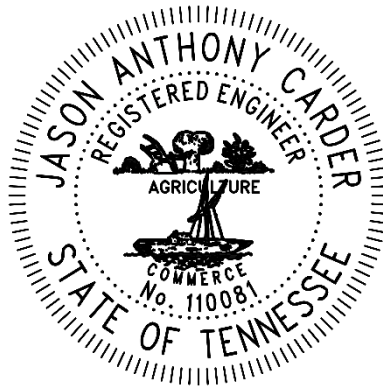


PROPOSAL CONTRACT

FOR THE CONSTRUCTION OF

Owner: Jefferson County
TDOT Project No.: 45SAB1-S3-012
Description Of Project: Carmichael Road Bridge Replacement
Completion Time: On or Before 210 Days from Notice to Proceed
Engineer: Mattern & Craig, Inc.
M&C Commission No.: 4178



By: _____
City, _____
St.: _____
Surety: _____

TDOT Version: 6/1/23

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Jefferson County bid requirements

Special Provisions.....	Special Provision Number, Regarding:.....	<u>Date</u>
102B	Unbalanced Bids.....	02/17/15
102I	Employing & Contracting w/Illegal Immigrants	10/10/16
106B	Prohibition on Certain Telecommunications and Video Surveillance Services, Systems, Equipment and Unmanned Aircraft Systems (UAS)	05/19/26
107FP	Water Quality and Storm Water Permits Approved Permits Included.....	10/06/25
1275	Debarment, Suspension, etc.	09/07/22
1280	Labor (State Projects)	05/01/95
1290	Non-Discrimination in Employment.....	09/07/22
202ACM	Removal of Asbestos Containing Material.....	07/07/14
607CS	Three Sided Precast Culvert and Bridge Structures	05/13/24
AA-STATE	2026 Minimum Wage Scales	01/01/26

Geotechnical Report

NOTES:

1. It shall be the bidder's responsibility to confirm that the Proposal Contract contains all the documents indicated on the Table of Contents. Should any omissions occur, the appropriate documents may be obtained from the Engineer upon request.
2. All work is to be completed in accordance with the Tennessee Department of Transportation's "Standard Specifications for Road and Bridge Construction", dated April 1, 2026 and all supplemental specifications.
3. The Agency warrants that no amount shall be paid directly or indirectly to an employee or official of the State of Tennessee as wages, compensation, or gifts in exchange for acting as an officer, agent, employee, subcontractor, or consultant to the Agency in connection with any work contemplated or performed relative to this Agreement.

JEFFERSON COUNTY
INSTRUCTIONS TO BIDDERS
BIDS TO BE RECEIVED

8/27/2026

Sealed bids for the construction of the following projects will be received by **JEFFERSON COUNTY**, until **2:00 PM local time, August 27, 2026**. Bids will then be publicly opened and read aloud. Sealed bids may be mailed to: **Purchasing Agent, PO Box 1749, Dandridge, TN 37725** or hand delivered to **1244 Gay Street, Dandridge, TN 37725**.

The proposed construction shall be performed in accordance with the most current version of the Standard Specifications for Road and Bridge Construction of the Tennessee Department of Transportation , and the Standard Roadway and Structures Drawings of the Tennessee Department of Transportation which are incorporated herein by reference and made a part hereof. In addition, only the Special Provisions contained within the applicable Proposal Contract will be considered binding. Any reference to any Special Provision not contained within the applicable Proposal Contract shall be disregarded. All questions related to the Proposal Contract, Plans, Specifications or Special Provisions shall be directed to **Mr. Jason Carder, Mattern & Craig Engineers, 429 Clay Street, Kingsport, TN 423-245-4970**. Information received from others is strictly advisory.

IMPORTANT NOTICE TO BIDDERS:

Prospective bidders should read the following instructions carefully before submitting their bids. Special attention is called to the regulations of JEFFERSON COUNTY that total bids, rather than unit prices, will be read. Proposals shall be rejected as being irregular if they fail to contain a unit price for each item listed. Extensions of the various items must be sub-totaled, carried forward, and shown as a grand total following the last proposal item. All entries must be in ink.

After a bidder has deposited a proposal with JEFFERSON COUNTY, he can withdraw it only on written request in accordance with Subsection 102.07 of the Tennessee Department of Transportation Standard Specifications.

Totals read at the opening of the bids are not guaranteed to be correct and no final award of the contract will be made until bids and extensions have been checked and re-checked.

On all projects which are financed in whole or in part by funds received through Federal agencies and/or the Tennessee Department of Transportation, the awarding of contracts by JEFFERSON COUNTY will be subject to approval by the Tennessee Department of Transportation. JEFFERSON COUNTY reserves the right to reject any bid proposal which is not acceptable to the parties as listed, although such bid proposal would otherwise qualify as the lowest and best bid under the Tennessee Department of Transportation Standard Specifications.

JEFFERSON COUNTY reserves the right to reject any or all Proposals, to waive technicalities or to advertise for new Proposals, if in the judgment of the awarding authority and subject to TDOT concurrence, the best interest of JEFFERSON COUNTY will be promoted thereby.

JEFFERSON COUNTY reserves the right to cancel the award of any Contract, at any time prior to execution of said Contract by all parties without any liability against JEFFERSON COUNTY.

The awarding of the contract or rejection of all proposals will be made within 60 days after the formal opening of the proposals. Upon award, a detailed letter of instructions will be forwarded along with appropriate documents to the low bidder.

JEFFERSON COUNTY hereby notifies all bidders, that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the basis of age, race, color, religion, national origin, sex or disability in consideration for an award.

JEFFERSON COUNTY is an equal opportunity affirmative action employer, drug-free, with policies of nondiscrimination on the basis of race, sex, religion, color, national or ethnic origin, age, disability, or military service.

PREQUALIFICATION OF BIDDERS:

Each prospective bidder and subcontractor will be required to file a document entitled "Prequalification Questionnaire." The foregoing shall be filed on a form provided by the Tennessee Department of Transportation. The form must be filled out completely, and the truth and accuracy of the information provided must be certified by a sworn affidavit signed by an officer, partner, owner or other authorized representative of the applicant who has authority to sign contracts or other legal documents on behalf of the applicant. A prospective bidder must be prequalified by and in good standing with the Tennessee Department of Transportation prior to the issuance of a proposal form. A prospective subcontractor must be prequalified by and in good standing with the Tennessee Department of Transportation prior to being approved as a subcontractor. Each prospective bidder or subcontractor shall notify the Tennessee Department of Transportation if there is any subsequent change in the name, organization or contact information provided.

Prospective bidders' "Prequalification Questionnaire" shall be filed with the Tennessee Department of Transportation at least fourteen (14) days prior to the date of opening bids on any letting in which the applicant intends to submit a bid to JEFFERSON COUNTY, or at least fourteen (14) days prior to the date on which the applicant requests approval as a subcontractor under a contract awarded by JEFFERSON COUNTY. Bidders intending to submit proposals consistently shall complete and submit the prequalification application annually; however, this document may be changed during such period upon submission of additional favorable reports or upon receipt by the Tennessee Department of Transportation of substantiated evidence of unsatisfactory performance. The Tennessee Department of Transportation reserves the right to request additional information and documentation to clarify and/or verify any information submitted in an applicant's prequalification application.

**The prequalification form can be found at the web address
<http://www.tn.gov/tdot/section/tdot-construction-division>**

A proposal to be used for non-bidding purposes may be issued to any interested party regardless of prequalification. **This proposal Contract will be marked "Void for Bidding".** A contractor that has purchased a proposal contract that was marked "void for bidding" can buy another book once they are fully prequalified before the bid date.

LICENSING REQUIREMENTS

According to the types of funds used, contractor bidding requirements differ. When using State or Local Government funds and without any Federal funds, proposals shall be completed as described below:

Proposals shall be submitted by a bidder licensed with the Tennessee Department of Commerce and Insurance (TDCI), Board for Licensing Contractors (BLC) on construction contracts where the total cost is twenty-five thousand (\$25,000) or more. In accordance with T.C.A. 62-06-119, proposals and bid documents shall be prepared and administered as follows:

62-06-119. Bid documents -- Penalties.

(a) Any person or entity preparing plans, specifications or any other documentation for inclusion in an invitation to bid or comparable bid document including any electronic bidding documents, shall reference this chapter in such documentation and include a specific statement informing the invited bidder that it is necessary for such bidder to be properly licensed at the time of the bid and provide evidence of compliance with the applicable provisions of this chapter before such bid may be considered.

(b) The person or entity involved in the preparation of the invitation to bid or comparable bid documents, including any electronic bid documents, shall direct that the following information be written upon the bid envelope or provided within the electronic bid document:

(1) The name, license number, expiration date thereof, and license classification of the contractor applying to bid for the prime contract;

(2) The name, license number, expiration date thereof, and license classification of the contractor applying to bid for the masonry contract where the total cost of the materials and labor for the masonry portion of the construction project exceeds one hundred thousand dollars (\$100,000);

(3) The name, license number, expiration date thereof, and license classification of the contractor applying to bid for the electrical, plumbing, heating, ventilation, or air conditioning contracts except when such contractor's portion of the construction project is less than twenty-five thousand dollars (\$25,000);

(4) For each vertical closed loop geothermal heating and cooling project, the company name, department of environment and conservation license number, classification (G, L or G,L) and the expiration date, except when the geothermal portion of the construction project is in an amount less than twenty-five thousand dollars (\$25,000);

(5) Prime contractor bidders who are to perform the masonry portion of the construction project which exceeds one hundred thousand dollars (\$100,000), materials and labor, the electrical, plumbing, heating, ventilation or air conditioning or the geothermal heating and cooling must be so designated; and

(6) Only one (1) contractor in each of the classifications listed above shall be written on the bid envelope or provided within the electronic bid document.

(c) Failure of any bidder to furnish the required information shall void such bid and such bid shall not be considered. Upon opening of the bid envelope or initial opening of an electronic bid, the names of all contractors listed shall be read aloud at the official bid opening and incorporated into the bid. Prior to awarding a contract, the awarding person or entity and its authorized representatives shall verify the accuracy, correctness and completeness of the required information, and any discrepancies found in the spelling of names of bidders, transposition of license numbers, or other similar typographical errors or omissions may be corrected within forty-eight (48) hours after the bid opening excluding weekends and state-recognized holidays.

(d) No invitation to bid may require that any subcontractor be identified, listed or designated until the final bid submission by the prime contractor, or that any prime contractor accept the bid of any subcontractor until the final bid submission by the prime contractor. This subsection (d) shall apply only to design/bid/build procurements where cost is the primary criterion for the contract award.

(e) Any person or entity, public and private, awarding a bid to a contractor who is not licensed in accordance with this chapter shall be subject to the penalty provided in T.C.A. 62-06-120(b).

(f) Notwithstanding the Uniform Administrative Procedures Act, compiled in title 4, chapter 5, relative to the amount of civil penalties that may be imposed, the board may impose a civil penalty not to exceed five thousand dollars (\$5,000) for willful violation of this section.

Because TDOT work classifications and the BLC licensing classifications slightly differ, the Local Government will verify only that the apparent low bidder is licensed in the general classification (e.g., Heavy Construction (HC), Highway, Railroad, Airport Construction (HRA), Specialty (S), Municipal and Utility Construction (MU), or Electrical Contracting (CE)) and not the specific subcategories of these classifications for the type of work involved in the project. This is in recognition that the prime contractor is required to complete 30% of the specific project work and may subcontract the remainder of the work.

Title 48 of Tennessee Code requires all contractors and subcontractors that are domestic or foreign Corporations, Limited Liability Companies, Limited Partnerships, or Limited Liability Partnerships to be in good standing with the Secretary of State (i.e., have a valid Certificate of Existence/Authorization). This includes being duly incorporated, authorized to transact business, and/or in compliance with other requirements as detailed by the Secretary of State.

Bidders that are domestic or foreign corporations, limited liability companies, limited partnerships, or limited liability partnerships, must be in good standing with the Secretary of State (i.e., have a valid Certificate of Existence/Authorization) on or before twenty-one (21) days after proposals are opened.

PROPOSAL BOND

Each proposal must be accompanied by a bidder's bond, or Cashier's Check, or Certified Check made payable to JEFFERSON COUNTY in an amount equaling not less than **ten percent (10%)** of the amount bid. In the case of optional items in the proposals, the amount of the bidder's bond or check must be in an amount equaling not less than **ten percent (10%)** of the total amount of the bid based on the high option.

If the bidder's bond is offered as guaranty, the bond must be on the form furnished by JEFFERSON COUNTY and made by a surety company, qualified and authorized to transact business in the State of Tennessee and must be acceptable to JEFFERSON COUNTY.

If a check is offered as guaranty, the check of the successful bidder will be cashable at the discretion of JEFFERSON COUNTY, pending the satisfactory execution and acceptance of the contract and the contract bond.

ISSUANCE OF BIDDING DOCUMENTS

Copies of the contract documents (in electronic format) will be available upon request, by contacting **Mr. Jason Carder, Mattern & Craig Engineers, 423-245-4970, jacarder@matternandcraig.com**.

Tennessee Department of Transportation Standard Drawing Books, Standard Specifications, and Supplemental Specifications may be obtained by contacting the Tennessee Department of Transportation, or online at www.tn.gov.

When two or more contractors wish to bid together in a joint venture, each contractor will be required to make a written request for such a proposal to JEFFERSON COUNTY. This request shall be signed by an authorized signatory of each firm.

Requests for joint venture proposals may be made in person or by telephone. However, the proposal for said joint venture will not be issued until the request in writing, as set forth above, is received by JEFFERSON COUNTY.

REJECTION OF PROPOSALS

Proposals will be rejected as irregular if prior to the formal opening of the Proposal all of the following documents have not been signed: (1) the bidder shall sign by written signature the Proposal form, (2) the bidder shall sign by written signature the Proposal Certification form, (3) the bidder shall sign by written signature the Proposal Bond form or the Proposal Guarantee, whichever is applicable, (4) the Agent or Attorney-in-Fact representing a Surety Company shall sign by written signature the Proposal Bond, if applicable. In addition, Proposals will be rejected if any of the above signatures are a reproduced copy, such as, but not limited to a photostatic copy or a facsimile transmission. An original, dated and valid Power of Attorney for the Attorney-in-Fact must accompany the Proposal and the Contract. The accompanying Power of Attorney must be dated, and the date must be the exact same date as the date on the Proposal Bond. The Proposal and the Proposal Bond, including the attached Power of Attorney, shall be valid and binding for 60 days subsequent to the date of opening bids.

Proposals shall be completed on the forms as issued. Proposals will be rejected as being irregular if they are not prepared on the prescribed forms; if they show any omissions, alterations of form, additions, or conditions not called for, unauthorized alternate bids, or irregularities of any kind; or if they fail to contain a unit price for each item listed. Proposals may be rejected if any of the unit prices contained therein are mathematically unbalanced, either excessive or below the Engineer's Estimate.

Written alterations to unit prices and extensions of the various items in the bid item sheets of the Proposal or, for computer assisted bids (CAB), in the CAB program generated set of bid

item sheets will not be cause for rejection of the Proposal, provided each alteration is made in ink and is initialed by a duly authorized official of the company. In case of conflict between altered unit prices or extensions thereof, the unit price in numerals will govern.

The Plans and Specifications are as much a part of the proposal form as if they were bound therein. All of the documents contained therein are part of the proposal. Proposals shall not be taken apart. Proposals taken apart may be subject to rejection. Photostatic or facsimile copies of Proposal sheets may not be attached to the Proposal. Proposals containing forms not issued by JEFFERSON COUNTY may be subject to rejection.

Proposals will be rejected as irregular if the bidder fails to acknowledge all addenda.

Proposals will be rejected as irregular when submitted by a bidder who is not prequalified and in good standing on the date of letting in accordance with Subsection 102.01 of the Tennessee Department of Transportation Standard Specifications and Chapter 1680-5-3, Prequalification of Contractors, of the Rules of the Tennessee Department of Transportation.

Proposals will be rejected as irregular when submitted by a bidder who is not licensed according to the requirements as detailed above.

Reasonable grounds for believing that there has been collusion among the Bidders will cause a rejection of all Proposals in which the Bidders involved are interested.

ADDENDA

Addenda to the Proposal will be acknowledged by all bidders. Failure to acknowledge receipt of Addendum Letters is grounds for rejection.

Requests for information are due no later than **Friday, August 21, 2026, by 5:00 PM ET**. A final addendum, if needed, will be issued no later than **Monday, August 24, 2026, 5:00 PM ET**.

RETAINAGE

A retainage account, not to exceed **5%** of the contract, is required for all construction projects above \$500,000.

SUBCONTRACTS

Your special attention is called to Section 105 - Control of Work, and Section 108 - Prosecution and Progress of the Tennessee Department of Transportation Standard Specifications, concerning duties of the contractor and subletting of contracts.

CHANGED CONDITIONS

Your special attention is called to Section 104.02 of the Tennessee Department of Transportation Standard Specifications, concerning changed conditions on this contract.

PROPOSAL
TO JEFFERSON COUNTY, TENNESSEE

By submitting this Proposal, the undersigned bidder represents that it has carefully examined the site of the work described herein, has become familiar with local conditions and the character and extent of the work; has carefully examined the Plans, the *Standard Specifications for Road and Bridge Construction* (April 1, 2026) adopted by the State of Tennessee, Department of Transportation, with subsequent revisions which are acknowledged to be a part of this Proposal, the Special Provisions, the Proposal Form, the Form of Contract, and the Form of Contract Payment and Performance Bond; and thoroughly understands their stipulations, requirements, and provisions.

The undersigned bidder has determined the quality and quantity of materials required; has investigated the location and determined the sources of supply of the materials required; has investigated labor conditions; and, has arranged for the continuous prosecution of the work herein described.

By submitting this Proposal, the undersigned bidder agrees to provide all necessary equipment, tools, labor, incidentals, and other means of construction, to do all the work, and furnish all the materials of the specified requirements which are necessary to complete the work in accordance with the Plans, and the Specifications, and agrees to accept as payment in full the unit prices for the various items described in the Specifications that are set forth in this Proposal. The bidder understands that the quantities of work specified are approximate only and are subject to increase or decrease and that any such increase or decrease will not affect the unit prices set forth in this Proposal. Compensation for "extra work" which may be required by the JEFFERSON COUNTY in connection with the construction and completion of the work but which was not reflected in the Plans and Specifications at the time of bidding, will be made in the following manner: work for which there is a unit price set forth in this Proposal will be compensated at that unit price; work for which there is no unit price set forth in this Proposal will be compensated in accordance with the applicable Tennessee Department of Transportation Standard Specifications.

By submitting this Proposal, the parties hereto, in terms of the performance of this Contract, shall not act as employees, partners, joint ventures, or associates of one another. It is expressly acknowledged by the parties hereto that such parties are independent contracting entities and that nothing in this Contract shall be construed to create an employer/employee relationship or to allow either to exercise control or direction over the manner or method by which the other transacts its business affairs or provides its usual services. The employees or agents of one party shall not be deemed or construed to be the employees or agents of the other party for any purpose whatsoever.

By submitting this Proposal, the undersigned bidder, if awarded the contract, agrees that it will be responsible for compliance with the Patient Protection and Affordable Care Act ("PPACA") with respect to itself and its employees, including any obligation to report health insurance coverage, provide health insurance coverage, or pay any financial assessment, tax, or penalty for not providing health insurance. The Contractor shall indemnify the State and hold it harmless for any costs to the State arising from Contractor's failure to fulfill its PPACA responsibilities for itself or its employees.

By submitting this Proposal, the undersigned bidder, if awarded the contract, shall be registered with the Department of Revenue for the collection of Tennessee sales and use tax or provide confirmation from the Department of Revenue that the bidder is not required to register for the Tennessee sales and use tax. This registration requirement is a material requirement of this Contract.

By submitting this Proposal, the undersigned bidder hereby agrees to be bound by the award of the Contract and, if awarded the Contract on this Proposal, to execute the required Contract and the

required Contract Payment and Performance Bond within ten (10) days after receipt of notice of the award. The undersigned bidder submits herewith the required Proposal guaranty in an amount of not less than five percent (5%) of the total amount of the Proposal offered and agrees and consents that the Proposal guaranty shall immediately be at the disposal of JEFFERSON COUNTY, not as a penalty, but as an agreed liquidated damage if the required Contract and Contract Payment and Performance Bond are not executed within ten (10) days from receipt of the notice of award.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to § 12-12-106. This list is generated to identify entities ineligible to contract with the State of Tennessee or any political subdivision of the State per the Iran Divestment Act, T.C.A. §§ 12-12-101 – 113, and the current list may be found at the Tennessee Department of General Services, Central Procurement Office, website under the Public Information Library webpage at the following link: [http://tn.gov/assets/entities/generalservices/cpo/attachments/List_of_persons_pursuant_to Tenn. Code Ann. 12-12-106. Iran Divestment Act-July.pdf](http://tn.gov/assets/entities/generalservices/cpo/attachments/List_of_persons_pursuant_to_Tenn._Code_Ann._12-12-106.Iran_Divestment_Act-July.pdf).

THIS PROPOSAL SUBMITTED BY:

Bidder (1)

By: _____

Printed Name and Title

Address

City/State/Zip

Bidder (1) being _____ composed of officers, partners, or owners as
a _____ follows:
(Type of business entity)

Name/Title

Name/Title

Name/Title

Name/Title

Name/Title

Name/Title

Bidder (2)*

By: _____

Printed Name and Title

Address

City/State/Zip

Bidder (2) being _____ composed of officers, partners, or owners as
a _____ follows:
(Type of business entity)

Name/Title

Name/Title

Name/Title

Name/Title

Name/Title

Name/Title

Bid Form

TDOT ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT COST	ITEM COST
105-01	CONSTRUCTION STAKES, LINES, AND GRADES	LS	1		
201-01	CLEARING AND GRUBBING	LS	1		
202-04.01	REMOVAL OF STRUCTURES (EXISTING STEEL GIRDER BRIDGE)	LS	1		
203-01.06	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	LS	1		
203-06	WATER	MG	30		
203-07	FURNISHING & SPREADING TOPSOIL	C.Y.	500		
204-02.01	DRY EXCAVATION (BRIDGES)	C.Y.	1500		
204-04.01	ROCK EXCAVATION (BRIDGES)	C.Y.	100		
204-08.01	BACKFILL MATERIAL (FLOWABLE FILL)	C.Y.	120		
204-14	CORE DRILLING FOR PILES (ROCK)	L.F.	30		
204-15	CORE DRILLING FOR PILES (SOIL)	L.F.	120		
209-05	SEDIMENT REMOVAL	C.Y.	50		
209-08.02	TEMPORARY SILT FENCE (WITH BACKING)	L.F.	1300		
209-09.04	SEDIMENT FILTER BAG (15' X 10')	EACH	1		
209-65.04	TEMPORARY IN STREAM DIVERSION	L.F.	200		
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	TON	700		
303-01.02	GRANULAR BACKFILL (BRIDGES)	TON	1700		
307-01.01	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HB) GRADING A	TON	250		
307-01.08	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HB) GRADING B-M2	TON	160		
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	2		
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	8		
403-01	BITUMINOUS MATERIAL FOR TACK COAT (TC)	TON	2		
411-01.10	ACS MIX (PG64-22) GRADING D	TON	100		
602-01	STRUCTURAL STEEL	LB	1000		
604-01.01	CLASS A CONCRETE (ROADWAY)	C.Y.	10		
604-03.01	CLASS A CONCRETE (BRIDGES)	C.Y.	120		
604-03.02	STEEL BAR REINFORCEMENT (BRIDGES)	LB	9800		
606-02.03	STEEL PILES (10 INCH)	L.F.	160		
606-02.06	PILE TIPS (STEEL PILES, 10 INCH)	EACH	14		
607-50.60	THREE SIDED PRECAST CULVERT STRUCTURE - BARREL (30' SPAN, 9' - 3 7/8" RISE)	LS	1		
705-06.01	W BEAM GUARDRAIL (TYPE 2) MASH TL-3	L.F.	250		
705-06.30	GR TERMINAL (ENERGY ABSORBING) MASH TL-2	EACH	4		
707-03.14	FIVE STRAND BARBED WIRE FENCE	L.F.	500		
709-05.08	MACHINED RIP-RAP (CLASS B)	TON	500		
712-01	TRAFFIC CONTROL	LS	1		
712-07.03	TEMPORARY BARRICADES (TYPE III)	L.F.	50		
713-15	REMOVAL OF SIGNS, POSTS, AND FOOTINGS	LS	1		
716-13.01	SPRAY THERMO PVMT MARKING (60 mil)(4IN LINE)	L.M.	0.5		
717-01	MOBILIZATION	LS	1		
801-01	SEEDING (WITH MULCH)	UNIT	50		
801-03	WATER (SEEDING AND SODDING)	MG	5		

TOTAL BID FOR ALL UNIT PRICES:

_____ (\$ _____)
 (use words) (figures)

PROPOSAL CERTIFICATION

The undersigned, being first duly sworn, certifies on behalf of the bidder that it 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 this Proposal or Contract. This is an official document that is required or authorized by law to be made under oath and is presented in an official proceeding. A person who makes a false statement in this certification is subject to the penalties of perjury.

The undersigned further certifies that said bidder is not under the control of any person, firm, partnership, or corporation, which has or exercises any control of any other person, firm, partnership, or corporation, which is submitting a bid on this Contract.

Bidder (1)
Sworn to and subscribed before me
this _____ day of _____,
By: _____

Printed Name and Title
Notary Public
My commission
expires _____

(Seal)

Bidder (2)
Sworn to and subscribed before me
this _____ day of _____,
By: _____

Printed Name and Title
Notary Public
My commission
expires _____

(Seal)

***NOTE: The signature and information for Bidder (2) is to be provided when there is a joint venture.**

JEFFERSON COUNTY, TENNESSEE

PROPOSAL BOND

Principal: _____
Print Name of Principal

Surety: _____
Print Name of Surety

KNOW ALL MEN BY THESE PRESENTS, that we, the Principal and Surety above named, are held and firmly bound unto JEFFERSON COUNTY in the full and just sum of five percent (5%) of the total amount bid by the Principal for the project stated above, 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.

NOW, THEREFORE, the condition of this obligation is: the Principal shall not withdraw its bid within sixty (60) days after the opening of the bids, or within such other time period as may be provided in the Proposal, and if JEFFERSON COUNTY shall award a Contract to the Principal, the Principal shall, within ten (10) days after written notice of the award is received by him, fully execute a Contract on the basis of the terms, conditions and unit prices set forth in his Proposal or bid and provide bonds with good and sufficient surety, as required for the faithful performance of the Contract and for the protection of all persons supplying labor, material, and equipment for the prosecution of the work. In the event the Principal withdraws its bid after bids are opened, or after award of the Contract has been made fails to execute such the Contract and/or such additional documents as may be required and to provide the required bonds within the time period specified above, then the amount of the Proposal Bond shall be immediately paid to JEFFERSON COUNTY, not as a penalty, but as agreed upon liquidated damages.

IN WITNESS WHEREOF, the Principal has caused these presents to be signed by a duly authorized official and the Surety has caused these presents to be duly signed and sealed by an authorized agent or attorney-in-fact.

_____ Principal (1)	_____ Surety (1)
By: _____	By: _____ General Agent or Attorney-in-Fact
_____ Print Name and Title	_____ Date
_____ Date	_____ (Seal)

_____ Principal (2)	_____ Surety (2)
By: _____	By: _____ General Agent or Attorney-in-Fact
_____ Print Name and Title	_____ Date
_____ Date	_____ (Seal)

***NOTE: The signature and information for Principal(2) and Surety(2) is to be provided when there is a joint venture.**

JEFFERSON COUNTY, TENNESSEE

PROPOSAL GUARANTEE

Bidder: _____
Print Name of Bidder

KNOW ALL MEN BY THESE PRESENTS, that the above-named Bidder has tendered the attached cashier's or certified check in an amount equal to five percent (5%) of the total amount it bid for the project stated above, payable to JEFFERSON COUNTY, to be held pending the fulfillment of the following obligation conditions.

NOW, THEREFORE, the condition of this obligation is: the Bidder shall not withdraw its bid within sixty (60) days after the opening of the bids, or within such other time period as may be provided in the Proposal, and if JEFFERSON COUNTY shall award a Contract to the Bidder, the Bidder shall, within ten (10) days after it receives written notice of the award, fully execute a Contract on the basis of the terms, conditions and unit prices set forth in its Proposal or bid and provide bonds with good and sufficient surety, as required for the faithful performance of the Contract and for the protection of all persons supplying labor, material, and equipment for the prosecution of the work. In the event the Bidder withdraws its bid after bids are opened, or after award of the Contract has been made fails to execute such the Contract and/or such additional documents as may be required and to provide the required bonds within the time period specified above, then JEFFERSON COUNTY shall cash the attached check and retain the funds, not as a penalty, but as agreed upon liquidated damages.

IN WITNESS WHEREOF, the Bidder has caused these presents to be signed by a duly authorized official.

