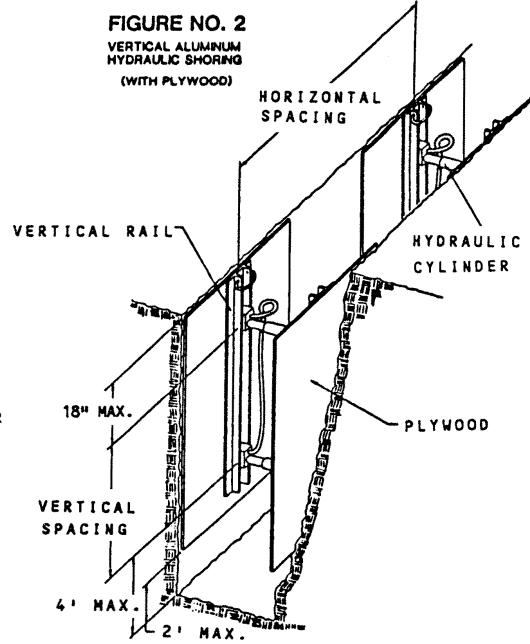


### ALUMINUM HYDRAULIC SHORING TYPICAL INSTALLATIONS

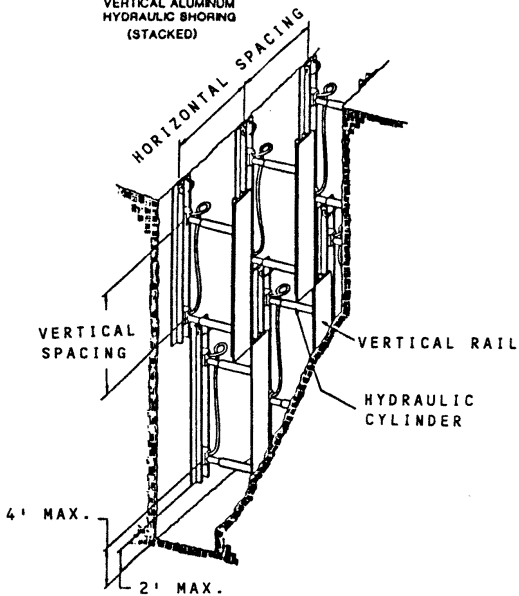
**FIGURE NO. 1**  
VERTICAL ALUMINUM  
HYDRAULIC SHORING  
(SPOT BRACING)



**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)

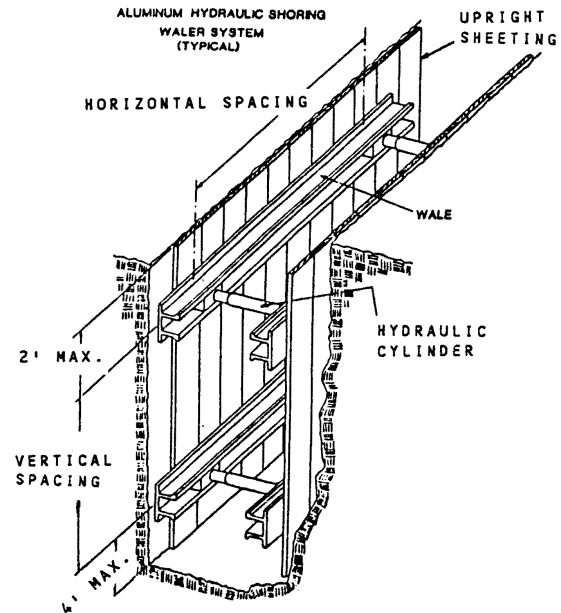


TABLE D - 1.1  
ALUMINUM HYDRAULIC SHORING  
VERTICAL SHORES  
FOR SOIL TYPE A

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 15
OVER 5 UP TO 10	8	4	2 INCH DIAMETER	3 INCH DIAMETER
OVER 10 UP TO 15	6.5		2 INCH DIAMETER NOTE (2)	
OVER 15 UP TO 20	5.5			
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 - 1.3  
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		2 FT.			3 FT.
			HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER			
OVER 5 UP TO 10	4	3.5	8.0	2 IN	8.0	2 IN	NOTE(2)	8.0	3 IN		
			9.0	2 IN	9.0	NOTE(2)	9.0	3 IN			
			14.0	3 IN	12.0	3 IN	12.0	3 IN			3x12
OVER 10 UP TO 15	4	3.5	6.0	2 IN	6.0	NOTE(2)	6.0	3 IN			
			8.0	3 IN	8.0	3 IN	8.0	3 IN			3x12
			14.0	3 IN	10.0	3 IN	10.0	3 IN			
OVER 15 UP TO 20	4	3.5	5.5	2 IN	5.5	NOTE(2)	5.5	3 IN			
			7.0	3 IN	6.0	3 IN	6.0	3 IN			3x12
			14.0	3 IN	9.0	3 IN	9.0	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	NOTE(2)	CYLINDER DIAMETER	NOTE(2)	CYLINDER DIAMETER	3 IN		
			HORIZ. SPACING	6.5	HORIZ. SPACING	6.5	HORIZ. SPACING	6.5	HORIZ. SPACING	6.0		
OVER 10 UP TO 15	4	7.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	CYLINDER DIAMETER	3 IN	3x12	—
			CYLINDER DIAMETER	10.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN		
			HORIZ. SPACING	4.0	HORIZ. SPACING	4.0	HORIZ. SPACING	4.0	HORIZ. SPACING	4.0		
OVER 15 UP TO 20	4	14.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	CYLINDER DIAMETER	3 IN	3x12	—
			CYLINDER DIAMETER	8.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN		
			HORIZ. SPACING	8.0	HORIZ. SPACING	8.0	HORIZ. SPACING	8.0	HORIZ. SPACING	8.0		
OVER 20	4	3.5	HORIZ. SPACING	2 IN	HORIZ. SPACING	2 IN	HORIZ. SPACING	2 IN	CYLINDER DIAMETER	3 IN	3x12	—
			CYLINDER DIAMETER	3.5	CYLINDER DIAMETER	NOTE(2)	CYLINDER DIAMETER	NOTE(2)	CYLINDER DIAMETER	3 IN		
			HORIZ. SPACING	5.0	HORIZ. SPACING	5.0	HORIZ. SPACING	5.0	HORIZ. SPACING	5.0		
OVER 20	4	7.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	CYLINDER DIAMETER	3 IN	3x12	—
			CYLINDER DIAMETER	6.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN		
			HORIZ. SPACING	6.0	HORIZ. SPACING	6.0	HORIZ. SPACING	6.0	HORIZ. SPACING	6.0		
OVER 20	4	14.0	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	HORIZ. SPACING	3 IN	CYLINDER DIAMETER	3 IN	3x12	—
			CYLINDER DIAMETER	6.0	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN	CYLINDER DIAMETER	3 IN		
			HORIZ. SPACING	6.0	HORIZ. SPACING	6.0	HORIZ. SPACING	6.0	HORIZ. SPACING	6.0		

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

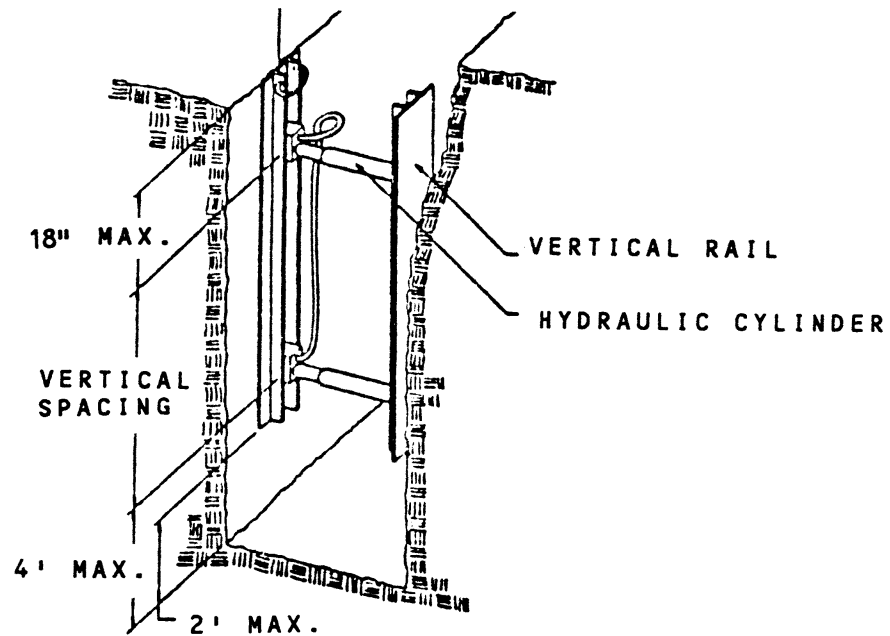


Figure 2. Pneumatic/hydraulic Shoring

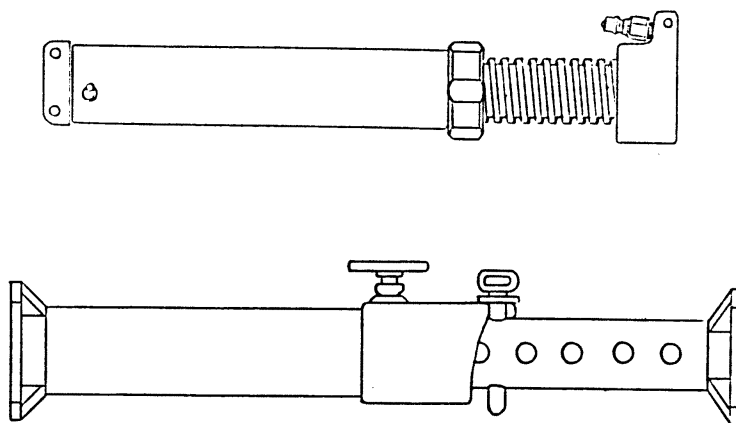


Figure 3. Trench Jacks (Screw Jacks)

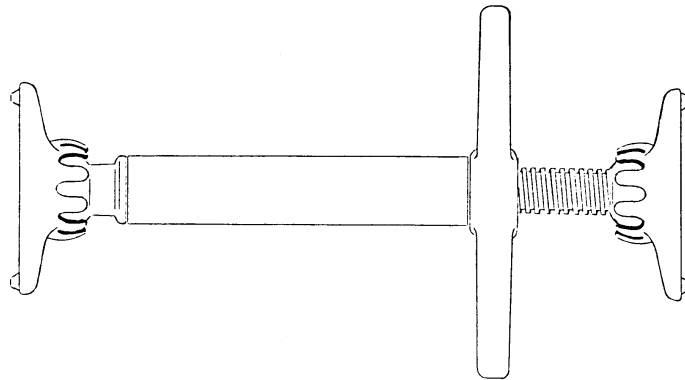
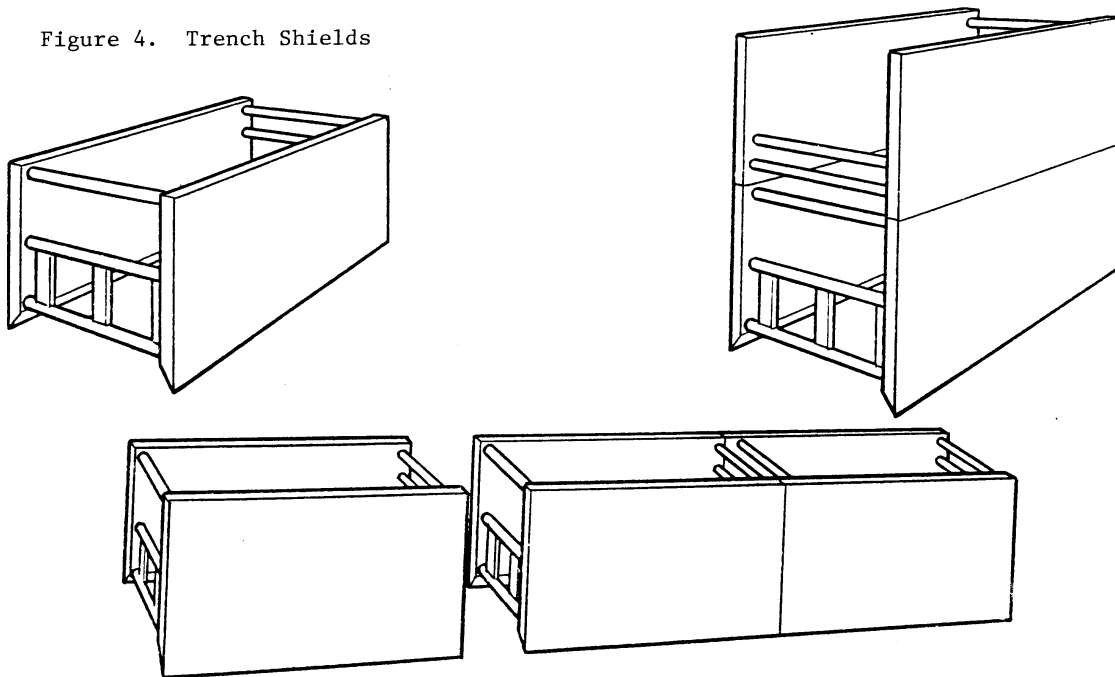


Figure 4. Trench Shields



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).

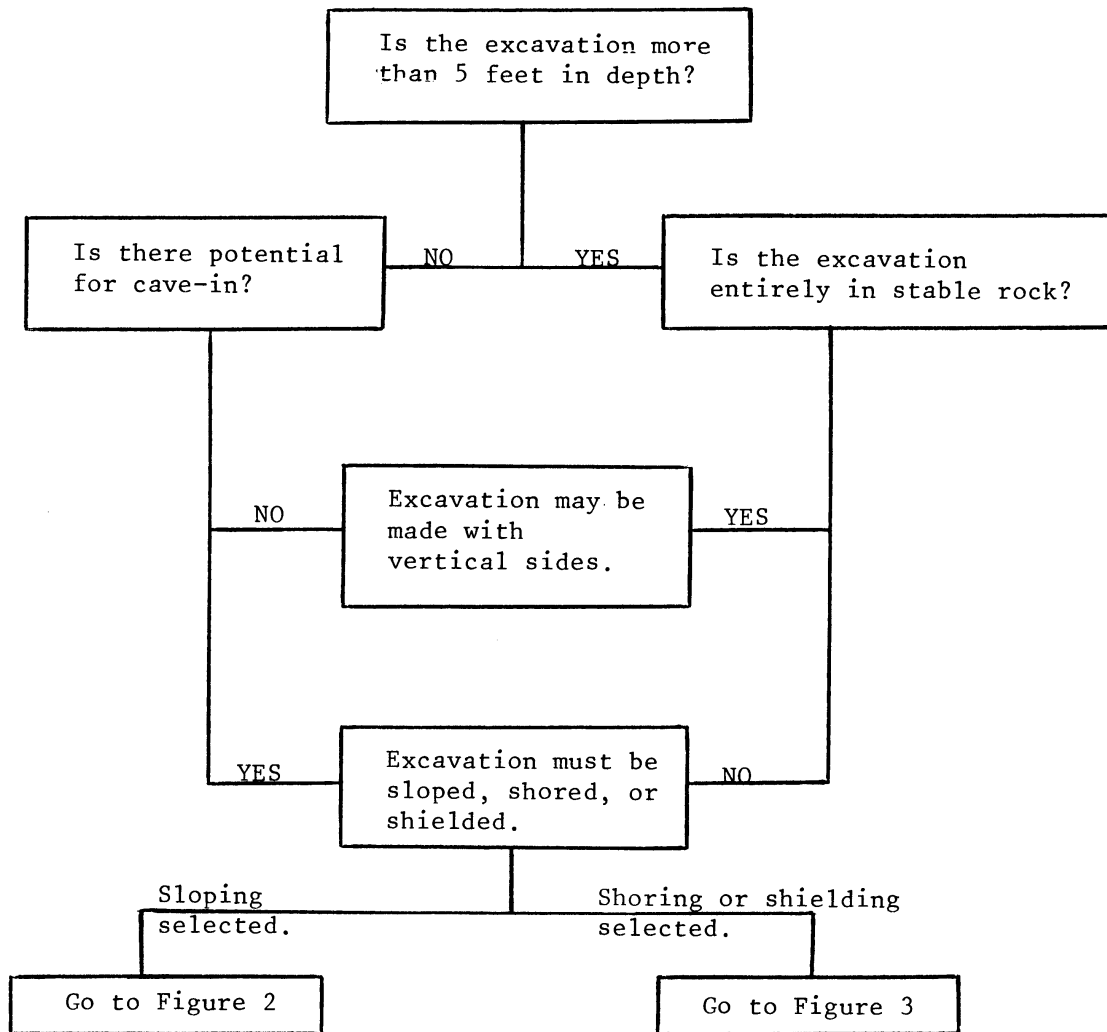


FIGURE 1 - PRELIMINARY DECISIONS



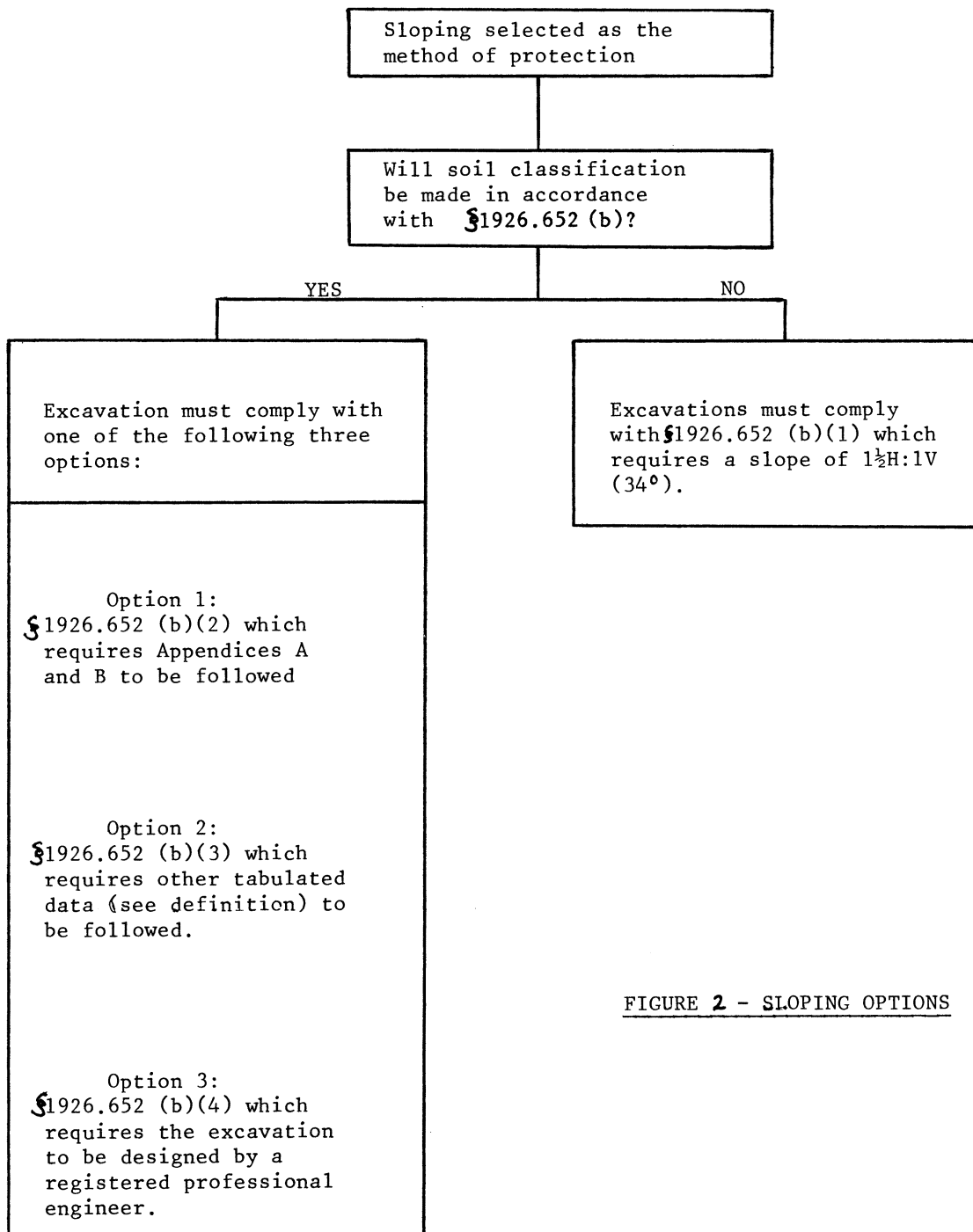


FIGURE 2 - SLOPING OPTIONS

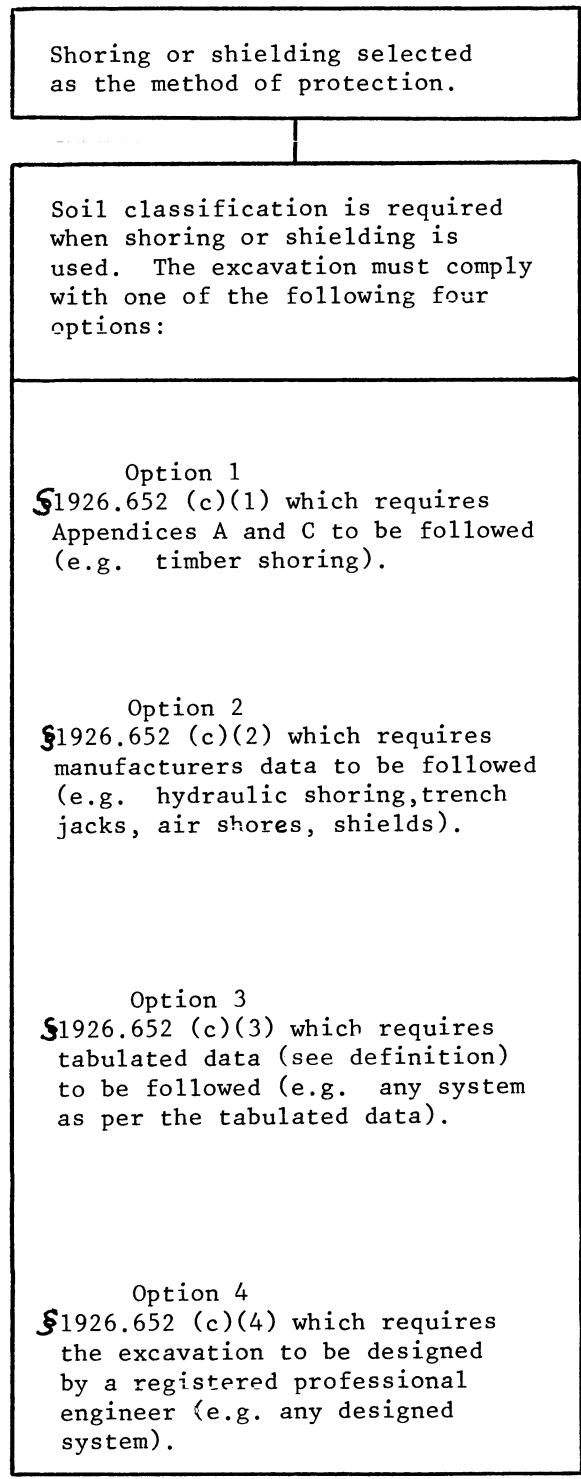


FIGURE 3 - SHORING AND SHIELDING OPTIONS

**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. 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 Reference in the Standard Specifications to the "Department" are herein changed to the "Owner".

SP1-2.5 The "Buy America" provisions in Section 106.01 of the Standard Specifications apply to steel and iron items utilized on this project.

END OF ITEM SP-1



**SP-2 – SIDEWALK (TYPE SPECIAL)**

**Section 633 Concrete Walks, Concrete Steps, and Hand Railing** of the Standard Specifications, Edition of 2014, is hereby amended as follows:

**Subsection 633.02 Materials** is expanded to include the following:

Reinforcing steel shall comply with Section 804.

**Subsection 633.03(c) Placing and Finishing** is modified to include the following:

The first sentence of the third paragraph contains the word “steps” which shall be replaced with “the steps and retaining walls”.

**Subsection 633.03(d) Backfilling** is expanded to include the following:

The retaining wall shall be backfilled per the requirements in Subsection 801.08 Backfill.

**Subsection 633.04 Method of Measurement** is expanded to include the following:

The area measured for the Sidewalk (Type Special) will be that of the concrete walk area only.

**Subsection 633.05 Basis of Payment** is expanded to include the following:

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Sidewalk (Type Special I)	Square Yard





### ITEM SP-3 – SHORING FOR TREE INSTALLATION

**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 the installation of street trees. 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-3



## ITEM SP-4 BASIC ELECTRICAL REQUIREMENTS

### DESCRIPTION

SP4-1.1 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.

SP4-1.2 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

#### SP4-2.1 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.

#### SP4-2.2 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 USB flash drives 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-02 shall be applicable to all referenced sections in these contract documents and applicable to all sections, which reference Item SP-02.

### SP4-2.3 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-02-2.2.

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.

SP4-2.4 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.

### SP4-2.5 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.

SP4-2.6 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.

#### SP4-2.7 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.

SP4-2.8 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.

SP4-2.9 METALLIC 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.

SP4-2.10 NON-METALLIC 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.

SP4-2.11 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

SP4-3.1 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.

SP4-3.2 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.

SP4-3.3 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 concealed or as otherwise 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, 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.

SP4-3.4 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.

SP4-3.5 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.

SP4-3.6 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.

SP4-3.7 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.

SP4-3.8 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

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.

SP4-3.9 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.

SP4-3.10 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.

SP4-3.11 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.

SP4-3.12 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

SP4-4.1 The quantity of utility connections to be paid for under this item shall consist of all utility connection and installation, 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.

SP4-4.2 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.

SP4-4.3 Pole Foundations will be measured by the unit. Pole Foundation "Type" shall refer to the requirement to furnish unit constructed and installed. Type I Foundation shall be drilled shaft type, Type II Foundation shall be spread footing type. Type III Foundation shall be spread footing type with modifications for being located within bioretention planters, as per the details, including all associated hardware, grounding, conduit, reinforcement, and wiring as required.

#### BASIS OF PAYMENT

SP4-5.1 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 SP4-5.1            Utility Connections & Service Points - per Lump Sum

Item SP4-5.2	Non-Metallic Conduit 2" Schedule 40 PVC - per Linear Foot
Item SP4-5.3	Non-Metallic Conduit 2" Schedule 80 PVC - per Linear Foot
Item SP4-5.4	Non-Metallic Conduit 1-1/2" Schedule 40 PVC - per Linear Foot
Item SP4-5.5	Pole Foundation (Type I) - per Each
Item SP4-5.6	Pole Foundation (Type II) - per Each
Item SP4-5.7	Pole Foundation (Type II) - per Each

### 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-4**



## 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.

Page \_\_\_\_ of \_\_\_\_



## ITEM SP-5 – CONCRETE PULL BOX

### DESCRIPTION

SP5-1.1 This item consists of furnishing and installing a concrete pull box in-ground.

### MATERIALS

SP5-2.1 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:

13" wide x 24" long, open bottom, depth measured from the top of the lid shall be a minimum of 18".

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 incidental (non-direct loading) traffic.

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

SP5-3.1 Pull box shall be either New Basis model PCA13241800019 or Quazite model PG1324BA18, with PG1324HHT09P lid; or approved equal pull box as permitted and approved by Conway Corporation. All concrete pull boxes are to be installed as shown on the plans within the sidewalk or ground areas identified and installed as per details in the plans.

The pull box shall be permanently labeled with the manufacturer's name and model identifier, and have "ELECTRIC", "ALUMINUM", centered on the lid.

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 Corporation for their use.

### METHOD OF MEASUREMENT

SP5-4.1 Completed and accepted Concrete Pull Boxes will be measured by the unit.

### BASIS OF PAYMENT

SP5-5.1 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 SP5-5.1      Concrete Pull Box – per Each

END OF SECTION SP-5

## ITEM SP-6 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

### DESCRIPTION

SP6-1.1 This item includes grounding and bonding systems and equipment, plus the following special applications:

1. Handhole grounding
2. Ground bonding between handholes and foundations
3. Foundation grounding

### MATERIALS

#### SP6-2.1 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.

#### SP6-2.2 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.

#### SP6-2.3 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.

#### SP6-2.4 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.

#### SP6-2.5 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

#### SP6-3.1 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.

#### SP6-3.2 GROUNDING BUS

- A. Install bus horizontally, on insulated spacers, within junction box as indicated in plans.

#### SP6-3.3 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.

#### SP6-3.4 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.

#### SP6-3.5 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.

#### SP6-3.6 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 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.
- C. 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.

D. 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.

### SP6-3.7 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. 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

SP6-4.1 Grounding work shall be subsidiary to the pay items in "Basic Electrical Requirements".



**ITEM SP-7 – 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 for Class S(AE) concrete and 100 cubic yards for Portland Cement Concrete Pavement. 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-7



## ITEM SP-8 – UTILITY ADJUSTMENTS

### GENERAL

SP8-1.1 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.

SP8-1.2 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.

SP8-1.3 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 Markham St. within the right of way on the on the east and west sides.  
Status – Relocations complete

*Contact Ben Thomson, 501-377-4738, ben.thomson@centerpointenergy.com*

2. Owner – AT&T  
Facilities – Underground telephone (fiber)  
Location – Underground telephone lines parallel Markham St. within the right of way on the on the east and west sides.  
Status – Relocations complete

*Contact Lanny Page, 501-218-6842, LP1318@att.com*

3. Owner – Conway Corporation  
Facilities – Power lines  
Location – Overhead electric lines parallel Markham St. within the right of way on the west side.  
Status – Underground relocations complete.

*Contact Dale Gottsponer, 501-450-6050, dale.gottsponer@conwaycorp.com*

4. Owner – Conway Corporation  
Facilities – Water/Wastewater  
Location – Water line parallels Markham St. within the right of way on the west side.  
Status – Water utility relocations complete. Trenchless, cured-in-place pipe, rehabilitation of the existing sanitary sewer is anticipated with an unknown estimated completion date. Conway Corporation will provide sanitary sewer manhole elevation adjustments as needed on the side road approaches.

Sanitary Sewer line parallels Markham St. within the right of way on the east side.

Status –No conflicts anticipated. Contractor shall coordinate construction of sanitary sewer laterals with Conway Corporation. Proposed sanitary sewer crossings to be constructed by Conway Corporation during phased undercut operations.

*Contact Keith Cates, 501-472-3835 (Office), keith.cates@conwaycorp.com*

5. Owner – Conway Corporation

Facilities – CATV

Location – Overhead CATV lines parallel Markham St. within the right of way on the west side.

Status - Underground relocations complete.

*Contact Jeff Crownover, 501-548-3001, Jeffery.crownover@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-8

## **SP-9 - 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>



**CITY OF CONWAY  
SPECIAL PROVISION  
JOB 080566**

**GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION**

A Disadvantaged Business Enterprise (DBE) goal of 12.0% has been established for this contract. Therefore, the provisions of subsection 103.08 of the Standard Specifications for Highway Construction, Edition of 2014, as revised, apply.

Requirements of Subsection 103.08 apply to successful bidders that are certified by the Department as a DBE. The Prime Contractor must meet the DBE goal. If the Prime Contractor is a Department certified DBE, then the work the Prime Contractor performs with its own forces, as well as work committed to be performed by DBE subcontractors and suppliers will count toward the goal. Therefore, DBE bidders should list work to be performed with its own forces on the DBE Participation form, along with DBE subcontractors to be utilized in achieving the goal.

All payments made to DBE Contractors, suppliers, manufacturers, and/or non-construction service firms must be reported by the Prime Contractor. This includes all payments made to DBE firms utilized in achieving the project goal and DBE firms that perform work that is not listed in the Disadvantaged Business Enterprise Participation form submitted with the executed Contract.

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 4) 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 3) 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 5) 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 5) 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.

**CITY OF CONWAY  
SPECIAL PROVISION  
JOB 080566**

**GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION**

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/DBE\\_Log.xls](http://arkansashighways.com/Construc/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 6 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.

er.



**CITY OF CONWAY**  
**DBE Subcontractor Payment Log**

Job Number \_\_\_\_\_ Prime Contractor \_\_\_\_\_  
 Estimate No. \_\_\_\_\_ DBE Subcontractor \_\_\_\_\_  
 Estimate Ending Date \_\_\_\_\_ Date Payment Made to DBE \_\_\_\_\_

Item Code*	Item Description	Subcontract Unit Price	2 <sup>nd</sup> Tier Unit Price	Quantity	Value Earned By Subcontractor

* Item Codes for pay items are shown on the estimate voucher	Total This Estimate	
	Retainage Withheld This Estimate	
	Net Total This Estimate	
	% Retainage	Previous Total
		Total To Date

DBE Payment Log must be received within 35 calendar days of the ending date of the estimate.

The Prime Contractor certifies that the payment listed has been made to the DBE Subcontractor and that the documentation of this payment is available for inspection upon request.

Authorized Signature \_\_\_\_\_ Title \_\_\_\_\_  
 Typed or Printed Name \_\_\_\_\_ Date \_\_\_\_\_

Department Use Only

Received	By _____	Verified	By _____
	Date _____		Date _____

RE Initials \_\_\_\_\_

**CITY OF CONWAY**  
**DBE Prime Contractor Payment Log**

Job Number \_\_\_\_\_ DBE Prime Contractor \_\_\_\_\_

Estimate No. \_\_\_\_\_

Estimate Ending Date \_\_\_\_\_

Item Code*	Item Description	Contract Unit Price	Sub Unit Price	Quantity	Value Earned By DBE Prime
* Item Codes for pay items are shown on the estimate voucher					Total This Estimate
					Previous Total
					Total To Date

DBE Payment Log must be received within 35 calendar days of the ending date of the estimate.

The Prime Contractor certifies that the information shown above is correct and represents the value earned by the DBE Prime Contractor during the above estimate period.

Authorized Signature \_\_\_\_\_ Title \_\_\_\_\_

Typed or Printed Name \_\_\_\_\_ Date \_\_\_\_\_

Department Use Only

Received By \_\_\_\_\_ Date \_\_\_\_\_

Verified By \_\_\_\_\_ Date \_\_\_\_\_

RE Initials \_\_\_\_\_

**CITY OF CONWAY  
DBE 2nd Tier Payment Log**

Job Number \_\_\_\_\_ Prime Contractor \_\_\_\_\_

Estimate No. \_\_\_\_\_ Subcontractor \_\_\_\_\_

Estimate Ending Date \_\_\_\_\_ DBE 2nd Tier Subcontractor \_\_\_\_\_

Date Payment Made to DBE \_\_\_\_\_

Item Code*	Item Description	2nd Tier Unit Price	Quantity	Value Earned by 2nd Tier

\* Item Codes for pay items are shown on the estimate voucher

Total This Estimate

Retainage Withheld This Estimate

Net Total This Estimate

\_\_\_\_\_% Retainage Previous Total

Total To Date

DBE Payment Log must be received within 35 calendar days of the ending date of the estimate.

The Prime Contractor certifies that the payment listed has been made to the DBE 2nd Tier Subcontractor and that the documentation of this payment is available for inspection upon request.

Authorized Signature \_\_\_\_\_ Title \_\_\_\_\_

Typed or Printed Name \_\_\_\_\_ Date \_\_\_\_\_

Department Use Only	Received	Verified	RE Initials
By _____	By _____	By _____	_____
Date _____	Date _____	Date _____	_____

**CITY OF CONWAY  
CERTIFICATE OF PAYMENT**

JOB \_\_\_\_\_ F.A.P. \_\_\_\_\_

JOB NAME \_\_\_\_\_

ORIGINAL CONTRACT AMOUNT \$ \_\_\_\_\_ DBE GOAL  
\$ \_\_\_\_\_ \*

(Contract Commitment)

DBE CONTRACT GOAL 12.0%

**FINAL PAYMENT TO DBEs**

The undersigned Contractor on the above mentioned project hereby certifies that the following amount(s) were paid to:

<u>DBE Subcontractor(s)</u>	<u>Amount Paid</u>
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
Total Paid to DBEs	\$ _____

Only payments related to work, services, or material actually provided by DBE firms should be shown. Payments under second tier subcontracts from DBE firms to non-DBE firms should not be included. **DBE prime Contractors should include the value of work performed by its own forces.**

Contractor:			
Signature:			
Typed or Printed Name:			
Title:		Date:	

THIS "CERTIFICATE OF PAYMENT" IS TO BE SUBMITTED TO THE RESIDENT ENGINEER PRIOR TO PROJECT ACCEPTANCE.

\* If goal not met, brief explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CITY OF CONWAY

CERTIFICATION TO SUBMIT DBE PARTICIPATION

JOB 080566

If the bidder is not submitting the required DBE participation information or documentation of good faith efforts with the proposal, this form must be completed and submitted with the proposal.

The undersigned bidder irrevocably certifies that at least 12.0% of the total contract will be performed by certified Disadvantaged Business Enterprise (DBE) firms and the required DBE participation information will be submitted within 5 calendar days of notification of tentative award of the contract.