_____ Bidder (1)	_____ Bidder (2)*
By: _____	By: _____
_____ Print Name and Title	_____ Print Name and Title
_____ Date	_____ Date

***NOTE: The signature and information for Bidder(2) is to be provided when there is a joint venture.**

**JEFFERSON COUNTY, TENNESSEE
CONTRACT**

This agreement is made and executed in three (3) originals, between JEFFERSON COUNTY, and _____ hereinafter referred to as the "Contractor."

WITNESSETH

JEFFERSON COUNTY did advertise for, receive and accept a bid from the Contractor for work on the above identified contract.

In consideration of the agreements herein contained; to be performed by the parties hereto and of the payments hereafter agreed to be made, it is mutually agreed by both parties that:

1. The contract between the parties consists of the following "Contract Documents" all of which constitute one instrument:
 - (a) the Instructions to Bidders
 - (b) the Proposal
 - (c) all conditions and terms of this Contract form
 - (d) the Contract Payment & Performance Bond and/or Letter of Credit, where applicable
 - (e) the most current version of the *Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction* (herein referred to as *TDOT Standard Specifications*)
 - (f) Supplemental Specifications
 - (g) Revisions and Additions
 - (h) Special Provisions
 - (i) Addenda
 - (j) The most current version of the TDOT Standard Drawings
 - (k) The Contract Plans,
 - (l) The Work Order
 - (m) Construction Changes
 - (n) Supplemental Agreements

All of the provisions contained in the listed Contract Documents are incorporated herein by reference with the same force and effect as though set out in full.

2. The Contract Documents are intended to be complementary and to describe and provide for a complete work. Requirements in one of these are as binding as if occurring in all of them. In case of discrepancy, Supplemental Specifications will govern over the TDOT Standard Specifications; the TDOT Standard Specifications will govern over the local government standard specifications; the Contract Plans will govern over both Supplemental and Standard Specifications, and Special Provisions will govern over both Plans and Specifications. In interpreting Plans, calculated dimensions will govern over scaled dimensions. Contract Plans, typical cross sections and approved working drawings will govern over Standard Drawings.
3. The Contractor agrees to furnish all materials, equipment, machinery, tools and labor and to perform the work required to complete the project in a thorough and workmanlike manner, to the satisfaction of the appropriate official of JEFFERSON COUNTY.

4. JEFFERSON COUNTY agrees to pay to the Contractor such unit prices for the work actually done as are set out in the accompanying proposal, in the manner provided for in the TDOT Standard Specifications, Supplemental Specifications and applicable Special Provisions.
5. The Contractor shall, at all times, observe and comply with all applicable federal, state and local laws, ordinances and regulations and shall indemnify and hold harmless JEFFERSON COUNTY and all of its officers, agents and servants against any claim of liability or assessment of fines or penalties arising from or based upon the Contractor's and/or its employees' violations of any such law ordinance or regulation. The Contractor shall maintain documentation for all charges against JEFFERSON COUNTY under this Contract. The books, records and documents of the Contractor insofar as they relate to the work performed or money received under this contract shall be maintained for a period of seven (7) full years from the date of the final payment and shall be subject to audit at any reasonable time and upon reasonable notice by JEFFERSON COUNTY, the State, the Comptroller of the Treasury, the Tennessee Department of Transportation, or their duly appointed representatives.
6. The Contractor shall be responsible for any and all injury or damage to persons or to property arising from the prosecution of the work and due to any act, omission, neglect or misconduct in its manner or method of prosecuting the work or due to its non-execution of the work or due to defective work or materials. The Contractor shall provide proof of adequate and appropriate general liability insurance providing liability coverage in an amount not less than \$1 million dollars per occurrence and \$300,000 per claimant, naming JEFFERSON COUNTY as an additional insured.
7. The Contractor shall indemnify and hold harmless JEFFERSON COUNTY and all of its officers, agents and employees from all suits, actions or claims of any character arising from the Contractor's acts or omissions in the prosecution of the work, use of unacceptable materials in constructing the work, infringement of patent, trade mark or copyright, or claims for Workers' Compensation. If any such suit, action or claim is filed, JEFFERSON COUNTY may retain from the monies due to the Contractor under this Contract a sum deemed sufficient by JEFFERSON COUNTY to protect JEFFERSON COUNTY from loss therefrom. Upon resolution of the suit, action or claim, any remaining retained funds will be released.
8. Upon execution of this Contract, the Contractor shall be prepared to begin the work to be performed under the Contract but will not proceed until it has received official "Notice to Proceed". This official notice will stipulate the date upon which it is expected that the Contractor will begin his work, and from which date the working days tabulated against its time limit will begin. All other requirements in regard to the beginning of construction set forth in the Proposal and Special Provisions will date from the official notice.

IN WITNESS WHEREOF, the parties hereto have caused this Contract to be signed and executed by their respective authorized agents or officials.

_____ Contractor 1	_____ Contractor 2*
-----------------------	------------------------

By: _____	By: _____
-----------	-----------

_____ Print Name and Title	_____ Print Name and Title
-------------------------------	-------------------------------

_____ Date	_____ Date
---------------	---------------

JEFFERSON COUNTY, TENNESSEE

This Contract is accepted _____ day of _____, _____
this _____

and is effective on the _____ day of _____, _____

[COUNTY Official]

Approved:

JEFFERSON COUNTY Attorney

***NOTE: The signature and information for Contractor 2 is to be provided when there is a joint venture.**

CONTRACT PAYMENT AND PERFORMANCE BOND

Note: to be filled out post-award

Be it known that _____,
as Principal, and _____,
as Surety(ies), all authorized to do business in the State of Tennessee, hereby bind themselves
to JEFFERSON COUNTY, and other potential claimants, for all obligations incurred by the
Principal under its contract with JEFFERSON COUNTY, for the construction of the above
identified contract; in the full contract amount of

_____ (\$_____).

The obligations of the Principal and Surety(ies) under these payment and performance
bonds shall continue in full force and effect until all materials, equipment and labor have been
provided AND all requirements contained in the contract, plans and specifications have been
completed in a timely, thorough and workmanlike manner. The parties agree that these bonds
are statutory in nature and are governed by the provisions contained in Title 12, chapter 4 and
Title 54, chapter 5 of the Tennessee Code Annotated relating to bonds required of contractors
and that those provisions constitute a part of this bond.

By this instrument, the Principal and Surety(ies) specifically bind themselves, their heirs,
successors, and assigns, *in solido*, under the following bonds:

Payment Bond. To JEFFERSON COUNTY and all "Claimants," as contemplated by T.C.A.
Title 54, chapter 5, in the full contract amount of

_____ (\$_____),
in order to secure the payment in full of all timely claims under the project.

Performance Bond. To JEFFERSON COUNTY in the full contract amount of

_____ (\$_____),
in order to secure the full and faithful performance and timely completion of the project according
to its plans and specifications, inclusive of overpayments to the contractor and liquidated
damages as assessed.

Upon receipt of notice that the Principal is in default under the contract, the Surety(ies)
shall undertake to complete performance, without regard to cost. If the Surety(ies) fail or refuse
to complete performance of the contract, JEFFERSON COUNTY may then proceed with the
work in any lawful manner that it may elect until it is finally completed. When the work is thus
finally completed, the total cost of the same will be computed. All costs and charges incurred
by JEFFERSON COUNTY in completing the Work will be deducted from any monies due or
which may become due to the Principal. If the total costs of completion exceeds the sum which
would have been payable under the Contract, then the Principal and the Surety(ies), *in solido*,
shall be liable for and shall pay to JEFFERSON COUNTY the amount of such excess.

In witness whereof we have signed this instrument as dated.

Principal/Contractor 1:

By: _____

Date: _____

Printed Name and Title

**(For Joint Venture)
Principal/Contractor 2:**

By: _____

Date: _____

Printed Name and Title

Surety 1:

Surety 2:

By: _____

By: _____

Attorney-in-Fact

Attorney-in-Fact

Printed Name

Printed Name

Agency Name

Agency Name

Street Address

Street Address

City/State/Zip

City/State/Zip

(Seal)

(Seal)

Subsequent correspondence/communication from JEFFERSON COUNTY with respect to monthly progress reports and/or the contract bonds should be directed to:

For Surety 1:

For Surety 2:

_____ Name	_____ Name
_____ Address	_____ Address
_____ City	_____ City
_____ State/Zip	_____ State/Zip
_____ Phone Number	_____ Phone Number
_____ Fax Number	_____ Fax Number

NOTICE OF AWARD

Date of Issuance:

Owner: Jefferson County, Tennessee

Owner's Project No.: n/a

Engineer: Mattern & Craig, Inc.

Engineer's Project No.: 4178

Project: Carmichael Road Bridge Replacement

Bidder:

Bidder's Address:

You are notified that Owner has accepted your Bid dated **[date]** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

All work in the contract

The Contract Price of the awarded Contract is **\$(Contract Price)**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

Three (3) unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **three (3)** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **none**

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **Jefferson County, Tennessee**

By (signature): _____

Name (printed): _____

Title: _____

Copy: Engineer

NOTICE TO PROCEED

Owner: Jefferson County, Tennessee Owner's Project No.: n/a
Engineer: Mattern & Craig, Inc. Engineer's Project No.: 4178
Contractor: _____ Contractor's Project No.: _____
Project: Carmichael Road Bridge Replacement
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is **210 days** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **240 days** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Owner: Jefferson County, Tennessee
By (signature): _____
Name (printed): _____
Title: _____
Date Issued: _____
Copy: Engineer



JEFFERSON COUNTY

FINANCE DEPARTMENT

1244 Gay Street
PO Box 1749
Dandridge, TN 37725
Phone (865) 397-4922
Fax (865) 397-4537

Invitation to Bid (ITB)

Prepared in accordance with Tennessee Code Annotated (T.C.A.) and applicable requirements governing 1981 Act counties. The Jefferson County Finance Department is receiving sealed bids for the above-mentioned project. Bids shall be identified on the exterior of the sealed envelope with all the information requested in the specifications included in this bid packet. Bids are to be addressed to the Jefferson County Finance Department and mailed or delivered to the following address:

Jefferson County Finance Department
Attn: Purchasing Agent
1244 Gay St./P.O. Box 1749
Dandridge, TN 37725

Bids will be received until **August 27, 2026 @ 2pm ET**. Late bids will be rejected and will not be considered under any circumstances nor returned. Jefferson County is not responsible for any delays due to weather, traffic conditions, nor postal services.

During the evaluation process Jefferson County (JC) reserves the right, where it may serve the county's best interest, to request additional information or clarifications from suppliers/vendors.

Questions and requests for clarification or additional information should be directed by email or telephone to:

Julie Anglea, Purchasing Agent
janglea@jeffersoncountyttn.gov
865-397-4922 ext. 2115

JC will consider all submittals that meet bid requirements as specified within the bid packet herein and to award contracts to the lowest, responsive, responsible bidder. JC reserves the right to reject any and all bids, to waive irregularities or informalities in any proposal, and to make an award in any manner, consistent with law, deemed in the best interest of the county.



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SECTION 1: GENERAL TERMS AND CONDITIONS

General administrative, submission, and evaluation requirements applicable to all solicitations issued by Jefferson County (JC).

1.1 General Information/Intent:

1.2 Timeline (All Times are Eastern Standard Time):

1.2.1 ITB Issued: August 6, 2026

1.2.2 Last Day for Questions: **August 21, 2026, by 5:00 PM ET**

1.2.3 Addendum Issued (if applicable):

1.2.4 Bid Opening: August 27, 2026, at 2:00pm ET

1.2.5 Anticipated Start Date: **October 1, 2026**

1.3 Additional Information: Information about Jefferson County, ITB, specifications, and scope of work for this project can be obtained on the Jefferson County website at <https://jeffersoncountyttn.gov/finance-department>.

1.4 Copies of Bids: Jefferson County requires that submitted bids include two (2) identical copies one marked "original" and one marked "copy". Bid pages must be single sided.

1.5 Bid Submittal: Vendors shall hold their price firm and subject to acceptance by JC for a period of ninety (90) days from the date of bid opening, unless otherwise indicated in the bid proposal. Any bid submittal may be withdrawn prior to the scheduled time for the opening of bids, otherwise, bids will be reviewed as submitted. JC reserves the right to reject any and or all bids and to waive any informality, technical defect, or clerical error in any bid submittal. Do not include proprietary or confidential information unless clearly marked.

1.6 Bidder Obligation: each bidder shall become fully acquainted with conditions relating to the scope and restrictions attending the execution of the work specified. Failure or omission of a vendor to become acquainted with existing conditions shall in no way relieve the bidder of any obligations with respect to the specifications or the contract.

1.7 Bid Delivery: JC requires all bids/proposals to be submitted in sealed envelopes, addressed to the Jefferson County Finance Department, and clearly marked with the bid name by time of opening of the specified bid. Bid/proposal must be mailed or hand delivered. No bids/proposals will be accepted electronically, by fax, or by email. All bids will be opened at the specified time, and all suppliers/vendors and other people shall be invited to be present. JC will not be



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responsible for any lost or misdirect mail sent by common carriers, delivery to addresses other than the one listed in solicitation, or for any late bid submissions received after the time and/or date specified. Not properly sealed and/or not properly labeled bids will not be accepted. Any bid/proposal may be withdrawn prior to the scheduled time of bid opening.

1.8 Signing Bids/Proposals & Use of Bid Forms: to be considered the bid proposal must be signed. By signing the bid proposal, the vendor acknowledges and accepts the terms and conditions stated in the document and bid packet. Vendors must complete the requested forms contained in the bid packet. Failure to complete requested forms may result in rejection of their bid proposal.

1.9 Bid Acceptance/Award: JC reserves the right to use all, part, or none of the submitted proposal or bid in order to provide the broadest coverage of requested parts, equipment, products, or services. Awards may be based on categories. Award will be made to the lowest, responsive, responsible bidder(s) meeting specifications that present the product or service that is most advantageous to Jefferson County. JC reserves the right to award this solicitation on an all or none basis, or by multiple awards if in the best interest of the County. Award of specified bid (if any) should be made within thirty (30) days of bid opening. Bidders will be notified by email of the results regarding specified bid. The bidder(s) to whom the award is given may be required to enter a written contract.

1.10 Anticipated Contract Term: This contract will begin once contract is agreed upon, signed, and received. Anticipated Contract dates are July 2, 2026-June 30, 2027, with the possibility for yearly renewals up to five (5) total years at the discretion of Jefferson County and mutual agreement among participating vendor(s).

1.11 Rejection of Bids: Jefferson County reserves the right to reject any and all bids received and to waive any informality, technical defect or clerical error in any bid. Nonacceptance of any bid will be devoid of any criticism of the bid and of any implication that the bid is deficient in any manner. Non-acceptance of a bid shall be construed as meaning simply Jefferson County does not deem the bid acceptable or that another bid was deemed to be more advantageous for the services or goods proposed.

1.12 Restrictive or Ambiguous Specifications: It is the responsibility of the prospective bidder to review the entire bid packet and to notify the Jefferson County Finance Department Purchasing Agent if the specifications are formulated in a manner that would unnecessarily restrict competition. Any such protest or question regarding specifications or bid procedures must be received in the Jefferson County Finance Dept. no later than seven (7) business days prior to bid opening to provide ample time, if necessary, to issue an addendum to the bid specifications. These requirements also apply to specifications that are ambiguous.

1.12.1 No oral interpretation will be made to any supplier/vendor regarding the meaning of specifications. All questions are to be submitted electronically by email and will be



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answered in the form of an Addendum to the solicitation by the Jefferson County Purchasing Agent.

1.12.2 Bidders taking exception to any part or section of bid specifications shall indicate such exceptions or deviations in their bid response. Failure to indicate any exceptions shall be interpreted as the bidder's intent to fully comply with the specifications as written. Conditional or qualified offers are subject to rejection in whole or in part. Exceptions will be negotiated for a mutual resolution.

1.13 Evaluation Review: Jefferson County reserves the right to use all pertinent information that might affect the County's judgement as to the appropriateness of an award to the best evaluated supplier/vendor. This information may be appended to the bids evaluation process results. Information on a service provider from reliable sources, and not within the service provider's bid proposal, may also be noted and made part of the evaluation file. Jefferson County shall have sole responsibility for determining a reliable source. Jefferson County reserves the right to conduct written and/or oral discussions/interviews after bid opening. The purpose of such discussions/interviews is to provide clarification and/or additional information to make an award that is in the best interest of the County.

1.14 Questions and Addendum: Vendor(s) shall carefully examine the ITB and any addenda. Vendor(s) are responsible for seeking clarification of any ambiguity, conflict, omission, or other errors in this specified bid writing. If the answer materially affects the specified bid the information will be incorporated into an addendum and provided to all bidders and will also be posted on the county website. Questions are limited to no more than fifteen (15) questions per vendor/supplier. Any questions exceeding the limit may not be answered. An addendum will be issued with answers to questions per Section 1.2 Timeline.

1.15 Vendor Default: Jefferson County reserves the right, in case of vendor default, to procure the articles or services from other sources and hold the defaulting vendor responsible for any excess costs occasioned thereby. Should the vendor default be due to failure to perform or because of a request for a price increase, Jefferson County reserves the right to remove the vendor from the county's bidder list for twenty-four (24) months.

1.16 Term Bid Agreements: if this bid results in a term bid contract with the supplier/vendor, Jefferson County must receive all general price decreases that other similar customers receive.

1.17 Alternative Bids: Jefferson County will not accept alternate bids (those not equal to specifications) unless authorized by Jefferson County and/or the Purchasing Agent.

1.18 Additions and/or Deletions: Jefferson County reserves the right to consider adding goods and/or services to this bid or deleting goods and/or services that are deemed necessary and/or unnecessary. Any additions and/or deletions must be approved in writing by the Jefferson County Finance Department prior to any changes in service.



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1.19 Cooperative Purchasing: Bidders must indicate whether it is permissible for other governments in Tennessee to purchase these items or services at the same price. Freight charges can be adjusted to reflect differences in delivery costs.

1.20 Declarative Statement: any statement or words (e.g.: must, shall, will) are declarative statements that the vendor/supplier must comply with the condition. Failure to comply with any such condition may result in their bid being non-responsive and disqualified.

1.21 Incurred Costs: Jefferson County will not be responsible for any costs incurred in the preparation, submission, nor to procure or contract for any services or goods.

1.22 Taxes: Jefferson County purchases are not subject to taxation. Tax exemption certificates will be provided upon request.

1.23 Proof of Financial and Business Capability: Bidder must, upon request, furnish satisfactory evidence of the ability to furnish products or services in accordance with the terms and conditions of these specifications. Jefferson County will make the final determination as to the bidder's ability.

1.24 Public Records Act: Jefferson County is subject to the Tennessee Public Records Act 10-7-503 et seq. Bidders are cautioned that all documents submitted on behalf of this solicitation shall be open to the public for viewing and inspection and Jefferson County will comply with all legitimate requests.

1.25 Removal of Vendor's Employees: The successful contractor(s) agrees to utilize only experienced licensed, responsible, and capable people in the performance of the work specified under contract. Jefferson County may require that the contractor remove employees who endanger persons or property, or whose continued employment under this contract is inconsistent with the interest of the county.

1.26 State Licensing Requirements: Vendors must be properly licensed, if applicable, by the State of Tennessee for the type of work requested and must submit a copy of the license with their bid. All licensing must be in accordance with the Tennessee Code Annotated.

1.26.1 Contractor license information must be placed on the outside of the bid envelope for construction projects. When the amount of the bid exceeds \$50,000.00, the name, license number, expiration date, and license classification of the contractors applying for the prime contract and for electrical, plumbing, heating, ventilation, and air condition contracts. In addition, when the cost of masonry portion of the construction project exceeds \$100,000.00 the masonry name, license number, expiration date, and license classification must be placed on the outside of the bid envelope.



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1.27 News Releases by Vendors/Suppliers: As a matter of policy, Jefferson County does not endorse the services of a vendor/supplier. A vendor/supplier will not make news releases concerning any resultant contract from this solicitation without prior written approval of Jefferson County.

1.28 Closures: During periods of closure due to unforeseen circumstances or inclement weather in Jefferson County or closures at the direction of the Jefferson County Mayor; the Jefferson County Finance Department/Purchasing Department will enact the following procedures in regard to solicitations, pre-bid meetings, and closures:

1.28.1 If the mayor closes the administrative offices prior to the time set for solicitation opening of any business day, all solicitations due that same day will be moved to the next operational business day.

1.28.2 Pre-Bid Meetings may be cancelled if closures occur. If a change is required due to unforeseen circumstances or inclement weather, an addendum will be issued for any changes and can be found on the county website. You may also contact the Purchasing Agent for any updates by email or telephone.

1.28.3 Other unforeseen circumstances shall be at the sole discretion of the Jefferson County Finance Director.

1.28.4 Jefferson County shall not be liable for any commercial carrier's decision regarding deliveries during any unforeseen circumstances.

1.29 Communications: The successful execution of this contract will require extensive communication between all parties involved. While information may be transmitted via telephone, it should always be followed up with an email. It is essential that the Vendor(s) have email capabilities.

1.30 Compliance with all Applicable Regulations: Vendor agrees and covenants that the company, its agents, and employees will comply with all city, county, state and federal codes, laws, rules, and regulations applicable to the business to be conducted under this contract. If the vendor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, the vendor shall bear all costs arising from them.

1.31 Contact Personnel: It shall be essential to the success of this contract to develop a good working relationship with the vendor(s). It is imperative that the Jefferson County account be handled efficiently and professionally. Jefferson County should be assigned no more than two (2) vendor contacts to handle billing inquiries and service-related issues. In the event one (1) or both contacts leave the Jefferson County account, the vendor shall formally introduce the new contacts to county personnel. These contacts must be knowledgeable of the Jefferson County account to avoid any interruption of services.



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1.32 Pricing: The vendor(s) warrants that the unit price stated for all items shall remain firm for a period of twelve (12) months from the first day of the contract period or until June 30 (the end of the government fiscal year) whichever comes first. If the vendor's price is increased after the initial year, Jefferson County must be given written notice 30 days prior to contract end to consider continuation of services. Such a request shall include as a minimum 1) the cause for the adjustment; 2) the amount of the change requested with documentation to support the requested adjustment. Price increases will only be considered at renewal period(s). If the price increase is rejected the vendor may:

1.32.1 Continue with existing prices.

1.32.2 Request a lower price increase.

1.32.3 Not accept the renewal offer.

1.32.4 Re-submit a bid once the product/service goes back out to bid.

1.32.5 Vendor(s) must submit proof of price increase. If a price increase is approved by the Jefferson County Finance Department and the requesting department the approval notification will be made in writing and the vendor(s) will be notified of the new price schedule and the effective date of the increase. This documentation will become part of the bid file. No approvals will be authorized verbally.

1.33 Invoice Detail: Jefferson County requests invoices show the following details to help expedite review for payment. The vendor(s) may be required to modify invoicing procedures to show detail. All potential vendor(s) are hereby cautioned that Jefferson County will only pay from the original invoices and not facsimiles or copies. Invoices which do not adhere to these details may be returned to the vendor(s). Vendor(s) may be asked to submit a sample copy of their invoice for review during evaluation of this solicitation. Account information may be deleted.

1.33.1 The invoice must show the amount due to the vendor(s) by Jefferson County.

1.33.2 The invoice must show an itemized detailed part and material count including dates of service, location of service, type of part, the associated unit price for the materials, parts, and/or services provided, and the total price for materials, parts, and/or services provided.

1.33.3 Invoices are to be original and uniquely pre-numbered.

1.33.4 Invoices should indicate PO number and/or department ordering.

1.34 Invoice Review: Jefferson County shall review all invoices for adherence to the terms and conditions of the contract. Variations from the contract and contract pricing are strictly prohibited. Any variations found on the invoice will result in the rejection of those invoices.



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Rejected invoices will be returned to the vendor for correction. If a discount for prompt payment is offered, the timeline does not commence until Jefferson County receives the invoice.

1.35 Processing Time for Payment: Vendor(s) are advised that a minimum of thirty (30) days is required to process invoices for payment when the invoice instructions herein are followed.

1.35.1 Invoices will be mailed to:

Jefferson County Finance Department
Attn: County Account Payables
P.O. Box 1749
Dandridge, TN 37725

1.35.2 Electronic Invoices must be emailed to: jessicagonzalez@jeffersoncountyttn.gov
julieanglea@jeffersoncountyttn.gov

1.36 Payment: Payment will be issued for goods received and/or services completed after final inspection and approval. Payment will be issued in full unless otherwise stated in the contract.

1.37 Bid Bond: A Bid Bond equal to 10% of the bid is required on all construction bids as described in T.C.A 62-6-129. This will be returned to the bidder if not awarded.

1.38 Payment Bond: A Payment Bond equal to 100% of a construction contract is required on all contracts above \$100,000.00 as described in T.C.A 12-4-201.

1.39 Performance Bond: A Performance Bond equal to 100% of a contract is required on all construction projects above \$100,000.00. Contract with contractor will not be signed until the performance bond is received from the Surety Company.

1.40 Retainage: A Retainage Account, not to exceed 5% of the contract, is required on all construction projects above \$500,000.00 as described in T.C.A 66-324-104.

Section 2: Obligations, Rights, and Remedies

These terms and conditions shall be part of the contract. Jefferson County reserves the right to negotiate other terms and conditions it deems appropriate and necessary under the circumstances to protect the public's trust.

2.0 Alterations or Amendments: No alterations, amendments, changes, modifications, or deletions to this contract shall be binding without the prior written approval by Jefferson County.



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2.1 Appropriation: In the event no funds are appropriated by Jefferson County for the goods or services in any fiscal year or insufficient funds exist to purchase the goods or services, then the contract shall expire upon the expenditure of previously appropriated funds or the end of the current fiscal year, whichever occurs first, with no further obligations owed to or by either party.

2.2 Assignment: Vendor shall not assign or sub-contract this agreement, its obligations or rights hereunder to any party, company, partnership, incorporation, or person without the prior written specific consent of Jefferson County.

2.3 Books and Records: Vendor shall maintain all relevant records for a minimum of three (3) years and make them available for audit or inspection.

2.4 Public Records Act: Jefferson County is subject to the Tennessee Public Records Act T.C.A. § 10-7-503 et seq. Vendors are cautioned that all documents submitted on behalf of this solicitation shall be open to the public for viewing and inspection and Jefferson County will comply with all legitimate requests.

2.5 Compliance with All Laws: Vendors shall comply with all applicable federal, state, and local laws, regulations, and licensing requirements affecting the provision of goods and/or services.

2.6 Default: Failure to perform or comply with any provision of this contract or the terms and conditions of any documents referenced and made a part hereof, Jefferson County may terminate the contract, in whole or in part, and may consider such failure or noncompliance a breach of contract. Jefferson County expressly retains all its rights and remedies provided by law in case of such breach, and no action by Jefferson County shall constitute a waiver of any such rights or remedies. In the event of termination for default, Jefferson County reserves the right to purchase requirements elsewhere.

2.7 Governing Law: This agreement shall be governed by the laws of the State of Tennessee with venue in Jefferson County. The Chancery Court and/or Circuit Court of Jefferson County, TN shall have exclusive and concurrent jurisdiction of any disputes which arise hereunder.

2.8 Indemnification/Hold Harmless: Vendor shall indemnify and hold harmless Jefferson County, its officials, and employees from all claims arising out of vendor performance, negligent act, occurrence, omission, or commission of vendor, its sub-vendors, suppliers, agents, or employees.

2.9 Non-Collusion: By submission of a signed bid/proposal the vendor certifies the proposal is made without collusion with any other person or company engaged in the same line of business or commerce, or fraudulent act punishable under TN or US law

2.10 Title VI of the Civil Rights Act: Non-discrimination in Federally Assisted Programs- No person in the US shall, on the grounds of race, color, or national origin, be excluded from



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participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal Financial Assistance 42 U.S.C. Section 2000d. It is the policy of Jefferson County Government that all its services and activities be administered in conformance with the requirements of Title VI.

2.11 Independent Contractor: Vendor/Contractor acknowledges that it is an independent vendor/contractor and not an employee or agent of Jefferson County, TN.

2.12 Criminal History Check: Any and all contractors, subcontractors, vendors, vendor employees, agree to comply with T.C.A. § 49-5-413 requiring that all parties providing services for Jefferson County must submit a criminal history records check at their expense. The criminal history check is to be conducted by the TN Bureau of Investigation and the Federal Bureau of Investigation.

2.13 No Boycott of Israel: Pursuant to TCA Title 12, Chapter 4, Part 1, by submission of a response to this solicitation, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint response each party thereto as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each person is not currently engaged in, and will not for the duration of the agreement engage in, a Boycott of Israel.

2.14 Iran Divestment Act: By submission of this solicitation, each vendor and each person signing on behalf of any vendor certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each vendor is not on the list created pursuant to T.C.A. § 12-12106.