If DBE participation sufficient to achieve the DBE goal established for this project is not provided within 5 calendar days, the proposal will be rejected and the proposal guaranty shall become the property of the Commission, not as a penalty, but as liquidation of damages to the Department's DBE program.

Only work, materials, or services that will actually be provided by DBE firms will be credited toward the goal. The DBE firm's certification must be fully in effect at the letting date.

\_\_\_\_\_  
Bidder

\_\_\_\_\_  
Signature (Owner/Agent)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title



### **ITEM SP-11 – 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-11





## **SP-12 - 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-13 - 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.”



## ITEM SP-14 – COORDINATION OF WORK

**DESCRIPTION:** This item shall consist of specifications relative to the coordination of work during construction operations at the beginning, and/or intermediate points, and/or end of contracts or jobs and shall be supplementary to Section 105, Control of Work, of the Standard Specifications, Edition of 2014.

Coordination of work will be necessary with the Contractor for City of Conway Job 17-111, Conway Corporation, and with any other contractors that may have active jobs adjacent to this project during the construction period.

**CONSTRUCTION:** The Contractor shall schedule and perform the several operations of construction at the beginning and/or end, or any intermediate point of the project in such a sequence that work on the facility will progress in an expeditious manner.

The Contractor shall furnish the Engineer for approval a plan or schedule of his proposed work at the termini of the project as well as any intermediate points where coordination with another contractor will be necessary. He shall keep the Engineer informed or advised of any action or cause that might affect the successful coordination of work with other contractors.

END OF ITEM SP-14



## 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 DEPARTMENT OF TRANSPORTATION**

### **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 124: The third sentence of the first paragraph of Subsection 110.03(c) should read: The Engineer will make a decision within 10 business days concerning the necessity or practicability of the request.
- 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 (0.0425 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 AWWA, 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

**ATTACHMENTS**

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

**I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (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).

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.

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.

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).

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.

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.

**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.

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 contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 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.

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.

**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:

MINORITIES  
COUNTY

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%		

<p>FEMALES Statewide – 6.9%</p>
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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

**FHWA-1273 SUPPLEMENTAL SPECIFICATION****EQUAL EMPLOYMENT OPPORTUNITY – FEDERAL STANDARDS****STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY  
CONSTRUCTION CONTRACT SPECIFICATIONS  
(EXECUTIVE ORDER 11246)**

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  
CONSTRUCTION CONTRACT SPECIFICATIONS  
(EXECUTIVE ORDER 11246)**

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

POSTER OR DOCUMENT REQUIRED	REQUIRED BY	WHERE TO OBTAIN
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

7/26/96  
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 DEPARTMENT OF TRANSPORTATION  
 SUPPLEMENTAL SPECIFICATION  
 WASTE RATE DETERMINATION

General Decision Number: AR190163 01/04/2019 AR163

Superseded General Decision Number: AR20180277

State: Arkansas

Construction Type: Highway

County: Faulkner County in Arkansas.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 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 \$10.60 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 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). 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	01/04/2019

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

ARKANSAS DEPARTMENT OF TRANSPORTATION  
 SUPPLEMENTAL SPECIFICATION  
 WATE RATE DETERMINATION

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
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

ARKANSAS DEPARTMENT OF TRANSPORTATION  
SUPPLEMENTAL SPECIFICATION  
WAGE RATE DETERMINATION

OPERATOR: Sceded.....	\$ 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
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

ARKANSAS DEPARTMENT OF TRANSPORTATION  
SUPPLEMENTAL SPECIFICATION  
WAGE RATE DETERMINATION

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 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



**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**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 DEPARTMENT OF TRANSPORTATION**  
**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 DEPARTMENT OF TRANSPORTATION**  
**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 DEPARTMENT OF TRANSPORTATION**  
**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 DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**PROTECTION OF WATER QUALITY AND WETLANDS**

**Section 110** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is hereby added as the last paragraph of **Subsection 110.04(b)**:

On all projects let to contract after October 1, 2018, the project superintendent or supervisor (as defined in Subsection 105.06) must be certified in National Pollutant Discharge Elimination System (NPDES) through the University of Arkansas' Center for Training Transportation Professionals (CTTP).





**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**AGGREGATE BASE COURSE**

**Section 303** of the Standard Specifications 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 DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**TACK COATS**

**Division 400** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Section 401, Prime and Tack Coats and Emulsified Asphalt in Base Course**, is hereby modified as follows:

The first sentence of **Subsection 401.03(a)** is hereby deleted and the following substituted therefore:

The surface to be treated with prime or tack coat shall be cleaned of dust, dirt, and loose or foreign material by sweeping with mechanical brooms immediately preceding the application of the prime or tack coat.

Third sentence of **Subsection 401.03(c)** is hereby deleted and the following is substituted therefore:

No dilution beyond that which is part of the emulsification process is permitted. The tack coat shall not be diluted, cut, or otherwise thinned after receipt from the manufacturer's facility.

The fifth sentence of **Subsection 401.03(c)** is hereby deleted and the following substituted therefore:

The rate of application shall be from 0.03 gallon to 0.10 gallon per square yard (0.1 L/sq m to 0.5 L/sq m) of residual asphalt as designated by the Engineer.

**Section 410, Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses**, is hereby modified as follows:

The sixth paragraph of **Subsection 410.05** is hereby deleted and the following substituted therefore:

For foreign material, or when the time lapse between courses is more than 8 hours, the earlier course shall be cleaned and given a tack coat before placing the succeeding course. When directed, the tack coat shall be applied and paid for under Section 401. If directed by the Engineer, a tack coat shall be used even though the elapsed time has been less than 8 hours.



**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES**

**Division 400** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Section 404, QUALITY CONTROL OF ASPHALT MIXTURES**, is hereby modified as follows:

The third paragraph **Subsection 404.04** is hereby deleted and the following substituted therefore:

The accepted mix design shall be field verified by the Contractor at the start of mix production or after an interruption of more than 120 calendar days. The asphalt mixture shall be verified by testing mix that has been produced through the plant using the aggregate proportions shown on the accepted mix design. Production of Department approved mix designs for placement on non-ARDOT projects may be used for mix verification. The Contractor shall notify the Engineer sufficiently in advance for Department personnel to witness all testing of this production and shall provide copies of all test results to the Department.

**Section 410, Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses** is hereby modified as follows:

The first and second sentence of **Subsection 410.09, Acceptance of the Payment and Adjustments in Payment**, is hereby deleted and the following is substituted therefore:

- (a) General. The accepted mix design shall be verified by the Contractor at the start of mix production for that design or after an interruption of more than 120 calendar days. A maximum of 200 tons (200 metric tons) of materials may be placed on the roadway during the verification process.

**Section 411, Asphalt Concrete Plant Mix** is hereby modified as follows:

The third sentence of Subsection 411.05 (B), Acceptance is hereby amended and the following is substituted therefore:

- (b) Acceptance. The accepted mix design shall be field verified by the Contractor at the start of mix production or after an interruption of more than 120 calendar days.



**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**PERCENT AIR VOIDS FOR ACHM MIX DESIGNS**

**Division 400** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The fourth sentence of Paragraph 1 of **Subsection 404.01(b), Design Requirements**, is hereby deleted and the following substituted therefor:

The optimum asphalt content is the asphalt binder content at 4% Air Voids (AV).

The first bullet of Paragraph 1 is hereby deleted and the following substituted therefor:

- PG 64-22 and PG 70-22 mixes will be designed using 4% air voids;

The second sentence of Paragraph 2 of **Subsection 404.04, Quality Control of Asphalt Mixtures**, is hereby deleted and the following substituted therefor:

Adjustments to the accepted mix design to conform to actual production values without re-design of the mixture shall be based on production of the mixture at a target value of 4.0% Air Voids (AV) in specimens and an asphalt binder content not less than that specified in the accepted mix design.

Table 405-1 of **Subsection 405.03 Materials** is hereby deleted and the following substituted therefor:

<b>Table 405-1</b>		
Design Requirements for Asphalt Concrete Hot Mix Base Course		
(1-1/2" [37.5 mm])		
Control Points		
Sieve (mm)	Percent Passing (%)	
2" (50.0)	100	
1½" (37.5)	90 - 100	
1" (25.0)	90 max.	
No. 4 (4.75)	-	
No. 8 (2.36)	15 - 41	
No. 16 (1.18)	-	
No. 30 (0.60)	-	
No. 50 (0.30)	-	
No. 200 (0.075)	0 - 6	
Asphalt Binder Content	Design Value	
% Air Voids	4.0	
% VMA	11.5 – 13.0	
Minimum Water Sensitivity Ratio	80.0	
% Anti-strip	As Required	
Fines to Asphalt Ratio*	0.6 – 1.6	
Wheel Tracking Test	<u>Design Gyration</u>	<u>Maximum Rut</u>
(8000 cycles, 100 psi, 64°C)	75 & 115	0.315 in. (8.000 mm)
	160	0.197 in. (5.000 mm)
	205	0.197 in. (5.000 mm)

\*Fines to asphalt ratio shall be defined as the percent materials passing the No. 200 (0.075 mm) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.

**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**PERCENT AIR VOIDS FOR ACHM MIX DESIGNS**

Table 406-1 of **Subsection 406.04, Construction Requirements and Acceptance**, is hereby deleted and the following substituted therefor:

<b>Table 406-1</b>		
Design Requirements for Asphalt Concrete Hot Mix Binder Course (1" [25 mm])		
Control Points		
Sieve (mm)	Percent Passing (%)	
1½" (37.5)	100	
1" (25.0)	90 - 100	
¾" (19.0)	90 max.	
No. 4 (4.75)	-	
No. 8 (2.36)	19 - 45	
No. 16 (1.18)	-	
No. 30 (0.60)	-	
No. 50 (0.30)	-	
No. 200 (0.075)	1 - 7	
Asphalt Binder Content	Design Value	
% Air Voids	4.0	
% VMA	12.5 – 14.0	
Minimum Water Sensitivity Ratio	80	
% Anti-strip	As Required	
Fines to Asphalt Ratio*	0.6 – 1.6	
Wheel Tracking Test (8000 cycles, 100 psi, 64°C)	<u>Design Gyration</u>	<u>Maximum Rut</u>
	75 & 115	0.315 in. (8.000 mm)
	160	0.197 in. (5.000 mm)
	205	0.197 in. (5.000 mm)

\*Fines to asphalt ratio shall be defined as the percent materials passing the No. 200 (0.075 mm) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.



**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**PERCENT AIR VOIDS FOR ACHM MIX DESIGNS**

Table 407-1 and Table 407-2 of **Subsection 407.04, Construction Requirements and Acceptance**, are hereby deleted and the following substituted therefor:

<b>Table 407-1</b>		
Design Requirements for Asphalt Concrete Hot Mix Surface Course (1/2" [12.5 mm])		
Control Points		
Sieve (mm)	Percent Passing (%)	
3/4" (19.0)	100	
1/2" (12.5)	90 - 100	
3/8" (9.5)	90 max.	
No. 8 (2.36)	28 - 58	
No. 16 (1.18)	-	
No. 30 (0.60)	-	
No. 50 (0.30)	-	
No. 200 (0.075)	2 - 10	
Asphalt Binder Content	Design Value	
% Air Voids	4.0	
% VMA	14.0 – 16.0	
Minimum Water Sensitivity Ratio	80.0	
% Anti-strip	As Required	
Fines to Asphalt Ratio*	0.6 – 1.6	
Wheel Tracking Test (8000 cycles, 100 psi, 64°C)	<u>Design Gyration</u>	<u>Maximum Rut</u>
	75 & 115	0.315 in. (8.000 mm)
	160	0.197 in. (5.000 mm)
	205	0.197 in. (5.000 mm)

\*Fines to asphalt ratio shall be defined as the percent materials passing the No. 200 (0.075 mm) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.

**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**PERCENT AIR VOIDS FOR ACHM MIX DESIGNS**

**Table 407-2**

Design Requirements for Asphalt Concrete Hot Mix Surface Course (3/8" [9.5 mm])

	Control Points	
Sieve (mm)	Percent Passing (%)	
½" (12.5)	100	
3/8" (9.5)	90 - 100	
No. 4 (4.75)	90 max.	
No. 8 (2.36)	32 - 67	
No. 16 (1.18)	-	
No. 30 (0.60)	-	
No. 50 (0.30)	-	
No. 200 (0.075)	2 - 10	
Asphalt Binder Content	Design Value	
% Air Voids	4.0	
% VMA	15.0 – 17.0	
Minimum Water Sensitivity Ratio	80.0	
% Anti-strip	As Required	
Fines to Asphalt Ratio*	0.6 – 1.6	
Wheel Tracking Test	<u>Design Gyration</u>	<u>Maximum Rut</u>
(8000 cycles, 100 psi, 64°C)	75 & 115	0.315 in. (8.000 mm.)
	160	0.197 in. (5.000 mm)
	205	0.197 in. (5.000 mm)

\*Fines to asphalt ratio shall be defined as the percent materials passing the No. 200 (0.075 mm) sieve (expressed as a percent of total aggregate weight) divided by the effective asphalt binder content.

**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**LIQUID ANTI-STRIP ADDITIVE**

**Division 400** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Section 404, DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES**, is hereby modified as follows:

The following is added as the last bullet following the first paragraph of **Subsection 404.01(b), Design Requirements**:

- All ACHM mixes must contain a liquid, anti-strip additive.

**Section 409, MATERIALS AND EQUIPMENT FOR ASPHALT CONCRETE PLANT MIX COURSES**, is hereby modified as follows:

The second paragraph of **Subsection 409.02 Asphalt Binder** is hereby deleted and the following is substituted therefor:

The asphalt binder for all Asphalt Concrete Hot Mixes shall contain a heat-stable, liquid anti-strip additive. The additive shall be furnished from the Qualified Products List. The additive shall not harm the completed bituminous concrete mixture and must be compatible with the aggregate and asphalt binder supplied for the project. The anti-strip additive shall be added either by an in-line blending process just before introduction of the asphalt binder to the mixer or by blending with the asphalt binder at the asphalt binder terminal. If blended at the terminal, the bill of lading accompanying the load being delivered to the hot mix asphalt plant shall include the anti-strip manufacturer's name, product name, and quantity of all anti-strip additive included in the load.

The liquid anti-strip additive shall be added at rates as indicated below:

- For ACHM mixes where the use of an anti-strip additive is required as determined by the laboratory analysis and mix design procedures, the anti-strip additive shall be added at the rate of 0.50% to 0.75% by weight of asphalt binder as determined by the laboratory analysis and laboratory mix design procedures.
- For all other mixes, the manufacturer's recommended dosage of the additive shall be used, but the rate of liquid anti-strip additive shall not be less than 0.25% by weight of the asphalt binder.



**ARKANSAS DEPARTMENT OF TRANSPORTATION**

**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 DEPARTMENT OF TRANSPORTATION**

**SUPPLEMENTAL SPECIFICATION**

**DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS**

**Section 410** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The fourth sentence of the first paragraph of **Subsection 410.08, Rolling and Density Requirements and Joints**, is hereby deleted and the following substituted therefor:

The Engineer will observe the Contractor's use of an electromagnetic surface contact device that meets ASTM D7113/D7113M or the use of a nuclear density gauge to verify that the maximum densities possible are obtained.





**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS**

**Section 410** of the Standard Specifications for Highway Construction, Edition of 2003, is hereby amended as follows:

The following is inserted after the fourth paragraph of Subsection **410.09(a)**:

The following procedures shall apply for field density testing when ACHM mixes are used as a leveling course or as a bond breaker between a base material and Portland Cement Concrete Pavement:

- If the entire subplot quantity is placed for leveling or as a bond breaker and the thickness of all of the leveling/bond breaker in that subplot is less than three times the nominal maximum aggregate size, no field density sample or test will be required. The subplot will be excluded from the calculation of the average field density for the acceptance of the lot in Subsection 410.09(a).
- If the entire subplot quantity is placed for leveling or as a bond breaker and portions of the leveling/bond breaker have a thickness greater than three times the nominal maximum aggregate size, a field density sample shall be obtained by the Contractor at a location determined by the Department using ARDOT Test Method 465; however the sampling area will be restricted to the area in which the thickness of the leveling course/bond breaker is greater than three times the nominal maximum aggregate size.
- If only a portion of the subplot quantity is placed for leveling or as a bond breaker, the Contractor shall obtain a field density sample at a location determined by the Department using ARDOT Test Method 465; however the sampling area will be restricted to the portion of the subplot where the material used as leveling or as a bond breaker has a thickness greater than three times the nominal aggregate size and to the area where the material was not used for leveling or as a bond breaker.

When field density testing for a subplot is waived by one of the above conditions, the ACHM mix used as a leveling course or as a bond breaker shall be compacted utilizing the optimum rolling pattern to achieve the maximum density required, as required by Subsection 410.08.

The first sentence of the second paragraph of Subsection 410.10 is hereby deleted and the following is substituted therefore:

When the entire quantity of either the ACHM Binder Course or ACHM Surface Course (including any sublots used for leveling) meets the following criteria, an incentive of the percentage designated will be applied to the dollar amount for all the components of the designated mix.



**ARKANSAS DEPARTMENT OF TRANSPORTATION**

**SUPPLEMENTAL SPECIFICATION**

**PORTLAND CEMENT CONCRETE DRIVEWAY**

**Division 500, RIGID PAVEMENT**, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Section 505, PORTLAND CEMENT CONCRETE DRIVEWAY**, is hereby modified as follows:

The first paragraph of **Subsection 505.02(b) Joint Filler** is hereby deleted and the following substituted therefore:

Material for joint filler shall comply with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer's certificates in accordance with these specifications and acceptable performance on the project.



## ARKANSAS DEPARTMENT OF TRANSPORTATION

## SUPPLEMENTAL SPECIFICATION

## INCIDENTAL CONSTRUCTION

**Sections 609, 611, 617, and 618** of the Standard Specifications for Highway Construction, Edition of 2014, are hereby amended as follows:

**Subsection 609.02(c), Materials for Drop Inlets and Junction Boxes**, is hereby deleted and the following is substituted therefor:

- (c) Steel for welded steel grates and frames shall comply with ASTM A709, Grade 36 (250).

**Subsection 611.02(a)(2), Materials for Pipe Underdrains, Outlet Protectors, and Covers**, is hereby deleted and the following is substituted therefor:

- (2) **Corrugated Polyethylene Tubing.** The tubing shall be the heavy duty type and shall comply with AASHTO M 252. The tubing shall have a minimum pipe stiffness of 46 psi (3.23 kg/cm<sup>2</sup>) at 5% deflection and shall be capable of 60 percent vertical deflection in parallel plate loading without splitting or cracking when tested in accordance with ASTM D 2412.

The second sentence of **Subsection 617.02(a)(2), Materials for Steel Posts**, is hereby deleted and the following is substituted therefor:

- (2) **Steel Posts.** The steel shall comply with ASTM A709, Grade 36 (250).

**Subsection 617.02(b)(3), Materials for Terminal Anchor Posts**, is hereby deleted and the following is substituted therefor:

- (3) The steel anchor posts shall consist of structural shapes of the section shown on the plans, or as otherwise specified, and shall comply with ASTM A709, Grade 36 (250). The upper 15" (380 mm) of the anchor assembly shall be galvanized according to AASHTO M 111.

The third sentence of the third paragraph **Subsection 618.02(a), Posts for Guard Cable**, is hereby deleted and the following is substituted therefor:

- The steel shall comply with ASTM A709, Grade 36 (250).

**Subsection 618.02(d), Materials for Bolts, Nuts, and Washers**, is hereby deleted and the following is substituted therefor:

**ARKANSAS DEPARTMENT OF TRANSPORTATION****SUPPLEMENTAL SPECIFICATION****INCIDENTAL CONSTRUCTION**

- (d) Bolts, Nuts, and Washers.** Bolts, nuts, and washers shall conform to the plans and shall be steel complying with ASTM A 307, ASTM F3125, Grade A325, Heavy Hex, Type 1, or ASTM A449 (Heavy Hex), galvanized according to AASHTO M 232. Threads on bolts and nuts shall conform to Unified Coarse Thread Series Class 2A, ANSI B 1.1 (Metric Coarse Thread Series, ANSI B 1.13M, 6g tolerance).

**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**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 DEPARTMENT OF TRANSPORTATION  
SUPPLEMENTAL SPECIFICATION  
FILTER SOCKS**

**Section 621** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added to **Subsection 621.01**:

**(p) Filter Socks.** This item shall consist of furnishing, installing, maintaining, and removing filter socks at locations indicated on the plans or as otherwise directed by the Engineer. Filter socks consist of filter media (compost or non-treated wood) encased in a three-dimensional fabric tube for the purposes of filtering silt, sediment, and other pollutants out of stormwater.

The following is added to **Subsection 621.02**:

**(o)** Compost or non-treated wood used for filter sock filter media shall be weed, disease, and pathogen free and derived from a clean source of woody organic matter. The media shall be free of any refuse, contaminants, or other materials toxic to plant growth. Test methods for the parameters shown in Table 621-2 should follow the recommendations provided in the AASHTO Standard Practice for Compost for Erosion and Sediment Control (R 51). Compost products must be supplied with a Seal of Testing Assurance (STA) by the U.S. Composting Council from the manufacturer. The Engineer may request a sample for approval prior to being used and materials must comply with all local, state, and federal regulations.

Table 621-2  
Filter Sock Media Parameters

Parameters	Reported as (units of measure)	Test Method	Required Value
pH	pH Units	AASHTO R 51	5.0-8.5
Moisture Content	%, wet weight basis	AASHTO R 51	<60%
Organic Matter Content	%, dry weight basis	AASHTO R 51	>30%
Particle Size	% passing a selected mesh size, dry weight basis	AASHTO R 51	99% passing a 2" sieve <40% passing a 3/8" sieve
Physical Contaminates (man-made inert material)	%, dry weight basis	N/A	<1%

Filter sock containment shall be produced from 5-mil-thick continuous high density polyethylene (HDPE) filament or multi-filament polypropylene (MFPP), woven or knitted into a tubular mesh netting. Openings in the mesh shall range from 1/8<sup>th</sup> to 3/8<sup>th</sup> inch. This tube shall then be filled to the specified diameter of the sock with filter media which meets the specifications outlined in Table 621-2. Filter sock fabric shall have a minimum functional longevity of 9 months.

**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**FILTER SOCKS**

Furnish filter socks with a diameter of 8-9, 12, 18, or 24 inches in diameter in variable lengths as directed by the Engineer.

Use 2" by 2" hardwood stakes of a length which will allow them to be driven at least one foot into the soil while leaving at least 3" projecting above the sock after installation. In rocky or other difficult locations steel stakes may be used if directed by the Engineer. Sandbags may be used as necessary to anchor the filter sock for installation on paved surfaces. Placement shall be as directed by the Engineer.

The following is added to **Subsection 621.03**:

(q) Trenching of filter socks is not required but woody vegetation shall be cut at ground level or otherwise removed, and uneven or rocky surfaces shall be graded or raked to ensure the socks uniformly contact the ground. The socks shall be secured with stakes driven through the center of the devices or installed as recommended by the manufacturer. For perimeter control or on slopes, stakes shall be installed on a maximum of 10 foot centers and the ends of the socks shall be directed upslope to prevent storm water from running around the end of the sock. For ditch checks and drop inlets, stakes shall be installed on a maximum of 4 foot centers. Additional stakes may be necessary as directed by the Engineer. Filter socks may be laid end to end or overlapped according to the manufacturer's directions.

Routinely maintain the socks in good condition (including staking, anchoring, etc.) Accumulated sediment shall be removed when the sediment reaches one-half the height of the sock or as directed by the Engineer. Sediment removed shall be deposited and stabilized as described in Section 110 of the Standard Specifications for Highway Construction, Edition of 2014. Repair of or complete replacement of torn or damaged socks shall be performed as required or as directed by the Engineer. Filter socks shall be carefully removed and replaced as required to facilitate construction operations.

When the required work has been completed, the area has been stabilized, and the filter socks are no longer required as approved by the Engineer, the containment material shall be cut and the core material shall be evenly distributed on the surrounding ground area. Containment shall be removed and disposed of.

The following is added to **Subsection 621.04**:

(q) Filter Socks will be measured by the linear foot (meter) complete in place; measurement will be made along the centerline of the top of the filter sock. No payment will be made for overlap. No payment will be made for additional length beyond that approved by the Engineer.

**ARKANSAS DEPARTMENT OF TRANSPORTATION  
SUPPLEMENTAL SPECIFICATION  
FILTER SOCKS**

The following is added to **Subsection 621.05**:

(q) Filter Socks completed and accepted and measured as provided above will be paid for at the contract unit price bid per linear foot (meter) for Filter Socks, which price shall be full compensation for furnishing all materials; for installation and maintenance of filter socks; for temporarily removing and replacing filter socks as required to facilitate construction operation; for removal and disposal of the filter socks as directed; and for all labor, equipment, tools, and incidentals necessary to complete the work.

The following is added as the last Pay Item in **Subsection 621.05**:

<b>Pay Item</b>	<b>Pay Unit</b>
Filter Sock (____")	Linear Foot (Meter)



**ARKANSAS DEPARTMENT OF TRANSPORTATION****SUPPLEMENTAL SPECIFICATION****CONCRETE ISLAND**

**Division 600, RIGID PAVEMENT**, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Section 632, CONCRETE ISLAND**, is hereby modified as follows:

The last sentence of the fifth paragraph of **Subsection 632.03 Construction Requirements** is hereby deleted and the following substituted therefore:

The space shall be filled with approved joint filler complying with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Prefomed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D139 shall be accepted on the basis of the manufacturer's certification in accordance with these specifications and acceptable performance on the project.



**ARKANSAS DEPARTMENT OF TRANSPORTATION****SUPPLEMENTAL SPECIFICATION****CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING**

**Division 600, RIGID PAVEMENT**, of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Section 633, Concrete Walks, Concrete Steps, and Hand Railing**, is hereby modified as follows:

**Subsection 633.02(E) Expansion Joints** is hereby deleted and the following substituted therefore:

A space not less than ½" (12mm) wide shall be left between the sidewalks and adjacent structures. This space shall be filled with approved joint filler complying with AASHTO 214 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed Expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer's certification in accordance with these specifications and acceptable performance on the project. No space or joint filler is required between the sides of the walks and adjacent curbs.

Transverse expansion joints shall be placed at a maximum interval of 45' (13.7m). Transverse joints shall be constructed using approved joint filler complying with AASHTO M 213 or a Semi-Rigid Closed-Cell Polypropylene Foam, Preformed expansion joint filler that meets ASTM D8139. Materials meeting ASTM D8139 shall be accepted on the basis of the manufacturer's certification in accordance with these specifications and acceptable performance on the project.





**ARKANSAS DEPARTMENT OF TRANSPORTATION****SUPPLEMENTAL SPECIFICATION****GENERAL REQUIREMENTS FOR SIGNS**

**Section 723** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

**Subsection 723.02(b)** is hereby deleted and the following is substituted therefor:

**(b) Sign Panels.** Standard signs shall consist of a single sheet of aluminum alloy (ASTM B 209, Alloy 5052 H38) without stiffeners on the back. Minimum sign blank thickness shall be 0.080" (2.0 mm) for a sign size of 9 square feet (0.84 sq m) or less or 0.100" (2.5 mm) for a sign size greater than 9 square feet (0.84 sq m). Sign blanks shall be flat and straight and within commercial tolerances established by the aluminum industry.

Guide signs shall be fabricated using one piece extruded panels fabricated of aluminum alloy (ASTM B221, Alloy 6063 T6).

Extruded panel signs shall consist of sign panels; stringers or horizontal supporting members; necessary fasteners for assembling the units; reflective materials; letters; numerals; symbols; and border. All extrusions and fasteners shall be applied without causing objectionable projections on the sign face.

The one piece extruded aluminum panels shall be a minimum of 12" (300 mm) in width except one 6" (150 mm) panel may be used per sign face when necessary to construct the sign as shown on the plans.

All extruded panels shall be bolted together at every other hole (every 24" [610 mm]) with the faces and ends in alignment.

Single sheet and extruded panels to which reflective sheeting is to be applied shall be conversion coated as specified in ASTM B449 or ASTM B921 per the sheeting manufacturer's recommendations.

All fabrication, including cutting and punching of holes, excluding holes for demountable letters, numerals, symbols, and borders, shall be completed before conversion coating.

Sign panels shall be free of buckles, warp, dents, cockles, burrs, and defects resulting from fabrication. The surface of all sign panels shall be flat.

The Contractor shall submit a Certified Test Report to the Engineer covering the sign panels.

The first paragraph of **Subsection 723.02(c)** is hereby deleted and the following is substituted therefor:

**ARKANSAS DEPARTMENT OF TRANSPORTATION****SUPPLEMENTAL SPECIFICATION****GENERAL REQUIREMENTS FOR SIGNS**

**(c) Retroreflective Sheeting.** The retroreflective sheeting for signs shall comply with ASTM D4956 for Type III, IV, VIII, or IX retroreflective sheeting, except that Type IX retroreflective sheeting shall be used on all W1-6, W1-8, and OM-3 signs. ASTM D4956 Type XI sheeting shall be used on all R5-1 and R5-1a signs. All retroreflective sheeting shall have either Class 1 or Class 2 backing.

**Subsection 723.02(d)** is hereby deleted and the following is substituted therefor:

**(d) Legend.** All legend, which includes letters, numerals, symbols, arrows, and border, shall have a regular outline, be clean cut and sharp, and shall have a continuous stroke and border without ragged or torn edges.

All legend on guide signs shall be of the size shown on the plans. Legend on standard signs shall comply with the latest revision of FHWA Standard Highway Signs.

The legend on freeway main lane guide signs shall be demountable. Unless otherwise specified, the legend on all other guide signs shall be manufactured using either direct application or acrylic overlay film. All other signs shall be manufactured using standard industry processes, including silk screening, acrylic overlay film, and digital printing. Digitally printed signs shall be overlaid with a clear UV film per the sheeting manufacturer's recommendation.

All demountable legend shall be of the same manufacturer. The sign area outside the corner radius shall not be trimmed to match the border radius.

Frames for border strips, corners, shields, and legend shall be fabricated from 0.063" (1.6 mm) sheet aluminum complying with the requirements of ASTM B209, Alloy 5052-H38. Mounting holes shall be provided with the frames to permit the use of screws, bolts, rivets, or other fasteners of stainless steel, galvanized steel, or aluminum to fasten the frames to the sign face, subject to the condition that dissimilar metals shall be insulated to prevent corrosion.

The aluminum frames shall comply with Subsection 723.02(b).

All border material shall be secured from the same company that furnishes the cutout letters, numerals, etc. and shall be mounted in the same manner as the cutout letters.

Transparent colors, inks, paints, and films used in the sign manufacturing process shall be of the type and quality recommended by the manufacturer of the reflective sheeting and shall conform to red, blue, yellow, and green colors approved by the FHWA and shown in the MUTCD and FHWA Standard Highway Signs. The Contractor shall provide a sheeting manufacturer's full component system warranty, and shall provide certification that the materials used shall meet all MUTCD minimum requirements for retroreflectivity and contrast for the warranty period of the sheeting.

**ARKANSAS DEPARTMENT OF TRANSPORTATION**  
**SUPPLEMENTAL SPECIFICATION**  
**CONCRETE FOR STRUCTURES**

**Section 802** of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The second sentence of Paragraph 4 of **Subsection 802.02(a)** is hereby deleted and the following substituted therefor:

In lieu of Type II (MH) cement, the Engineer may approve the use of Type I cement during the cool season of the year or when the Contractor submits a thermal control plan prepared by a Registered Professional Engineer. Thermal control plans must address the job specific concrete mix design; duration and method of curing; maximum temperature limit and control methods; temperature monitoring procedure; and corrective measures.

The first sentence of Paragraph 4 of **Subsection 802.04(c)** is hereby deleted and the following substituted therefor:

For Class B concrete, the mix design shall produce a workable and durable concrete meeting the minimum strength requirements specified in Table 802-1 and shall not produce injurious temperature differentials within the concrete when placed in large quantities.



# **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."

E1-2.4 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."

E1-2.5 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 pavement, asphalt 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; and culverts, 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.

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.

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."

E1-2.6 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.

### 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, recompact, 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, RAMPS, AND STEPS.

Preparation of subgrade will not be measured for separate payment, but shall be considered subsidiary to "UNCLASSIFIED EXCAVATION."

Site grading shall comply with AHTD Standard Specifications Section 210. Subgrade preparation should comply with AHTD Standard Specifications Section 212.

Soils classifying as A-7-5 or A-7-6 and all soils with a plasticity index (PI) in excess of 18 shall not be utilized within 12 in. of the plan subgrade elevation.

Imported material for fill or backfill under pavements should consist of an approved silty clay/shale fragment blend fill, or approved clayey sand (SC), sandy clay (CL), or clayey gravel (GC). All fill and backfill should be placed in horizontal, nominal 6- to 8-in.-thick loose 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. All fill should be free of organic matter, debris, and durable rock fragments in excess of approximately a 3-inch dimension.

Unsuitable subgrade soils shall be undercut to a depth determined by the Engineer and removed from the street 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 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

11-1.1 This item shall include the erection of signs, barricades, temporary markings, removal of temporary and permanent 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.

11-1.2 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

11-2.1 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.

11-2.2 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

11-3.1 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.

11-3.2 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.

11-3.3 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.

11-3.4 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.

Existing striping shall be removed and new temporary stripes and other pavement markings shall be provided by the Contractor. Work shall be performed in accordance with SECTION 720 (for Type 4) – PERMANENT PAVEMENT MARKING TAPE of the Standard Specifications. Pavement markings not necessary to the phased construction patterns shall be removed or obliterated with black paint, as approved by the Engineer. Striping shall be maintained and restored as necessary during construction.

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.

I1-3.6 CONSTRUCTION SEQUENCE: The Plans show the Construction Phases. Phase 1 is shown to be executed first. However, the Owner may require the Contractor to construct the phases in an alternate order.

#### METHOD OF MEASUREMENT

I1-4.1 Maintenance of Traffic will be measured as a complete item.

I1-4.2 Aggregate Base Course used for Maintenance of Driveways or for providing temporary cover over crossing drainage pipes will be measured and paid for as specified in SECTION P1 – AGGREGATE BASE COURSE.

#### 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-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, SECTION I-8 - PAVEMENT REPAIRS, 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 I3-6.2b	18" Reinforced Concrete Pipe, Class V - per linear foot
Item I3-6.2c	24" Reinforced Concrete Pipe, Class III - per linear foot
Item I3-6.2d	22"x14" Reinforced Concrete Arch Pipe, Class IV - per linear foot
Item I3-6.2e	44"x27" Reinforced Concrete Arch Pipe, Class III - per linear foot
Item I3-6.2f	44"x27" Reinforced Concrete Arch Pipe, Class IV - per linear foot

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 I5-6.1a	Drop Inlet (Type MO) - per Each
Item I5-6.1b	Drop Inlet (Reverse Throat) - per Each
Item I5-6.1c	2' Extension - per Each
Item I5-6.1d	4' Extension - per Each
Item I5-6.1e	Junction Box (Type ST) - per Each

END OF SECTION I-5



## SECTION I-8 – PAVEMENT REPAIRS

### DESCRIPTION

I8-1.1 This section covers the repairs of streets for storm drainage culverts, drainage structures, or other excavations within existing pavements which are to remain. All work shall be in accordance with these specifications and the details in the Plans at the locations shown in the Plans or as directed by the Engineer.

### STANDARDS

I8-2.1 All work under this section shall be in accordance with SECTION 615 – PAVEMENT REPAIR OVER CULVERTS of the Standard Specifications, except as modified or augmented herein.

### CONSTRUCTION METHODS

I8-3.1 Pavement removal limits shall be smoothly sawcut and shall have a neat appearance. Asphalt and/or concrete materials removed from the excavation or cut shall not be used as backfill material.

I8-3.2 Permanent asphalt and concrete pavement repairs shall conform to the details in the Plans and the requirements of SECTION 615 – PAVEMENT REPAIR OVER CULVERTS of the Standard Specifications, except as modified or augmented herein. In the event of a conflict, the details in the Plans and this specification shall govern over the requirements of SECTION 615. For concrete pavement repairs, joints shall be sawcut and sealed as directed by the Engineer in accordance with details in the Plans and SECTION 501 - PORTLAND CEMENT CONCRETE PAVEMENT of the Standard Specifications.

I8-3.3 RESTORATION OF STREET CUT: The Contractor is required to restore the excavation, or cut, immediately upon completion of the work which required the cut. The Contractor shall notify the Engineer when the restoration is completed.

### METHOD OF MEASUREMENT

I8-4.1 Pavement repairs will be measured by the square yard acceptably completed, less any overcut as determined by the Engineer, for each type of repair as detailed in the Plans. In no case shall the measurement extend beyond the pay limits shown on the details for each type of pavement repair. Pavement repairs of insufficient depth shall not be measured for payment. Quantity includes 150 square yards to be used if and where directed by the engineer.