2.15 Non-Discrimination and Non-Conflict Statement: Vendor shall comply with all nondiscrimination laws including Title VI. Vendors shall comply with the Fair Wage and Hour Laws, the National Labor Relations Act, and other federal and state employment laws as applicable. Vendors covenant that it does not engage in any illegal employment practices. The vendor covenants that it has no public or private interest and shall not acquire directly or indirectly any interest, which would conflict in any manner with the provision of its goods or the performance of its services. Vendor warrants that no part of the total contract amount provided herein shall be paid directly or indirectly to any officer or employee of Jefferson County as wages, compensation, or gifts in exchange for acting as officer, agent, employee, sub-vendor, or consultant to vendor in connection with any goods provided or work contemplated or performed relative to the agreement.

2.16 Warranty/Inspection/Acceptance: Vendor warrants all goods and services are of merchantable quality, fit for purpose, and conform to specifications. Warranty periods shall not commence until Jefferson County inspects and formally accepts goods and/or services. Acceptance of goods or services does not constitute a waiver of latent or hidden defects or defects not readily detectable by a reasonable person under the circumstances. Jefferson County reserves



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the right to reject any or all items or services not in conformance to applicable specifications. Vendor assumes the costs associated with such nonconformance.

2.17 Limitations of Liability: In no event shall Jefferson County be liable for any indirect, incidental, consequential, special, exemplary damage, or lost profits even if Jefferson County has been advised of the possibility of such damages.

2.18 Order of Precedence: In the event of inconsistent or conflicting provisions the following order shall prevail: Change Orders and Written Amendments (executed after the contract), Contract, Addenda, RFP/ITB, Award, Supplementary Terms and Conditions, General Terms and Conditions, Specifications, Drawings/Plans, Vendor Bid/Proposal response.

2.19 Remedies: Jefferson County retains all remedies available under Tennessee Law, including damages and termination.

2.20 Right to Inspect: Jefferson County reserves the right to inspect work, services, and materials at any time.

2.21 Severability: If any provision is invalid, remaining provisions remain in effect.

2.22 Tax Compliance: Vendor acknowledges, by submission of bid and signature, that it is current in its respective Federal, State, County, and City taxes of whatever kind or nature and is not delinquent in any way. Delinquent status must be disclosed or risk debarment by Jefferson County.

2.23 Gratuities and Kickbacks: It shall be a breach of ethical standards for any person or company to offer, give, or agree to give any employee or former employee, or for any employee or formal employee to solicit, demand, accept, or agree to accept from another person or company gratuities or kickbacks. Breach of these provisions is a breach of contract & ethical standards and will result in disqualification, legal action, and/or debarment or suspension from being a vendor or sub-vendor under Jefferson County contracts.

2.24 Insurance: Vendor shall maintain required insurance and provide proof of insurance. A copy of COI may be requested for proof of insurance. The successful vendor will be required to submit a COI with the specified coverage and listing Jefferson County, TN as additional insured; endorsement pages shall be included. It shall be the successful vendor's responsibility to keep current COI and endorsement pages on file with the Jefferson County Finance Department if the contract is in effect. The contractor shall, at its sole cost and expense, carry and maintain statutory workers' compensation insurance, employer's liability insurance, and professional liability insurance (if applicable) for any and all persons employed directly or indirectly by the contractor for the duration of the contract. The limits of liability therein shall meet, at a minimum, the limits of liability stated within the Standard Liability Insurance Requirements.



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2.25 Environmental Liability: Vendor assumes responsibility for proper handling and disposal of materials in accordance with TN law.

Section 4: Checklist

4.0 Vendor Information Sheet

4.1 State and/or Business License

4.2 COI

4.3 Title VI Compliance

4.4 Non-Collusion Affidavit

4.5 Iran Divestment

4.6 Non-Discrimination/Debarment & Lobbying Affidavit

4.7 Addendum Acknowledgement

4.8 Price Sheet (Not included)

4.9 Bonds

5.0 Sign Bid and All Required Forms



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Vendor Information Sheet

Company Name: _____

Company Address: _____

Billing Address: _____

Contact Name: _____

Phone Number: _____

Email Address: _____

List of References (List at least 3 references: Name, Phone Number, Email)

Will you allow cooperative purchasing according to Section 1.19 for this bid? Yes or No

Signature:

Title:

Date:

Print Name:

Title:

The undersigned certifies that he/she has the authority to bind this company in an agreement/contract to supply the commodity or service in accordance with all terms, conditions, and pricing specified. By signing and submitting this proposal, the vendor acknowledges that they have read, understand, and agree to all aspects of the specification and proposal requirements as presented without reservation or alteration. This proposal, if accepted, will constitute an agreement and contract with Jefferson County, TN. Prices are firm during this agreement term, unless agreed upon in writing by the County.



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Iran Divestment Act Affidavit

Iran Divestment Act Affidavit as per Tennessee Code Annotated, Title 12, and effective July 1, 2016: By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to 12-12106.

Authorized Signature: _____

Print Name: _____

Date Bid Submitted: _____

Title: _____

Company Name: _____

Address: _____

Phone Number: _____

Email
Address: _____



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Title VI Contract Assurance

It is the policy of Jefferson County Government not to discriminate on the basis of race, color, national origin, age, sex, or disability in its hiring practices; or in admission to, access to, or operation of its programs services or activities. With regard to all aspects of this contract, Contractor certifies and warrants it will comply with this policy.

Please print:

Vendor Name

Street Address

City

State

Zip Code

Phone Number

Email

I _____, hereby agree to abide by the Title VI regulations.

Signature _____ Date _____

Ownership Type (please check all that apply)

☐	African American Owned Business	☐	Asian Owned Business
☐	Women Minority Owned Business	☐	Disabled Owned Business
☐	Native American Owned Business	☐	All Others
☐	Hispanic Owned Business	☐	



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Non-Collusion Affidavit

_____, being first duly sworn, deposes and says that:

- 1) He/She is _____ of _____, the bidder that has submitted the attached proposal;
- 2) He/She is fully informed respecting the preparation and contents of the attached proposal and of all pertinent circumstances respecting such proposal;
- 3) Such proposal is genuine and is not a collusive or sham proposal;
- 4) Neither the said bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties interest, including this affiant, has in any way colluded, conspired, connived, or agree, directly or indirectly, with any other bidder, firm or person to submit a collusive or sham bid in connection with the contract for which the attached proposal has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm, or person to fix the price or prices in the attached proposal, or of any other bidder, or to fix any overhead, profit, or cost element or the bid price or the bid price of any other bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against Jefferson County or any person interested in the proposed contract; and
- 5) The price or prices quoted in the attached proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.

Signature _____

Print Name _____

Title _____

Date _____



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Non-Discrimination, Non-Debarment, & Lobbying Affidavit

I do hereby certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a bid for the same materials, supplies, or equipment, and is in all respects fair and without collusion or fraud.

I understand that collusive pricing is a violation of State and Federal law and can result in fines, prison sentences, and civil damage awards and that no collusion with another firm was used in preparation of this bid.

I also certify that this firm does not discriminate against any employee or applicant for employment on the grounds of race, color, national origin or sex; and does not and will not maintain or provide for his employees any segregated facilities at any of its establishments, and further, that the firm does not and will not permit their employees to perform their services at any location under this contract where segregated facilities are maintained.

By submission of this bid, the bidder certifies that neither it or its principals is presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any Federal or State department or agency.

I further certify that during the Invitation to Bid solicitation and/or during the performance of this contract that neither it nor its principals will participate in lobbying activities in conjunction with this project.

I agree to abide by all terms and conditions of this Invitation to Bid and certify that I am authorized to sign this affidavit for the vendor.

Please indicate which of the following apply to your company. This information is requested for information purposes only. Jefferson County currently has no policy that allows for set asides or preferences for woman owned or minority owned businesses.

☐ African American ☐ Native American Owned ☐ Hispanic Owned

☐ Caucasian Owned ☐ Asian Owned ☐ Women Owned ☐ Other Owned

Signature: _____ Title _____ Date _____



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Addendum Acknowledgement (if applicable)

If applicable, please complete and return this with bid proposal response.

I the undersigned acknowledge the receipt of the following addenda to this solicitation.

Addendum #1- Date Received_____

Addendum #2- Date Received_____

Addendum #3- Date Received_____

Addendum #4- Date Received_____

Signature_____

Print Name_____

Title_____

Company Name_____

Email_____

Phone Number_____

S T A T E

O F

T E N N E S S E E

(Rev. 02/17/15)

April 1, 2026

SPECIAL PROVISION

REGARDING

UNBALANCED BIDS

The Department will review all unit prices submitted by the apparently lowest responsible bidder and will decide whether any of the unit prices are excessively above or below a reasonable cost analysis value determined by the Engineer.

In the event any unit prices are determined to be unbalanced and contrary to the interest of the Department, the right is reserved to reject such bid at the discretion of the Department or to award the Contract and limit progress payments on units of work performed on any excessively priced items to costs that are satisfactorily documented by the Contractor plus 20 percent, until 85 percent of the Contract has been completed. Upon completion of 85 percent of the Contract, the Contractor will be reimbursed in accordance with **Subsection 109.08** of the Standard Specifications for the accepted quantities of work performed on the excessively priced items.

STATE**OF****TENNESSEE**

(Rev. 10/10/16)

April 1, 2026

SPECIAL PROVISION**REGARDING****EMPLOYING AND CONTRACTING WITH ILLEGAL IMMIGRANTS**

The State shall endeavor to do business only with those contractors and subcontractors that are in compliance with the Federal Immigration and Nationality Act. This policy shall apply to all State Contractors including subcontractors. This policy statement is issued to establish implementation guidance to procuring state agencies and contractors reflecting the requirements of *Tennessee Code Annotated* §12-3-309 regarding the employment of illegal immigrants in the performance of state contracts.

1. The Contractor hereby attests, certifies, warrants, and assures that the Contractor shall not knowingly utilize the services of an illegal immigrant in the performance of this Contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant in the performance of this Contract. The Contractor shall reaffirm this attestation, in writing, by submitting to the State a completed and signed copy of the "Attestation form" provided by the Department, semi-annually during the period of this Contract.
2. Prior to the use of any subcontractor in the performance of this Contract, and semi-annually thereafter, during the period of this Contract, the Contractor shall obtain and retain a current, written attestation that the subcontractor shall not knowingly utilize the services of an illegal immigrant to perform work relative to this Contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant to perform work relative to this Contract.
3. The Contractor shall maintain records for its employees used in the performance of this Contract. Said records shall include a completed federal Department of Homeland Security Form I-9, *Employment Eligibility Verification*, for each employee and shall be subject to review and random inspection at any reasonable time upon reasonable notice by the State.

The Contractor understands and agrees that failure to comply with this section will be subject to the sanctions of *Tennessee Code Annotated* § 12-3-309 for acts or omissions occurring after January 1, 2007. This law requires the Chief Procurement Officer, Department of General Services, to prohibit a contractor from contracting with, or submitting an offer, proposal, or bid to contract with the State of Tennessee to supply goods or services for a period of one year

after a contractor is discovered to have knowingly used the services of illegal immigrants during the performance of this contract.

For the Purposes of this policy, “illegal immigrant” shall be defined as a non-citizen who has entered the United State of America without federal government permission or stayed in this country beyond the period allowed by a federal government-issued visa authorizing the non-citizen to enter the country for specific purposes and a particular time period.

S T A T E**O F****T E N N E S S E E**September 10, 2020
(Rev. 05/19/26)

April 1, 2026

SPECIAL PROVISION**REGARDING****PROHIBITION ON CERTAIN TELECOMMUNICATION AND VIDEO****SURVEILLANCE SERVICES, SYSTEMS, EQUIPMENT AND UNMANNED****AIRCRAFT SYSTEMS (UAS)****Telecommunications and Video Surveillance Services, Systems, or Equipment:**

Installation of telecommunication and video surveillance equipment, services or systems shall contain no components from providers as listed in Title 2 Code of Federal Regulations (CFR) Part 200.216.

The prohibition on certain telecommunication and video surveillance services or equipment regulation in Title 2 CFR 200.216 shall apply to this contract. Take all necessary and reasonable steps in accordance with Title 2 CFR 200.216 to ensure that no prohibited telecommunication and video surveillance services or equipment are included in any of the work in this contract. As defined in Title 2 CFR 200.471, the regulation provides clarity that the telecommunications and video surveillance costs associated with Title 2 CFR 200.216 are unallowable for services and equipment from the providers.

It is prohibited from installing equipment, services, or systems that use covered telecommunications equipment or services from providers described in section 889 of the National Defense Authorization Act for Fiscal Year 2019 (NDAA 2019).

As described in section 889 of the NDAA 2019, “covered telecommunications equipment or services” means:

- Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);
- Video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);
- Telecommunications or video surveillance services provided by such entities or using such equipment; or

- Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country. The term “covered foreign country” means the People’s Republic of China.

Any prohibited equipment installed must be removed and replaced at the contractor’s expense with acceptable equipment.

Prohibition on Unmanned Aircraft Systems Manufactured or Assembled by American Security Drone Act-Covered Foreign Entities.

a. **Definitions.** As used in this clause –

American Security Drone Act-covered foreign entity means an entity included on a list developed and maintained by the Federal Acquisition Security Council (FASC) and published in the System for Award Management (SAM) at <https://www.sam.gov> (section 1822 of the National Defense Authorization Act for Fiscal Year 2024, Pub. L. 118-31, 41 U.S.C. 3901 note prec.).

FASC-prohibited unmanned aircraft system means an unmanned aircraft system manufactured or assembled by an American Security Drone Act-covered foreign entity.

Unmanned aircraft means an aircraft that is operated without the possibility of direct human intervention from within or on the aircraft (49 U.S.C. 44801(11)).

Unmanned aircraft system means an unmanned aircraft and associated elements (including communication links and the components that control the unmanned aircraft) that are required for the operator to operate safely and efficiently in the national airspace system (49 U.S.C. 44801(12)).

b. **Prohibition.** The Contractor is prohibited from –

- (1) Delivering any FASC-prohibited unmanned aircraft system, which includes unmanned aircraft (i.e., drones) and associated elements (sections 1823 and 1826 of Pub. L. 118-31, 41 U.S.C. 3901 note prec.);
- (2) On or after December 22, 2025, operating a FASC-prohibited unmanned aircraft system in the performance of the contract (section 1824 of Pub. L. 118-31, 41 U.S.C. 3901 note prec.); and
- (3) On or after December 22, 2025, using Federal funds for the procurement or operation of a FASC-prohibited unmanned aircraft system (section 1825 of Pub. L. 118-31, 41 U.S.C. 3901 note prec.).

- c. **Procedures.** The Contractor shall search SAM at <https://www.sam.gov> for the FASC-maintained list of American Security Drone Act-covered foreign entities prior to proposing, or using in performance of the contract, any unmanned aircraft system. Additionally, the Contractor shall ensure any effort or expenditure associated with a FASC-prohibited unmanned aircraft system is consistent with a corresponding exemption, exception, or waiver determination expressly stated in the contract.
- d. **Exemptions, exceptions, and waivers.** The prohibitions in this clause do not apply where the agency has determined an exemption, exception, or waiver applies and the contract indicates that such a determination has been made. [See sections 1823 through 1825 and 1832 of Public Law 118-31 (**41 U.S.C. 3901** note prec.) for statutory requirements pertaining to exemptions, exceptions, and waivers.].
- e. **Subcontracts.** The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial products or commercial services.

S T A T E**O F****T E N N E S S E E**

(Rev. 02/08/21)

(Rev. 12/09/24)

(Rev. 10/06/25)

April 1, 2026

SPECIAL PROVISION**REGARDING****WATER QUALITY AND STORM WATER PERMITS****Description**

This work consists of the conditions that apply to all construction activities on the project pursuant to the following:

1. Section 404 of the Federal Clean Water Act (33 U.S.C. §1344), and all implementing regulations, including without limitation regulations of the U.S. Army Corps of Engineers governing permits for discharges of dredged or fill material into waters of the United States in 33 CFR Part 323; and
2. Section 408 authorized under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. §408), and all implementing regulations, including without limitation regulations of the U.S. Army Corps of Engineers governing changes to USACE Civil Works projects; and
3. The Tennessee Water Quality Control Act (T.C.A. §69-3-101, et seq.) and all implementing regulations, including without limitation the Rules of the Tennessee Department of Environment and Conservation (TDEC) governing NPDES permits in Chapters 400-40-05 and 400-40-10, and Aquatic Resource Alteration permits in Chapter 400-40-7; and
4. Section 26a of the TVA Act of 1933 as amended (49 Stat. 1079, 16 U. S. C. sec. 831y1.) and all implementing regulations, including without limitation the regulations of the Tennessee Valley Authority governing construction in the Tennessee River System in 18 C.F.R., Part 1304; and
5. The Tennessee Wildlife Resources Agency Reelfoot Lake Watershed Management permit program (T.C.A. section 70-5-1.), and all implementing regulations, including without limitation regulations authorizing any activity, practice, or project which has or is likely to have the effect of diverting surface or subsurface water from the Lake or have the effect of draining or otherwise removing water from Reelfoot Lake; and
6. Coast Guard Bridge Permit (USCG) (Section 9 of the Rivers and Harbors Appropriation Act of 1899) and all implementing regulations, including but not without limitation for projects which impact streams deemed navigable by the U.S. Coast Guard.

Responsibility

Assume all responsibilities of the permittee as indicated in the permit that relates to protection of the "waters of the United States" and/or "waters of the State of Tennessee."

Obtain any additional permits required by the Contractor for off-site waste and/or borrow areas and associated off project work areas.

Sign the NPDES Notice of Intent (NOI) form after the contract has been awarded indicating acceptance of the stipulations contained in the permit. HQ Construction Division by email will send a NOI letter with instructions regarding the process of signing the NOI form. Follow the NOI form signing process within 10 calendar days after receiving the NOI letter or the Department may at its discretion cancel the award with the Contractor forfeiting the bid bond.

Implement the provisions of the Water Quality (including, but not limited to, TDEC ARAP, USACE 404, TVA Section 26a, Coast Guard, TWRA) and Storm Water [including, but not limited to, National Pollution Discharge Elimination System (NPDES), Statewide Stormwater Management Plan (SSWMP)] Permits and requirements that pertain to construction activities.

Review of the permit provisions, including NPDES Permit provisions the site specific SWPPP, the contract plans, Standard Specifications and contract Special Provisions and find the permit requirements and erosion prevention and sediment control (EPSC) procedures to be reasonable, workable, and binding.

The Contractor shall not be released from the project site responsibilities under the NPDES permit provisions until the Notice of Termination (NOT) is submitted by TDOT, and receipt is acknowledged by TDEC. The NOT is a certification that the construction project is permanently stabilized, and all construction related discharges have ceased. This means that the use of EPSC measures to alleviate concerns of surface erosion and transport of sediment to surface water conveyances or to waters of the state is no longer necessary. Furthermore, it means that permanent controls, hard surfaces and/or vegetation, used on the project are deemed adequate to prevent erosion and sediment transport and no other potential sources of construction-related pollution are on the project.

The Contractor shall not be released from any warranty provided for EPSC plantings, including sod and trees. If the entire project is complete as outlined in **105.15** of the Standard Specifications, the tree plantings shall still be required to meet the requirements of **802** Standard Specifications.

NPDES Permit Required Action

Accompany the TDOT EPSC inspector or TDOT consultant on all EPSC inspections of the entire construction project including permitted locations and potentially impacted streams and attend all QA/QC Project Assessments.

EPSC Inspections shall be conducted as required in the most current TN Construction General Permit. EPSC inspections shall be performed on the schedule established in the TN Construction

General Permit until the site is permanently stabilized to determine if the permit requirements are being met. Where sites or portion(s) of the construction project have been temporarily stabilized, the inspections only have to be conducted once per month until construction activity resumes. Written notification of the intent to change the inspection frequency and the justification for such request must be submitted to the TDOT Field Office and the TDEC Central Office before proceeding.

A representative who holds a current TDEC “*Fundamentals of Erosion Prevention and Sediment Control Level I*” certification shall accompany the TDOT EPSC inspector on all required EPSC inspections. The project supervisor(s) shall also hold a current TDEC “*Fundamentals of Erosion Prevention and Sediment Control Level I*” certification. Proof of required personnel training for the individual(s) shall be provided to the TDOT Field Office prior to beginning of construction.

The TDOT EPSC inspector shall document all deficiencies on the required current TDOT EPSC Inspection Report form. Sign the TDOT EPSC Inspection Report form and any supporting documentation indicating that there is agreement with the report, recommendations and repair schedule as stated in the documentation.

Make necessary maintenance and repairs relative to deficiencies in these permit conditions or requirements within 24 hours after an inspection identifies the maintenance or repair need, and/or as directed by the Department, unless conditions make a particular activity impracticable. Any such conditions that make immediate repairs impracticable shall be documented on the inspection report and provided to the TDOT Field Office and be accompanied by an expected repair schedule based on forecasted weather conditions.

Review the site specific SWPPP that will be made available prior to or at the pre-construction conference for any additional EPSC requirements. Sign and submit two copies of the SWPPP signature page provided by the Department in the site specific SWPPP. Submit for review and approval any changes/revisions to the SWPPP to prevent erosion and sediment transport at any time after contract execution. Rejection of any submittals by the Department does not relieve the liability for appropriate Best Management Practices (BMPs).

If at any time during this contract, the requirements for the Water Quality Permits and/or the Storm Water Permits for Construction Related Activities are changed/revised/updated, the Contractor shall be notified in writing by the Department of such requirements. Comply with the new requirements within 30 days of the Department notification.

If at any time that sedimentation is occurring or has occurred in streams impacted by the project, immediately notify the TDOT Field Office to evaluate the EPSC measures employed. A determination of the cause for sedimentation will be made by the Department. Immediately repair or replace defective EPSC measures and install, as applicable, additional or other EPSC measures with the goal of eliminating future sedimentation. Once a remediation plan is provided by the Department, within 24 hours after notification, begin the remediation as required. Based on the cause of sedimentation, the Department will determine if the cost of remediation will be performed at the Contractor’s expense.

Failure to Comply

In the event a Notice of Noncompliance, Notice of Violation, Notice of Deficiency, or Order is issued by any State or Federal Agency on this project, any required corrective action and all fines will be the sole responsibility of the Contractor as outlined in **107.01** of the Standard Specifications.

Failure to comply or take immediate corrective actions required within 24 hours, unless documented conditions make a particular maintenance or repair activity impracticable immediately, shall be reason for the Department to suspend all other work on the Project, except EPSC and traffic control. The Department will apply non-refundable deductions of monies from the Contract per calendar day from monies due to the Contractor for any EPSC work on the Project. This deduction can be made for each location, as determined by the Department, for each calendar day that the deficiency is allowed to remain and charged as item description "*Failure to Comply with Permit Deduction*". A deduction shall be made from monies due the Contractor, not as a penalty, but as liquidated damages, as indicated in **108.09** of the Standard Specifications.

If the necessary corrections/adjustments are not done in a timely manner as required, the Department will implement the provisions of **209.07** and **109.08** of the Standard Specifications that provides for the Department making repairs and recovering the costs thereof from the Contractor.

The Department will not participate in any payment or reimbursement for fines and will not authorize time extensions due to delays in project progress for work stoppage, to remedy the violations stated within the NOV, as stated in **105.01** of the Standard Specifications.

Spill Prevention, Control, and Countermeasure

To help prevent the discharge of oil into navigable waters, the U.S. Environmental Protection Agency (EPA) developed the Spill Prevention, Control, and Countermeasure (SPCC) Program. The SPCC Program is under the authority of Section 311 (j)(1)(C) of the Federal Water Pollution Control Act (Clean Water Act) in 1974. The rule may be found at Title 40, Code of Federal Regulations (CFR), Part 112. Additional information regarding the preparation and requirements of a SPCC Plan can be found at: [Overview of the Spill Prevention, Control, and Countermeasure \(SPCC\) Regulation | US EPA](#)

If applicable based upon the total aggregate capacity of aboveground oil storage, develop a site specific SPCC Plan per EPA requirements. This plan shall be provided to the TDOT Field Office as part of the required submittals during the project Pre-Construction Meeting or at which time the conditions on the project site meet the applicable criteria. If applicable, obtain any other necessary local, state, and federal permits as applicable. The SPCC Plan and/or permits shall be kept on-site.

Comply with all aspects of the site specific SPCC Plan including but not limited to performing any required inspections as directed by the SPCC Plan as well as implementing material and spill management practices per the project's SWPPP. In the event, where a release containing a

hazardous substance in an amount equal to, or in excess of a reportable quantity established under either 40 CFR 117 or 40 CFR 302 occurs during a 24-hour period, immediately notify the TDOT Field Office.



**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES**

Davy Crockett Tower, 9th Floor
500 James Robertson Parkway
Nashville, Tennessee 37243-1102

ARAP Tracking No. NR2503.124

Notice of Coverage (NOC) under the Aquatic Resource Alteration General Permit for
Construction or Removal of Minor Stream Crossings

Under authority of the Tennessee Water Quality Control Act of 1977 (TWQCA, §§ T.C.A. 69-3-101 et seq.) the Division of Water Resources has determined the activity described below would not violate applicable water quality standards.

This activity is governed by the General Permit for Construction or Removal of Minor Stream Crossings issued pursuant to the TWQCA. The work must be accomplished in conformance with accepted plans, specifications, data and other information submitted in support of application NR2503.124 and the terms and conditions set forth in the general permit.

Permittee name:	Jefferson County Highway Department
Project name:	Carmichael Road over Long Creek
Authorized work:	replacement of an existing span bridge with a 30' long x 48' wide precast concrete bridge
Location:	Carmichael Road, White Pine, TN 37890, Jefferson County
Latitude:	36.0921
Longitude:	-83.3334
Waterbody name:	Long Creek
Effective date:	08/08/2025
Expiration date:	05/15/2030

This does not preclude requirements of other federal, state or local laws. In particular, work shall not commence until the applicant has received the federal section 404 permit from the U. S. Army Corps of

Engineers, a section 26a permit from the Tennessee Valley Authority or authorization under a Tennessee NPDES Storm Water Construction Permit where necessary. This permit may also serve as a federal section 401 Water Quality Certification (pursuant to 33 U.S.C. §1341) since the planned activity was reviewed and the division has reasonable assurance that the activity will be conducted in a manner that will not violate applicable water quality standards (T.C.A. §§ 69-3-101 et seq. or provisions of sections 301, 302, 303, 306 or 307 of The Clean Water Act). The 401 Water Quality Certification Justifications and Citations related to the procedural requirements of §121.7(d) can be found [here](#). A paper copy of the certifications and justifications can also be obtained by contacting Water.Permits@tn.gov or calling (615) 532-0359.

The state of Tennessee may modify, suspend or revoke this authorization should the state determine that the activity results in more than an insignificant degradation of applicable water quality standards or violation of the TWQCA. Failure to comply with permit terms may result in penalties in accordance with T.C.A. §69-3-115.

S T A T E**O F****T E N N E S S E E**

(Rev. 09/07/22)

April 1, 2026

CERTIFICATION REGARDING**DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS****PRIMARY AND LOWER TIER COVERED TRANSACTIONS**

The prospective Primary and/or Lower Tier participant certifies, by signing and submitting this proposal, to the best of its knowledge and belief, that it and its principals:

Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State or local department or agency.

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.

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 the preceding paragraph of this certification; and

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.

Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal; and

Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Where the prospective Primary and/or Lower Tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

(Exceptions to the above are to be submitted on a separate sheet with the bid proposal)

For any exception noted, indicate to whom it applies, initiating agency, and dates of action.
Providing false information may result in criminal prosecution or administrative sanctions.

S T A T E**O F****T E N N E S S E E**

(Rev. 05/01/95)

April 1, 2026

SPECIAL PROVISION**REGARDING****LABOR (STATE PROJECTS ONLY)**

The contractor will be required to comply with the provisions of Title 12, Chapter 4, Part 4, Tennessee Code Annotated, relative to payment of prevailing wages and also the following rules and regulations as established by the Tennessee Department of Labor:

- (1) Classify all laborers and mechanics conformably with schedule of classification in the contract.
- (2) Apprentices may be employed only under a bona fide apprenticeship program, registered with the Bureau of Apprenticeship, U.S. Department of Labor.
- (3) Wages rates must be posted in a prominent place on the site of construction and must be made available to all mechanics and laborers employed on the project at all times.
- (4) Pay all laborers and mechanics unconditionally and not less often than once each week the full wages earned.
- (5) Pay hourly rates which are not less than those listed for the class of labor being employed.
- (6) Pay overtime compensation as required by any applicable federal or state laws, rules or regulations.
- (7) Make no deductions from wages other than those authorized by law.
- (8) The contractor shall submit each week in which any contract work is performed a certified copy of all payrolls to the contracting agency. The address and social security number of each employee shall be shown the first time the employee appears on a payroll, and on any subsequent payroll when the employee's address changes.

The certifications will affirm that the payrolls are correct and complete, that the wage rates contained therein are not less than those determined by the Commissioner of Labor, and that the classifications set forth for each laborer and mechanic conform with the work performed. The contractor will make his employment records available for inspection by representatives of the contracting agency and the Department of Labor and will permit such representatives to interview employees during working hours on a project.