I8-4.3 Permanent restoration of private drives and parking surfaces, where directed by the Engineer, will be included in the measurement and payment of the unit prices indicated above.

I8-4.4 Repair of the street required because of damage from the Contractor's equipment or negligence will not be measured for payment.

I8-4.5 Pavement cutting and removal will not be measured for separate payment, but shall be considered subsidiary to the installation of the involved item.

### BASIS OF PAYMENT

I8-5.1 Payment for pavement repairs will be made at the contract unit price bid per square yard for PAVEMENT REPAIR, which price shall be full compensation for the complete restoration of the pavement in accordance with the Plans and this specification including sawcutting, removal, and disposal of materials; placement and compaction of backfill; placement of asphalt, concrete or other materials; placement, maintenance, and removal of temporary surface materials; and all labor, materials, equipment, and incidental items required to complete the repair.

Payment will be made under:

Item I8-5.1      Pavement Repair - per square yard

END OF SECTION I-8

## 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-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 L1 – SODDING and SECTION L2 – TREES, PLANTS AND GROUNDCOVER of these specifications and 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-15 – CONCRETE ISLAND BEHIND WALK

### DESCRIPTION

I15-1.1 This item shall consist of constructing concrete island behind walk in accordance with the lines, grades, thicknesses and locations shown on the Plans or directed by the Engineer.

### STANDARDS

I15-2.1 All work and materials under this item shall be in accordance with SECTION 632 – CONCRETE ISLAND of the Standard Specifications, except as modified or augmented herein.

### CONSTRUCTION METHODS

I15-3.1 Joints shall be saw cut and sealed in accordance with the details in the Plans. In the absence of details in the Plans specifically for concrete islands, joints shall be constructed in accordance with the requirements for joints in concrete sidewalk.

### METHOD OF MEASUREMENT

I15-4.1 Concrete island behind walk shall be measured by the square yard, completed and accepted.

### BASIS OF PAYMENT

I15-5.1 Concrete island behind walk will be paid for at the contract unit price bid per square yard for each thickness indicated. This price shall be full compensation for furnishing and installing the concrete, formwork, curing materials; for sawing and sealing joints; and for all equipment, labor, and incidentals required to complete the work.

Payment will be made under:

Item I15-5.1      Concrete Island Behind Walk (6") - per square yard

END OF SECTION I-15





## SECTION I-16 – CONCRETE SIDEWALKS, RAMPS, AND STEPS

### DESCRIPTION

I16-1.1 This item shall consist of the construction of reinforced and unreinforced Portland Cement concrete sidewalks, ramps, and steps 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 and steps shall be in accordance with SECTION 633 - CONCRETE WALKS, CONCRETE STEPS, AND HANDRAILING and SECTION 641 – WHEELCHAIR RAMPS 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 and islands 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. All joints shall be sealed with material meeting the requirements of SECTION 501 – PORTLAND CEMENT CONCRETE PAVEMENT, Paragraph 501.03(g), Standard Specifications.

I16-3.2 Transverse expansion joints in cycle tracks shall be constructed with dowels as in accordance with the details in the Plans. Full depth expansion joints shall be required at the end of each days pour, adjacent to all existing concrete, Locations abutting proposed driveways, and transitions from cycle track to Concrete Combination Curb and Gutter (Type A) (6'-6"). All joints shall be sealed with material meeting the requirements of SECTION 501 – PORTLAND CEMENT CONCRETE PAVEMENT, Paragraph 501.03(g), Standard Specifications.

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, ramps, and steps will be measured by the horizontal square yard. The area for steps will be the treads only.

### 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", "RAMPS", and "CONCRETE STEPS," 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 I16-5.1a	Sidewalk - per square yard
Item I16-5.1b	Cycle Track – per square yard
Item I16-5.1c	Ramps – per square yard
Item I16-5.1d	Concrete Steps – 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 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 I17-5.1a	Concrete Combination Curb and Gutter (Type A) (1'-6") - per linear foot
Item I17-5.1b	Concrete Combination Curb and Gutter (Type A) (6'-6") - per linear foot
Item I17-5.1c	Concrete Curb (Type D)

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



## ITEM I-20 – DETECTABLE DIRECTIONAL BAR TILE

### DESCRIPTION

I20-1.1 This item shall consist of the construction of detectable/tactile directional bar tile in accordance with these specifications and Standard Drawings at the locations shown on 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 detectable directional bar tile shall be Armor-Tile, ADD-504 (Brick Red #22144), or approved equal. The bar tile shall be composed of a vitrified polymer composite material. The color of the bar tile shall be homogeneous throughout the product. The bar tiles shall be cast into the wet concrete. Surface applied products shall not be allowed.

### CONSTRUCTION METHODS

I20-3.1 The cast-in-place tactile panels shall be installed into the wet concrete per the manufacturer's specifications.

### METHOD OF MEASUREMENT

I20-4.1 Work completed and accepted will be paid for at the contract unit price bid per linear foot for Detectable Directional Bar Tile. Quantity included 136 linear feet to be provided to the Owner for spare parts.

### BASIS OF PAYMENT

I20-5.1 The bid price and payment shall be full compensation for furnishing materials, anchors, adhesives, surface preparation, fabrication, installation, and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item I20-5.1 Detectable Directional Bar Tile - per linear foot

END OF SECTION I-20





## ITEM I-21 – BRICK PAVERS

### DESCRIPTION

I21-1.1 This item shall consist of the construction of brick pavers 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.

### MATERIALS

I21-2.1 Concrete Base Materials for concrete base shall be in accordance with Section 633 – Concrete Walks, Concrete Steps, and Hand Railing of the Standard Specifications.

I21-2.2 Geotextile Filter fabric shall be a woven geotextile complying with Section 625, Type 1.

I21-2.3 Bedding Sand Bedding sand shall be clean, non-plastic, and free from deleterious or foreign matter. The sand shall be natural or manufactured from crushed rock. Grading of samples shall be done according to ASTM C136. The particles shall be sharp and conform to the grading requirements of ASTM C33 as shown below:

<u>Sieve</u>	<u>Percent Passing</u>
3/8"	100
# 4	95 - 100
# 8	80 - 100
# 16	50 - 85
# 30	25 - 60
# 50	10 - 30
# 100	2 - 10

I21-2.4 Pavers The brick pavers shall be Pine Hall Brick Co., Inc. English Edge Red (4"x8"x2-1/4") or approved equal. Chamfers on both bed surfaces for reversibility; spacer nibs to control joint size and chippage, natural through the body color; 2 3/4" in thickness.

Unit clay paver shall conform to the requirements of ASTM C902, Class SX, Type 1, Application PX and C67 for Freeze and Thaw. The units shall be standard 4"x8" size having dimensions of 2 1/4" x 4" x 8" (including spacer nibs on the side), chamfered edges on both bed surfaces, 8,000 psi minimum compressive strength and below 8% cold water absorption.

I21-2.5 Joint Sand Joint sand shall be polymeric.

### CONSTRUCTION METHODS

I21-3.1 Geotextile Lay Filter Geotextile (if applicable) along edges where indicated in the drawings. Geotextile shall be installed in such a manner that all splice joints are provided with a 12" minimum lap. Care shall be taken during the placement and installation of the material to prevent damage to the fabric. Damages to the geotextile shall be repaired by placing a geotextile patch over the damaged area, extending 12" beyond the perimeter of the damaged area.

I21-3.2 Bedding Sand Spread the sand evenly over the rigid base and screed to 1 inch maximum to 1/2 inch minimum thickness. The screeded sand should not be disturbed. Sufficient sand shall be placed to ensure that no delay occurs in laying pavers. The screeded bedding sand shall not be subjected to any traffic by either mechanical or pedestrian use.

I21-3.3 Pavers

1. Ensure that pavers are free of foreign material before installation. The installer shall take the pavers from the pallet by row consisting of 18 pavers. Each row shall be installed together to ensure proper color mix.
2. Lay the pavers in the pattern(s) as shown on the drawings. Full pavers are to be laid first. The pavers should be laid hand tight. Maintain straight pattern lines and adjust as necessary.
3. Joints between the pavers shall be maintained by spacer nibs manufactured on the paver sides.
4. Fill gaps at the edges of the paved area with cut pavers. Cut pavers to be placed along the edge using a masonry saw and in such a manner that no segment is smaller than one quarter of a full paver.
5. Use a low amplitude, high frequency plate vibrator capable of 3000 to 5000 lbs. centrifugal compaction force to vibrate the pavers into the sand. Vibrate the pavers, sweeping polymeric sand into the joints and vibrating until they are full.
6. The final surface elevations shall not deviate more than 3/8 inch under a 10 foot long straightedge.

#### I21-3.4 Joint Sand

1. Ensure pavers are completely dry and follow manufacturer's installation instructions.
2. The treated area shall be protected from rain or moisture and shall not be trafficked for 24 hours after the completion of the stabilizer application
3. All work to within three feet of the laying face must be left fully compacted with polymeric sand-filled joints at the completion of each day.

#### METHOD OF MEASUREMENT

I21-4.1 Work completed and accepted will be paid for at the contract unit price bid per square yard for Brick Pavers.

#### BASIS OF PAYMENT

I21-5.1 The bid price and payment shall be full compensation for furnishing materials, concrete base, installation, and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item I21-5.1 Brick Pavers – per square yard

END OF SECTION I-21

## SECTION I-22 – BRICK PAVER CROSSWALKS

### DESCRIPTION

I22-1.1 This item shall consist of the construction of brick paver crosswalks 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.

### MATERIALS

I22-2.1 Concrete Base and Edge Restraints Materials for concrete base and edge restraints shall be in accordance with Section 501 – Portland Cement Concrete Pavement of the Standard Specifications.

I22-2.2 Geotextile Filter fabric shall be a woven geotextile complying with Section 625, Type 1.

I22-2.3 Bedding Sand Bedding sand shall be clean, non-plastic, and free from deleterious or foreign matter. The sand shall be natural or manufactured from crushed rock. Grading of samples shall be done according to ASTM C136. The particles shall be sharp and conform to the grading requirements of ASTM C33 as shown below:

<u>Sieve</u>	<u>Percent Passing</u>
3/8"	100
# 4	95 - 100
# 8	80 - 100
# 16	50 - 85
# 30	25 - 60
# 50	10 - 30
# 100	2 - 10

I22-2.4 Pavers The brick pavers shall be Pine Hall Brick Co., Inc. English Edge Red (4"x8"x2-3/4") for Heavy Vehicular Traffic or approved equal. Chamfers on top side of paver; spacer nibs to control joint size and chippage, natural through the body color; 2 3/4" in thickness.

Unit clay paver shall conform to the requirements of ASTM C1272, Application PX and C67 for Freeze and Thaw. The units shall be standard 4"x8" size having dimensions of 2 3/4" x 4" x8" (including spacer nibs on the side), 10,000 psi minimum compressive strength, minimum breaking load of 475 lb/in and below 6% cold water absorption.

I22-2.5 Joint Sand Joint sand shall be polymeric.

### CONSTRUCTION METHODS

I22-3.1 Concrete Base and Edge Constraints Construction of concrete base and edge constraints shall be in accordance with Section 501 – Portland Cement Concrete Pavement of the Standard Specifications. Provide 1 foot edge restraints as indicated in the plans and install edge restraints prior to placing unit clay pavers.

I22-3.2 Geotextile Lay Filter Geotextile (if applicable) along edges where indicated in the drawings. Geotextile shall be installed in such a manner that all splice joints are provided with a 12" minimum lap. Care shall be taken during the placement and installation of the material to prevent damage to the fabric. Damages to the geotextile shall be repaired by placing a geotextile patch over the damaged area, extending 12" beyond the perimeter of the damaged area.

I22-3.3 Bedding Sand Spread the sand evenly over the rigid base and screed to 1 inch maximum to 1/2 inch minimum thickness. The screeded sand should not be disturbed. Sufficient sand shall be

placed to ensure that no delay occurs in laying pavers. The screeded bedding sand shall not be subjected to any traffic by either mechanical or pedestrian use.

#### I22-3.4 Pavers

1. Ensure that pavers are free of foreign material before installation. The installer shall take the pavers from the pallet by row consisting of 18 pavers. Each row shall be installed together to ensure proper color mix.
2. Lay the pavers in the pattern(s) as shown on the drawings. Full pavers are to be laid first. The pavers should be laid hand tight. Maintain straight pattern lines and adjust as necessary.
3. Joints between the pavers shall be maintained by spacer nibs manufactured on the paver sides.
4. Fill gaps at the edges of the paved area with cut pavers. Cut pavers to be placed along the edge using a masonry saw and in such a manner that no segment is smaller than one quarter of a full paver.
5. Use a low amplitude, high frequency plate vibrator capable of 3000 to 5000 lbs. centrifugal compaction force to vibrate the pavers into the sand. Vibrate the pavers, sweeping polymeric sand into the joints and vibrating until they are full.
6. The final surface elevations shall not deviate more than 3/8 inch under a 10 foot long straightedge.

#### I22-3.5 Joint Sand

1. Ensure pavers are completely dry and follow manufacturer's installation instructions.
2. The treated area shall be protected from rain or moisture and shall not be trafficked for 24 hours after the completion of the stabilizer application
3. All work to within three feet of the laying face must be left fully compacted with polymeric sand-filled joints at the completion of each day.

#### METHOD OF MEASUREMENT

I22-4.1 Work completed and accepted will be paid for at the contract unit price bid per square yard for Brick Paver Crosswalk.

#### BASIS OF PAYMENT

I22-5.1 The bid price and payment shall be full compensation for furnishing materials, concrete base and edge restraints, installation, and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

I22-5.1 Brick Paver Crosswalks – per square yard

END OF SECTION I-22

## SECTION L1 – SODDING

### PART 1 GENERAL

#### RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section.
- B. Materials and work shall be in accordance with SECTION 624 – SOLID SODDING OF THE Standard Specifications, except as herein modified or augmented.

#### DESCRIPTION

- A. Work included: Prepare the rough grade and furnish and place topsoil, fertilizer and sod in areas where shown and called for on the Drawings. Maintain growth of the turf during the contract period. The sod will be guaranteed during the contract period.

#### REFERENCES

- A. TPI (Turfgrass Producers International) - Guideline Specifications to Sodding.
- B. FS O-F-241 - Fertilizers, Mixed, Commercial.

#### DEFINITIONS

- A. Weeds: Includes Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

#### QUALITY ASSURANCE

- A. Sod Producer: Company specializing in sod production and harvesting with minimum three years experience, and certified by the State of Arkansas.
- B. Sod: Minimum age of 8 months, with root development that will support its own weight, without tearing, when suspended vertically by holding the upper two corners.
- C. Submit sod certification for grass species and location of sod source.

#### REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.
- B. Comply with Arkansas Code 2-16-210 Plant Board Inspection and Certificate for Plant Materials and Products and all other applicable codes.

### TESTS

- A. Provide analysis of topsoil fill under provisions of Section L2 – Trees, Plants, and Groundcover.
- B. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble sale content, organic matter content, and pH value.
- C. Submit minimum two 10 oz. samples of topsoil proposed. Forward sample to approved testing laboratory in sealed containers to prevent contamination.

### DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site under provisions of Section L2 – Trees, Plants, and Groundcover.
- B. Store and protect products under provisions of Section L2 – Trees, Plants and Groundcover.

### COORDINATION

- A. Coordinate the work of this Section with installation of plant materials and irrigation system.

### MAINTENANCE SERVICE

- A. Maintain installed sod for minimum 30 days after Substantial Completion of the Project and as specified under provisions of Section L2 – Trees, Plants, and Groundcover.

### PART 2 PRODUCTS

#### MATERIALS FOR SODDING

- A. Commercial fertilizer shall be an organic fertilizer containing the following minimum percentages of available plant food by weight: 13-13-13 Nitrogen-Phosphorus-Potash.
- B. The sod shall contain a good cover of living or growing grass. The sod shall be obtained from areas having growing conditions similar to the sodded areas under this contract. Deliver sod on pallets. Protect root system from exposure to wind and sun. Do not deliver more sod than can be placed within 24 hours.
- C. Sod: TPI Certified, Field Grown; cultivated grass sod; type indicated in plant schedule on Drawings with strong fibrous root system, free of stones, burned or bare spots; containing no more than 5 weeds per 1000 sq. ft.
- D. Refer to Section L2, Products A for quality of topsoil.

#### HARVESTING SOD

- A. Machine cut sod (and load on pallets) in accordance with TPI guidelines.

- B. Cut sod in area not exceeding one sq. yd., with minimum 1/2 inch and maximum 1 inch topsoil base.

### PART 3 EXECUTION

#### INSPECTION

- A. Verify that prepared soil base is ready to receive the work of this Section.
- B. Beginning of installation means acceptance of existing site conditions.

#### PREPARATION OF SUBSOIL

- A. The site shall be brought to 4 inches below finished grade by the General Contractor. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials and undesirable plants and their roots. Do not bury foreign material beneath areas to be sodded. Remove contaminated subsoil.
- C. Scarify subsoil to a depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

#### PLACING TOPSOIL

- A. Spread topsoil to a minimum depth of 3 inches over area to be sodded.
- B. Place topsoil during dry weather and on dry unfrozen subgrade.
- C. Remove vegetable matter and foreign non-organic material while spreading.
- D. Grade to eliminate rough, low, or soft areas, and to ensure positive drainage.

#### FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions at a rate and proportion necessary to eliminate any deficiencies of topsoil as indicated in analysis.
- B. Apply after smooth raking of topsoil and prior to installation of sod.
- C. Apply fertilizer at the proper time due to seasonal conditions and as required for establishment.
- D. Mix thoroughly into upper 2 inches of topsoil.
- E. Lightly water to aid the dispersion of fertilizer.

#### LAYING SOD

- A. Moisten prepared surface immediately prior to laying sod.
- B. Lay sod within 24 hours after harvesting to prevent deterioration.

- C. Lay sod tight with no open joints visible, and no overlapping; stagger end joints 12 inches minimum. Do not stretch or overlap sod pieces.
- D. Lay smooth. Place top elevation of sod 1/2-inch below adjoining edging, paving and curbs after settlement.
- E. Water sodded areas immediately after installation. Saturate sod.
- F. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities. Provide positive drainage in all sod areas.

#### MAINTENANCE

- A. Mow grass at regular intervals to maintain at a maximum height of 2 1/2 inches. Do not cut more than 1/3 of grass blade length at any one mowing.
- B. Neatly trim edges and hand clip where necessary.
- C. Immediately remove clippings after mowing and trimming.
- D. Water to prevent grass and soil from drying out.
- E. Roll surface to remove minor depressions or irregularities.
- F. Control growth of weeds. Apply chemical weed control measures in accordance with manufacturer's instructions or manually weed turf areas. Remedy damage resulting from improper use of chemicals.
- G. Immediately replace sod in areas which show deterioration or bare spots.
- H. Protect sodded areas with warning signs during maintenance period.