Failure to submit payrolls within one week or to resubmit corrected payrolls within one week after notification may be reason to withhold progress payments.

The rates of pay for each classification of labor employees on this project as set out by the Labor Department of the State of Tennessee and made a part of this proposal contract, shall remain unchanged for the life of this contract.

Watchman and clerical employees are not to be covered by the Wage Scale, therefore, may be paid at or above the National Wage and Hour Law Rates.

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T E N N E S S E E

(Rev. 09/07/22)

April 1, 2026

SPECIAL PROVISION

REGARDING

NON-DISCRIMINATION IN EMPLOYMENT

Bidders are cautioned as follows:

By signing this bid, the bidder will be deemed to have signed and agreed that all persons, firms or corporations supplying goods, material, equipment or service of any kind to the State of Tennessee will not discriminate against any employee or applicant for employment on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability and further, that while under contract with the State will show proof upon request that all employment practices including, but not limited to, promotion, rates of pay, transfers, recruitment, recruitment advertising, terminations, layoffs and training and apprenticeship programs are not discriminatory in nature.

Each contractor shall be required to post in conspicuous places, available to all employees and applicants for employment, notices of non-discrimination.

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T E N N E S S E E

Rev. 07-07-14

January 1, 2021

SPECIAL PROVISION

REGARDING

REMOVAL OF ASBESTOS CONTAINING MATERIAL (ACM)

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SECTION 011100**SUMMARY OF WORK****1.0. PART 1 - GENERAL****1.1 WORK COVERED BY CONTRACT DOCUMENTS****A. Description**

This Special Provision addresses the abatement of Asbestos-Containing Materials (ACM) in various structures on TDOT projects. The location and type of ACM will be defined in the contract plans. TDOT may provide estimated quantities based on an inspection for ACM by a licensed Tennessee Asbestos Inspector. The contractor is required to verify ACM quantities and confirm location.

Engineering controls which include, but are not limited to, negative pressure enclosures, amended water, and wet-cleaning methods, shall be utilized to prevent airborne asbestos fibers from migrating to other areas within or surrounding the work area(s) during all removal activities.

B. Location

The work is located as shown on contract plans.

C. Method of Measurement

The work shall be completed on a lump sum for completion of all work or measurement shall be square foot area and/or linear foot of pipe insulation, as follows:

1. Work Area A, Floor Tile and Mastic, Sq. Ft.
2. Work Area B, Roofing and Roof Flashing, Sq. Ft.
3. Work Area C, Thermal System Insulation, Linear Feet.
4. Work Area D, Cementitious Deck Drains (located in situ on existing bridge), Linear Feet.
5. Work Area E, Cementitious Deck Drains (located in rubble), Linear Feet.
6. Work Area F, Guardrail Caulking, Linear Feet.
7. Work Area G, Beam Bearing Pads, Sq. Ft.

8. Work Area H, Bridge Coatings and/or Concrete Bridge Components, Sq. Ft.

D. Basis of Payment

ACM abatement, complete, in accordance with this document, shall be paid for on a lump sum basis or by the unit described in the contract plans.

1.2 EXISTING FINISHES AND FACILITIES

Perform all work in such a manner as to prevent injury or damage to any portions of existing finishes, or any other portions of the building structure, which are to remain. Repair or replace portions of existing finishes which have been damaged or altered during construction operations to match existing or adjoining work, as approved by the Engineer. At the completion of operations, existing finishes shall be in a condition equal to or better than that which existed before new work started, unless otherwise specified in the contract documents.

1.3 DEFINITION OF WORK AREAS

A. Asbestos-Containing Materials

9. Work Area A is defined as the removal of all asbestos-containing Floor Tile and Mastic.
10. Work Area B is defined as the removal of all asbestos-containing Roofing and Roof Flashing.
11. Work Area C is defined as the removal of all asbestos-containing Thermal System Insulation.
12. Work Area D is defined as the removal of all asbestos-containing Cementitious Deck Drains (located in situ on existing bridge).
13. Work Area E is defined as the removal of all asbestos-containing Cementitious Deck Drains (located in rubble).
14. Work Area F is defined as the removal of all asbestos-containing Guardrail Caulking.
15. Work Area G is defined as the removal of all asbestos-containing Beam Bearing Pads.
16. Work Area H is defined as the removal of all asbestos-containing Bridge Coatings and/or Concrete Bridge Components.

END OF SECTION

SECTION 013300**SUBMITTALS****1.0. PART 1 - GENERAL****1.1. WORK INCLUDED**

Make submittals required by the Contract Documents in a timely manner and at approximate times in the execution of the Work to allow for sufficient and prompt review by the Engineer and distribution to the TDOT Environmental Division. Revise and resubmit as necessary to establish compliance with the specified requirements.

A. Related Work

1. Section 014529 – Testing Laboratory Services
2. Section 028200 – Asbestos-Containing Materials Abatement

1.2. DESCRIPTION**A. Submittals**

1. At the Pre-construction Conference, the successful bidder(s) shall submit three three-ring bound sets of "Pre-Job Submittals" to the Engineer for review.
2. Submit three, three-ring bound sets of any new or additional Pre-Job Submittals to the Engineer for his review prior to mobilization at the project site. The Work may not proceed until the complete Pre-Job Submittal package has been reviewed and approved in writing by the Engineer.
3. Submit three, three-ring bound sets of "Post-Job Submittals" to the Engineer for his review following the final completion of the Work.
4. Identify individual submittals by name and include a table of contents in each submittal package.

1.3. NUMBER OF COPIES

Provide three, three-ring bound sets of each submittal package to the Engineer for his review and distribution. Contractor shall also maintain one full set of pre-job submittals at each job site for the duration of the work.

1.4. QUALITY ASSURANCE

A. Coordination of Submittals

1. Carefully review all aspects of each item being submitted.
2. Verify that each item and its appropriate submittal conform in all respects with the specified requirements.
3. Certify, by affixing signature of Contractor's authorized representative to the cover sheet of each submittal package, that this coordination has taken place.

1.5. SUMMARY OF WORK

A. Pre-Job Submittals

1. Submit complete information relative to the following:

NOTIFICATIONS
PERMITS
SAMPLE DAILY LOG

As detailed below:

- a. Notice of impending commencement of asbestos removal work, where required, in writing to the appropriate regulatory agency:

Using SF – 1 of these specifications, not fewer than thirty days before work commences on the Project. Include copy of notification in submittal package.

- b. All required permits and arrangements for transport and disposal of asbestos-containing or contaminated materials, supplies, etc.
- c. A sample copy of daily in/out log form to be used.

2. Submit complete information relative to the following:

DECONTAMINATION UNIT
SECURITY PROCEDURES
WORK PROCEDURES
NEGATIVE EXPOSURE ASSESSMENT
MATERIALS CERTIFICATIONS
EQUIPMENT CERTIFICATIONS

As detailed below:

- a. Written description and/or sketch of the plans for construction of a worker and barrel/equipment decontamination enclosure system and for isolation of the work areas.
- b. Written description and/or sketch of the security procedures plan to be utilized. Work procedures or practices to be utilized on the Project.
- c. Submit a written, detailed plan of how the Contractor intends to remove asbestos-containing material from each work area. Details are to include wetting methods, visible emission minimization methods, segregation criteria, any cutting, abrading or physical methods, and all transport and disposal methods.
- d. Negative Exposure Assessment (NEA): Provide a negative exposure assessment (NEA) as described in 29 CFR 1926.1101 for each work activity, including, but not limited to, work area preparation, removal of ACM, work area cleaning(s) and disposal at the landfill. In order to generate the NEA, obtain both PEL and excursion limit air sampling results from either prior asbestos projects within the last 12 months or from initial exposure monitoring from this project.

Note that air sample data must include documentation indicating that the data was obtained during activities which closely resemble the processes, type of ACM, control methods, work practices and environmental conditions associated with this project. Also, include documentation that the training and experience of the workers on the prior asbestos projects was no more extensive than that of the workers to be used on this project. Documentation shall be sufficient to determine that the prevailing conditions on this project will, with a high degree of certainty, not result in employee exposures above the PEL or excursion limit.

- e. Manufacturer's certification or independent test reports confirming that materials to be utilized on this Project meet or exceed all performance criteria specified in the Contract Documents. Contractor's and Manufacturer's affidavits stating that all materials replaced on the project do not contain asbestos or lead.
- f. Certification that the diminished air filtration system to be utilized meets the requirements of the Contract Documents.
- g. All special equipment, techniques, etc. to be used on the Project.

3. Submit complete information relative to the following:

SUPERVISOR NAMES AND TRAINING
WORKER TRAINING
WORKER'S RELEASE
RESPIRATORY TRAINING
MEDICAL SURVEILLANCE

As detailed below:

- a. Names of supervisory personnel and their qualifications and training. Refer to Sections 028200 for additional details.
- b. Alphabetized list of workers and their training. Refer to Sections 028200 for additional details.
- c. Individually signed Worker's Release forms for each and every worker to be utilized on the project by the Contractor or subcontractor (Form SF-3).
- d. Individually signed forms by each and every worker to be utilized on the Project by the Contractor or subcontractor documenting that each is actively involved in a company employee respiratory protection program and has had appropriate training in respiratory protection (Form SF-2).
- e. Individually signed forms by each and every worker to be utilized on the Project by the Contractor or subcontractor documenting that each is actively involved in a company employee medical surveillance program for asbestos (Form SF-4). Include copies of medical examination records (Doctor's respirator opinion, spirometry, radiograph, interpretation, etc.).
- f. Copies of each individual's (working on the project) training certificate(s) with accompanying update certificates in accordance with state and federal statutes.

It shall be the responsibility of the Contractor to translate in writing all special forms requiring an individual signature (Special Forms SF-2, SF-3, SF-4) into a language that the individual worker can understand, if other than English, and to make sure that the individual worker fully understands the contents of the special form prior to signing.

B. Post-Job Submittals

Submit complete information relative to the following:

1. All submittals required by the General Requirements.
2. Waste shipment record as required by state and federal regulations. In addition, submit landfill receipts.
3. Copies of daily logs showing the following: date, entering and leaving time, company or agency represented, and reason for entry for all persons entering the work area.
4. Copies of employee air monitoring results relative to OSHA respiratory protection level compliance.
5. An alphabetized list of all employees utilized on the project.
6. Copies of pressure differential recordings the negative pressure abatement work areas. These recordings shall be clearly marked with location, pressure levels and dates and time of day, on an hourly basis, from start of removal until acceptance of clearance air testing by Testing Laboratory.

C. "Or Equivalent," "Approved Equivalent," "Other As Approved," etc.

1. Where the phrases "or equivalent," or "equivalent as approved by the Engineer," or similar wording occurs in the Contract Documents, specific materials, equipment, or methods will not be considered as equivalent unless the item has been specifically so approved for this Work by the Engineer.
2. Wherever a particular item is listed by manufacturer's name, model number or other identifying information, it shall be interpreted to include equivalent products of other manufacturers whether "approved equivalent," etc. is stated or not.
3. Whenever a manufacturer's product is specified to the exclusion of all other products, it shall be so identified and declared.
4. Decision of the Engineer shall be final.

2.0. PART 2 - PRODUCTS

2.1. SAMPLES

If requested by the Engineer, provide samples of all materials or articles proposed to be installed as a part of the Work. Identify as described under "Identification of Submittals" below.

2.2. MANUFACTURER'S LITERATURE

Where contents of submitted literature from manufacturers include data not pertinent to the submittal, clearly show which portions of the contents is being submitted for review. Submit a minimum of three copies to the Engineer for his review and file.

3.0 PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

Number consecutively and clearly identify all submittals. Show on at least the first page of each submittal and elsewhere as necessary for positive identification of the submittal. Accompany each submittal package with a letter of transmittal showing all information required for identification and checking.

3.2 GROUPING OF SUBMITTALS

Group submittals into packages identified as "Pre-Job Submittals" and "Post-Job Submittals". Partial submittals may be rejected for noncompliance with the Contract Documents.

3.3 TIMING OF SUBMITTALS

Make submittals not less than 14 days prior to scheduled dates for commencement, execution or installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery. Allow in scheduling, at least five working days for review by the Engineer following his receipt of pre-job submittals. Contractor will be held responsible for delays occasioned by incomplete submittal packages.

3.4 ENGINEER'S REVIEW

Review by the Engineer does not relieve the Contractor from responsibility for errors which may exist in the submitted data. Make revisions if required by the Engineer and resubmit for approval.

END OF SECTION

SECTION 014529**TESTING LABORATORY SERVICES****1.0. PART 1 - GENERAL****1.1 DESCRIPTION**

Contractor will provide a qualified Testing Laboratory to perform routine and special testing of the Work performed under the Contract Documents and to monitor general compliance therewith. The Testing Laboratory employed by the Contractor shall perform testing for compliance with applicable codes, regulations, and requirements as specified in this Section and elsewhere in the Contract Documents. The Testing Laboratory employed by the Contractor shall be responsible for employee air monitoring relative to OSHA respiratory protection level compliance, daily area air monitoring to determine effectiveness of engineering controls, and negative pressure enclosure readings and documentation, and final clearance sampling, if required by these specifications.

The Contractor shall cooperate with the Testing Laboratory in all aspects of the testing in order to expedite testing and results. Provide Testing Laboratory access to the Work at all times and in all locations requested as necessary to perform testing.

The Engineer reserves the right to hire, direct, and compensate his own Testing Laboratory, separate and distinct from the Contractor. The Engineer's test results may be made available to Contractor at the Engineer's sole discretion.

A. Related Work

1. Section 013300 – Submittals
2. Section 028200 – Asbestos-Containing Material Abatement

1.2 QUALITY ASSURANCE

All asbestos air testing shall be performed in general accordance with the procedures outlined in the National Institute for Occupational Safety and Health (NIOSH) methods 7400 for samples analyzed by Phase Contrast Microscopy (PCM) and in general accordance with the EPA AHERA protocols for samples analyzed by Transmission Electron Microscopy (TEM) and also guidelines issued by EPA for detection limits. Consider work areas clean and ready for reoccupancy when air testing shows 0.01 or less fibers per cubic centimeter of air (f/cc), for each sample obtained using standard NIOSH Method No. 7400 for PCM. This standard must be met for the work area to pass clearance.

A. Payment for Testing

Testing Services shall be paid for as follows:

1. Initial Services: Contractor will pay for initial air clearance testing services required by Contract Documents.
2. Retesting: When initial air clearance tests indicate noncompliance with the Contract Documents, subsequent retesting shall be performed by the same testing agency, and costs will be absorbed by the Contractor.

B. Scheduling

1. Testing by the Testing Laboratory shall be performed in areas and at times during the Work as deemed necessary by the Engineer or as specified in the Contract Documents.
2. Contractor shall schedule, and make the Engineer aware of, air clearance testing at least 24 hours prior to desired time of testing.
3. Coordinate scheduling with Testing Laboratory as necessary.

C. Results

1. All testing and analysis will be performed promptly and results issued expeditiously in order to minimize any possible delay in the progress of the Work.
2. Test results will be made available to the Engineer as follows:
 - a. Air sample results for Asbestos (Phase Contrast Microscopy) - as quickly as possible but not later than 24 hours following conclusion of sampling event.
 - b. Results of other tests deemed necessary - as quickly as possible but not later than 24 hours following completion of test(s).

END OF SECTION

SECTION 028200**ASBESTOS-CONTAINING MATERIAL ABATEMENT****1.0. PART 1 - GENERAL****1.1 DESCRIPTION****A. Responsibilities of the Contractor**

1. Perform all planning, administrative, execution, and cleaning requirements necessary to safely remove all asbestos-containing materials from all Work Areas indicated in the Contract Documents. Approval of or acceptance by the Engineer of various construction activities or methods proposed by the Contractor does not constitute an assumption of liability by the Engineer for inadequacy or adverse consequences of said activities or methods.
2. Contractor (or subcontractor engaged to perform the Work of this Section) shall:
 - a. Be a licensed asbestos abatement contractor in accordance with State of Tennessee Statutes. Submit documentation confirming current licensure.
 - b. Have a record of not less than five years successful experience in asbestos removal and related work similar in scope and magnitude to this Project. Submit list of successfully completed projects for verification.
3. Maintain on site a Superintendent and one Head Foreman, each on permanent staff and each having no less than two years of full-time experience in responsible charge of asbestos removal operations similar in scope and magnitude to this Project within the three year period preceding start of Project. Adequate evidence of experience and skill of the Superintendent and Head Foreman must be demonstrated prior to the start of the Work and shall not be changed. Head Foreman shall remain inside of the work area at all times the Work is in progress. Submit experience of Superintendent and Head Foreman in the pre-job submittal package.
4. Provide one experienced Job Foreman with a minimum of two years successful experience in asbestos removal operations similar in scope and magnitude to this Project for every ten asbestos removal workers (laborers) utilized on the Project. Foreman shall remain inside of work area(s) at all times that the Work is in progress. Submit notarized experience of each Job Foreman in the pre-job submittal package.

5. Submit certification for each and every worker to be utilized on the project by the Contractor or subcontractor(s) documenting that each has successfully completed (including examinations and applicable refresher courses) a training course for asbestos abatement workers approved by the State of Tennessee. Contractor shall also submit documentation confirming federal approval for each training center represented in the submittals.
6. Submit certification for each and every supervisor to be utilized on the project by the Contractor or subcontractor(s) documenting that each has successfully completed (including examinations and applicable refresher courses) a training course approved by EPA and State of Tennessee for asbestos abatement supervisors.

B. Reference Standards

1. Acknowledge, by the executing of the Contract, awareness and familiarity with the contents and requirements of the following regulations, codes, and standards, and assume responsibility for the performance of the Work in strict compliance therewith and for every instance of failure to comply therewith.
2. The current issue of each document shall govern. Where conflict among requirements or with the Contract Documents exists, the more stringent requirements shall apply.
 - a. U.S. Environmental Protection Agency (EPA) Regulations for Asbestos (Code of Federal Regulations Title 40, Part 61, Subparts A and B).
 - b. U.S. EPA Regulations for Asbestos in Schools, Asbestos Hazard Emergency Response Act (AHERA), (Code of Federal Regulations Title 40, part 763, Subpart E).
 - c. U.S. EPA Regional National Emissions Standards for Hazardous Air Pollutants (NESHAPS).
 - d. U.S. Occupational and Safety and Health Administration (OSHA) Asbestos Regulations (Code of Federal Regulations Title 29, Part 1926, Section 1926.1101).
 - e. U.S. EPA Office of Pesticide and Toxic Substances Guidance Document, "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings", EPA 56015-85-024, June, 1985.
 - f. U.S. Department of Transportation, Hazardous Substances: Final Rule (Code of Federal Regulations Title 49 Parts 171 and 172), Federal Register November 21, 1986 and corrected February 17, 1987.
 - g. All state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of EPA, OSHA, and applicable State, County, and City Regulations governing the Work.
 - h. U.S. Environmental Protection Agency – 40 CFR, Part 763, Subpart G – Asbestos Worker Protection
 - i. U.S. Environmental Protection Agency – 40 CFR, Part 61, Subpart M – National Emission Standards for Hazardous Air Pollutants

- j. U.S. Occupational Safety and Health Administration – 29 CFR, Part 1910.1001 – Asbestos Standard for Industry
- k. Tennessee Department of Environment and Conservation, Bureau of Environment, Division of Air Pollution Control – Chapter 1200-03-11, Hazardous Air Contaminants.
- l. Tennessee Department of Environment and Conservation, Bureau of Environment, Division of Air Pollution Control – Chapter 1200-01-20, Asbestos Accreditation Requirements.
- m. Tennessee Department of Environment and Conservation, Bureau of Environment, Division of Solid and Hazardous Waste Management – Chapter 1200-01-07, Solid Waste Processing and Disposal
- n. Tennessee Department of Labor and Workforce Development, Division of Occupational Safety and Health (TOSHA) – Chapter 0800-01-01, Occupational Safety and Health Standards for General Industry.
- o. Tennessee Department of Labor and Workforce Development, Division of Occupational Safety and Health (TOSHA) – Chapter 0800-01-06, Occupational Safety and Health Standards for Construction.

C. Patent/Copyright Compliance

The Contractor shall fully comply with patent and copyright requirements associated with this Contract. The Contractor shall defend all suits for or claims of infringement of said patent rights and shall save the Engineer and Testing Laboratory harmless from loss on account thereof, fully indemnifying the Engineer and Testing Laboratory from same and any and all associated claims without exception or limitation.

D. Test Reports

- 1. Results of tests of asbestos-containing materials (which are specifically excluded as a part of this Contract) taken from surfaces within the scope of this Project are available for review at the office of the Engineer.

However, the Contractor or subcontractor is cautioned that, should interpretations be made, opinions be formed, and conclusions be drawn as a result of examining the test results, those interpretations, opinions, and

conclusions will be those made, formed, and drawn solely by the Contractor or subcontractor.

2. In as much as randomly and/or arbitrarily selected areas were sampled, the Department makes no representation, warranty, nor guarantee that the conditions indicated by the test reports either are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in proportions different from, those indicated may not exist.

1.2. SUMMARY OF WORK

A. Work Covered by Contract Documents

The Contractor shall inform himself of the conditions for the project, and is responsible for verifying the quantities and locations of all work to be performed as outlined in this section. Failure to do so shall not relieve the Contractor of his obligation to furnish all materials and labor necessary to carry out the provisions of the Contract.

1. **SCOPE OF WORK:** The scope of work to be performed is the removal and disposal of asbestos-containing materials as defined and quantified in the Drawings. The work of the contract shall be performed in compliance with the specifications.
2. **START OF WORK:** Work shall be started no earlier than the date indicated on written authorization from the Engineer and shall be performed only during the hours as stated below.
3. **WORKING HOURS:** All work by the abatement contractor shall be performed during the days and hour as defined in the contract documents.

B. Definitions

1. Abatement - procedures to decrease or eliminate fiber release from asbestos- containing building materials. Includes encapsulation, enclosure and removal.
2. AHERA - Asbestos Hazard Emergency Response Act (40CFR763).
3. Airlock - system for permitting ingress and egress without permitting air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways at least three feet apart.
4. Amended water - water to which a surfactant is added.

5. Air Monitoring - the process of measuring the fiber content of a specific volume of air in a stated period of time.
6. Clean Room - an uncontaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of workers' street clothes and protective equipment. Also known as the "Change Room".
7. Curtained Doorway - a device to allow ingress and egress from one room to another while minimizing air movement between the rooms. Typically constructed by placing two overlapping sheets of plastic over an existing or temporarily framed doorway and securing each along the top of the doorway, with the vertical edge of one along one vertical side of the doorway, and the vertical edge of the other along the opposite vertical side. Two curtained doorways spaced a minimum of three feet apart form an airlock.
8. Decontamination Enclosure System - a series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains an airlock.
9. Encapsulation - the sealing of asbestos surfaces involving application of a material (encapsulant/sealant) that will envelop or coat the fiber matrix and minimize fiber fallout and protect against contact damage.
10. Enclosure - procedures necessary to completely enclose material containing asbestos behind airtight, impermeable, permanent barriers.
11. Engineer – where the word Engineer is used, the word Architect shall be interchangeable.
12. EPA - United States Environmental Protection Agency.
13. Equipment Decontamination Enclosure System - a decontamination enclosure system for materials and equipment, typically consisting of a designated area of the work area, a washroom, and an uncontaminated area.
14. Equipment Room - a contaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.

15. Fixed Object (immovable object) - a unit of equipment or furniture in the work area which cannot be removed from the work area.
16. Glove Bag - A relatively small, clear plastic enclosure which can completely encompass short sections of pipe. It shall be capable of allowing the removal of asbestos- containing materials without any of the materials escaping from the enclosure.
17. HEPA Filter - a High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of asbestos thermally generated DOP particles 0.3 microns in diameter.
18. HEPA Vacuum Equipment - High Efficiency Particulate Air filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be 99.97 percent efficient for retaining thermally generated DOP particles 0.3 microns in diameter.
19. Holding Area - a chamber between the washroom and uncontaminated area in the equipment decontamination enclosure system. The holding area comprises an airlock.
20. Movable Object - a unit of equipment or furniture in the work area which can be removed from the work area.
21. NIOSH - National Institute for Occupational Safety and Health.
22. OSHA - Occupational Safety & Health Administration.
23. Plastic Sheeting - plastic sheet material used for protection of walls, floors, etc. and used to seal openings into work areas. The thickness of the material shall be as specified.
24. Asbestos Containing Material (ACM) Removal - the act of removing asbestos-containing or contaminated materials from a structure and depositing in a suitable disposal site.
25. Scaffolding - self-supporting and load bearing temporary structure.
26. Shower Room - a room constituting an airlock, between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water suitably arranged for complete showering during decontamination.

27. Surfactant - a chemical wetting agent added to water to improve its penetrating ability, thus reducing the quantity of water required to saturate asbestos- containing materials.
28. Waste Generator - a source covered by EPA NESHAP regulations whose act or process produces asbestos-containing waste.
29. Wet Cleaning - the process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.
30. Washroom - a room between the work area and the holding area in the equipment decontamination enclosure system. The washroom comprises an airlock.
31. Work Area - area or areas of project which undergo "abatement" or are contaminated.
32. Worker Decontamination Enclosure System - a decontamination enclosure system for workers, typically consisting of a clean room, a shower room, and an equipment room.

1.3. WORKSITE CONDITIONS

Worker and Visitor Procedures: The Contractor is hereby advised that asbestos has been determined by the U.S. Government to be a CANCER-CAUSING AGENT and Contractor shall provide workers and visitors with respirators which as a minimum shall meet the requirements of OSHA 29CFR 1926.1101, and protective clothing during preparation of system of enclosures, prior to commencing, during actual asbestos removal, and until final clean-up is completed.

1.4 PERSONNEL PROTECTION

Prior to commencement of work, all workers shall be instructed by the Contractor and shall be knowledgeable, in the appropriate procedures of personnel protection and asbestos removal. Contractor acknowledges and agrees that he is solely responsible for enforcing worker protection requirements at least equal to those required by federal regulations.

A. Respiratory Protection

1. Contractor shall provide workers with personally issued and marked respiratory equipment approved by NIOSH and OSHA and as a minimum

suitable for the asbestos exposure level in the work areas according to OSHA Standard 29 CFR 1926.1101.

2. Where respirators with disposable filters are used, provide sufficient filters for replacement as necessary by the workers, or as required by applicable regulations.
3. Provide respiratory protection from the time the first operations involved in the Project require contact with asbestos-containing materials (including construction of airtight barriers/barricades, and placing of plastic sheeting on walls) until acceptance of final air test results by Testing Laboratory. Should conditions be encountered where the exposure level, after application of the appropriate protection factor of the respiratory equipment in use, exceeds 0.01 fibers per cubic centimeter of air (f/cc), substitute respiratory equipment with protection factors which reduce worker exposure levels below 0.01 f/cc. As a minimum, Contractor shall use respirators as follows:

ACTIVITY

MIN. RESPIRATORY PROTECTION

- | | | |
|----|--|--|
| a. | Construction of Airtight Barriers/Barricades | Half-Mask Air Purifying |
| b. | Placing of Plastic Sheeting | Half-Mask Air Purifying |
| c. | Pre-cleaning | Half-Mask Air Purifying |
| d. | Removal Using Glovebag Procedures | Half-Mask Air Purifying |
| e. | Removal of Non-Friable Materials | Half-Mask Air Purifying |
| f. | Removal of Friable Materials | Powered Air Purifying (PAPR) |
| g. | Second Phase Cleaning | Half-Mask Air Purifying |
| h. | Anytime fiber concentrations reach
or exceed 0.10 f/cc by NIOSH Method #7400
regardless of activity being performed. | Type C, Supplied Air,
Pressure Demand |
4. Provide emergency backup air supply for each worker in work area at all times when "Type C" (supplied air) respirators are required. Provide emergency backup equipment with air supply of sufficient duration for all workers to safely exit work area. Locate emergency equipment so that it is readily accessible to each worker in work area following interruption of normal air supply.

5. All supplied air (Type C) respiratory equipment shall supply as a minimum, Grade D air. Contractor shall maintain on- site documentation and submit certified test results that air supplied to work area is Grade D or better. Documentation will include, as a minimum, equipment serial numbers, or panel numbers, and shall have been certified within the six months prior to project startup date.
6. Ambient air pumps shall not be used for Type C supplied air systems.

B. Additional Protective Measures

1. Permit no visitors, except for governmental inspectors having jurisdiction, or as authorized by Engineer, in the work areas after commencement of asbestos disturbance or removal. Provide authorized visitors with suitable respirators.
2. Provide workers with sufficient sets of protective disposable clothing, consisting of full-body coveralls, head covers, gloves, and foot covers; of sizes to properly fit individual workers.
3. Provide authorized visitors with a set of suitable protective disposable clothing, headgear, eye protection, and footwear of sizes to properly fit visitors whenever they are required to enter the work area, to a maximum of six sets per day.
4. Provide, in addition to respirators and protective clothing provided for authorized visitors, protective clothing and respirators for use by Testing Laboratory's representative. Furnish protective clothing in as many sets as required for full-time monitoring by Testing Laboratory.
5. Provide and post in the Equipment Room and the Clean Room the asbestos removal decontamination and work procedures to be followed by workers.