#### METHOD OF MEASUREMENT

- A. Areas covered by living sod completed and accepted will be measured by the square yard to the nearest square yard.
- B. Topsoil will not be measured for separate payment, but will be subsidiary to the item or items under SECTION E-2 – EXCAVATION AND EMBANKMENT.

#### BASIS OF PAYMENT

- A. 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; maintenance period; and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item L1-5.1 Sodding - per square yard

END OF SECTION L1



## SECTION L2 - TREES, PLANTS, AND GROUNDCOVER

### PART 1 GENERAL

#### RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section.

#### DESCRIPTION:

- A. Work Included: Provide all landscape development work complete, as shown on the drawings and as specified herein. Furnish quantities necessary to complete the plantings called for. Dimensions for planting areas have, in many cases, been established from scale drawings. Review the conditions and the dimensions on site, as feasible, and allow for quantities

#### QUALITY ASSURANCE:

- A. Source Quality Control:
  - 1. Substitutions: Do not make substitutions. If specified landscape material is not obtainable, submit to Architect proof of nonavailability and proposal for use of equivalent material.
  - 2. Plant Materials:
    - a. Provide plant materials grown in a recognized nursery in accordance with good horticultural practice.
    - b. Provide healthy, vigorous stock grown under climatic conditions similar to conditions in the locality of the project and free of disease, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement. Provide plant materials with normal growth habits characteristic of the species.
    - c. Provide plant materials equal to or exceeding the measurements specified or indicated. These measurements are the minimum acceptable sizes.
    - d. Hortus III shall be the reference for botanical plant material specified.
  - 3. Grades: Follow requirements for the measurement, branching, grading, quality, balling, and burlapping of plants currently recommended by the American Association of Nurserymen, Inc., in the "ANSI Z60 latest edition American Standard for Nursery Stock". Drumlace balls 30 in. in diameter or more.
  - 4. Submit pictures of representative samples of the plant materials upon acceptance of the bid. The Architect will also inspect the plant materials after planting for compliance with requirements for name, variety, size, and quality. Make submittals far enough in advance of scheduled date of installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal and for placing orders and securing delivery.
- B. Provide landscape materials with certificates of inspection as required by governmental authorities. Comply with Arkansas Codes latest edition for Plant Board Inspection and Certificate for Plant Materials and Products requirements.
- C. Submit typewritten instructions recommending procedures to be established by the Owner for the maintenance of landscape work for one full year, complete, including watering, fertilization, insect control and pruning. Include recommendations for each plant material specie and a lawn care program. Submit prior to the start of the maintenance period.
- D. Submit manufacturer's product data, if requested.

- E. Plant Materials:
  1. Submit, if requested by the Architect, the address and telephone number of all suppliers and verification, from these sources in writing, that the plant materials are in accordance with the size and condition outlined in the plant materials schedule.
  2. Submit clear photographs of representative samples of actual materials from the nurseries supplying the materials and note species as well as caliper size, and include a measuring pole for height verification for trees. Submit pictures for all plant materials for Architect's acceptance.
  3. Submit actual representative samples of plant materials indicated for Architect's acceptance.
  4. Approval of submittals does not preclude rejection on the site after planting of materials not meeting the specifications.
- F. Work: Perform work with personnel experienced in the work required of this Section under direction of a skilled foreman.

PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Package Materials: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at the site.
- B. Plant Materials:
  1. Do not prune prior to delivery. Do not bend, bind or tie trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape. Provide protective covering and adequate ventilation during delivery.
  2. Deliver after preparation for planting has been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set materials in shade, protect from weather and mechanical damage, and keep roots moist.
  3. Do not remove container grown stock from containers until planting time.
  4. Label at least one plant of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.
  5. Move ball and burlapped stock only when root balls are solid and well hardened. Reject plants when ball of earth surrounding roots has been cracked or broken preparatory to or during process of planting. Reject plants when burlap, staves, and ropes required in connection with transplanting have been displaced prior to acceptance.
- C. Specimen Plants: Exercise special care as required in the digging, wrapping, binding, loading, and shipment of specimen plants.

JOB CONDITIONS:

- A. Examine the subgrade conditions, verify the elevations, lines, dimensions, and observe the conditions under which work is to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected. The site will be brought to roughly 4 in. below finished grade by the General Contractor with the exception of the bioretention planters.
- B. Proceed with and complete the landscape work as rapidly as portions of the site become available. Coordinate the installation of landscape plantings with the turf installation and installation of the landscape sprinkler system.
- C. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required, to minimize possibility of damage to underground utilities. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.

- D. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify the Architect before planting. Removal of rock or other underground obstructions, relocation of plantings, and provisions of drainage shall be done only after review with the General Contractor and Architect. Such work shall be at no additional cost to the Owner with the exception of additional drainage provisions. If drainage is inadequate, submit a proposal describing the existing conditions, recommendations for correction and the proposed cost for correction. Approval of method of correction shall be obtained before continuing the affected portion of the work. Alternate locations may be selected by the Architect, and the Contractor shall prepare such pits with no additional cost to the Owner. If the Contractor does not notify the Architect in writing of the adverse drainage conditions prior to installation, he shall be fully responsible for the guarantee and vitality of the trees and shrubs as affected by the subgrade conditions except in cases of extreme subgrade phenomena which could not be foreseen by the Contractor as determined by the Architect.
- E. Maintain grade stakes, forms, or work done by others until removal is mutually agreed upon by all parties concerned.
- F. Planting Time: Proceed with and complete the landscape work as rapidly as portions of the site become available. Planting operations may be conducted under unseasonable conditions without additional compensation and at full responsibility of the Contractor.
- G. Planting Schedule: Prepare a proposed planting schedule, if requested. Schedule the dates for each type of landscape work during the specified time frame for the installation. Correlate with maintenance period. Once accepted, revise dates only as approved in writing, after documentation of reasons for delays.
- H. Soils Analysis: Provide soils test. Submit one 10 oz. sample to approved soils testing lab to determine correct soil amendments. Amendments shall be placed in accordance with analysis results.
- I. Coordination with Lawns: Install plant materials after final grades are established and prior to installation of turf area, unless otherwise designated by the Architect. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations. The Contractor shall make every effort to safeguard the public during the landscape and sprinkler system installation operations. This includes, but is not limited to, erection of barricades around excavations, close supervision of all work, and placement of warning flags wherever necessary. The Contractor shall insure that the personnel, equipment and materials involved in the operations do not interfere with, or pose a hazard to, vehicular or pedestrian circulation.

GUARANTEE:

- A. Guarantee plant materials for a period of one year after substantial completion of the project against defects, including death and unsatisfactory growth, except for defects or losses due to occupancy of the project in any part, vandalism, physical damage by animals, vehicles, fire, hail, tornadoes, hurricanes, losses due to curtailment of water by local authorities, or freeze. Exclusion for freeze will only be if a species dies throughout the city during the winter. There shall be no "Act of God" exclusions except those specifically listed herein.
- B. Replacements:
  - 1. Remove and replace plant materials found to be dead as determined by the Owner or Architect during the guarantee period. Make replacements as soon as possible but during the normal planting season.
  - 2. Replace plant materials which are in doubtful condition at end of guarantee period.
  - 3. Furnish and plant replacements of the same kind and size as originally specified in the Plant Materials Schedule. Only one replacement, after substantial completion of the project will be required per plant if the materials are installed according to specifications.

4. If questions arise concerning the condition of a plant, the State Plant Board, if necessary, will serve as the arbitrator.

## PART 2 PRODUCTS

### TOPSOIL:

- A. Provide new topsoil which is fertile, friable, porous, natural loam, surface soil, reasonably free of subsoil, clay lumps, brush, reproductive parts of noxious weeds, and other litter, and free of roots, stumps, stones larger than 2 in. in any dimension. Provide topsoil not excessively acid or alkaline, or containing toxic matter harmful to plant growth. Obtain topsoil from local sources or from areas having similar soil characteristics that are found at project site. Obtain topsoil only from naturally well-drained sites where topsoil occurs in a depth of no less than 4 in.; do not obtain from bogs or marshes. Do not strip, collect or deposit topsoil while wet.

### SOIL AMENDMENTS:

- A. Peat Moss: Canadian origin, low in content of woody material and free of minerals harmful to plant life, having a pH of from 4 to 6, a moisture content of not more than 30%, and a water absorbing capacity from 1100% to 2000%; it may be natural, shredded, or granulated. Alternate soil amendments may be used with approval of Architect.
- B. Commercial Fertilizer: Delivered in original, unopened container, conforming to all applicable state fertilizer laws, each bearing the manufacturer's guaranteed analysis; uniform in composition, dry and free flowing. Any fertilizer which becomes caked or otherwise damaged making it unsuitable for use, will not be acceptable.
- C. Fertilizer Tablets: 'Agriform' tablets, 20-10-5, weight 21 grams or approved equal. Provide soils testing through USDA County Extension as basis for determining fertilizer quantities.
- D. Root Stimulator: Fertilome Root Stimulator or approved equal.

### PLANT MATERIALS:

- A. Refer to Plant Materials Schedule on the Drawings for Schedule of Materials.
- B. General:
  1. Name and Variety: Provide plant materials true to name and variety established by the latest edition of American Joint Committee on Horticultural Nomenclature "Standardized Plant Names".
  2. Quality: Provide trees, shrubs, and other plants complying with the recommendations and requirements of ANSI latest edition. "American Standard for Nursery Stock" unless otherwise specified.
- C. Trees, Shrubs and Ornamental Grass: Provide trees, shrubs and ornamental grass as scheduled, well branched, balanced and densely foliated when in leaf, with healthy, well-developed root systems.
- D. Groundcover: Provide groundcover, as applicable, well balanced with well developed root system.

### WATER:

- A. Clean, free from oil, acids, soluble salts, and organic impurities. Furnish all necessary hose equipment, attachments, and accessories for adequate irrigation to complete the work as specified. Coordinate landscape installation with sprinkler system installation.

### MISCELLANEOUS LANDSCAPE MATERIALS:

- A. Mulch: Ground cover and mass planting bed areas: Shredded hardwood mulch; submit sample with exception of bioretention planters. Provide washed river rock mulch in bioretention planters.
- B. Staking: Provide minimum 6'-0" green steel T Posts with 6" florescent painted tops to support wire ties and guys of 2-strand, for a minimum of 2 years. Do not use 4 in. round log poles. Provide wire ties and guys of 2-strand, black, twisted, pliable galvanized iron wire not lighter than 10 gal. with zinc-coated turnbuckles. Set guy wires so they do not pose a hazard to pedestrians. Provide 2-ply garden hose not less than 1/2 in. hose size, cut to required lengths to protect tree trunks from damage by wires. Provide flagging tape on guy wires.
- C. Washed River Rock: Washed river rock, size 2"-3".

## PART 3 EXECUTION

### PREPARATION OF PLANTING PITS:

- A. General: Exercise reasonable care to have pits dug and soil mixture prepared prior to moving plants to their respective locations. Insure plants are not unnecessarily exposed to drying conditions or physical damage during positioning of material.
- B. Pit Size:
  - 1. Provide diameter of pit as specified in the planting details. Excavate the pits to the depth below finished grade required to accommodate a bed of topsoil not less than 12 in. in depth or as specified beneath the ball or roots. Scarify side and bottom of planting pits. The ball or roots shall rest on this compacted layer when the plant is properly set to finished grade.
  - 2. Provide a diameter of a pit at least 6 in. greater than the container size or B&B root ball size of shrub materials.

### PLANTING:

- A. Setting Plants:
  - 1. General: Install material so that all plants after settlement bear the same relationship to the finished grade of the surrounding soil that they bore to the grades of the soil from which they were dug. Provide topsoil or planting medium to bring the planting areas to 2 in. below finished grade. Fine grade bed areas.
  - 2. Individual Plant Pits for Trees, Shrubs and Grasses:
    - a. Set plants plumb in center of pit. Set trees on layer of compacted planting soil under balls as indicated. Remove ties and fold back the burlap on the tops of the balls for B&B plants. Slash burlap on bottom of balls three times.
    - b. Provide Fertilome root stimulator in each tree and shrub pit as per manufacturer's recommendations. Fertilize trees and shrubs with Agriform tablets or approved equal

as per manufacturer's recommendations. Fertilizer may be applied at a later date to conform with the growing period and proper horticultural practice.

- c. Backfill with a homogenous planting mixture of porous topsoil of the specified quality, peat moss and sand at a 3:1:1 ratio for trees and 3:1 ratio topsoil to peat moss for shrubs and ornamental grasses with exception of bioretention planters. Carefully tamp each layer in place to prevent disturbing the position of the plant or injuring the roots or ball. Thoroughly water materials after planting is complete.
- d. Place a minimum 3 in. layer of specified shredded hardwood mulch over all mass planting bed areas for shrubs and ornamental grasses. After installation of mulch, the finished grade of planting medium shall be 1/2 in. below the finished grade of adjacent paving.
- e. Plant Pits for Groundcover / Perennials: See Planting Details for depth of planting areas and spacing. Provide 3:1 topsoil to Peat Moss or other approved soil amendments in Groundcover / Perennial beds. Provide 2" depth shredded hardwood mulch in Groundcover / Perennial beds.
- f. See bioretention details for section of planters. Provide 3" depth of washed river rock mulch in bioretention planters. Remainder of work in bioretention planters by General Contractor.

#### STAKING:

- A. Staking:
  1. Stake or guy trees greater than 1-1/2 in. in caliper or 7 ft. in height unless otherwise specified. Stake immediately after planting.
  2. See details for staking. Do not plumb trees with extreme tautness of guy wires. Alternate methods of staking may be used if approved by the Architect prior to installation.
  3. Do not stake and guy trees in tree grates.

#### PRUNING:

- A. General: Thin out and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by the Architect, do not cut tree leaders, and remove only injured or dead branches from flowering trees. Trim back any branches which touch the building.
  1. Remove and replace excessively pruned or misformed stock resulting from improper pruning.

#### MAINTENANCE:

- A. General: Begin maintenance immediately after planting. Maintain plantings and turf area from installation through one year after substantial completion date of the project. The landscape contractor or his representative will inspect the project at least once a week to insure the project is being properly maintained.
  1. Maintain plant materials by watering, pruning, cultivating, and fertilizing as required for healthy growth. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Fertilize plants as required by good horticultural practice. Provide and replace mulch in planting beds and inside the saucers as necessary. Remove trash from planting and lawn areas at least once a week. Weed shrub and groundcover beds as required to maintain a neat appearance.
  2. Mow and edge turf area at least once each week during the growing season. Remove clippings from the project site.

3. Monitor operation and coverage of the irrigation systems. Provide hand watering as required.

CLEAN UP AND PROTECTION:

- A. During landscape work, store materials and equipment where directed. Keep pavements clean and work area in an orderly condition.
- B. Protect landscape work and materials from damage due to landscape operations, operations by other contractors and trades and trespassers. Maintain protection during installation and maintenance period. Treat, repair or replace damaged landscape work as directed.

INSPECTION AND ACCEPTANCE:

- A. When the landscape work is completed the Architect will, upon request, make an inspection to determine acceptance.
- B. Where inspected landscape work does not comply with the requirements, replace rejected work until found to be acceptable by the Architect. Remove rejected plants and materials promptly from the project site or as otherwise specified. The Architect shall notify the Contractor in writing of Substantial Completion of the Project, and the guarantee period will begin on that date.

METHOD OF MEASUREMENT

- A. Trees, Plants, and Groundcover will be measured as a complete item.
- B. Topsoil will not be measured for separate payment, but will be subsidiary to the item or items under SECTION E-2 – EXCAVATION AND EMBANKMENT.

BASIS OF PAYMENT

- A. Work performed under this section, acceptably completed as provided above, will be paid for at the control lump sum bid price for "TREES, PLANTS, AND GROUNDCOVER," 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 L2-5.1    Trees, Plants, and Groundcover – per lump sum

END OF SECTION L2





## ITEM L-3 – TREE GRATES

### DESCRIPTION

L3-1.1 This item shall consist of providing all labor, materials, and appurtenances necessary for installation of tree grates, in accordance with the types, locations and details in the Plans, or as directed by the engineer.

L3-1.2 The Manufacturer's installation procedures and Shop Drawings showing the installation details shall be submitted to the Engineer for review.

### MATERIALS

L3-2.1 Tree Grates The tree grates shall be Neenah Boulevard collection, R-8708, or approved equal.

L3-2.2 Root Barrier Panels Root barrier panels shall be NDS EP-3650, or approved equal.

### CONSTRUCTION METHODS

L3-3.1 Tree grates and root barriers shall be installed in accordance with the approved shop drawings and the manufacturer's recommendations.

### METHOD OF MEASUREMENT

L3-4.1 Work completed and accepted will be paid for at the contract unit price bid per each for Tree Grates.

### BASIS OF PAYMENT

L3-5.1 The bid price and payment shall be full compensation for furnishing materials, excavation of tree pit, fabrication, installation, and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item L3-5.1 Tree Grates - per each

END OF SECTION L-3



## ITEM L-4 – BIORETENTION PLANTERS

### DESCRIPTION

L4-1.1 This item shall consist of the construction of bioretention planters in accordance with the location, dimensions, and construction details shown on the Plans or as directed by the Engineer.

### MATERIALS

#### L4-2.1 Coarse Aggregate

Coarse aggregate shall comply with Section 802 for coarse aggregate for concrete. Coarse aggregate material shall be double washed crushed stone or crushed gravel. Uncrushed gravel shall not be used.

#### L4-2.2 Underdrain

- (a) **Pipe and Fittings:** PVC (perforated or non-perforated as specified in the Plans) shall be rigid schedule 40 for underdrains and pipe risers. The manufacture and furnishing of PVC pipe shall be according to AASHTO M 304. Couplings and fittings supplied or recommended by the pipe manufacturer shall be used.

Perforations shall be approximately circular and cleanly cut; shall have nominal diameters of 3/8" spaced at 6 inches on center.

- (b) **Backwater Valve:** Shall be Spears PVC Backwater Valve or approved equal. Backwater valves shall be located between the last bioretention planter on an individual underdrain system and the storm sewer system connection. The valve shall be located within a non-perforated section of pipe outside the limits of the bioretention planter.

#### L4-2.3 Geotextile

Filter fabric shall be a non-woven geotextile complying with Section 625, Type 1. The geotextile fabric shall have a minimum flow rate of 110 gal./min./ft<sup>2</sup>.