2.0. PRODUCTS

2.1 MATERIALS

A. Material Requirements

Materials to be used by the Contractor shall meet the following requirements:

1. Plastic sheeting - shall be of the thicknesses specified, in sizes to minimize the frequency of joints. Opaque plastic sheeting shall be utilized, in thicknesses specified, where work areas are adjacent to public access areas.
2. Tape - shall be glass fiber or other type capable of sealing joints of adjacent sheets of plastic and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials under both dry and wet conditions.
3. Surfactant (wetting agent) - Shall consist of resin materials in water base which have been tested to indicate material is nontoxic and nonirritating to skin and eyes, and noncarcinogenic. Approved Materials and Manufacturers:
 - a. "Dust-Set Amended Water Base" and its sprayer mixing head amended water generator manufactured by Matheson Chemical Corporation, 1025 East Montgomery Avenue, Philadelphia, PA, 19125, telephone (215) 423-3200.
 - b. Equivalent products by other manufacturers will be considered for approval if submitted with appropriate information not later than five days prior to the scheduled time for the material to be used. Minimum information shall include Material Safety Data Sheet, OSHA Form No. 20; toxicological reports, and installation recommendations for use on asbestos- containing materials.
4. Tile Adhesive Removal Solvent: - Provide a water based slow drying solvent intended to remove tile adhesive. The chemical shall, at a minimum, have a closed cup flash point of greater than 140 degrees F., contain no chlorinated compounds, and contain no compounds which could render the waste as a hazardous waste for disposal. Specifically, the mastic removal chemical shall not contain any ingredient which is subject to the reporting requirements of Section 313 Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) or 40 CFR 372. Contractor shall, whenever feasible, use "low odor" products in an effort to minimize complaints during the project and following demobilization. Approved materials and manufacturers:

- a. "De-Solv-It", manufactured by Orange Sol, Inc., P.O. Box 306, Chandler, Arizona 85244, Telephone (602) 497-8822. "De-Solv-It" is formulated for the removal of asphaltic and multi-purpose adhesives.
 - b. "ADL-1" manufactured by Orange Sol, Inc., P.O. Box 306, Chandler, Arizona 85244, Telephone (602) 497-8822. "ADL-1" is formulated for latex adhesive removal.
 - c. Equivalent products by other manufacturers will be considered for approval if submitted with appropriate information not later than five days prior to the scheduled time for the material to be used. Minimum information shall include Material Safety Data Sheet, OSHA Form No. 20; toxicological reports, and installation recommendations for use on asbestos-containing materials.
5. Sealant (encapsulant) - Shall be manufactured by reputable, established manufacturer of encapsulant/sealant materials and be approved specifically for use in asbestos-contaminated environments. Shall be compatible with the temperature conditions on surfaces to which sealant is to be applied. It is the responsibility of the Contractor to determine compatibility of the sealant with materials and conditions.
 6. Impermeable containers - Shall be suitable to receive and retain asbestos-containing or contaminated materials until disposal at an approved site and shall be labeled in accordance with OSHA Regulation 29 CFR 1926.1101, and U.S. DOT 49 CFR 171 and 172, containers shall be both air and water-tight. Use a minimum of two types of impermeable containers: 1) six mil plastic bags sized to fit within the drum 2) metal or fiber drums with tightly fitting lids.
 7. Warning labels and signs - Shall be as required by OSHA regulation 29 CFR 1926.1101 (and U.S. DOT 49CFR 171 and 172 for impermeable containers).
 8. Other materials - Provide all other materials, such as lumber, nails and hardware, which may be required to construct and dismantle the decontamination area and the barriers that isolate the work area(s).
 9. Caulking - Shall be non-shrinking caulk to be used where insulated pipes continue through walls, ceilings, etc. Contractor shall determine and submit proof that caulk proposed for use is compatible with the temperature conditions and fire ratings of the surfaces to which it is to be applied. Caulking shall be certified as not containing asbestos in any amounts.

2.2 PRODUCT HANDLING

A. Product Delivery and Storage

1. Deliver all materials as described in Part 2 in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
2. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.
3. Remove from the premises all damaged or deteriorating materials. Dispose of materials that become contaminated with asbestos in accordance with applicable regulatory standards.

2.3 TOOLS AND EQUIPMENT

A. Suitable tools for asbestos removal

1. Water sprayer - Use airless or other low pressure sprayer for amended water application.
2. Air purifying equipment (for internal recirculation in the work area) - Shall be HEPA Filtration Systems or Electronic Precipitators. Ensure that no internal air movement system or purification equipment exhausts contaminated air from the work area(s) outside the work area.
3. Diminished air pressure equipment - comply with ANSI 29.2-7, local exhaust ventilation.
4. Scaffolding - Shall be as required to accomplish the specified work and shall meet all applicable safety regulations.
5. Transportation - As required for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property.
6. Communication equipment - Shall be suitable for interroom communications, such as "walkie-talkies".
7. First Aid Supplies - Comply with governing regulations and recognized recommendations within the construction industry.
8. Fire Extinguishers - Provide Type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or

grease-oil-flammable liquid fires. In other locations provide type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case.

9. Water Hoses - Employ either rigid copper tubing or heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each work area and to each Decontamination Unit.
10. Water Heater - Provide UL rated electric water heater to supply hot water for the Decontamination Unit shower. Provide with relief valve compatible with water heater operation; pipe relief valve down to drip on floor. Wiring of the water heater shall be in compliance with NEMA, NEC, and UL standards.
11. Electrical Distribution Equipment - Provide circuit and branch wiring, with area distribution boxes located as necessary to perform the Work. Wiring shall be in compliance with NEMA, NEC and UL standards. All branch circuits shall originate from a ground fault circuit interrupter located outside the containment(s).
12. Lighting - Provide adequate artificial lighting for all areas of the Work.
13. Extension Cords - Use only grounded extension cords. Use "hard-service" cords where exposed to abrasion or traffic. Use single lengths or water proof connectors to connect separate lengths when single lengths do not suffice.
14. Temporary Cooling and Heating - Provide temporary cooling and heating as necessary to maintain adequate environmental conditions to facilitate the progress of the work, to meet specified minimum conditions for material installation, and to protect materials and finishes from damage due to temperature or humidity.

3.0. EXECUTION

3.1. PREPARATION AND WORK AREA ENCLOSURE

A. Preparation Procedure A - For use with the full enclosure, gross removal of the following asbestos-containing materials:

- Floor Tile and Mastic (Contractor shall remove all floor tile and mastic from work area(s). Non-asbestos tile and multiple layers of tile may be present in some areas. All floor tile and mastic shall be treated as asbestos-containing.)

1. Coordinate with the Engineer to disable heating, ventilating and air conditioning (HVAC) systems or any other systems bringing air into or out of the work area(s). These systems shall remain disabled for the duration of abatement activities.
2. Temporary electrical power must be obtained from outside the work area(s) and shall be equipped with ground fault circuit interrupt protection. The Contractor is to provide generators for temporary electrical power and all water required by the job. All costs associated with providing temporary power and water shall be the responsibility of the Contractor.
3. Completely segregate the work area(s) from all other portions of the complex with temporary partitions. Partitions shall be of softwall construction as explained further in this section:
 - a. Softwall partitions shall be constructed of a 6 mil minimum thickness plastic sheeting attached to a 2" x 4" enclosure framework using 2" x 4" supports where necessary to prevent collapse of the enclosure system.
 - b. All partitions shall be removed at the conclusion of the work and all surfaces shall be restored to original condition, unless otherwise approved by the Engineer. All locations and configurations of softwall partitions shall be reviewed by the Engineer prior to installation.
 - c. Ensure that all barriers and plastic enclosures remain effectively sealed and taped for the duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning and end of each work period. Use smoke methods to test the effectiveness of barriers when directed by the Engineer.
4. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work area(s) not previously removed by the Department.
5. Identify location and amount of all asbestos-containing materials to be removed.
6. Isolate the work areas until clearance testing is accepted by the Contractor's Testing Laboratory, by completely sealing off with critical barriers all openings such as doorways, skylights, crawlspace openings, ducts, grills, diffusers, plenum areas and any other penetrations of the work areas with two layers of six mil plastic sheeting sealed with tape.

7. Seal wall-mounted electrical panels, switchboxes, etc. with minimum two layers of six mil plastic sheeting prior to placement of wall plastic.
8. Clean, prior to placing plastic sheeting on walls, the work area(s) using HEPA vacuum equipment or wet-cleaning methods as appropriate. Do not use methods that raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filtration. The Engineer shall be notified for observation of the critical barrier placement and cleaning of the work area prior to application of additional plastic sheeting.
9. Preclean immovable objects within the proposed work area(s), using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Following cleaning, completely seal all immovable items with two layers of six mil plastic sheeting.
10. Construct worker and barrel/equipment decontamination units in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit shall open on two sides and open into airlock on both contaminated and uncontaminated sides. Construct decontamination units of appropriate materials including plastic sheeting (to provide airtight barriers) and plywood or other suitable rigid materials to allow continuous diminished pressure to be maintained in work areas. Supply sufficient number of lockers, in worker decontamination unit change or "clean" room, for workers' clothing. Reserve one locker for Testing Laboratory personnel. Post OSHA decontamination procedures in change room for duration of Project.
11. Plastic Enclosures
 - a. In work areas where asbestos-containing floor coverings are to be removed, Contractor shall place six mil plastic "splash guards" on walls at perimeter of work area(s). Plastic sheeting "splash guards" shall extend, from floor level, a minimum of four feet up wall areas.
 - b. Ensure that all barriers and plastic enclosures remain effectively sealed and taped for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning of each work period. Use smoke methods to test effectiveness of barriers when directed by the Engineer.
12. Diminished Pressure
 - a. Place each work area under diminished air pressure utilizing HEPA filtration systems which comply with 028200, Part 2.02, A.3.

Allow no air movement system or air filtering equipment to discharge unfiltered air outside the work area. Maintain a diminished air pressure on the work area continuously (24 hours per day) from the start of asbestos removal and until the area has been decontaminated and certified as such by the required air testing. Accomplish a minimum of eight air changes per hour in the work area and maintain a minimum of 0.02 inches of water diminished pressure. Demonstrate diminished air pressure compliance during the removal of friable materials by monitoring and recording the pressure differential with a continuous read-out, strip-chart differential pressure recorder. Exhaust all filtered and discharged air outside the building away from any air intake devices.

- b. Exhaust ducts from diminished air machines shall be flexible polyethylene ducts manufactured for this purpose and sized to fit the outlet of the machines. Ducts field fabricated from plastic sheeting will not be permitted. If direction of discharge from fan unit is not aligned with duct, use sheet metal elbow to change direction.
 - c. Supplemental Make-Up Air Inlets: Where required for proper air flow through the work area(s), install HEPA-filtered make-up air inlet(s) at the perimeter of the enclosure(s) that allows air from outside into the work area. Locate make-up air inlets as far as possible from the exhaust unit(s). Air inlets shall be designed to reseal automatically if the diminished pressure system should shut down for any reason. Location of make-up air inlets must be approved by the Project Engineer.
- 13. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 - 14. Provide temporary power, lighting and heating, utilizing ground fault protection devices, to maintain a comfortable work environment and to keep utilities from freezing. Normal water and electric utilities to be supplied by the Engineer.
 - 15. Notify the Engineer for observation of the preparation of jobsite prior to any removal of asbestos-containing material. Prior to notification, complete plasticizing of work area(s) and construction of worker and barrel/equipment decontamination enclosure systems, and store all equipment required for Project.
 - 16. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the

immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

17. Trap, filter using filters having a pore size of not larger than five microns, and drain shower wastewater into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third day. Dispose of filters as contaminated waste. Contractor may dispose of as contaminated material, at his option, rather than filtering and draining into sanitary sewer.

B. Preparation Procedure B - For use with the following asbestos-containing materials:

- Roofing and Roof Flashing
 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
 2. Identify location and amount of all asbestos- containing materials to be removed.
 3. Preclean exhaust vents, fan hoods, etc. in the vicinity of the proposed work area(s), using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Following cleaning, completely seal in plastic.
 4. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
 5. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 6. Notify the Engineer for observation of the preparation of jobsite prior to any removal of asbestos-containing material. Prior to notification complete plasticizing of work area(s) and construction of remote worker and barrel/equipment decontamination enclosure systems, and store all equipment required for Project.

7. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

C. Preparation Procedure C - For use with the following asbestos-containing materials:

- Thermal Systems Insulation (TSI) – Using Glovebag Procedure:
 1. Disable and lock out applicable utility services to and through the work area(s) (if present) for the duration of abatement activities. Temporary electrical power shall be obtained from outside the work area(s) and shall be equipped with ground fault circuit interrupt protection.
 2. Identify location and amount of all asbestos-containing materials to be removed. Confirm with the Engineer that the materials to be removed are suitably located so as to facilitate glovebag removal.
 3. Isolate the work area(s) until clearance testing is accepted by the Contractor's Testing Laboratory, by completely sealing off work area(s) with one layer of six mil plastic sheeting sealed with tape.
 4. Clean, prior to placing plastic sheeting on floors and walls (if applicable), the work area(s) using HEPA vacuum equipment or wet-cleaning methods as appropriate. Do not use methods that raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filtration. The Engineer shall be notified for observation of the critical barrier placement and cleaning of the work area prior to application of additional plastic sheeting.
 5. Preclean immovable objects within the proposed work area(s), using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Following cleaning, completely seal in plastic all immovable items with one layer of six mil plastic sheeting.
 6. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually

inspect perimeter of the work area at the beginning and end of each work period.

- c. Place one layer of six mil plastic sheeting on ground areas beneath work area(s). Width shall not be less than material height from ground or ten feet, whichever is greater.
- 7. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
- 8. Notify the Engineer for observation of the preparation of jobsite prior to any removal of asbestos-containing material. Prior to notification complete plasticizing of work area(s) and construction of remote worker and barrel/equipment decontamination enclosure systems, and store all equipment required for Project.
- 9. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

D. Preparation Procedure D - For use with the following asbestos-containing materials:

- Cementitious Deck Drains (located in situ on existing bridge)
- 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
- 2. Identify location and amount of all asbestos- containing materials to be removed.
- 3. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
- 4. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
- 5. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

E. Preparation Procedure E - For use with the following asbestos-containing materials:

- Cementitious Deck Drains (located in rubble)
- 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
- 2. Identify location and amount of all asbestos- containing materials to be removed.
- 3. Perimeter Enclosure

- a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
4. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
5. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

F. Preparation Procedure F - For use with the following asbestos-containing materials:

- Guardrail Caulking
 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
 2. Identify location and amount of all asbestos- containing materials to be removed.
 3. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
 4. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.

5. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

G. Preparation Procedure G - For use with the following asbestos-containing materials:

- Beam Bearing Pads
 1. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work areas not previously removed by the Department.
 2. Identify location and amount of all asbestos- containing materials to be removed.
 3. Perimeter Enclosure
 - a. Erect warning tape at perimeter of work area to establish caution barrier.
 - b. Ensure that all barriers remain in good condition for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect perimeter of the work area at the beginning and end of each work period.
 4. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 5. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.

H. Preparation Procedure H - For use with the following asbestos-containing materials:

- Bridge Coatings and/or Concrete Bridge Components

1. Completely segregate the work area(s) from all other portions of the complex with temporary partitions. Partitions shall be of softwall construction as explained further in this section:
 - a. Softwall partitions shall be constructed of a 6 mil minimum thickness plastic sheeting attached to a 2" x 4" enclosure framework using 2" x 4" supports where necessary to prevent collapse of the enclosure system.
 - b. All partitions shall be removed at the conclusion of the work and all surfaces shall be restored to original condition. All locations and configurations of softwall partitions shall be reviewed by the Engineer prior to installation.
 - c. Ensure that all barriers and plastic enclosures remain effectively sealed and taped for the duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning and end of each work period. Use smoke methods to test the effectiveness of barriers when directed by the Engineer.
2. Remove, properly decontaminate using wet-cleaning and HEPA vacuuming as appropriate, and inventory any and all movable items remaining in the work area(s) not previously removed by the Department.
3. Identify location and amount of all asbestos-containing materials to be removed.
4. Isolate the work areas until final air clearance testing conducted by the Contractor's Testing Laboratory, by completely sealing off the work area(s) with two layers of six mil plastic sheeting sealed with tape.
5. Seal all active wall-mounted electrical panels, switchboxes, etc. with minimum two layers of six mil plastic sheeting prior to placement of wall plastic.
6. Clean the work area(s) using HEPA vacuum equipment or wet-cleaning methods as appropriate. Do not use methods that raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filtration. The Engineer shall be notified for observation of the critical barrier placement and cleaning of the work area prior to application of additional plastic sheeting.
7. Preclean immovable objects within the proposed work area(s), using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Following

cleaning, completely seal all immovable items with two layers of six mil plastic sheeting.

8. Construct worker and barrel/equipment decontamination units in compliance with EPA guidelines concerning number, size and placement of airlocks, etc. Shower in worker decontamination unit shall open on two sides and open into airlock on both contaminated and uncontaminated sides. Construct decontamination units of appropriate materials including plastic sheeting (to provide airtight barriers) and plywood or other suitable rigid materials to allow continuous diminished pressure to be maintained in work areas. Supply sufficient number of lockers, in worker decontamination unit change or "clean" room, for workers' clothing. Reserve one locker for Testing Laboratory personnel. Post OSHA decontamination procedures in change room for duration of Project.
9. Plastic Enclosures
 - a. In work areas where asbestos-containing floor coverings are to be removed, Contractor shall place six mil plastic "splash guards" on walls at perimeter of work area(s). Plastic sheeting "splash guards" shall extend, from floor level, a minimum of four feet up wall areas.
 - b. Ensure that all barriers and plastic enclosures remain effectively sealed and taped for duration of asbestos removal and subsequent cleaning. Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosures at the beginning of each work period. Use smoke methods to test effectiveness of barriers when directed by the Engineer.
10. Diminished Pressure
 - a. Place each work area under diminished air pressure utilizing HEPA filtration systems which comply with 028200, Part 2.02, A,3. Allow no air movement system or air filtering equipment to discharge unfiltered air outside the work area. Maintain a diminished air pressure on the work area continuously (24 hours per day) from the start of asbestos removal and until the area has been decontaminated and certified as such by the required air testing. Accomplish a minimum of eight air changes per hour in the work area and maintain a minimum of 0.02 inches of water diminished pressure. Demonstrate diminished air pressure compliance during the removal of friable materials by monitoring and recording the pressure differential with a continuous read-out, strip-chart differential pressure recorder. Exhaust all filtered and

discharged air outside the building away from any air intake devices.

- b. Exhaust ducts from diminished air machines shall be flexible polyethylene ducts manufactured for this purpose and sized to fit the outlet of the machines. Ducts field fabricated from plastic sheeting will not be permitted. If direction of discharge from fan unit is not aligned with duct, use sheet metal elbow to change direction.
 - c. Supplemental Make-Up Air Inlets: Where required for proper air flow through the work area(s), install HEPA-filtered make-up air inlet(s) at the perimeter of the enclosure(s) that allows air from outside into the work area. Locate make-up air inlets as far as possible from the exhaust unit(s). Air inlets shall be designed to reseal automatically if the diminished pressure system should shut down for any reason. Location of make-up air inlets must be approved by the Engineer.
- 11. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.
 - 12. Provide temporary power, lighting and heating, utilizing ground fault protection devices, to maintain a comfortable work environment and to keep utilities from freezing. Normal water and electric utility service to be supplied by the Department.
 - 13. Notify the Engineer for observation of the preparation of jobsite prior to any removal of asbestos-containing material. Prior to notification, complete plasticizing of work area(s) and construction of worker and barrel/equipment decontamination enclosure systems, and store all equipment required for Project.
 - 14. Maintain for the duration of the Project from the first activity requiring disturbance of asbestos-containing materials, a sign in/out log in the immediate area of the change room. Log shall be utilized by every person and each time upon entering and leaving the work area(s). Submit copies of this log to the Engineer for permanent file upon completion of Project.
 - 15. Trap, filter using filters having a pore size of not larger than five microns, and drain shower wastewater into a sanitary sewer. Replace contaminated filters when they become clogged but not less than every third day. Dispose of filters as contaminated waste. Contractor may dispose of as contaminated material, at his option, rather than filtering and draining into sanitary sewer.

3.2. REMOVAL OF ASBESTOS-CONTAINING MATERIAL

Properly remove and dispose of all asbestos-containing materials indicated to be removed as described in the Contract Documents in accordance with the methods and procedures outlined in the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) Asbestos Regulation (Code of Federal Regulations Title 29, Part 1926, Section 1926.1101) or as more stringently specified herein.

If asbestos-containing materials are made to become friable during removal activities, or additional friable materials are encountered during removal activities, the Contractor will be required to stop work and contact the Engineer immediately. Removal work shall resume only after approval is given by the Engineer.

A. Removal Procedure A - For use with the removal of the following asbestos-containing materials:

- Floor Tile and Mastic
 1. Prepare Work Areas as previously specified.
 2. Spray areas of resilient floor covering material and/or adhesive backing with amended water, using spray equipment recommended by surfactant manufacturer capable of providing a "mist" application to reduce the release of fibers. Wet the material sufficiently to saturate it but do not allow water to accumulate or travel on floor. Spray the asbestos material repeatedly during removal to maintain wet condition but do not use excessive amounts of water.
 3. Where carpeting is present in floor tile and, or adhesive backing work area(s), remove and properly dispose of carpeting as contaminated material. Following carpet removal, or in areas containing no carpet, remove individual tiles by wedging a scraper under one edge of the tile and exerting a prying, twisting force as it is moved under the tile until the tile releases from the floor. Do not break tiles. If tiles do not release easily, a mallet or hammer may be used to strike the scraper and force it under the tile. Place tiles immediately in disposal containers as they are removed. Ensure that containers are not subject to penetration by sharp edges of floor tile.
 4. As small areas are cleared of tile, scrape up remaining adhesive backing and deposit scrapings in disposal bags. Clean floor of all adhesive residue by repeated wet mopping with an approved solvent.

B. Removal Procedure B - For use with the removal of the following asbestos-containing materials:

- Roofing and Roof Flashing
1. Prepare Work Areas as previously specified.
 2. The contractor will spray asbestos materials with amended water, using airless spray equipment capable of providing a "mist" application to reduce the release of fibers. The asbestos material will be sprayed with water mist containing a wetting agent to enhance penetration. The wetting agent will be a commercial product produced specifically as an asbestos wetting agent. A fine spray of the amended water will be applied to reduce fiber release preceding the removal of the asbestos material.
 3. In order to maintain asbestos concentrations at a minimum, the wet asbestos will be removed in manageable sections. Materials will not be allowed to dry out. Material drop will not exceed 8 feet. For heights up to 15 feet provide inclined chutes or scaffolding to intercept drop. For heights exceeding 15 feet provide enclosed dust-proof chutes.
 4. The contractor will place danger labels on containers in accordance with OSHA standard 29 CFR 1910.1001 (g) (2) if not already pre-printed on containers.

C. Removal Procedure C - For use with the removal of the following asbestos-containing materials:

- Thermal Systems Insulation (TSI) – Using Glovebag Procedure
1. Wrap any damaged areas of pipe insulation in one layer of 6-mil plastic. Seal seams and ends with duct tape.
 2. Place one layer of duct tape around pipe insulation at points where glovebag will be attached.
 3. Attach and use glovebag in accordance with manufacturer's instructions, unless more stringently specified herein.
 4. Insert wand from garden sprayer through water sleeve. Duct tape water sleeve tightly around the wand to prevent leakage.
 5. Use smoke tube and aspirator bulb to test seal. Gently squeeze glovebag and look for smoke leaks. Seal leaks and retest. Perform test in presence of the Engineer.

6. Wet the asbestos-containing material within the glovebag with amended water prior to removal. Utilize two (2) asbestos workers per glovebag.
7. Carefully cut and remove asbestos-containing materials within the glove bag. Exercise care while cutting asbestos-containing materials from piping.
8. Thoroughly wet removed material, bag and piping with amended water. Scrub exposed piping with a bristle or nylon brush. Remove visual accumulations of debris from piping. Allow mist to settle.
9. Seal exposed ends of pipe insulation not removed and exposed piping in glove bag with encapsulant.
10. Remove tools, through gloves or tool pouch by inverting, twisting glove, taping at twist to seal, and severing glove at midpoint of tape.
11. Collapse glove bag by inserting HEPA-vacuum. Twist bag several times at the top of bag. Twist and tape to secure.
12. Place appropriately labeled 6-mil bag around glove bag. Score glovebag above taped seal to remove from pipe and place inside 6-mil bag. Seal 6-mil bag around disassembled glove bag.

D. Removal Procedure D - For use with the removal of the following asbestos-containing materials:

- Cementitious Deck Drains (located in situ on existing bridge)
 1. Saw cut full depth concrete sections a minimum of twelve inches away from ACM so as to separate deck drains from non-ACM without contacting ACM. Separate saw cut pieces from bridge.
 2. Do not allow material to fall. Handle carefully and continuously wet.
 3. Continually spray all debris matrix created by saw cutting activities with water as needed to minimize dust.
 4. A designated, trained worker (minimum OSHA Class I, 40-hour worker training) shall continuously observe the matrix for readily identifiable fragments of asbestos-containing deck drain.
 5. The designated worker will remove any identifiable fragments from the matrix and separate them safely away from the existing bridge decking.

6. Wrap all pieces of ACM encased in concrete after saw cutting with two layers of polyethylene sheeting. Contractor shall load these wrapped pieces directly into dump trucks. The designated worker will observe continuously for other fragments and remove any that are found.
7. In areas in which the matrix or large, intact pieces of concrete have been freed of the bridge decking, similar steps will be taken to segregate pieces containing ACM from those that do not. Segregating shall be done by a trained worker, as described above.
8. Contractor shall load pieces (not already bagged or in a drum) of concrete or other debris matrix, visually verified to contain asbestos-containing deck drain, directly into a dump truck for transport. All such trucks must be prepared for such use by pre-lining the bed and all four sides of the truck with two layers of six mil poly. All seams and overlaps (minimum 12 inches) shall be sealed with duct tape so as to prevent contaminated water migration. Once loaded, poly is to be folded over and a leak-tight seal created over all the debris matrix. This poly "cocoon", created for transport, is to be deposited in its entirety in the landfill, without being breached.

E. Removal Procedure E - For use with the removal of the following asbestos-containing materials:

- Cementitious Deck Drains (located in rubble)

Before being transported off site for any use or purpose, concrete decking debris known to contain or suspected of containing fragments of asbestos-containing deck drain pipe will be sorted to remove visibly identifiable fragments of the pipe from the matrix. The procedure to be followed is generally as follows:

1. Handle carefully and continuously wet. Continually spray all debris matrix created by saw cutting activities with water as needed to minimize dust.
2. A designated, trained worker (minimum OSHA Class I, 40-hour worker training) shall observe the debris field for readily identifiable fragments of asbestos-containing deck drain.
3. The designated worker will remove any identifiable fragments from the matrix and separate them safely away from the existing bridge decking.
4. Identify, segregate, and wrap all pieces of ACM encased in concrete with two layers of polyethylene sheeting. Contractor shall load these wrapped pieces directly into dump trucks. The designated worker will observe continuously for other fragments and remove any that are found.

5. In areas in which the matrix or large, intact pieces of concrete have been freed of the bridge decking, similar steps will be taken to segregate pieces containing ACM from those that do not. Segregating shall be done by a trained worker, as described above.
6. Contractor shall load pieces (not already bagged or in a drum) of concrete or other debris matrix, visually verified to contain asbestos-containing deck drain, directly into a dump truck for transport. All such trucks must be prepared for such use by pre-lining the bed and all four sides of the truck with two layers of six mil poly. All seams and overlaps (minimum 12 inches) shall be sealed with duct tape so as to prevent contaminated water migration. Once loaded, poly is to be folded over and a leak-tight seal created over all the debris matrix. This poly "cocoon", created for transport, is to be deposited in its entirety in the landfill, without being breached.

F. Removal Procedure F - For use with the removal of the following asbestos-containing materials:

- Guardrail Caulking
1. The contractor will spray asbestos materials with amended water, using airless spray equipment capable of providing a "mist" application to reduce the release of fibers. The asbestos material will be sprayed with water mist containing a wetting agent to enhance penetration. The wetting agent will be a commercial product produced specifically as an asbestos wetting agent. A fine spray of the amended water will be applied to reduce fiber release preceding the removal of the asbestos material.
 2. In order to maintain asbestos concentrations at a minimum, the wet asbestos will be removed in manageable sections.
 3. The contractor will place danger labels on containers in accordance with OSHA standard 29 CFR 1910.1001 (g) (2) if not already pre-printed on containers.
 4. Wrap all pieces of removed ACM with two layers of polyethylene sheeting.