L4-2.4 Geomembrane PVC fabricated liner shall meet or exceed ASTM D 7176 for materials and ASTM D7408 for seam strength. Geomembrane thickness shall be a minimum of 30 mil.

L4-2.5 Concrete L-Wall Materials for L-Walls shall be in accordance with Section 634 – CURBING of the Standard Specifications, except as modified by SECTION S-1 – STRUCTURAL CONCRETE and SECTION I-17 – CURB AND GUTTER of these Specifications.

#### L4-2.6 Bioretention Soil

1. Particle Size Composition. The bioretention soil mixture shall be classified as a loamy sand on the USDA Texture Triangle, with the following particle size composition:
  - a. 80–90 percent sand (at least 75 percent of which must be classified as coarse or very coarse sand)
  - b. 10–20 percent soil fines (silt and clay)
  - c. Maximum 10 percent clay
  - d. The particle size analysis must be conducted on the mineral fraction only or following appropriate treatments to remove organic matter before particle size analysis.
2. Organic Matter. The filter media must contain 3 to 5 percent organic matter by the conventional Walkley-Black soil organic matter determination method or similar analysis. Soil organic matter is expressed on a dry weight basis and does not include coarse particulate (visible) components.

3. Available Soil Phosphorus (P). The filter media should contain sufficient available P to support initial plant establishment and growth, but not serve as a significant source of P for long-term leaching. Plant-available soil P should be within the range of Low+ (L+) to Medium (M) as defined in Table 2.2 of Virginia Nutrient Management Standards and Criteria (2005). For the Mehlich I extraction procedure this equates to a range of 5 to 15 mg/kg P or 18 to 40 mg/kg P for the Mehlich III procedure.

4. Cation Exchange Capacity (CEC). The relative ability of soils to hold and retain nutrient cations like Ca and K is referred to as cation exchange capacity (CEC) and is measured as the total amount of positively charged cations that a soil can hold per unit dry mass. CEC is also used as an index of overall soil reactivity and is commonly expressed in milliequivalents per 100 grams (meq/100g) of soil or cmol+/kg (equal values). A soil with a moderate to high CEC indicates a greater ability to capture and retain positively charged contaminants, which encourages conditions to remove phosphorus, assuming that soil fines (particularly fine silts and clays) are at least partially responsible for CEC. The minimum CEC of the filter media is 5.0 (meq/100 g or cmol+/kg). The filter media CEC should be determined by the Unbuffered Salt, Ammonium Acetate, Summation of Cations or Effective CEC techniques (Sumner and Miller, 1996) or similar methods that do not utilize strongly acidic extracting solutions.

The goal of the filter media mixture described in this section is to create a soil media that maintains long-term permeability while also providing enough nutrients to support plant growth. The initial permeability of the mixture will exceed the desired long-term permeability of 1 to 2 in./hr. The limited amount of topsoil and organic matter is considered adequate to help support initial plant growth, and it is anticipated that the gradual increase of organic material through natural processes will continue to support growth while gradually decreasing the permeability. Finally, the root structure of maturing plants and the biological activity of a self-sustaining organic content will maintain sufficient long-term permeability as well as support plant growth without the need to add fertilizer.

The following is the recommended composition of the three media ingredients:

A. Sand. Sand shall consist of silica-based coarse aggregate, angular or round in shape and meet the mixture grain size distribution specified in Table 3.19. No substitutions of alternate materials (such as diabase, calcium carbonate, rock dust, or dolomitic sands) are accepted. In particular, mica can make up no more than 5 percent of the total sand fraction. The sand fraction may also contain a limited amount of particles greater than 2.0 mm and less than 9.5 mm per the table below, but the overall sand fraction must meet the specification containing greater than 75 percent coarse or very coarse sand. Consult Table 3.19 for recommended sand sizing criteria.

<b>Sieve</b>	<b>Percent Passing</b>
3/8"	100
# 4	95 - 100
# 8	80 - 100
# 16	45 - 85
# 30	15 - 60
# 50	3 - 15
# 100	0 - 4

B. Topsoil. Topsoil is generally defined as the combination of the ingredients referenced in the bioretention filter media: sand, fines (silt and clay), and any associated soil organic matter. Since the objective of the specification is to carefully establish the proper blend of these ingredients, the designer (or contractor or materials supplier) must carefully select the topsoil source material in order to not exceed the amount of any one ingredient.

Generally, the use of a topsoil defined as a loamy sand, sandy loam, or loam (per the USDA Textural Triangle) will be an acceptable ingredient and in combination with the other ingredients meet the overall performance goal of the soil media.

- C. **Organic Matter.** Organic materials used in the soil media mix should consist of well decomposed natural C-containing organic materials such as peat moss, humus, compost, pine bark fines or other organic soil conditioning material. However, per above, the combined filter media should contain 3 to 5 percent soil organic matter on dry weight basis (grams organic matter per 100 grams dry soil) by the Walkley-Black method or other similar analytical technique. In creating the filter media, it is recommended to start with an open-graded coarse sand material and proportionately mix in the topsoil materials to achieve the desired ratio of sand and fines. Sufficient suitable organic amendments can then be added to achieve the 3 to 5 percent soil organic matter target. The exact composition of organic matter and topsoil material will vary, making the exact particle size distribution of the final total soil media mixture difficult to define in advance of evaluating available materials.

L4-2.8 Trench Grate Trench grates and frames shall be Neenah R-4999-FX bolted trench grate, Type D solid lid, or approved equal. Frame end pieces shall be required at the face of curb.

Iron castings for grates and frames, and other appurtenances, shall comply with AASHTO M 105, Class 35B. Bearing surfaces between grates and frames shall be cast or machined with such precision that uniform bearing shall be provided throughout the perimeter area of contact.

## CONSTRUCTION METHODS

### L4-3.1 Coarse Aggregate

Course aggregate shall be installed in accordance with the details shown in the plans.

### L4-3.2 Underdrain

Lay the perforated pipe under the length of the bioretention planter, and install non-perforated pipe as needed to connect with the storm drain system. Install fittings as needed, depending on the underdrain configuration and routing to the storm drain system. Extend cleanout pipes to the surface at a maximum spacing of 100 feet. Cleanout pipes, as necessary, shall be located within the bioretention planters.

- (a) **Pipe and Fittings:** Perforated pipes shall be placed with perforations down. Pipe shall be placed with the bell end up grade. Pipe section shall be joined securely with appropriate couplings. The ends of underdrain pipe shall be plugged upgrade as directed by the Engineer.
- (b) **Risers for Cleanouts:** Provide screw cap covers. Covers shall be set 6-inches above final grade at locations as shown in the Plans.
- (c) **Backwater valve:** Backwater valve assembly shall be located per the plans and as directed by the engineer at the location of the proposed street storm sewer field connection yet downstream of the perforated underdrain pipe. PVC service-access shall be provided and extended to finish grade elevation within the bioretention planter and provided valve to access plug. Connect assembly to underdrain piping, using the appropriate reducer and tee fittings.

### L4-3.3 Geotextile

Geotextile shall be installed in such a manner that all splice joints are provided with a 12" minimum lap. Care shall be taken during the placement and installation of the material to prevent damage to the fabric.

Damages to the geotextile shall be repaired by placing a geotextile patch over the damaged area, extending 12" beyond the perimeter of the damaged area.

#### L4-3.4 Geomembrane

PVC Geomembrane liner shall be placed on the street side of the bioretention planters from the bottom of the course aggregate layer to the top of proposed river rock mulch. The liner shall be covered, on both faces, by geotextile fabric and mechanically fastened to the inside face of L-wall.

#### L4-3.5 L-Wall

Construction requirements for L-Walls shall be in accordance with Section 634 – CURBING of the Standard Specifications, except as modified by SECTION S-1 – STRUCTURAL CONCRETE and SECTION I-17 – CURB AND GUTTER of these Specifications.

#### L4-3.6 Bioretention Soil

The filter media should be placed after the drainage area to the facility is completely stabilized. The specified filter media should be placed and spread by hand with minimal compaction, in order to avoid compaction and maintain the porosity of the media. The media should be placed in 12 inch lifts with no machinery allowed directly on the media during or after construction. The media should be overfilled above the proposed surface elevation, as needed, to allow for natural settling. Lifts may be lightly watered to encourage settling. After the final lift is placed, the media should be raked (to level it), saturated, and allowed to settle prior to installation of plant materials.

#### L4-3.7 Trench Grate

Metal frames shall be set accurately to the finished elevations so that no subsequent adjustments will be necessary. They shall be securely fastened to the forms so that no movement will occur when concrete is placed around them.

Iron castings for grates and frames shall not be painted.

### METHOD OF MEASUREMENT

L4-4.1 Bioretention planters shall be measured by the square foot, completed and accepted.

### BASIS OF PAYMENT

L4-5.1 Work performed and accepted under this item and measured as provided above will be paid for at the contract unit price bid for Bioretention Planters. This price shall be full compensation for furnishing and placing all materials; for excavating, fine grading, and backfilling; for formwork; for trench drains and covers; for underdrains; and for furnishing all equipment, tools, labor and incidentals necessary to complete the work.

#### L4-5.2

All plantings and mulch within the bioretention planters will be paid for as Trees, Plants, and Groundcover in accordance with Section L-2 – TREES, PLANTS, AND GROUNDCOVER.

Payment will be made under:

Item L4-5.1 Bioretention Planters - per square foot

END OF SECTION L-4

## SECTION M-3 - COLD MILLING

### DESCRIPTION

M3-1.1 This item covers cold milling of existing asphalt pavement in accordance with these specifications and in conformity to the dimensions and details shown on the plans. This item includes the cold milling, removal, and disposal of the paving materials designated to be removed. Areas of cold milling have been estimated on the plans. The actual limits of cold milling will be as directed by the Engineer. All pavement material removed shall be disposed of in designated on-site disposal areas, or off-site, as directed by the Engineer.

### CONSTRUCTION METHODS

M3-2.1 GENERAL: No pavement removal shall be started until the work has been laid out by the Contractor and approved by the Engineer. All hauling will be considered a necessary and incidental part of the work. Its cost shall be considered by the Contractor and included in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

M3-2.2 COLD MILLING ASPHALT PAVEMENT: The Contractor shall provide self-propelled equipment with sufficient power, traction and stability to maintain an accurate depth of cut and slope. The equipment shall be capable of accurately and automatically establishing profile grades along each edge of the machine by referencing from the existing pavement by means of a ski or matching shoe, or from an independent grade control, and shall have an automatic system for controlling cross-slope at a given rate. The milling machine shall have an effective means for preventing dust resulting from the operation from escaping into the air. Provision shall be made, either integrally with the milling machine or by the use of additional equipment, to remove the material being cut from the surface of the roadway. The number of passes and the depth of each pass required to obtain the total depth to be removed shall be determined by the Contractor.

Sawcutting (1.5-inch minimum depth) will be required at the edge of the removal areas.

### METHOD OF MEASUREMENT

M3-3.1 Cold milling areas will be measured by the length and width of the cold milled area in square yards, to the specified depth, at the locations directed by the Engineer. Measurement shall not include areas milled beyond approved limits.

### BASIS OF PAYMENT

M3-4.1 Cold milling will be paid for at the contract unit price bid for "COLD MILLING ASPHALT PAVEMENT," which price shall be full compensation for all cold milling, removal, and disposal of asphalt surface materials; and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

Item M3-4.1 Cold Milling Asphalt Pavement -- per square yard

END OF SECTION M-3





## 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 Culverts shall be as shown in the plans for the specified installation type.

### 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. This specification includes watering the aggregate base driving surface for local traffic as shown in the maintenance of traffic plans.

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 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.

P1-1.2 This section also covers Aggregate Base Course used for maintenance of driveways and temporary cover over crossing drainage pipes, as approved by the engineer. Quantity includes 500 ton to be used if and where directed by the engineer.

### 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 and SECTION I-1 – MAINTENANCE OF TRAFFIC, 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.

### 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

Partial Estimates

(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

## **PSECTION P-2 – PRIME AND TACK COATS**

### DESCRIPTION

P2-1.1 This item shall consist of a single application of bituminous material and blotter material if required, applied on the completed and approved base course, on the subgrade, and/or on the existing bituminous or concrete surface in accordance with these specifications and in reasonably close conformity with the lines shown on the Plans or as directed by the Engineer.

### STANDARDS

P2-2.1 Work under this section shall be in accordance with the portions of SECTION 401 – PRIME AND TACK COATS AND EMULSIFIED ASPHALT IN BASE COURSE of the Standard Specifications that concern prime coats and tack coats, except as modified or augmented herein.

### MATERIALS

P2-3.1 Materials shall conform to the requirements provided under Section 403 of the Standard Specifications. Unless approved otherwise by the Engineer, a medium curing cutback asphalt or an asphalt penetrating prime will be used for prime coat and a rapid curing cut back or emulsified asphalt will be used for tack coat. Dependent upon the texture of the base and the season of the year the work is being performed, the Engineer will select the particular grade of the type of bituminous material that will be used.

### MEASUREMENT AND PAYMENT

P2-4.1 Prime and tack coats will not be measured for separate payment but will be considered subsidiary to the ACHM Surface, Binder, or Stabilized Base Courses, as applicable.

END OF SECTION P-2





## SECTION P-3 – ASPHALT SURFACE AND BINDER COURSE

### DESCRIPTION

P3-1.1 This section covers construction of the Asphalt Concrete Hot Mix Surface Course and Asphalt Concrete Hot Mix Binder 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 BINDER COURSE: Materials, equipment, and construction methods for ASPHALT CONCRETE HOT MIX BINDER COURSE shall be in accordance with SECTIONS 406, 409, and 410 of the Standard Specifications, except as modified or augmented herein. The asphalt binder shall be PG 64-22.

P3-2.2 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 70-22.

### 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 for PG64-22 and 160 for PG 70-22.
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, Binder, and Base Courses 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.

BASIS OF PAYMENT

3-5.1 Asphalt Concrete Hot Mix Surface and Binder Courses, acceptably completed, and measured as provided above, will be paid for at the contract unit prices per ton bid for “ACHM SURFACE COURSE” and “ACHM BINDER 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 P3-5.1a      ACHM Surface Course – per ton
- Item P3-5.1b      ACHM Binder Course – per ton

**Addition to Table 410-1 in Standard Specifications**

Property	Compliance Limits	Price Reduction Limits	Lot Rejection Limits	Sublot Rejection Limits
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 P-5 – DRIVEWAYS AND APRONS

### DESCRIPTION

P5-1.1 This section covers the construction of driveways and aprons to the lines and grades shown on the Plans or as directed by the Engineer.

### MATERIALS

P5-2.1 The construction material of driveway shall be of Portland Cement Concrete Pavement as shown in the Plans.

P5-2.2 Materials for concrete driveways and aprons shall be in accordance with SECTION 505 – PORTLAND CEMENT CONCRETE DRIVEWAY of the Standard Specifications.

### CONSTRUCTION METHODS

P5-3.1 The construction of driveways shall be in accordance with the details in the Plans and the applicable sections of these Specifications for the type of construction material specified. Sections of these specifications considered applicable are as follows:

SECTION E-2 – EXCAVATION AND EMBANKMENT  
SECTION P-1 – AGGREGATE BASE COURSE

### METHOD OF MEASUREMENT

P5-4.1 Concrete driveways and aprons will be measured by the square yard. Curb and gutter extending across the front of the driveway will not to be included.

### BASIS OF PAYMENT

P5-5.1 Concrete driveways and aprons acceptably completed and measured as provided above will be paid for at the contract unit price per square yard bid for Concrete Driveways, which price shall be full compensation for furnishing all materials, including the base materials as detailed in the Plans and including reinforcing steel that might be required; for preparation of the subgrade and base materials; for joints required by the Plans; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item P5-5.1a Concrete Driveway (Type I) - per square yard  
Item P5-5.1b Concrete Driveway (Type II) - per square yard

END OF SECTION P-5



## SECTION S-1 – STRUCTURAL CONCRETE

### DESCRIPTION

S1-1.1 This section covers concrete and reinforcing steel for the construction of drainage structures, sidewalks, islands, 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.

T1-2.2 Materials and work for thermoplastic pavement markings shall conform to SECTION 719 - THERMOPLASTIC PAVEMENT MARKING of the Standard Specifications, except as modified or augmented herein.

T1-2.3 Green Thermoplastic Pavement Marking shall be Ennis Flint, PreMark, Bike Lane Green, or approved equal.

T1-2.4 Bicycle symbol and directional arrows shall be Ennis Flint, PreMark, white, or approved equal.

### CONSTRUCTION METHODS

T1-3.1 Pavement Markings shall be installed in accordance with the material manufacture's current published application procedures.

T1-3.2 Thermoplastic Bicycle Symbols and Directional Arrows applied to the roadway and cycle track surface shall be preformed hot-applied.

### METHOD OF MEASUREMENT

T1-4.1 Pavement markings will be measured by the linear foot of material actually placed, per square foot for bike lane green, or per each symbol or arrow, 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 Markings. Where double stripes are placed, each pavement marking will be measured separately.

### 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 type, width, and color specified, at the contract unit price per square foot in place for bike lane green, or at the contract unit price per each for symbols and arrows 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 T1-5.1a	Reflectorized Paint Pavement Marking - 4" White - per linear foot
Item T1-5.1b	Reflectorized Paint Pavement Marking - 4" Yellow - per linear foot

Item T1-5.1c	Reflectorized Paint Pavement Marking - 6" White - per linear foot
Item T1-5.1d	Reflectorized Paint Pavement Marking (Bicycle Symbol) - per each
Item T1-5.1e	Reflectorized Paint Pavement Marking (Directional Arrow) - per each
Item T1-5.1f	Thermoplastic Pavement Marking – 4" White – per linear foot
Item T1-5.1g	Thermoplastic Pavement Marking – 4" Yellow – per linear foot
Item T1-5.1h	Thermoplastic Pavement Marking – 6" White - per linear foot
Item T1-5.1i	Thermoplastic Pavement Marking – 12" White - per linear foot
Item T1-5.1j	Thermoplastic Pavement Marking – Green - per square foot
Item T1-5.1k	Thermoplastic Pavement Marking (Bicycle Symbol) - per each
Item T1-5.1l	Thermoplastic Pavement Marking (Directional Arrow) - per each

END OF SECTION T1



## SECTION T-2 – SIGNS AND SUPPORTS

### DESCRIPTION

T2-1.1 This item shall consist of furnishing and installing new signs, complete with posts, supports, street sign brackets, and concrete bases, where required, in accordance with the dimensions and details shown in the Plans and at the locations shown in the Plans, or as directed by the Engineer.

T2-1.2 Relocation of all existing signs is not included under this section, but is included under SECTION I-1 – MAINTENANCE OF TRAFFIC of these specifications.