G. Removal Procedure G - For use with the removal of the following asbestos-containing materials:

- Beam Bearing Pads

1. The contractor will spray asbestos materials with amended water, using airless spray equipment capable of providing a "mist" application to reduce the release of fibers. The asbestos material will be sprayed with water mist containing a wetting agent to enhance penetration. The wetting agent will be a commercial product produced specifically as an asbestos wetting agent. A fine spray of the amended water will be applied to reduce fiber release preceding the removal of the asbestos material.
2. In order to maintain asbestos concentrations at a minimum, the wet asbestos will be removed in manageable sections. Materials will not be allowed to dry out.
3. The contractor will place danger labels on containers in accordance with OSHA standard 29 CFR 1910.1001 (g) (2) if not already pre-printed on containers.
4. Wrap all pieces of removed ACM with two layers of polyethylene sheeting.

H. Removal Procedure H - For use with the removal of the following asbestos-containing materials:

- Bridge Coatings and/or Concrete Bridge Components
1. Spray areas of asbestos-containing material with amended water, using spray equipment recommended by surfactant manufacturer capable of providing a "mist" application to reduce the release of fibers. Wet the material sufficiently to saturate it but do not allow water to accumulate or travel on floor. Spray the asbestos material repeatedly during removal to maintain wet condition but do not use excessive amounts of water.
 2. In order to maintain asbestos concentrations at a minimum, the wet asbestos will be removed in manageable sections. Materials will not be allowed to dry out.
 3. The contractor will place danger labels on containers in accordance with OSHA standard 29 CFR 1910.1001 (g) (2) if not already pre-printed on containers.

3.3 CLEAN-UP AND CLEARANCE TESTING

Aggressive clearance air testing will be conducted in accordance with EPA Guide Document (EPA 600/4-85-049) "Measuring Airborne Asbestos Following An Abatement Action." for all Work Areas for which an enclosure has been erected and negative air pressure has been established. Before sampling pumps are started, the Contractor's Testing Laboratory representative will sweep the exhaust from forced air equipment (leaf blower with at least 1 horsepower electric motor) against walls, ceilings, floors, ledges and

other surfaces (temporary or permanent) in the work area(s). This procedure will be continued for approximately 5 minutes per 5,000 cubic feet of work area volume. In addition, the use of 20 inch diameter box fans will be placed one per 5,000 cubic feet of work area volume. The Contractor shall provide all forced air equipment required to facilitate aggressive clearance air testing.

A. Equipment

The Contractor shall supply the following equipment for his Testing Laboratory's use during the Work:

1. Electric Leaf Blowers; Minimum one horsepower, 110 mile per hour air velocity, 280 cubic feet per minute.
2. Ground Fault Interrupter (GFI) Protected Extension Cords: In lengths and locations sufficient for clearance testing.
3. Fans; 20-inch standard window box fans. All other test equipment and supplies.

Clearance testing for work areas shall be conducted using phase contrast microscopy (PCM) in general accordance with NIOSH 7400 method. Consider enclosed work areas placed under negative air pressure and all other decontaminated and cleaned areas clean and ready for reoccupancy when air testing performed by the Contractor's Testing Laboratory, shows 0.01 or less fibers per cubic centimeter of air (f/cc), for each sample obtained using standard NIOSH Method No. 7400 for PCM.

B. Clean Up Sequence A - For use with enclosed Work Areas for which negative air pressure has been established.

1. Remove all visible accumulations of asbestos material and debris.
2. Wet clean and/or HEPA vacuum all surfaces in the work area(s). Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.
3. Clean all sealed impermeable containers and all equipment (excluding that which will be needed for further cleaning) used in the work area(s) and remove from work area(s) via the equipment decontamination enclosure system.
4. After determining that the area is free of standing water and that surfaces are dry to the touch, notify the Engineer. This step may be waived if non-friable materials were removed and were not rendered friable during the removal process.

5. Following cleaning and acceptance of cleanliness by Contractor's Testing Laboratory, all surfaces shall receive one coat of sealant to seal existing surfaces as follows:
 - a. Misting, spraying and pumping equipment, as recommended by the encapsulant material's manufacturer, shall be used.
 - b. Encapsulant, compatible with finish material and conditions specified in other Divisions, shall be installed in procedures as recommended by the manufacturer's written instructions if found to be compatible with temperature conditions.
6. Contractor shall not use sealant sprayed into the air as a means of reducing fiber levels after plastic sheeting is removed.
7. Allow sealant sufficient time to dry prior to proceeding with clearance air testing.
8. Clearance Air Testing
 - a. Contractor's Testing Laboratory will test for Air Quality Clearance in the Work Area(s) upon notice from Contractor that the Work Areas and all other decontaminated and cleaned areas are ready. The standard for Clearance will be as is set forth in paragraph 3.3.A of this section.
 - b. Reclean at Contractor's expense all areas which do not comply with the standard of cleaning for Clearance. Continue cleaning until the specified final air quality clearance level is achieved by the Contractor's Testing Laboratory. Contractor shall bear cost of all follow-up tests necessitated by failure to meet the specified standard of cleaning for clearance.
9. Following acceptance of the Air Quality Clearance test results and after Contractor finds areas to be visually decontaminated:
 - a. Dismantle and remove sturdy barriers and plastic seals on all openings and wet clean immediate areas.
 - b. Dismantle decontamination enclosure systems and thoroughly wet clean immediate areas.
 - c. Dispose of debris, used cleaning materials, unsalvageable materials used for sturdy barriers, and any other remaining materials.

C. Clean Up Sequence B - For use in Work Areas for which no enclosure has been built, nor any negative air pressure established.

1. Remove all visible accumulations of asbestos material and debris.
2. Following acceptance of visual inspection of removal by the Contractor's Testing Laboratory, and the Contractor's Testing Laboratory finds areas to be visually decontaminated:
 - a. Wet clean immediate areas.
 - b. Dispose of debris, used cleaning materials, unsalvageable materials used for sturdy barriers, and any other remaining materials.
3. Acceptance of Work Area to be documented by Contractor's Testing Laboratory. Acceptance of removal practices and results to be based on visual observation only.

3.4. STORAGE AND DISPOSAL OF CONTAMINATED WASTE

A. Waste Storage and Disposal Requirements

1. No less frequently than at the end of each work day, the designated worker(s) shall place all collected ACM into an appropriate container (6-mil poly bags, drums, or closed roll-off box), which shall be stored in a secure location pending disposal. Periodically, the container or containers of collected ACM shall be transported to and disposed in a licensed landfill that is authorized to receive such materials. The contractor shall submit a copy of each waste disposal manifest to TDOT.
2. In handling, transporting and disposing of ACM waste, the contractor shall segregate friable ACM waste from non-friable ACM waste and manage each waste type as required by applicable regulations. Remove sealed and labeled containers of contaminated material and wastes and dispose of in approved sanitary landfill as follows:
3. Notify the Engineer not less than 48 hours prior to the proposed time of removing and delivery of contaminated waste to the landfill. The Engineer may elect to observe this operation.
4. Provide completed Asbestos Waste Shipment Record (as required by 40 CFR 61, Subpart M) including, but not limited to, the following information:
 - The name, address, and telephone number of the waste generator.

- The name and address of the local, state, or EPA Regional office responsible for administering the asbestos NESHAP program.
- The approximate quantity in cubic yards.
- The name and telephone number of the disposal site operator.
- The name and physical site location of the disposal site.
- The date transported.
- The name, address, and telephone number of the transporter(s).
- A certification that the contents of the consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

5. Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags labeled as follows:

a.

DANGER
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH
OR

b.

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

and, in addition to fulfilling the above labeling requirements, the Contractor shall also fulfill all applicable Department of Transportation requirements and label each waste disposal bag/container with the name of the waste generator and the location at which the waste was generated.

6. Load all asbestos-containing waste material in disposal bags or leak-tight drums. All materials are to be contained in one of the following:

- Two 6 mil thick disposal bags, or
- One 6 mil thick disposal bags and a fiberboard drum, or

- Sealed steel drum with no bag.
- 7. Protect interior of truck or dumpster with Critical and Primary Barriers.
- 8. Do not store bagged waste material adjacent to the Work Area. Take bags from the Work Area directly to a sealed truck or storage container.
- 9. No material, other than properly packaged ACM waste, shall be placed in the waste storage container.
- 10. Transport bagged ACM waste from the Work site to the transportation vehicle or storage container in a covered cart or vehicle. Mark vehicles during loading and unloading of waste so that the signs are visible. The markings must conform to the requirements Section 61.149(d) of the appropriate NESHAP section for asbestos.
- 11. All ACM waste storage containers, including transportation vehicles, shall remain secure or guarded at all times while containing ACM waste.
- 12. Exercise care during storage and transport, to insure that no unauthorized persons have access to the material.
- 13. Do not transport waste in open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with this specification
- 14. Provide a completed copy of the waste shipment record to the disposal site Manager at the same time as the asbestos-containing waste material is delivered to the disposal site. A copy of this waste shipment record, signed by the Manager of the designated disposal site will then, within 35 days of the initial transport date, be returned to the waste generator.
- 15. At the disposal site, sealed plastic bags and other containerized waste may be carefully unloaded from the truck. Rebag broken or damaged bags. Do not throw bags.
- 16. Retain receipts from landfill or processor for materials disposed of.

3.5. FIELD QUALITY CONTROL

A. Quality Control Requirements

- 1. A Testing Laboratory shall be provided by the Contractor to perform final clearance air monitoring and visual observations to document completion.

The Contractor will supply his own testing agency for personnel air monitoring.

2. The Testing Laboratory will conduct area final clearance air monitoring following removal and cleaning operations.
3. The Testing Laboratory will perform air sampling in general accordance with methods prescribed by Section 1926.1101 of OSHA CFR Title 29 and analyze the samples in general accordance with the procedures outlined by NIOSH Method #7400 for Phase Contrast Microscopy (PCM).
4. The Testing Laboratory employed by the Contractor will perform Final Air Clearance testing only following removal activities. Such testing does not relieve the Contractor of providing necessary testing required by other regulations, codes, and standards for the protection of his workers, or for any other purposes.
5. The Testing Laboratory will conduct Final Air Clearance Tests inside of work areas following removal activities, and test results will be made available to the Engineer or other designated entities. The Contractor will be responsible for performing air tests required for his evaluation of the safety of his employees.
6. A preliminary visual observation will be performed in the work areas by the Contractor when said areas have been properly cleaned. Areas will be observed for the presence of visible dust, dirt and debris.
7. Tests will be performed inside work areas after clean up, execution of final clearance monitoring and visual observation to document compliance with specifications.
8. Test results will be reported in terms of total fiber count per cubic centimeter of air (f/cc) for air samples analyzed by Phase Contrast Microscopy (PCM).
9. All air samples collected during final clean-up operations will be collected within 48 hours after completion of the final cleaning when possible.
10. A visual observation may be performed by the Engineer after cleanup to inspect for visible dust, dirt, debris and areas of damage.
11. Contractor shall perform additional cleaning of area(s) if, in the sole opinion of the Engineer, previous clean-up operations were determined to be inadequate.

12. Any area whose air test results fail will be retested following recleaning of the area(s). Contractor shall pay all costs associated with retesting.

END OF SECTION



State of Tennessee
Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, Tennessee 37243-1531

NOTIFICATION OF DEMOLITION AND/OR ASBESTOS RENOVATION

SUBMIT 10 WORKING DAYS PRIOR TO ACTIVITY

Email to Asbestos.NESHAP.Program@tn.gov

Operator Project #	Postmark	Date Received	Notification #				
I. TYPE OF NOTIFICATION ☐ Original ☐ Revision ☐ Courtesy ☐ Annual ☐ Cancellation							
II. FACILITY INFORMATION							
Owner Name: _____							
Address: _____							
City: _____ State: _____ Zip Code: _____							
Contact: _____ Telephone: (____) _____							
Asbestos Removal Contractor: _____							
Address: _____							
City: _____ State: _____ Zip Code: _____							
Contact: _____ Telephone: (____) _____							
Other Contractor/Operator: _____							
Address: _____							
City: _____ State: _____ Zip Code: _____							
Contact: _____ Telephone: (____) _____							
III. TYPE OF OPERATION ☐ Demolition ☐ Renovation ☐ Ordered Demolition ☐ Emergency Renovation							
IV. IS ASBESTOS PRESENT? ☐ Yes ☐ No Please provide a copy of inspection report.							
V. FACILITY DESCRIPTION							
Building Name: _____							
Address: _____							
City: _____ State: TN Zip Code: _____ County: _____							
Site Location: _____							
Building Size (square feet) _____ # of Floors: _____ Age in years: _____							
Present Use: _____ Prior Use: _____							
VI. PROCEDURE AND ANALYTICAL METHOD USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL (Identify any consultant or inspector involved in building inspection)							
VII. AMOUNT OF ASBESTOS MATERIALS:							
	RACM to be Removed	Nonfriable Asbestos Material					
		To be Removed		NOT to be removed			
		Category I	Category II	Category I	Category II		
Pipes (linear feet)							
Surface Area (square feet)							
Facility Components (cubic feet)							
Other							
VIII. SCHEDULED DATES FOR PREPARATION		Start: _____		Complete: _____			
SCHEDULED DATES FOR ASBESTOS REMOVAL		Start: _____		Complete: _____			
Days of the Week:	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Hours of Operation:							
IX. SCHEDULED DATES FOR DEMOLITION OR RENOVATION		Start: _____		Complete: _____			

Failure to notify the Division of a change in the start date (sections VIII and IX above) prior to activity may result in enforcement action.

X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION ACTIVITIES:
XI. DESCRIPTION OF WORK PRACTICES & ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS:
XII. WASTE TRANSPORTER #1 Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (____) _____ WASTE TRANSPORTER #2 Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (____) _____
XIII. TEMPORARY WASTE STORAGE LOCATION: _____ WASTE DISPOSAL SITE Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Contact: _____ Telephone: (____) _____
XIV. ORDERED DEMOLITION 1. Attach a copy of the government issued order. 2. Name of authority issuing order: _____ Title: _____ 3. Date of Order: _____ Date Ordered to Begin: _____
XV. EMERGENCY RENOVATION (Attach a separate sheet with the following information.) 1. Date and Hour of the emergency. 2. Description of the Sudden, Unexpected Event 3. Explanation of how the event caused unsafe conditions, equipment damage, and/or an unreasonable financial burden.
XVI. DESCRIBE THE PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED RACM IS FOUND. EXPLAIN HOW NONFRIABLE ACM WILL BE REMOVED WITHOUT RENDERING IT FRIABLE (CRUMBLED, PULVERIZED, OR REDUCED TO POWDER).
XVII. I CERTIFY THAT AN INDIVIDUAL TRAINED IN ACCORDANCE WITH 40 CFR PART 61, SUBPART M WILL BE ONSITE DURING THE STRIPPING AND REMOVAL DESCRIBED BY THIS NOTIFICATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN COMPLETED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION. Printed Name of Owner or Operator: _____ Signed Name of Owner or Operator: _____ Date: _____
XVIII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT. AS SPECIFIED IN TENNESSEE CODE ANNOTATED SECTION 39-16-702(a)(4), THIS DECLARATION IS MADE UNDER PENALTY OF PERJURY. Printed Name of Owner or Operator: _____ Signed Name of Owner or Operator: _____ Date: _____

Submit completed form to Asbestos.NESHAP.Program@tn.gov. Call (615) 532-0554 with any questions.

INSTRUCTIONS

NOTIFICATION OF DEMOLITION OR ASBESTOS RENOVATION ACTIVITY (FORM CN-1055)

This form serves as a written notification of a facility demolition and/or an asbestos renovation as defined and required by 40 CFR 61.145 and Tennessee Division of Air Pollution Control Regulation 1200-03-11-.02(2)(d). This notification form is required for the following activities:

1. All demolition projects (including intentional burning). Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations. **This form is required for a demolition project even if no asbestos is present at the site.**
2. All renovation projects that include the removal of regulated asbestos containing material (RACM) equaling or exceeding 260 linear feet on pipes, 160 square feet on facility components, or 35 cubic feet where the amount of RACM could not be measured prior to the renovation.

All demolition and renovation projects are subject to the regulations insofar as owners and operators must determine if and how much asbestos is present at the site. All information pertinent to the removal, renovation and/or demolition must be completed by the building owner/operator or designee and mailed electronically to Asbestos.NESHAP.Program@tn.gov or delivered to the following address by at least 10 working days prior to commencement of activity:

**Department of Environment and Conservation
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, Tennessee 37243-1531**

Holidays that fall between Monday and Friday count as "working days." Saturday and Sunday does not count as a working day.

If information contained in the original notice has changed, a notification must be revised as soon as possible after it is realized a revision is necessary. For example, you must revise the notification if you change the start date of an operation. If the change relates to the amount of material involved, you need only revise the notification if the amount changes by more than 20 percent. If you revise the start date of a project, the revised notification must be postmarked or delivered no later than the original start date, and at least 10 working days before the revised start date.

Include the following in the notice:

(I) TYPE OF NOTIFICATION: Indicate original, revision, courtesy, annual, or cancellation.

(II) FACILITY INFORMATION: Identify the owner of the facility, address, telephone number, and contact person.

ASBESTOS REMOVAL CONTRACTOR: If RACM is to be removed, identify the name, address and telephone number of the asbestos removal contractor.

OTHER CONTRACTOR/OPERATOR: Where demolition of the facility immediately follows the removal of RACM, or when no asbestos removal is required prior to demolition, identify the demolition contractor's name, address and telephone number.

(III) TYPE OF OPERATION: Demolition, Ordered Demolition, Renovation, or Emergency Renovation.

(IV) Indicate whether or not asbestos is present in the building. **Provide a copy of the inspection report.**

(V) FACILITY DESCRIPTION: Identify the building name of the facility to be renovated or demolished, the physical address including street number, street name, city, state, and county. Asbestos removal site location should include the building number, floor and room number(s). Include the building size in square feet, number of floors, age, and present and prior use of the facility.

(VI) Describe the procedure, including analytical methods, used to detect the presence of RACM, category I and category II nonfriable ACM. **If an asbestos survey was conducted, please submit a copy of it with the notification form.** Materials may be assumed to be RACM and therefore handled as such.

(VII) AMOUNT OF ASBESTOS IN WORK AREA: Indicate the approximate amount of RACM to be removed from the facility in terms of linear feet for pipes, square feet for surface area, or cubic feet if otherwise not measurable. Also, estimate the amount of Category I and Category II nonfriable ACM in the affected part of the facility that will or will not be removed during renovation or before demolition.

(VIII) SCHEDULED DATES - ASBESTOS REMOVAL: Indicate the scheduled starting and completion dates of asbestos removal work. Include dates for any other activity, such as site preparation, that would break up, dislodge, or similarly disturb asbestos material in a demolition or renovation. Planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period. **This notification is required to be submitted at least 10 working days prior to the start date.** Circle all days when asbestos removal activities are to occur. Indicate the working hours that asbestos removal activities will be conducted (i.e., 7:00 AM – 5:00 PM).

(IX) SCHEDULED DATES – DEMOLITION: Indicate the scheduled starting and completion dates of demolition or renovation. **This notification is required to be submitted at least 10 working days prior to the start date.**

(X) Describe the planned work methods to be performed and types of machinery to be used during demolition or renovation.

(XI) Describe the work practices and engineering controls to be used to prevent emissions of asbestos during asbestos removal and waste-handling at the demolition/renovation site.

(XII) ASBESTOS WASTE TRANSPORTER: Identify the name, address, phone number and contact of the firm who will transport the asbestos material to the waste disposal site. If a second transporter is involved, also list this firm.

(XIII) ASBESTOS WASTE DISPOSAL SITE: Identify the name, location, and telephone number of the waste disposal site where the asbestos-containing waste material will be deposited.

(XIV) IF DEMOLITION ORDERED BY GOVERNMENT AGENCY: Identify the name, title, and authority of the state or local government representative who has ordered the demolition, the date that the order was issued, and the date on which the demolition was ordered to begin. A copy of the order shall be attached to the notification.

(XV) EMERGENCY RENOVATIONS: Attach a separate sheet that indicates the date and hour that the emergency occurred. Describe the sudden, unexpected event resulting in the emergency. Explain how the event caused an unsafe condition or would cause equipment damage or an unreasonable financial burden.

(XVI) Describe the procedures to be followed in the event that unexpected RACM is found. Explain how nonfriable ACM will be removed without rendering it friable (crumbled, pulverized, or reduced to powder) during a renovation or demolition operation.

(XVII) A certification that only a person trained as required by Division Rule 1200-3-11-.02(2)(d)3(viii) will supervise the stripping and removal described by this notification.

(XVIII) The signature of the Owner/Operator and the date certifying that the notification information is correct.

RESPIRATOR TRAINING CERTIFICATION

I hereby certify that I have been trained in the use each type of respiratory protection equipment required for use on this Project. The training included the following:

1. Explanation of dangers related to misuse.
2. Instruction on putting on, fitting, testing and wearing the respirator.
3. Instruction on inspection, cleaning and maintaining respirator.
4. Instruction on emergency situations.

I further certify that I understand the use, care and inspection of the respirator and have tested and worn the unit.

Name: _____
(Please Type or Print)

Signed: _____

Date: _____

Notary: _____
(Signature)

(Submit one copy for each employee prior to starting work)

CERTIFICATE OF WORKER'S RELEASE (ASBESTOS)

DATE: _____

TO:

RE: _____

(Insert Project Name and Address)

1. In consideration of my employment by _____ in connection with the removal

(Contractor)

and disposal of asbestos, or other work in asbestos-contaminated and lead-contaminated work areas, and in consideration of the sum of ONE AND NO/100 (\$1.00) DOLLAR and other good and valuable consideration in hand paid, at and before the sealing and delivery of these presents, the receipt, sufficiency, and adequacy of which are hereby acknowledged, the undersigned does hereby acknowledge, warrant, represent, covenant, and agree as follows:

- (a) I acknowledge and understand that I have been or will be employed in connection with the removal of, disposal of, or other work in asbestos-contaminated and lead-contaminated work areas, and I acknowledge that I have been advised of and I understand the dangers inherent in handling asbestos and breathing asbestos dust, including, but not limited to, THE FACT THAT ASBESTOS CAN CAUSE ASBESTOSIS AND IS A KNOWN CARCINOGEN AND CAN, THEREFORE, CAUSE VARIOUS TYPES OF CANCER.
- (b) I acknowledge and understand that ANY CONTACT WITH ASBESTOS, WHETHER IT CAN BE SEEN OR NOT, MAY CAUSE ASBESTOSIS AND VARIOUS FORMS OF CANCER, WHICH MAY NOT SHOW UP FOR MANY YEARS, and I covenant and agree faithfully to take all precautions required of me.

Signature of Worker
(as acknowledgement of reading this
Page 1 of this two-page Certificate)

- (c) I knowingly assume all risks in connection with potential exposure to asbestos and I do hereby covenant not to sue, and to release and forever discharge the Engineer, Testing Laboratory or Architects and Engineers employed by the Project Engineer or Testing Laboratory and all of their directors, officers, employees, nominees, personal representatives, affiliates, successors, and assigns for, from and against any and all liability whatsoever, at common law or otherwise, except any rights which the undersigned may have under the provision of the applicable workmen's compensation laws. Except as specifically set forth herein I hereby waive and relinquish any and all claims of every nature which I now have or may have or claim to have which are in any way, directly or indirectly, related to exposure to asbestos and asbestos-containing materials.
- (d) I hereby warrant and represent that I have not been disabled, laid-off, or compensated in damages or otherwise, because of the disease of asbestosis.
- (e) I represent that I can read the English language, or that I have had someone read this instrument to me, and that I understand the meaning of all the provisions contained herein.

Name/SS#: _____
(Please Type or Print)

Signature _____

Signed in presence of _____

Notary _____
(Signature)

**CERTIFICATE OF INVOLVEMENT IN
MEDICAL SURVEILLANCE PROGRAM (ASBESTOS)**

I hereby certify that I am actively involved in the employee medical surveillance program in conformity with U. S. Department of Labor, Occupation Safety and Health Administration, Title 29 CFR Part 1926.1101.

By my signature below, I acknowledge receipt of the following documents pertaining to my physical examination(s):

1. Physicians' Written Opinion Form
2. Physical Examination Record
3. Roentgenographic Interpretation
4. Asbestos Initial Medical Questionnaire
5. Spirometer Data Record

Name of Contracting Firm: (Please Print) _____

Employee Name: (Please Print) _____

Employee Signature

Notary

Date:_____

S T A T E**O F****T E N N E S S E E**

(Rev. 12/18/14)

April 1, 2026

(Rev. 05/13/24)

SPECIAL PROVISION**REGARDING****THREE SIDED PRECAST CULVERT AND BRIDGE STRUCTURES****OR PRECAST ARCHES****Description**

This work consists of furnishing all materials, labor, tools, equipment, and other necessary items required to design, fabricate, and install three-sided precast culvert and bridge structures, or precast arches.

Design Submittal Guidelines

The three-sided precast culvert or arch culvert structure shall conform to the requirements of this Special Provision and the following design submittal guidelines:

- A. Structural:** Submit to the Division for approval a foundation report at each site, precast structure design drawings, and design calculations. A Professional Engineer licensed in the State of Tennessee shall stamp all design drawings and calculations.

The precast system shall provide an equivalent or greater hydraulic opening as the cast-in-place or precast structure specified in the contract plans along with an equivalent or greater hydraulic efficiency. Structures with less area of opening, a significantly different span to height ratio, submerged by design flood, or requiring an increase in proposed road grade when the design flood or 100-year flood overtops the road or structure located in a FEMA Flood Insurance Study will require submittal of a hydraulic analysis for review and approval. The hydraulic analysis and the Aquatic Organism Passage (AOP) design should be submitted to the Hydraulic Design Section following TDOT Design Procedures for Hydraulic Structures or to the Roadway Design Division per TDOT Design Division Drainage Manual, if the 50-year flow is less than 500 cubic feet per second for the subject structure, the hydraulic design should be submitted to Region Roadway Design Manager.

Roadway Design: The proposed precast system shall not affect the 10 controlling geometric design elements of the roadway. The proposed structure shall not require a Design Exception and/or need for any additional ROW or easement.

No changes on the roadway plans shall be made without an approval of the Region Roadway Design Division. Proposed changes on plans shall be prepared and stamped by an engineer prior to submittal for review.

Any minor change in roadside geometry such as, roadway fill slopes, the distance from the outside edge of the traveled way to the inlet or outlet face of proposed structure, roadside ditch locations, relocation of guardrail and/or guardrail end terminals as well as any modifications in the clear zone should be submitted to the Region Roadway Design Division for review and approval.

B. Currently the following precast systems that have been approved to be used on State Projects as long as all requirements of this Special Provision are satisfied.

- **CONSPAN Bridge System**
- **HY-SPAN Bridge System**
- **BEBO Bridge Concrete Arch System**
- **REDI-SPAN Arch Bridge System**

Footnotes:

- a. Modifications made to the above Bridge Systems beyond the requirements of this Special Provision shall be approved before use on State Projects. These revised details shall be submitted to the Structures Division for review and Engineering Approval. Allow a minimum of 3 weeks for review, comment, and Approval of the changes by the Engineer before the precast system can be installed on the project.
- b. Be fully aware of the constructability of the proposed precast system being proposed. Due to the geometry and availability of sizes of the precast units, some of the approved systems may be more sensitive to handling, installation, wing-wall requirements, and backfill and roadway sub grade placement. The precast systems are paid for in-place and the repair of any damage to the units that occurs during any phase of the installation shall be the sole responsibility of the Contractor.

If a different precast system option is being proposed, the Structures Division will have 60 days, after receipt of all pertinent information, to review and approve/disapprove any new precast system submitted.

C. The construction or fabrication of the precast units shall not begin until the precast system has been approved by the Structures Division and/or the Region Roadway Design Division. All approved precast elements must be manufactured in a commercial precasting facility that is certified by one of the following National Quality Control Programs:

- **ACPA: American Concrete Pipe Association**

- NPCA: National Precast Concrete Association
- PCI: Precast/Prestressed Concrete Institute

Foundation Protection Design Parameters

The following are the requirements for foundation investigation, footing design, footing placement, and scour protection:

- A. Adequate sub-surface investigation shall be provided at each site to determine the location of the rock line in the area of the proposed footings. The results of this investigation will determine the type of footing needed and the required scour protection (if required). If electing to use one of the approved scour protection systems and place a strip footing on in-place material, a more detailed foundation investigation shall be performed at the site to determine the allowable bearing pressure and the predicted settlement of the underlying material. Provide the foundation investigation, if not provided in the contract plans, at no additional cost to the Department.
- B. A strip footing or precast footing can be used if the footing is bearing on rock or adequate scour protection and bearing is provided for the footing. A strip footing not bearing on rock without an approved scour protection can only be used if the footing is placed below the 500-year scour elevation except as provided in C, below. A scour investigation of the underlying material at the site of the culvert shall be undertaken to determine this probable scour depth if acceptable scour protection system will not be provided for the strip footing.
- C. The structure footings and wing-wall footings shall be founded on suitable material. A bottom slab is required when rock is not available, or the footing cannot be reasonably placed below the 500-year scour elevation, or an approved scour protection system is not provided. When a bottom slab is required, all unsatisfactory material shall be removed and replaced with satisfactory bearing material according to requirements in 204.10 before placement of slab. A cut-off wall will be provided at the inlet and outlet end of the structure and poured monolithically with the bottom slab.
- D. If a concrete box bridge with a bottom slab is specified on the contract plans, the bottom slab or the approved scour protection system shall be shown on the proposed precast system drawings. If a concrete slab bridge is specified on the contract plans and the initial rod soundings at the site shows a change in conditions, the precast system structure drawings shall be revised to either show a bottom slab or an approved scour protection system.
- E. Strip footings on rock: The bottom of footing shall follow the rock surface along the wall line. Holes 1.5 inch in diameter and 2 feet 6 inches in depth shall be drilled on 12-inch centers into competent rock. The holes shall be air blown to remove all debris and filled with non-shrink grout. Grout material shall meet requirements of 921.09 and shall be placed in the drilled holes as recommended by the grout manufacturer. If the hole cannot be de-watered then the grout must be placed through a tremie tube or pressured pumped with the initial pump nozzle at bottom of hole. Number 8 reinforcing bars shall be installed in the holes and rotated (not driven) to their seat. Slight tapping will be allowed during the

bar rotation process but tapping without rotation will not be allowed.

Approved Scour Protection Materials

In lieu of a bottom concrete slab, provide adequate scour protection with the following systems:

- A. 12 inch thick Reno mattress. The top of the baskets of the Reno mattress shall coincide with the existing streambed elevation.
- B. Precast articulating concrete block mat system connected by interwoven stainless steel cable. The system shall provide the required geo-textile fabric placed underneath the system to prevent the migration of fines through the blocks. The block mat system shall be anchored to the underlying material. The block mat shall be sized to the stream velocities at the particular site and the top of the blocks will coincide with the existing streambed elevation.
- C. Riprap sized appropriately for stream velocities underlain by geo-textile fabric to prevent migration of fines between rocks.
- D. All scour protection practices shall maintain flow on stream bed. Refer to roadway plans.

Observing Construction Permit Conditions

Proposals to construct precast alternatives to the contract plans, the precast alternatives shall be compatible and not alter conditions of the project permits.

Design Requirements**A. Specifications**

Standard Specifications for Road and Bridge Construction of the Tennessee Department of Transportation (Current Edition and Supplemental Specifications)

Tennessee Department of Transportation Earth Retaining Structures Manual

AASHTO Load Resistance Factor Design Standard Specifications for the Design of Highway Bridges, Current Edition with Addenda.

Three sided precast culvert and bridge structures, or precast arches and approved precast elements must be manufactured in a commercial precasting facility that is certified by one of the National Quality Control Programs noted in this provision.

B. Loadings

Live Load: HL93 Live Load with tandem load as appropriate.

Earth Load: Based on Soil Weight of 120 psf and Granular Backfill Weight of 130 pcf. Earth Loads and Load Factors per Tables 3.4.1-1 and 3.4.1-2 of the AASHTO LRFD Specification (Latest Edition).

C. Non-Uniform Loads

The precast system designs in standard fills assume uniform loading on each exterior wall. Non-uniform loads that significantly affect the loading on the culvert shall be accounted for in the design of the precast system. (For example, if bridge culvert runs along the toe of an embankment or next to a retaining wall)

D. Wingwalls

Wingwalls shall be designed as free standing units and in accordance with AASHTO LRFD Bridge Design Specifications, current edition, and the requirements of the Department's Earth Retaining Structures Manual. Pre-approved wall systems under the procedures outlined in the Manual need not to be re-approved as wingwalls, if acceptable to the site conditions. MSE wingwalls are subject to approval on a site by site basis and shall be shown on the Departments Qualified Products List. If approved for the site, the backfill material for the MSE walls shall be a free-draining material with the appropriate sacrificial coating on the metal straps. Any non-approved precast retaining wall system used for wingwalls is subject to approval by the Engineer on a project basis.

E. Headwalls And Curbs

Precast or cast-in-place headwalls and/or curbs shall be positively attached to the precast system sections.

F. Railing Requirements

If the contract plans shows that the culvert/bridge requires a traffic railing attached to the structure, the traffic railing and attachment shall be detailed on the proposed design drawings and shall meet the crash test requirements of MASH. The type of proposed bridge rail shall be consistent with the rail on the contract drawings.

G. Debris Deflection Wall

See Standard Drawings STD-17-21 and STD-17-22. If A debris deflection wall is proposed, the wall shall be constructed on the inlet end of the precast structure when specified on the plans unless the Engineer deems such deflectors inappropriate for the proposed alternative precast system. The Engineer will be the final arbiter in such cases. Details of the wall and method of attachment to the precast unit shall be specified on the

precast system design drawings.

H. Low Flow Channel Construction

See Standard Drawing STD-17-20 or the D-AOP- Series. Low flow channel Standard drawing shall be used as shown on the alternate design drawings.

I. Stage Construction Requirements

If the structure is specified to be stage constructed on the plans, the precast system design drawings shall be detailed and designed to accommodate the phasing requirements. The number of traffic lanes and lane widths shall not be reduced in order to accommodate the use of culvert precast system. Any temporary shoring that may be required to stage construct the culvert shall be included in the cost of the culvert system. For more details, refer to EC-STR-Series Standard Drawings for in stream diversion and Temporary Diversion standards.

J. Wall Drainage

Four (4) inch diameter weep holes at 6-foot center to center spacing to be placed in the wing-walls and exterior walls. See Standard Drawing STD-17-17 for further notes and details for placement of weep hole and aggregate drains.

Material Specifications

The manufacturer shall retain copies of all mill test reports and material certifications.

Concrete. Cast-in-place concrete shall be Class A (Cast-in-place) with minimum concrete strength, $f'c = 3000$ psi or a Class X as required by design. Precast shall be Class P with a minimum concrete strength, $f'c = 5000$ psi or as required by design.

Reinforcing Steel. Shall be ASTM A615 Grade 60, See requirements in **604** and **907**, when fill on the structure is less than 1 foot, epoxy coated reinforcing steel shall be used in the top mat of the top slab and curbs including the tie stirrup bars in the curb.

Reinforcing Bar Support Details. See Standard Drawing STD-9-1.

Water. All water shall be in accordance with Table 921.01-02.

Curing Concrete. All cast-in-place concrete shall be cured in accordance with **604.23**. All precast concrete shall be cured in accordance with **615.11** and handling, placing, and consolidating the concrete for precast members shall be in accordance with **615.10**.

Concrete Finish. See **604.22** requirements for finishing slab surfaces. In general, curbs, edges of slabs, exposed faces and ends of wing-walls, debris deflection walls, ends of interior walls, and exposed face of end-walls shall receive a class II rubbed finish meeting 604.21.

Joints. The sealing of external joints between precast units shall meet manufacturers requirements and include either a bituminous, rubber, or mastic joint sealer and an approved joint wrap at least 12 inches wide.

Handling And Placement Of Precast Units

The precast units shall be stored, erected, and supported according to manufacture recommendations. Each shipment shall be accompanied with a manufacture's certification. A representative from the manufacture shall be present during offloading of the units if stored on site, during erection of the members and during the placement of the structural backfill. The location of the lifting points shall be supported by design calculations. The location of the lifting points and any special instructions shall be clearly shown on the culvert drawings. Ensure that the units get installed properly. Any damage that occurs to the units due to fabrication, storage, installation or as a consequence of problems attributable to the use of the precast system will be corrected at no added cost to the project.

Backfill Requirements

The order of placement of structural backfill around the culvert shall be specifically detailed on the design drawings and a manufacture representative shall be present during the placement of the backfill. Backfilling of the precast system shall be in accordance with **204.11**. The requirements for stepping of boundary slopes to prevent wedge action, for proper layering and compacting of backfill, and for maintaining (at all times) equal heights of backfill against the exterior walls of the culvert shall be strictly enforced. See Standard Drawings STD-17-17 and STD-17-18 for other details and notes.

Method Of Measurement

The Department will measure three sided pre-cast culvert and bridge structures, or precast arches of the different shapes and sizes specified by the linear foot installed and accepted complete in place.

Basis of Payment

The Department will pay for accepted quantities, complete in place, at the contract prices as follows:

<u>Item No.</u>	<u>Description</u>	<u>Pay Unit</u>
607-50.6x	THREE SIDED PRECAST CULVERT STRUCTURE – BARREL (SIZE)	LF

Wing wall, cut off walls, and all concrete other than the structure barrel and runners except bottom if required to be included in the linear foot cost of the precast system.

Bottom slab: If slab-bridge was set-up on contract plans and due to poor foundation material, a bottom slab was required, the bottom slab shall be constructed and embedded as required and the method of payment by 109.04. Otherwise, the bottom slab and/or scour protection to be included in the linear foot cost of the precast system.

Such payment is full compensation for the precast structure complete in place and will include the following:

Any additional foundation information that will be required to determine the location of competent rock and the scour potential of the underlying material. All engineering costs for the design and preparation of design drawings for the culvert system and wing-walls. All material and labor cost for the complete fabrication and installation of the precast units. All material and labor cost for the complete installation of all wing-walls either cast-in-place or precast. All material and labor cost for the design, placement, concrete, reinforcing steel, and any other incidentals required for the complete installation of the bottom slab when the contract plans structure with a bottom slab is specified. If phase construction of the structure is required by the plans, the cost of any temporary shoring or adjustments in the culvert system that is required to maintain the number of traffic lanes and lane widths as noted on the plans will be included in these items. If required, the cost of the bridge rail along with the required attachments to the structure and any modification that will be required in order to meet MASH requirements. The additional cost of having representative from the manufacture at the site during various phases of installation of the precast system shall be included in items bid on for the precast system.

The excavation for the precast system will be paid for under Roadway Road and drainage excavation. See Standard Drawings STD-17-3, STD 17-17, and STD-17-18 for pay limits of excavation. The structural backfill Type "A" Grading "D" will be paid for under item 303-01.02 "Granular Backfill (Bridges). See Standard Drawings STD-17-3, STD 17-17, and STD-17-18 for limits of placement. Any additional foundation fill material required for culverts with a bottom slab will be paid for under Roadway item 204-08 "Foundation Fill Material" per cubic yard.

If a concrete slab bridge is specified on the contract plans and a bottom slab is required due to the location of suitable bearing material or scour requirements, the bottom slab will be paid according to 109.04 "Method of Payment for Additional and Altered Work". The extra work prices includes the cost of all forms, placement, reinforcing steel, concrete and all material and labor required for complete placement and embedment of the bottom slab.

If an approved scour protection is used in lieu of a concrete slab, payment will be according to requirements in 109.04 but the cost of the scour protection shall be similar in the cost to the placement of a concrete bottom slab.

STATEOFTENNESSEETENNESSEE DEPARTMENT OF TRANSPORTATION2026 MINIMUM WAGE SCALES FOR STATE FUNDED CONSTRUCTION

January 1, 2026

Tenn. DOL Decision No. T-40295

CLASSIFICATION (ENGLISH)	CLASSIFICATION (SPANISH)	Basic Hourly Rates	Craft No.
Blaster	Proveedor do Explosivos	29.29	1
Bricklayer	Ladrillero	21.11	2
Carpenter / Leadsperson	Carpintero o Lider	26.73	3
Class "A" Operators	Operador Clase A	31.00	4
Class "B" Operators	Operador Clase B	28.12	5
Class "C" Operators	Operador Clase C	30.74	6
Class "D" Operators	Operador Clase D	28.82	7
Concrete Finisher	Terminador de Cemento	26.60	8
Drill Operator (Caisson)	Operador de Perfordora	44.74	9
Electrician	Electricista	39.21	10
Farm Tractor Operator (Power Broom)	Operador de Tractor de Rancho	20.74	11
Ironworkers (Reinforcing)	Herrero	27.87	12
Ironworkers (Structural)	Herrero de Estructura	25.01	13
Large Crane Operator	Operador de la Grúa	33.81	14
Mechanic (Class I) Heavy Duty	Mecanico Clase 1	38.23	15
Mechanic (Class II) Light Duty	Mecanico Clase 2	32.29	16
Painter / Sandblaster	Pintor o Lajador	39.04	17
Skilled Laborer	Obrero Diestro	26.40	18
Survey Instrument Operator	Operador de Agrimensor	35.87	19
Sweeping Machine (Vacuum) Operator	Operador de Barredora	29.91	20
Truck Driver (2 axles)	Camionero (2 ejes)	27.96	21
Truck Driver (3/4 axles)	Camionero (3 o 4 ejes)	26.87	22
Truck Driver (5 or more axles)	Camionero (5 o más ejes)	30.93	23
Unskilled Laborer	Obrero no Diestro	23.52	24
Worksite Traffic Coordinator	Coordinar de Trafico en el Lugar de Trabajo	29.85	25

CLASSIFICATION

CRAFT NO.

SKILLED LABORER:

18

Air Tool Operator, Asphalt Raker, Chain Saw Operator, Concrete Mixer Operator (less than 1 yard), Concrete Rubber, Edger, Fence Erector, Form Setter (Steel Road), Guardrail Erector, Mechanic's Helper (Tire Changer or Oiler), Mortar Mixer, Nozzleman or Gun Operator (Gunit), *Pipelayer, Sign Erector

CLASS "A" OPERATORS:

04

Backhoe/Hydraulic Excavator (3/4 yard and over), Crane (less than 20 tons), End Loader (3 yards and over), Motor Patrol (Finish

CLASS "B" OPERATORS:

05

Backhoe/Hydraulic Excavator (less than 3/4 yard), Bull Dozer or Push Dozer, End Loader (less than 3 yards), Motor Patrol (Rough), Tractor (Crawler/Utility), Scraper, Shovel, Trenching Machine

CLASS "C" OPERATORS:

06

Asphalt Paver, Concrete Finishing Machine, Concrete Paver, Scale, Spreader (Self-Propelled), Concrete Grinder, Asphalt Milling Machine, Boring Machine (Horizontal)

CLASS "D" OPERATORS:

07

Bobcat, Central Mixing Plant, Concrete Pump, Concrete Saw, Curb Machine (Automatic or Manual), Dozer or Loader (Stockpile), Drill (Piling), Mulcher or Seeder, Rock Drill (Truck Mounted), Roller (Asphalt), Roller (Compaction Self-Propelled), Soil Stabilization Machine, Tractor (Boom & Hoist), Bituminous Distributor Machine, Pump, Track Drill, Striping Machine,

LARGE CRANE OPERATOR:

14

Means one who operates boom-type equipment equal to or greater than 20 tons to hoist and move materials, raise and lower heavy weights and perform other related operations; may oil, grease or otherwise service and make necessary adjustments to equipment as needed; and may perform other related duties. (Note: The equipment is used for such work as pouring concrete and setting steel. This work is subject to strict inspection and must conform closely to specifications. The equipment may also be used for other miscellaneous tasks for which crane or stick-type equipment is required which may include hoist operations and pile driving operations.)

*Skilled Laborer - Pipelayer Classification:

Means one who lays, connects, inspects and tests water lines, force mains, gas lines, sanitary or storm sewers and drains, underground telephone and electric ducts or other

utilities manufactured from clay, concrete, steel, plastic, cast iron pipe or other similar materials; may smooth bottom of trench to proper elevation by scooping with a shovel; receives pipe lowered from top of trench; inserts spigot end of pipe into bell end of last laid pipe; adjusts pipe to line and grade; caulks and seals joint with cement or other sealing compound; may connect threaded or flanged joint pipe; may assemble and place corrugated metal or plastic pipe; and may perform other related duties.

Additional Information:

Prevailing Wage Act (T.C.A., §§ 12-4-401 through 12-4-415). Effective January 1, 2014.

<https://www.tn.gov/content/dam/tn/workforce/documents/Contact/PrevailingWageAct2014.pdf>

For the Classification of Covered Workers (Rule 0800-03-02-.02), see the Tennessee Department of Labor and Workforce Development Prevailing Wage Commission Rules:

https://www.tn.gov/content/dam/tn/workforce/documents/pwc/Prevailing_Wage_Rules.pdf

Wage Rates: <https://www.tn.gov/workforce/employees/labor-laws/labor-laws-redirect/wages-breaks/prevailing-wage.html>

Poster Page: <https://www.tn.gov/workforce/general-resources/major-publications0/major-publications-redirect/posters-redirect/required-posters.html>

Note: Adobe Acrobat Reader is required to download & print. If you do not have this software a link is provided at the bottom of the Poster Page for a free download.

Tenn. Dept. of Labor & Workforce Development (Labor Standards Division): (844) 224-5818



Report of Geotechnical Exploration
TDOT Bridge on Carmichael Road over Long Creek
Jefferson County, Tennessee
S&ME Project No. 214694

PREPARED FOR:

**Jefferson County Highway Department
202 W. Main Street
Dandridge, Tennessee 37725**

PREPARED BY:

**S&ME, Inc.
4291 Highway 58
Chattanooga, Tennessee 37416**

August 10, 2021



August 10, 2021

Jefferson County Highway Department
202 W. Main Street
Dandridge, Tennessee 37725

Attention: Mr. Charles Tipton, Superintendent

Reference: **Report of Geotechnical Exploration**
TDOT Bridge on Carmichael Road over Long Creek
Jefferson County, Tennessee
S&ME Project No. 214694

Dear Mr. Tipton:

This report presents the results of the geotechnical exploration for the bridge replacement project at Carmichael Road Bridge over Long Creek in Jefferson County, Tennessee. Our work was performed in general accordance with S&ME Proposal No. 214694 dated May 18, 2021.

This report describes our understanding of the project, presents the results of the field exploration and laboratory testing, and discusses our conclusions and recommendations. S&ME appreciates this opportunity to be of service to you. Please call if you have questions concerning this report or any of our services.

Sincerely,

S&ME, Inc.

A handwritten signature in blue ink, appearing to read 'Andy Lewis'.

Andy Lewis, EIT
Staff Professional



8/10/2021

Timothy S. Lawrence, PE
Senior Engineer



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Report of Geotechnical Exploration
TDOT Bridge on Carmichael Road over Long Creek
Jefferson County, Tennessee
S&ME Project No. 214694

Appendix IV	Important Information about Your Geotechnical Engineering Report
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◆ Executive Summary

This summary is presented for the convenience of the reader. The full report text should be studied and understood before preparing an estimation of quantities or preparing designs based on this report, as it contains important information and recommendations that are not included in this summary.

1. The geotechnical exploration included drilling and sampling of three test borings. Boring B-01 was sampled and augered to refusal. However, when the drillers were preparing to core, the core barrel was not plumb, so the boring was offset. Offset boring B-01A was augered to refusal without sampling and cored. Boring B-02 was sampled and augered to refusal and cored. Rock was cored to evaluate the continuity, composition, and load resistance of the refusal materials.
2. A laboratory testing program was performed on selected soil and rock core samples to provide additional data to better define engineering properties of the subsurface materials and evaluate foundation alternatives. The laboratory testing program consisted of natural moisture content, Atterberg limits and grain size testing on selected soil samples. Unconfined compressive strength testing was performed on two rock core samples.
3. Bedrock of the Knox Group is mapped to underlie the site. There is always some risk of sinkhole development at any site underlain by limestone and dolomite bedrock. However, the test borings drilled at this site did not encounter open voids or other signs of incipient sinkhole conditions. Based on the nature of this project, it is our opinion that the risk for sinkhole development is not increased due to the construction of the replacement bridge. Further, since the bridge will be supported on the underlying rock, the risk of damage to the structure is very small should a sinkhole develop.
4. Fill was encountered in each of the borings, B-01 and B-02, drilled near the north and south abutments of the bridge to depths of approximately 12 ½ feet below the existing road surface. The fill soils were composed of brown, red brown, tan, and gray sandy fat clay and lean clay. Residual soil was encountered in boring B-02 beneath an approximately 2-foot thick interval of limestone. The residuum was generally composed of sandy fat clay.
5. Auger refusal was encountered in borings B-01, B-01A and B-02 at depths of about 12.7, 12.5 and 12.3 feet below the existing ground surface, respectively. Hard, generally continuous limestone bedrock was encountered in borings B-01A and B-02 from depths of about 12.5 and 23 feet to the coring termination depths of about 31 and 40 feet, respectively. Boring B-02 may have initially refused on a boulder or tip of a pinnacle.
6. Groundwater was encountered in the borings at the approximate water level in Long Creek.
7. The TDOT Bridge Inspection Report dated May 8, 2019, indicated the abutments appear to be on bedrock. Boring B-01A, on the north side of the bridge, encountered competent bedrock at a depth of just over 12 feet below the existing road surface, which may make rock-supported shallow foundations feasible, particularly for the north abutment. However, boring B-02 on the south side of the bridge refused at a depth of just over 12 feet below the existing road surface but competent rock was not encountered until a



Report of Geotechnical Exploration
TDOT Bridge on Carmichael Road over Long Creek
Jefferson County, Tennessee
S&ME Project No. 214694

depth of over 23 feet from the existing road surface. The drillers thought boring B-02 may have initially refused on a boulder (but it could have been the tip of a pinnacle as well) and residual soils were encountered below the possible boulder (or pinnacle). Based on boring B-02, bedrock bearing H-piles may be more appropriate, particularly for the south abutment. Due to the presence of an apparent boulder (or possible pinnacle) in boring B-02 and relatively shallow rock in boring B-01A, pre-drilling of the piles will likely be required. Given the varying subsurface conditions indicated at the abutments from the two borings, we are providing recommendations for both shallow rock supported foundations and bedrock bearing H-piles following.

8. We recommend drilling additional borings with rock coring at the site to provide additional information to select an appropriate foundation system or systems for the bridge.
9. Foundations should be designed in accordance with TDOT standard design criteria.



1.0 Introduction

S&ME, Inc. has completed the geotechnical exploration at the TDOT Bridge on Carmichael Road over Long Creek site in Jefferson County, Tennessee. Our work was performed in general accordance with S&ME Proposal Number 214964 dated May 18, 2021. Our services were authorized by Mr. Charles Tipton of the Jefferson County Highway Department on May 19, 2021.

The purpose of our work was to explore the subsurface soil and rock conditions, provide foundation recommendations, and provide applicable earthwork recommendations for the replacement bridge. This report describes our understanding of the project, presents the results of the field exploration and laboratory testing, and discusses our conclusions and recommendations relative to the above considerations.

The scope of our geotechnical services did not include an environmental assessment for evaluating the presence or absence of wetlands. Design of retaining walls and a detailed slope stability analysis was also outside the scope of our services.

A Site Location Plan and a Boring Location Plan are included in Appendix I. A discussion of the field investigative procedures, a legend of soil classification and symbols, the Test Boring Records and photographs of the rock core recovered are included in Appendix II. Appendix III contains a discussion of the laboratory test procedures and the laboratory test results. Appendix IV contains a document titled "Important Information about Your Geotechnical Engineering Report".

2.0 Site and Project Description

Our understanding of the project is based on project information provided to us by Mr. Jason Carder, PE, of Mattern & Craig. Mr. Jason Carder contacted Ms. Carol Ford (S&ME) via email on May 7, 2021, requesting S&ME provide a proposal to conduct an asbestos evaluation and a geotechnical investigation on/at the Carmichael Road over Long Creek, in White Pine, Jefferson County, Tennessee on behalf of the Jefferson County Highway Department (JCHD). Mr. Carder provided a site location map, Tennessee Department of Transportation (TDOT) Bridge Maintenance Recommendations form dated May 8, 2019, TDOT Bridge Condition Coding form dated May 9, 2019, photographs of the bridge, approaches and general area dated May 8, 2019, and TDOT Bridge Inspection Report, Field Report No. 20, dated May 8, 2019. A Site Location Plan, Figure 1, showing the general project site location is provided in Appendix I.

The existing bridge is approximately 29 feet wide, 26 feet long, and approximately six feet above the creek level and was constructed in 1952 and widened in 1971. The bridge has two lanes, a north and south abutment, and crosses Long Creek. Since the project is in the replacement evaluation phase, structural loading information for a new bridge has not been provided. We understand the new bridge will be designed using load and resistance factor design (LRFD).

We request the project information and any assumptions listed herein be reviewed and confirmed by the appropriate team members. Modifications to our recommendations may be required if the planned bridge differs from our stated information and/or assumptions.



3.0 Regional Geology

Jefferson County, Tennessee is in the Valley and Ridge Physiographic Province. Elongated ridges that trend in a northeast-southwest direction characterize this province. The ridges are typically formed on highly resistant sandstones and shales, while the valleys and rolling hills are formed on less resistant limestone, dolomite, and shales.

Published geologic information indicates the site is underlain by bedrock of the Knox Group. The Knox Group is composed of the Mascot Dolomite, Kingsport Dolomite, Longview Dolomite, Chepultepec Dolomite, and Copper Ridge Dolomite Formations. However, the Knox Group is not differentiated into its individual formations in this area. The Knox Group, where undivided, consists of siliceous dolomite with inter-bedded limestone. These rock units weather to produce a residual clay overburden. Silica in the form of chert is resistant to weathering and is scattered in various quantities throughout the clay residuum.

Carbonate rock, such as the strata underlying this site, is of great geologic age and has been subject to solution weathering over geologic time. Rainwater falling onto the surface and percolating downward through the soil and into cracks and fissures gradually dissolves the rock, producing insoluble impurities such as chert and clay. Since carbonate rock varies greatly in its resistance to weathering, the soil/bedrock contact may be extremely irregular. More soluble bedrock develops a thicker soil cover and a more irregular bedrock surface with pinnacles and slots, and less soluble bedrock usually develops a thinner soil cover and a less irregular soil-bedrock surface.

These large variations in bedrock depth are greatly enhanced by the presence of fractures, bedding planes, and faults, which provide an increased opportunity for a greater influx of percolating water. The weaknesses may form clay-filled cavities or enlarge into caves and may be connected by a network of passageways. If a cave forms close to the bedrock surface, its roof may collapse, and the overlying soils may erode into the cave. Once the weight of the overlying soil exceeds the soil's arching strength, the soil collapses and an open hole or depression may appear at the ground surface. Such a feature is termed a sinkhole.

There is always some risk associated with developing any site underlain by carbonate bedrock. However, the test borings drilled at this site did not encounter signs of incipient sinkhole conditions. We have reviewed the USGS quadrangle map for this area. The map does not show a pattern of closed depressions that would indicate past sinkhole activity in near proximity to the site. We also observed successful development in the surrounding area. Therefore, it is our opinion the proposed construction will not increase the risk of sinkhole development.

4.0 Subsurface Conditions

4.1 Field Exploration Procedures

The procedures used by S&ME, Inc. for field sampling and testing are in general accordance with ASTM and AASHTO procedures and established engineering practice in the State of Tennessee. Appendix II contains brief descriptions of the procedures used in this exploration.

S&ME, Inc. drilled three soil test borings, B-01, B-01A and B-02, to obtain subsurface information at the project site. The two planned borings and an offset boring. Boring B-01 was sampled and augered to refusal. However,



when the drillers were preparing to core, the core barrel was not plumb, so the boring was offset for coring. The offset boring B-01A was augered to refusal without sampling and cored. Boring B-02 was sampled, augered to refusal and cored. Members of our engineering staff established the boring locations in the field by measuring distances and estimating right angles relative to on-site landmarks. The boring elevations were estimated from available GIS data. Therefore, the boring locations shown on Figure 2 – Boring Location Plan in Appendix I and the elevations shown on the Boring Logs in Appendix II should be considered approximate.

Our field representative packaged the soil samples in sealed containers and boxed the rock core samples, labeled them for identification, and returned them to our office where a member of our staff further examined them. We visually classified the soils according to the Unified Soil Classification System (ASTM D 2488). The resulting soil and rock descriptions are shown on the Boring Logs in Appendix II. Samples were then selected for laboratory testing.

4.2 Stratification

The results of our field-testing program are summarized in the following paragraphs and are shown on the Boring Logs in Appendix II. These logs present our interpretation of the subsurface conditions at specific boring locations at the time of our exploration. The stratification lines represent the approximate boundary between material types. The actual transitions may be more gradual than implied.

4.2.1 Surface Materials

About 6 to 7 inches of asphalt underlain by about 5 to 7 inches of base stone was encountered at the ground surface in the borings.

4.2.2 Fill

Fill was encountered below the asphalt and base stone in borings B-01 and B-02 to a depth of about 12½ feet. Fill is material that has been transported to its present location by man. The fill was generally composed of brown and red-brown sandy fat clay and gray lean clay. Standard Penetration Test (SPT) N values in the fill ranged from 3 to 16 blows per foot (bpf), indicating soft to very stiff soil consistencies. We have not been provided with documentation regarding how or when the fill was placed.

4.2.3 Residuum

Residual soil was encountered in boring B-02 below the fill and what the drillers thought was a limestone boulder (could also have been the tip of pinnacle). Residual soil forms from the in-place weathering of bedrock. The residuum was composed of brown and red brown sandy fat clay. The SPT N value in the residual soils was 2 bpf, indicating a very soft consistency.