### STANDARDS

T2-2.1 Work and materials under this section shall conform to the requirements of SECTION 723 – GENERAL REQUIREMENTS FOR SIGNS, SECTION 725 – GUIDE SIGN, SECTION 726 – STANDARD SIGN, SECTION 729 – CHANNEL SIGN POST SUPPORT, and SECTION 730 - BREAKAWAY SIGN SUPPORT of the Standard Specifications, as applicable, except as modified or augmented herein.

T2-2.2 Signs not conforming to or regulated by the Standard Specifications shall meet all local, County or City guidelines and submittals may be required for approval.

### METHOD OF MEASUREMENT

T2-3.1 New signs installed at the locations show on the Plans or as directed by the Engineer will be measured by the square foot and shall include the post, supports, and concrete bases, where applicable. Measurements will consist only of the face of the sign to the nearest 0.10 square foot of area. No deduction in area will be made for corner radii or mounting holes. The area of octagonal signs, pentagonal signs, U.S. Shields, and Interstate Shields will be computed as the area of the circumscribing square. The area of triangular signs will be computed as the area of the triangle. The area of circular signs will be computed as the area of the circle.

### BASIS OF PAYMENT

T2-4.1 Work completed and accepted under this item and measured as provided above shall be paid for at the contract unit price bid per square foot for each type of sign as listed below and in the Unit Price Schedule, which price shall be full compensation for furnishing and installing signs, posts, supports, street sign brackets, and footing; and for all tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Item T2-4.1a	Standard Roadside Sign – per square foot
Item T2-4.1b	Street Name Sign – per square foot

END OF SECTION T-2



## **SECTION W1 – AUTOMATIC IRRIGATION SYSTEM**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Work described in this section includes the installation, materials, equipment and instructions necessary for a complete, operable, automatic sprinkler irrigation system, both at time of installation and at maturity of the plant materials.
- B. The extent of the sprinkler irrigation system shall include, but is not limited to:
  - 1. Plumbing connection to potable water source and water meter.
  - 2. Installation of sleeves and piping.
  - 3. Excavation and backfilling of trenches.
  - 4. Electrical service to and from system controller and BFP enclosures.
  - 5. Supplying and installing all required system equipment and related materials.
  - 6. Programming and adjustment of automatic system controller.
  - 7. System testing and detailed adjustment of all system components.

#### **1.2 SUBMITTALS**

- A. Make all submittals far enough in advance of scheduled dates of installation to provide required time for reviews, for possible revisions, and resubmittals, and for placing orders and securing deliveries.
- B. The sprinkler system shall be installed to the greatest extent possible to promote water, soil and energy conservation.
- C. Product Manual: Submit technical specification sheets and or performance data for all proposed system components. Submit the address and telephone number of the subcontractor installing the system and the local representative for the equipment.

#### **1.3 QUALITY ASSURANCE**

- A. Provide installation by a licensed sprinkler contractor with a minimum of two (2) consecutive years experience in this area of work and having installed other jobs of similar size and scope. Evidence of the contractor's qualifications shall be presented before the award of contract.
- B. Conform to all codes, statutes, laws and regulations governing the protection of public safety.

#### **1.4 PROJECT CONDITIONS**

- A. Determine the locations of all utilities, subsurface drainage and underground construction so that proper precaution may be taken not to disturb or damage during all operations. The Irrigation Contractor to repair immediately, at his expense, any damage to utilities or other construction resulting from the work covered by the contract.

- B. Coordinate work schedules with others to avoid interference with the work of other trades.
- C. Store materials delivered to site, prior to actual usage, in a secure place not to interfere with other trades or construction and protect from vandalism, damage by weather or other elements.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. Materials shall be new and without flaws or defects, and of quality and performance as specified. Excess materials at completion are property of the Irrigation Contractor, to be removed from the site.
- B. The sprinkler system design and installation shall be based on using the equipment of Rain Bird Corporation, Hunter Industries, Toro, or approved equal.
- C. Substitutions shall be made only with the written approval of the Architect. Substitutions will not be considered prior to opening of bids.

### **2.2 PIPE AND FITTINGS**

- A. Mainline Piping Aboveground shall be Copper tube, Type K, drawn temper; copper tube fittings; soldered joints.
- B. Mainline Piping Belowground shall be polyvinyl chloride (PVC) pipe; meeting ASTM D1785, Sch40 for solvent weld and threaded connections.
- C. Lateral Piping Belowground shall be polyvinyl chloride (PVC) pipe; meeting D2241, Class 200 for solvent weld and threaded connections. The minimum pipe size shall be 3/4" in diameter.
- D. Polyvinyl chloride (PVC) fittings; meeting ASTM D2466, Sch40 for solvent weld connections; Sch40 for threaded connections. Fittings shall be of domestic manufacture.
- E. PVC solvent cement shall comply with ASTM D2564, regular-bodied for pipe 2" and smaller, and medium-bodied for pipe 2 1/2" and larger.
- F. Use Teflon tape or an appropriate sealant for all threaded connections.

### **2.3 CONTROL WIRES AND CONNECTORS**

- A. Use 1/c #14 type direct burial 600 volt wiring for all 24VAC low voltage wiring. Color code the common neutral wiring from all other wires.
- B. Wire Connectors shall be either 3M DBY, Rainbird DB Series Connectors or approved equal.

### **2.4 VALVES**

- A. The remote control valves shall be a normally closed, 24VAC solenoid actuated, globe type valve rated for 200psi. It shall have a manual flow control stem for accurate regulation and/or shutoff of outlet flow.
- B. Manual gate valves for use as a cut off, isolation or manual drain valves on lines shall be as manufactured by Nibco, Inc., Elkhart, IN or approved equal.

## **2.6 VALVE BOXES**

- A. Provide valve boxes for all remote control valves and manual gate valves. The manufacturer shall be Rain Bird Corporation, Highline or approved equal.
- B. When used with a single valve use a 10" round box with green cover. When used with multiple valves use the rectangular box with 20 inch by 14 inch green cover.

## **2.7 SPRINKLER HEADS**

- A. Provide 4" Pop-Up Spray Heads in small turf areas or in clusters of trees where rotary heads are not feasible. The sprinkler shall have a pressure regulating device to prevent high-pressure fogging to the spray pattern and a pressure activated wiper seal that will clean debris from the pop-up stem as it retracts. Use matched precipitation rate nozzles as noted on Irrigation Plans that can be mixed with various arcs and radii on the same circuit.
- B. Provide 12" Pop-Up Spray Heads in all shrub and groundcover beds. The sprinkler shall include a pressure regulating device to prevent high pressure fogging to the nozzle stream. The sprinkler shall have a pressure activated wiper seal that will clean debris from the pop-up stem as it retracts. Use matched precipitation rate nozzles as noted on Irrigation Plans that can be mixed with various arcs and radii on the same circuit.
- C. Provide Root Zone Watering System with integrated bubblers for trees where shown.

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

- A. Verify that the work of this section is installed in accordance with all pertinent codes and regulations and manufacturer's current recommendations.
- B. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this work may properly commence. Coordinate the installation of the sprinkler system with the landscape installation.
- C. When sprinkler system work is to be installed close to or will interfere with the work of other trades, the Irrigation Contractor shall assist in working out space conditions to permit all work to be installed satisfactorily. If a Contractor installs his work before coordination with other trades, he shall make necessary changes in his work to correct the condition without additional compensation.
- D. Flag the location of all sprinklers in accordance with the approved design and

submittals. In the event of a discrepancy, immediately notify the Architect. Do not proceed until such discrepancies have been resolved.

### **3.2 WATER METERS**

- A. Install dedicated irrigation system water meters (size as noted on plans). **VERIFY THE WATER PRESSURE IS ADEQUATE FOR EFFICIENT OPERATION OF SPRINKLER SYSTEM AS DESIGNED AND INSTALLED.** Coordinate exact location of Point-of-Connection with the General Contractor and Owner.
- B. Immediately after Contract award, conduct tests at the Point-of-Connection and note as such on the written results provided to the Architect of the following:
  - 1. Static Water Pressure
  - 2. Dynamic Water Pressure
  - 3. Gallons per minute
- C. The Irrigation Contractor shall be responsible that all materials, operations, installed conditions and personnel shall be in strict accordance with all applicable codes, ordinances and restrictions.

### **3.3 BACKFLOW PREVENTER**

- A. The Irrigation Contractor shall install RP type Backflow Preventer that complies with all requirements and codes of the local governing authority regarding backflow prevention.

### **3.4 SLEEVING**

- A. Sleeving shall be polyvinyl chloride (PVC) Sch40 pipe and fittings, buried at a 24 inch depth minimum.
- B. Upon completion of site filling and compaction operations, and prior to the construction of foundations, roadways, walks or other pavements or obstructions, install sleeves in sufficient sizes to accommodate future irrigation piping and/or control wiring. Ends of sleeves shall extend 12 inches past the edges of all paving and curbs. Clearly mark for future use by the Irrigation Contractor.
- C. Below existing drives, Bore and Ream for 6" Sch40 PVC Sleeves as noted on the Drawing or as may be required for access.

### **3.5 TRENCHING AND BACKFILLING**

- A. Excavate trenches to a depth of minimum pipe coverage plus six inches. Remove all lumber, rubbish and large rocks from the trenches. Provide a uniform bearing for the entire length of each pipe line to prevent uneven settlement. Make the width of the trench a minimum of 1 1/2 times the diameter of the piping.
- B. Upon completion of pipe installation and system testing, backfill the trenches with clean soil. Backfilling shall be done in six inch layers and tamped down after each layer is put back to prevent excessive settling.
- C. If settling occurs within the warranted period, the Irrigation Contractor shall be responsible for bringing the trenches up to finish grade and repairing plant damage without additional compensation.

### **3.6 PIPE INSTALLATION**

- A. Never lay PVC pipe when there is water in the trench. Never lay PVC pipe when the temperature is 32 degrees Fahrenheit or below.
- B. Install the mainline at a bury depth of 18 inches and the lateral lines at a bury depth of 12 inches below finished grade. Maintain a 4 inch clearance between pipes that cross at an intersection and a 2 inch clearance between pipes that are buried in the same trench.
- C. Remove all foreign matter or dirt from the inside of the pipe before joining. Cap or plug all lines after installation and prior to testing to minimize infiltration of foreign matter or dirt.
- D. Snake pipe from side to side of trench bottom to allow for expansion and contraction. Install main lines and lateral lines in common trenches wherever possible.

### **3.7 PIPE AND FITTING CONNECTIONS**

- A. Make all solvent connections meeting ASTM D2855, Standard Practice for making solvent cemented joints with PVC pipe and fittings.
- B. Use only the solvent supplied and recommended by the manufacturer to make solvent cemented joints. Thoroughly clean pipe and fittings of dirt, dust and moisture before applying solvent.
- C. Allow all joints to set a minimum of 24 hours prior to pressurization of system.

### **3.8 WIRE INSTALLATION**

- A. Verify that the work of this section is installed in strict accordance with the latest edition of the National Electric Code and local electrical codes.
- B. Install neutral and control wires in the same trenches as the main and lateral lines. The wires shall be bundled together and taped every 10 feet. Provide expansion loops at every splice, change of direction, at the valves and where the wire enters the conduit for the automatic controller. The expansion loops shall be created by wrapping 3 feet of wire around a 1/2 inch diameter pipe to form a coil.
- C. Connect each solenoid to the existing controller with a "control wire" which is typically red in color. Connect a "common neutral wire" to all solenoids which is typically white in color.
- D. Solder or join all wire connections by positive mechanical connectors. Splices must be properly insulated and waterproofed. Control wire splices will be allowed only in runs more than 500 feet.

### **3.9 VALVE INSTALLATION**

- A. The remote control valves shall be installed in accordance with manufacturer's instructions. Valves shall be installed in approved valve boxes. Boxes shall be installed to a

height that will not cause them to interfere with maintenance machinery and which is sufficient to prevent soil or mulch from washing into the box. Provide a 6 inch layer of washed gravel in the bottom of the valve box.

- B. Install quick coupling valves, on the irrigation mainline, as shown on the plans. The valve shall be opened and closed by a brass key of the same manufacturer having a 3/4" brass hose swivel permanently attached. Provide owner with four (4) keys.
- C. Install in the low points of the mainline, manual gate valves as needed for draining. Install 24" off of the mainline in 10" valve boxes.

### **3.10 FLUSHING AND PRESSURE TESTING**

- A. Prior to backfilling and installation of sprinkler heads, open all control valves and use full line pressure to completely flush lines of foreign matter and dirt.
- B. With zone valves closed, pressure test mainlines by supplying and maintaining full static pressure continuously for one full hour. Observe for evidence of leakage by monitoring flow meter and by visual inspection of the exposed lines. Repair all leaks and retest until no water flow is observed.

### **3.11 SPRINKLER HEAD INSTALLATION**

- A. Sprinkler heads to be spaced so as not to throw water on the buildings, walks or roadways. Install the sprinkler heads so they are flush with finished grade and not a hazard to pedestrians and/or maintenance machinery. Set sprinkler heads to plumb within 1/16" and a minimum of 4 inches and a maximum of 6 inches from walls, walks and curbs.
- B. Provide connection to the PVC lateral lines, for spray heads and small rotors, with barbed fittings and swing pipe. Do not use more than 18 inches of swing pipe for each sprinkler head.

### **3.12 OPERATION AND BALANCING**

- A. Upon completion of the irrigation system the entire system shall be tested for proper operation. Observe that all zones function properly and in sequence.
- B. The Contractor shall balance and adjust the various components of the system so that the overall operation is most efficient. This work shall include adjustment to all sprinkler heads and individual station adjustments to the controllers.
- C. When the Irrigation Contractor is satisfied that the entire system is operating properly, that it is balanced and adjusted so that all work and clean up is completed, he shall issue a written notice of completion to the Architect to request inspection for initial acceptance of irrigation system

### **3.13 INSPECTION AND ACCEPTANCE**

- A. The Architect and the owner's representative shall inspect the total work for acceptance upon written request from the Irrigation Contractor. The request shall be received at least seven (7) days before the anticipated date of inspection. During the inspection, a list of items which need completion or correction will be compiled by the Architect. The Irrigation Contractor shall have two (2) weeks to complete and/or correct all items listed. Under unusual circumstances a longer time period may be granted to the Contractor. If



such work is not completed within the specified time the Irrigation Contractor may be considered to have defaulted on the contract, and the owner may use the contract retainage and/or pursue other Contractors to finish the work.

- B. Upon completion and/or correction of all items on the list, the Architect shall certify in writing to the Owner as to the total acceptance of the work.

### **3.15 RECORD DRAWINGS AND OWNER ORIENTATION**

- A. Upon acceptance of the system, prepare two copies of as-built drawings, product manuals, specifications and operating and maintenance instructions which fully and accurately describe the irrigation system and its components. Bind all information in a hard-cover, labeled binder and furnish to the Owner. Two (2) complete copies of this document are required.
- B. Upon acceptance of the system, the Irrigation Contractor shall orient the User to the operation and adjustments to the controllers according to local seasonal requirements. The Irrigation Contractor shall also familiarize the User with sprinkler and valve adjustments. The Owner is, in general, to be totally familiarized with the overall operation, adjustment, maintenance and intent of the irrigation system, including the measures that should be taken to provide winterization for the system. Such instructions should be in written form and presented to the party responsible for the care and maintenance of the irrigation system and its components.
- C. Upon acceptance of the system, the Irrigation Contractor shall furnish a certificate of warranty registration and a written guarantee of all new work and materials, excluding vandalism, occupancy of the project, owner neglect and acts of God, for a one-year period from the date of final acceptance of the project by the Architect.

## **PART 4 – MEASUREMENT AND PAYMENT**

### **4.1 METHOD OF MEASUREMENT**

- A. Measurement of the Automatic Irrigation System shall include all components required to provide a complete and operating system as described by this section, specifications, and drawings.

### **4.2 BASIS OF PAYMENT**

- B. All work completed and accepted under this item, consisting of the installation of the Automatic Irrigation System as described herein, shall be not be paid for separately but shall be included in the lump sum price bid for the item "Automatic Irrigation System". The price included for this work shall be full compensation for furnishing all material, connections, testing, trenching and boring, and for all labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

Item W1-4.1 Automatic Irrigation System – per lump sum

END OF SECTION W1



## SECTION W-2 – VALVE, METER, AND PULL BOXES ADJUSTED TO GRADE

### DESCRIPTION

W2-1.1 The Contractor shall adjust valve, meter, and pull boxes of gas, water, and/or telecommunication utilities as shown in the Plans or as directed by the Engineer.

### STANDARDS

W2-2.1 This work shall be accomplished in accordance with SECTION 610 – MANHOLES, DROP INLETS, AND JUNCTION BOXES ADJUSTED TO GRADE of the Standard Specifications, except as modified or augmented herein.

### CONSTRUCTION METHODS

W2-3.1 If any new material is required in making adjustments, it shall be similar and equal to the existing material, and shall be furnished by the Contractor at his own expense. In no case shall the Contractor allow pavement or embankment to be placed over valve, meter, or pull boxes nor fail to adjust the top of the box flush with the finished grade, whether or not the adjustment is called for on the Plans. Relocation of water lines or valves is not included in this work except to correct damages done to existing utilities caused by the Contractor.

### METHOD OF MEASUREMENT

W2-4.1 Valve, meter, or pull boxes adjusted to grade and accepted will be measured per each.

### BASIS OF PAYMENT

W2-5.1 Payment will be made at the contract unit price bid per each as "VALVE, METER, OR PULL BOX ADJUSTED TO GRADE," which prices shall be full compensation for furnishing all materials, and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item W2-5.1 Valve, Meter, or Pull Box Adjusted to Grade - per each



# **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:	<u>Finley Vinson</u> <u>501-450-6165</u>
Project Description (Name, Location, etc.): Start Date: End Date: Total Acres:	<u>Markham St. Jump Start Impvts. (Conway) (S)</u> _____ _____ <u>2.84</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:  
February 22, 2019

Prepared by:  
Garver

Project Name and Location: MARKHAM ST. JUMP START IMPVTS. (CONWAY)(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 full depth pavement replacement, construction of new sidewalk, cycle track, and storm sewer.
- 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: 2.84 acres

Disturbed Area: 2.84 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.
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C. Receiving Waters

- a. The following waterbody (or waterbodies) receives stormwater from this construction site: Unnamed tributary to 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, 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: There are no waterways or waterbodies  
Within 25 or 50 feet of the project area.

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, silt fences, and drop inlet silt fences.

- ii. Describe Velocity Dissipation Devices: \_\_\_\_\_.

- 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"/>	