4.2.4 Auger Refusal

Auger refusal was encountered borings B-01/B-01A and B-02 at depths of about 12 ½ feet and 12 feet, respectively. The drillers thought auger refusal in boring B-02 occurred on a boulder. A casing advancer was used



from a depth of about 14 feet to 23 ½ feet to advance the boring through the boulder. The casing advancer encountered limestone bedrock at a depth of about 23 ½ feet.

4.2.5 *Bedrock*

Rock was cored in borings B-01A and B-02. The rock core was generally composed of gray, hard, continuous dolomitic limestone.

Core recovery and rock quality designation (RQD) were measured for each core run. The rock core recovery is a measure of the length of core drilled to that recovered expressed as a percentage. The RQD is a measure of the rock quality based on the percentage of the rock core run containing pieces greater than 4 inches in length. Table 4.2.5-1 summarizes the core data.

Table 4.2.5-1 – Rock Core Summary

Boring No.	Depth to Bedrock Surface (feet)	Core Run Depth Intervals (feet)	RQD (%)	Core Recovery (%)	Coring Termination Depth (feet)	Bedrock Description
B-01A	12.5	12.5 – 15.8	73	94	30.8	12.5'-30.8' : DOLOMITE LIMESTONE gray with light gray, very thickly bedded, 45° bedding, continuous, fair to excellent quality, slightly weathered, hard.
		15.8 – 20.8	86	100		
		20.8 – 25.8	66	100		
		25.8 – 30.8	92	96		
B-02	12.2	12.2 – 14.2	0	11	39.9	12.2'-14.2' : LIMESTONE (Drillers thought it was a boulder, but could be the tip of a pinnacle as well) 23.3'-39.9' : DOLOMITE LIMESTONE dark gray, very thickly bedded, 45° bedding, continuous, excellent quality, fresh, hard.
		23.3 – 24.9	94	94		
		24.9 – 29.9	97	100		
		29.9 – 34.9	100	100		
		34.9 – 39.9	92	100		

4.3 Water Levels

Groundwater was encountered in the borings at the approximate elevation of Long Creek at the time of drilling. We backfilled the boreholes shortly after completion due to safety concerns and delayed groundwater level measurements were not obtained. We expect groundwater levels at the site to approximate the creek level.



4.4 Laboratory Testing

Laboratory tests were performed on representative split-spoon samples obtained during the field exploration phase of this project. We conducted moisture content and Atterberg limits tests on selected samples to aid our soil classification and to evaluate the relative volume change potential of on-site soils. The resulting soil descriptions are shown on the Test Boring Records in Appendix II.

In addition to index property testing performed on soil samples, grain size testing was performed on soil obtained from the creek for use in determining scour potential of the creek bottom material. Unconfined compression testing was performed on two samples of limestone rock core. The testing resulted in an unconfined compressive strength of about 22 kips per square inch (ksi) in a sample taken at a depth of about 16 feet in boring B-01, and 13 ksi in a sample taken at a depth of about 24 feet in boring B-02. The unit weight of the rock core samples tested was about 168 and 170 pounds per cubic foot (pcf). The laboratory test results and a brief description of the laboratory test procedures are presented in the Appendix.

5.0 Bridge Foundation Recommendations

The conclusions and recommendations presented in this report are based on the preceding project information and the results of this exploration. Variations in subsurface conditions may occur between the boring locations and could occur in small lateral distances. If it becomes apparent during construction the encountered conditions vary substantially from those presented herein, we should be notified. S&ME should be retained to evaluate and modify the recommendations of this report, if necessary. Also, if the scope of this project should change significantly from that described herein, S&ME should be contacted as the recommendations may need to be reevaluated.

The TDOT Bridge Inspection Report dated May 8, 2019, indicated the abutments appear to be on bedrock. Boring B-01A, on the north side of the bridge, encountered competent bedrock at a depth of just over 12 feet below the existing road surface, which may make rock-supported shallow foundations feasible, particularly for the north abutment. However, boring B-02 on the south side of the bridge refused at a depth of just over 12 feet below the existing road surface but competent rock was not encountered until a depth of over 23 feet from the existing road surface. The drillers thought boring B-02 may have initially refused on a boulder (but it could have been the tip of a pinnacle as well) and residual soils were encountered below the possible boulder (or pinnacle). Based on boring B-02, bedrock bearing H-piles may be more appropriate, particularly for the south abutment. Due to the presence of an apparent boulder (or possible pinnacle) in boring B-02 and relatively shallow rock in boring B-01A, pre-drilling of the piles will likely be required. Given the varying subsurface conditions indicated at the abutments from the two borings, we are providing recommendations for both shallow rock supported foundations and bedrock bearing H-piles following. However, we recommend drilling additional borings with rock coring at the site to provide additional information to select an appropriate foundation system or systems for the bridge.

5.1 Shallow Foundations

Based on our analyses, if shallow rock supported foundations are selected for support of the bridge, foundations may be designed using a nominal (ultimate) bearing resistance of 89,000 pounds per square foot (psf). Using the geotechnical strength bearing resistance factor of 0.45 (AASHTO LRFD Bridge Design Specifications, 9th Ed., 2020 (AASHTO LRFD 2020)), gives a factored geotechnical strength bearing resistance of approximately 40,000 psf. To



resist lateral forces, we recommend a nominal (ultimate) friction coefficient between the bedrock bearing surface and foundation concrete of 0.65. AASHTO LRFD 2020 does not provide a geotechnical strength resistance factor for sliding resistance on rock. We recommend using a sliding resistance factor for the geotechnical strength limit state of 0.80 (similar to the factor used for cast-in-place concrete on sand). Since the foundations will be supported on competent bedrock, settlement will not be a significant concern. We anticipate settlements of less than a 1/2 inch.

Scour was observed along portions of the creek-side foundation edges. We recommend that shallow foundations be embedded in bedrock at least one foot below the calculated scour depth. As such, difficult/rock excavation will be required to prepare foundation areas. We recommend foundations be at least 3 feet wide for ease of construction. We expect dewatering of the foundation excavations will be required to construct shallow foundations.

Based on the geologic setting, clay filled slots, seams of clay or severely weathered zones are present within the bedrock mass. Discontinuities in the rock mass, particularly discontinuities at or near foundation bearing levels, may require mitigation ("dental work") to provide adequate support for the bridge. "Dental work" consists of undercutting and cleaning the soil and loose rock in slots, seams, and severely weathered zones and backfilling with lean concrete (i.e., concrete with a compressive strength of at least 2,000 psi). Slots in the rock mass are generally cleaned to depths in the range of 1½ to 2 times the width of the slot. Rock excavation may be required to expose and mitigate defects below an interval of rock, or grouting may be needed to mitigate the feature.

Once the foundation excavations are completed and the bedrock bearing surfaces exposed, we recommend the contractor drill three to four probe holes below the bottom of each abutment foundation. Each probe hole should be about 2 inches in diameter and is usually drilled with a hand-held air percussion hammer. The probe holes should be drilled to a depth of 1½ times the width of the foundation or 10 feet, whichever is less. We recommend each hole be evaluated by a geotechnical engineer or his designate using a steel feeler rod to assess the rock continuity. Additional probe holes may be requested by the geotechnical engineer should marginal rock be encountered.

After completion of the foundation evaluations and depending on the condition of the exposed rock foundation area, the contractor may want to consider placing a mud mat of lean concrete to provide a level working platform for reinforcing steel placement. The mud mat will also provide a surface that can be easily cleaned should the excavation flood. The foundation bearing areas should be reasonably level or suitably benched and free of loose materials, water and debris prior to the placement of a mud mat or the foundation concrete.

The recommendations in this report are contingent on S&ME observing and evaluating the foundation excavations and probe holes prior to placing the concrete mud mat. Foundation subgrade observations should be performed by the geotechnical engineer, or his designate, to confirm the recommendations provided in this report are consistent with the site conditions encountered.

5.2 Steel H-Piles

Steel H-piles bearing on hard, competent bedrock may be used to support the proposed bridge abutments. Due to the potential for boulders in the overburden soils and relatively shallow depths to bedrock in portions of the site, driving of piles to competent bedrock or to a tip elevation to obtain a minimum pile length may not be



feasible without pre-drilling the pile locations. Competent bedrock was encountered at depths of just over 12 and 23 feet below the existing road surface in borings B-01A and B-02, respectively, and an apparent boulder (or possible pinnacle) was encountered in boring B-02 at a depth of about 12 feet.

The annular space around the piles in pre-drilled holes should be backfilled with open graded washed stone or approved clean sand, as is TDOT's standard procedure for pre-drilled steel piles. The piles should be driven to refusal or seated in pre-drilled holes after backfilling as defined in Section 5.1.3 of this report.

5.2.1 *Pile Capacity*

We understand TDOT typically uses HP10X42 or HP12X53 piles for steel H pile foundations. The design of driven steel H-piles end bearing on bedrock will be controlled by the structural capacity of the pile and should be determined in accordance with AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020 (AASHTO 2020) Article 6.9.4.1 with the resistance factors specified in Article 6.5.4.2 and Article 6.15. We calculated the nominal and factored axial compressive pile resistance for HP10X42 and HP12X53 piles as shown in Table 5.1.1-1. The resistances in Table 5.1.1-1 assume the H-piles have a yield strength of 50 kips per square inch (ksi), negligible moment and are fully braced along their lengths. Since the piles will be supported on competent bedrock, settlement should not be a project concern. We anticipate pile settlements of ½ inch or less. The axial compressive capacity of pile groups will be the sum of the individual pile capacities. No pile axial compression group reduction is required for end bearing piles supported in bedrock.

Table 5.1.1-1 –Steel H Pile Compressive Resistance

Pile Section	Nominal Pile Compressive Resistance (kip)	LRFD Resistance Factor*	Factored Pile Compressive Resistance (kip)
HP 10 X 42	460	0.5	230
HP 12 X 53	580		290

*Resistance Factor from AASHTO LRFD Bridge Design Manual, 9th Ed. (2020), Section 6.5.4.2

5.2.2 *Lateral Load Analysis Parameters*

The lateral load capacity of the piles should be determined in accordance with AASHTO 2020 Article 10.7.3.12. For lateral load analyses, using a software program such as LPile, we recommend input parameters provided in Table 5.1.2-1 and Table 5.1.2-2. Group effects will need to be accounted for as discussed in AASHTO 2020 Article 10.7.2.4-1 and Table 10.7.2.4-1. Bedrock was encountered at elevations of about 1147 feet in boring B-01 and 1137 feet in boring B-02. The following input parameters are recommended for use in lateral load analyses.



Table 5.1.2-1 –Lateral Load Analysis Parameters, North Abutment

Bottom of Layer Approximate Elevation (feet)	Soil Type	Total Unit Weight (kips per cubic foot, kcf)	Buoyant Unit Weight (kcf)	Parameters*
1156	Sandy Fat Clay	0.115	0.053	ϵ_{50} : 0.01 c: 1.0 ksf
1147	Lean Clay	0.105	0.043	ϵ_{50} : 0.020 c: 0.5 ksf

Table 5.1.2-2 –Lateral Load Analysis Parameters, South Abutment

Bottom of Layer Approximate Elevation (feet)	Soil Type	Total Unit Weight (kips per cubic foot, kcf)	Buoyant Unit Weight (kcf)	Parameters*
1146	Sandy Fat Clay	0.115	0.053	ϵ_{50} : 0.010 c: 1.0 ksf
1137	Sandy Fat Clay	0.105	0.043	ϵ_{50} : 0.020 c: 0.5 ksf

ϵ_{50} – Value of strain at 50 percent maximum stress

c – Cohesive strength (kips per square foot)

5.2.3 Construction Considerations

The H-piles should be installed per TDOT specifications with consideration of the following:

- Spacing between piles should be at least 2.5 times the pile width to reduce the potential for ground heave.
- The pile should be driven to refusal or seated in pre-drilled holes after backfilling, defined as at least 5 blows per 1/4 inch or less movement at termination. The pile driving hammer should have an energy of 15,000 to 20,000 foot-pounds.
- Cushions should be used between the pile hammer and pile butt. Hardened steel points should be included on the pile tips to reduce damage associated with hard driving and the sloping bedrock surface conditions that may be encountered.
- During pre-drilling, a casing will be needed to keep soft soils from caving into the holes.

Pile driving should be observed by qualified geotechnical or construction personnel. Because of the existing subsurface conditions, considerable judgment may be required to evaluate when driving of individual piles should



be stopped and to consult with the structural engineer regarding any needed revisions to the pile cap design based on the driving of preceding piles.

5.3 Scour

We recommend that any below grade bridge or abutment wall elements which will be constructed in scour prone areas be extended to a depth below the potential scour depth. Based on laboratory testing performed on material sourced from the creek bottom, we recommend a D_{50} value of 0.15 inch be used to calculate the scour depth.

5.4 Seismic Considerations

Based on the drilling data, we recommend Seismic Site Class D for the proposed bridge (reference Table 3.10.3.1-1 – Site Class Definitions, AASHTO 2020) bearing on steel H piles founded on hard limestone bedrock. From AASHTO 2020 Article 3.10 and the seismic maps from the USGS website we obtained the following peak ground acceleration (PGA), short- and long-period spectral accelerations (S_s and S_1 , respectively) and five-percent-damped-design response spectrum accelerations (A_s , S_{DS} , and S_{D1} , respectively) for the site:

- PGA = 0.151 g
- S_s = 0.273 g
- S_1 = 0.068 g
- A_s = 0.226 g
- S_{DS} = 0.431 g
- S_{D1} = 0.163 g

With an S_{D1} value of 0.163, the bridge is assigned to Seismic Zone 2 (AASHTO 2020, Article 3.10.6). Given the bridge is assigned to Seismic Zone 2, a liquefaction assessment is generally not required because the sustained ground acceleration is not large enough or does not act over a long enough period of time for liquefaction to occur (AASHTO 2020, Article C10.5.4.2).

5.5 Site Preparation Considerations

5.5.1 Demolition

The existing bridge structure will be demolished prior to construction. This work should include the removal of existing site concrete and foundations that will interfere with the new construction. Abandoned utilities should be removed and replaced with compacted fill. Active utilities should be relocated outside of the construction area.

5.5.2 Stripping

The site should be cleared and grubbed in accordance with Section 201.03 of TDOT's 2021 Standard Specifications.

5.5.3 General

In areas less than 5 feet below subgrade where soil fill will be placed, proofrolling of the exposed surface of the subgrade soils should be performed after completion of stripping in areas to receive fill and once grade is achieved in cut areas. The purpose of proofrolling is to locate pockets of soft or unstable soils. Proofrolling



should be performed using a fully loaded dump truck or other heavy equipment approved by the construction engineer. The proofrolling operation should traffic the construction area with parallel passes of the vehicle starting at one side of the area and continuing to the other. Each pass should overlap the preceding pass to ensure complete coverage. We recommend two complete passes. The construction engineer should be present to observe the proofrolling operations and to provide recommendations should unstable soils be encountered.

In accordance with Section 205.03 of TDOT's 2021 Standard Specifications, in areas where fill is placed less than 3 feet below subgrade, the cleared ground surface should be completely broken up by plowing, scarifying or stripping to a minimum depth of 6 inches and re-compacted. In cut areas, the top one foot of subgrade soils should be scarified, moisture conditioned, and re-compacted.

5.5.4 Compacted Fill

We anticipate the soils generated through excavation as part of the project will likely be used where fill is required. Borrow soils may be required if the project excavation does not provide enough soil for the required fills. Soil used for compacted fill should meet the requirements for AASHTO M 145, classification A-6 or better if reasonably available. If classification A-6 is not reasonably available, the borrow soil should be no worse than the predominant soil type in the roadway excavation based on AASHTO classification.

As stipulated in Section 205.04 of TDOT's 2021 Standard Specifications, fill should be placed in thin, horizontal lifts with a maximum loose thickness of 10 inches, then compacted to 95 percent of the standard Proctor maximum dry density. Typically, the moisture content should have a maximum range within 3 percent of the optimum moisture content, but the moisture content range that will be acceptable in order to obtain adequate compaction will depend on the shape of the Proctor curve. The top 6 inches of the roadbed in both cut as well as in fill areas where compacted soil fill will be placed should be compacted to 100 percent of the standard Proctor maximum dry density. The compacted fill should extend to the limits and grades shown on the roadway design plans.

An experienced soils technician should test the density and moisture content of each lift before placing additional lifts in order to evaluate that the specified degree of compaction is being achieved. The actual testing frequency should be determined by the geotechnical engineer based on the type of soil being placed, the equipment being used, and the time of year the fill is being placed. More frequent testing should be performed in confined areas. Areas that do not meet the compaction specification should be scarified, moisture conditioned if necessary, and re-compacted to achieve compliance.

Positive surface drainage should be maintained during grading operations to prevent water from ponding on the surface. The surface should be rolled smooth to enhance drainage if precipitation is expected. The geotechnical engineer should provide recommendations for treatment if the soils become excessively wet, dry, or frozen.

5.5.5 Ground Water/Water Considerations

We expect groundwater levels at this site will approximate the water elevation of Long Creek. Considering the creek flow and the time of year the construction is performed, sandbags may be a suitable means to reduce water infiltration into the excavations during pile cap construction. However, diverting the creek and/or "pumping around" the foundation excavations may be required.



6.0 Limitations of Report

This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The conclusions and recommendations contained in this report are based on applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made. S&ME is not responsible for the conclusions, opinions, or recommendations of others based on this data.

Our conclusions and recommendations are based on the design information furnished to us, the data obtained during the geotechnical exploration, the laboratory test results, and our experience. They do not reflect variations in the subsurface conditions that are likely to exist between our borings and in unexplored areas of the site due to the inherent variability of the subsurface conditions in this geologic region and past land use. If such variations are found during construction, re-evaluating our conclusions and recommendations will be necessary.

If changes are made in the location of the planned bridge or elevations of the tops of the planned foundations, the recommendations contained in this report will not be considered valid unless our firm has reviewed the changes and modified or verified our recommendations in writing. You should retain us and give us the opportunity to review the final plans and the applicable portions of the project specifications after design completion. This review will allow us to check whether these documents are consistent with the intent of our recommendations.

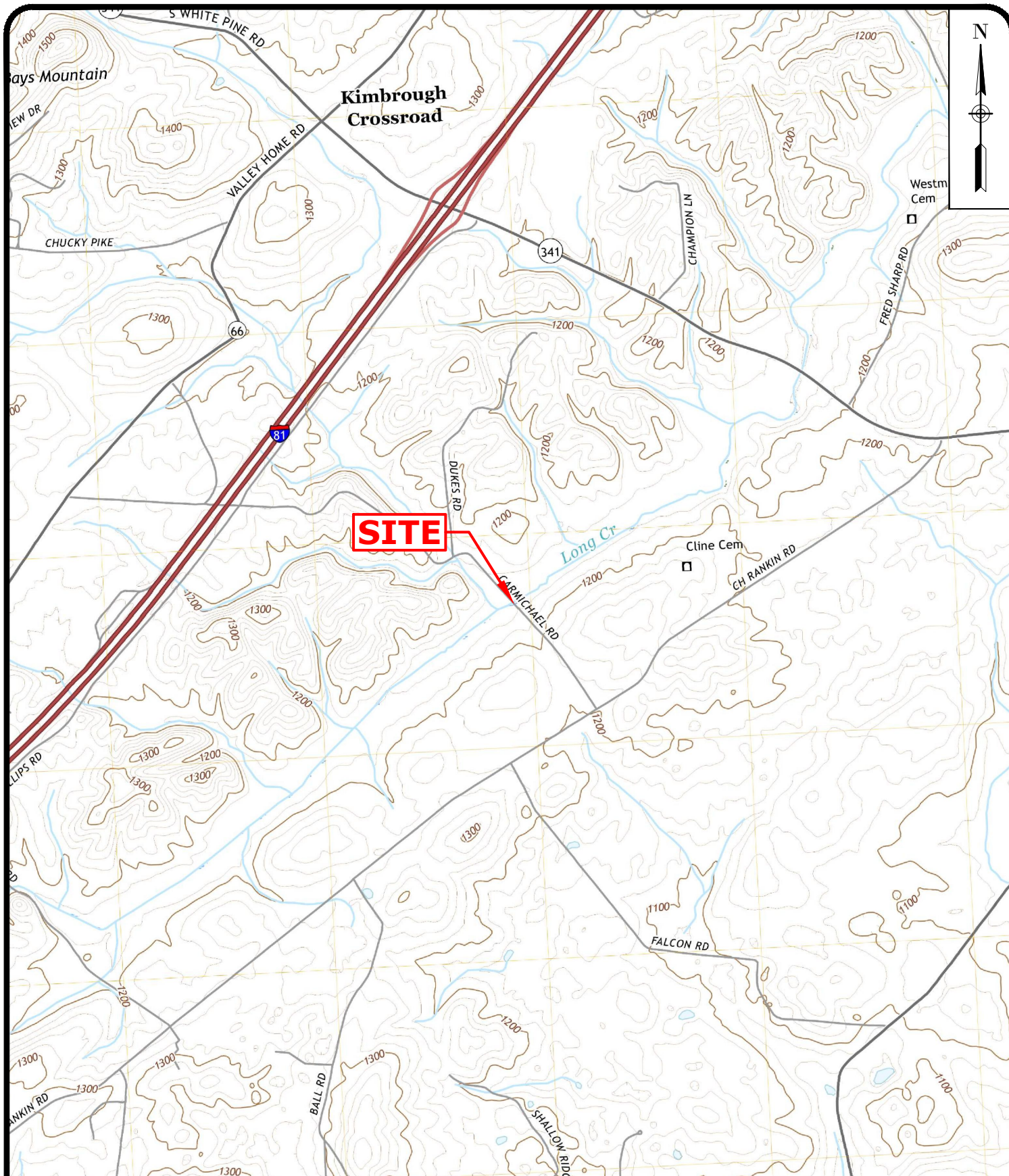
For more information on the use and limitations of this report, please read the ASFE document included in Appendix V.

Appendices

Appendix I

Figure 1 - Site Location Plan

Figure 2 - Boring Location Plan



NOTES:

- SOURCE: USGS 7.5 Minute Topographic Map -- WHITE PINE, TENNESSEE (2019)
- DRAWING FOR ILLUSTRATION PURPOSES ONLY



SITE LOCATION PLAN

TDOT BRIDGE ON CARMICHAEL ROAD OVER LONG CREEK
JEFFERSON COUNTY, TENNESSEE

SCALE:

1"=2,000'

DATE:

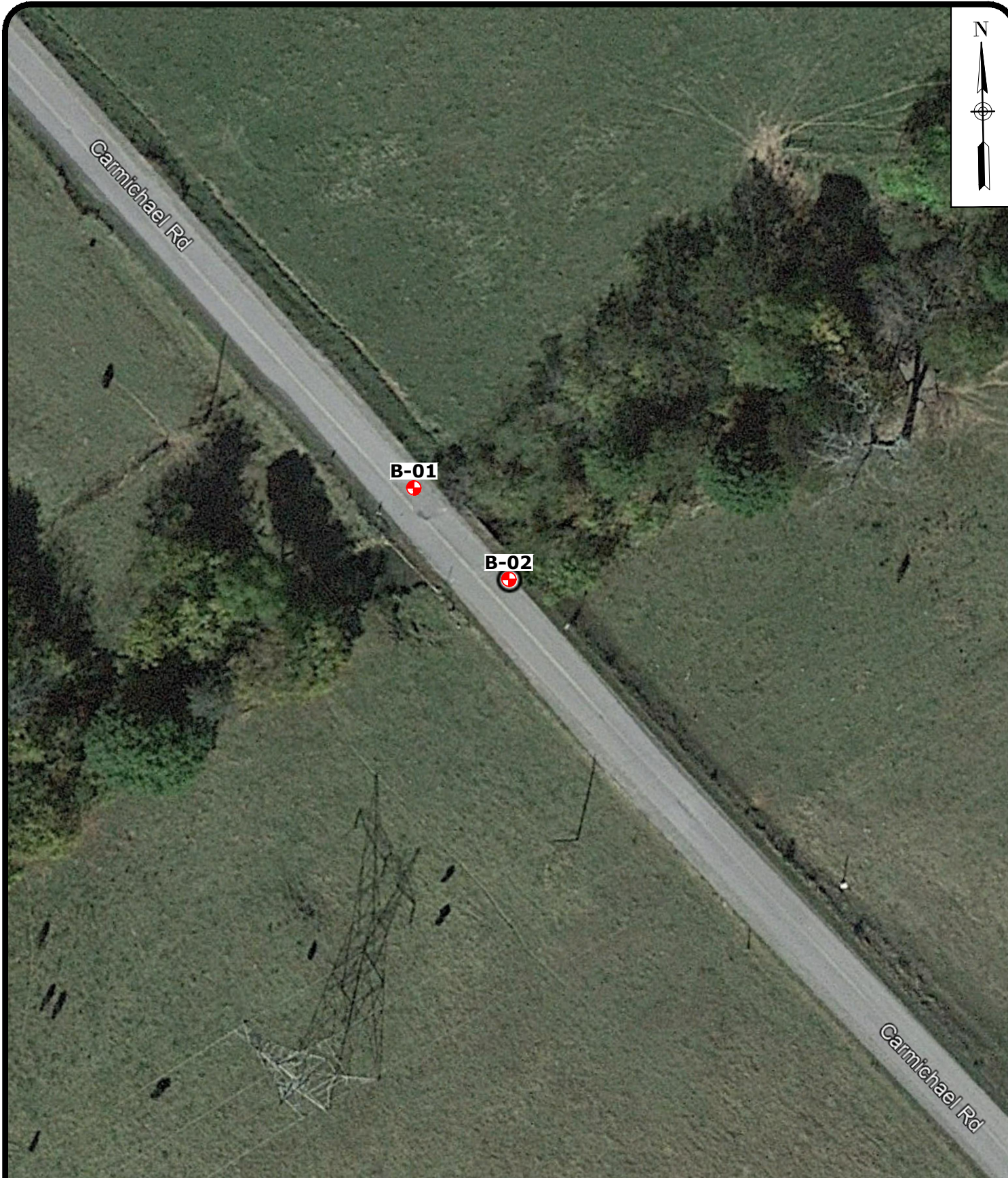
8/03/2021

PROJECT NUMBER

214694

FIGURE NO.

1



NOTES:

- DRAWING FOR ILLUSTRATIVE PURPOSES ONLY
- BASE IMAGE OBTAINED FROM GOOGLE EARTH

LEGEND:

- APPROXIMATE BORING LOCATION



BORING LOCATION PLAN

TDOT BRIDGE ON CARMICHAEL ROAD OVER LONG CREEK
JEFFERSON COUNTY, TENNESSEE

SCALE:
1" = 50'

DATE:
8/03/2021
PROJECT NUMBER
214694

FIGURE NO.

2

Appendix II

Test Boring Log Legend

Test Boring Logs

Rock Core Photographs

TEST BORING LOG LEGEND

FINE AND COARSE GRAINED SOIL INFORMATION

COARSE GRAINED SOILS (SANDS & GRAVELS)		FINE GRAINED SOILS (CLAYS & SILTS)		PARTICLE SIZE	
<u>N</u>	<u>Relative Density</u>	<u>N</u>	<u>Consistency</u>		
0-4	Very Loose	0-2	Very Soft	Boulders	Greater than 300 mm (12 in)
5-10	Loose	3-4	Soft	Cobbles	75 mm to 300 mm (3 to 12 in)
11-30	Medium Dense	5-8	Firm	Gravel	4.75 mm to 75 mm ($\frac{3}{16}$ to 3 in)
31-50	Dense	9-15	Stiff	Coarse Sand	2 mm to 4.74 mm
Over 50	Very Dense	16-30	Very Stiff	Medium Sand	.425 mm to 2 mm
		31-50	Hard	Fine Sand	0.075 mm to 0.425 mm
		Over 50	Very Hard	Silts and Clays	Less than 0.075 mm

The **STANDARD PENETRATION TEST** as defined by **ASTM D 1586** is a method to obtain a disturbed soil sample for examination and testing and to obtain relative density and consistency information. A standard 1.4-inch I.D./20inch O.D. split barrel sampler is driven three 6-inch increments with a 140 lb. hammer falling 30 inches. The hammer can either be of a trip, free-fall design, or actuated by a rope and cathead. The blow counts required to drive the sampler the final two 6-inch increments are added together and designated the N-value defined in the above tables.

ROCK PROPERTIES

ROCK QUALITY DESIGNATION (RQD)		ROCK HARDNESS	
<u>Percent RQD</u>	<u>Quality</u>		
0-25	Very Poor	Very Hard	Rock can be broken by heavy hammer blows
25-50	Poor	Hard	Rock cannot be broken by thumb pressure, but can be broken by moderate hammer blows
50-75	Fair	Moderately Hard	Small pieces can be broken off along sharp edges by considerable thumb pressure; can be broken with light hammer blows.
75-90	Good	Soft	Rock is coherent but breaks very easily with thumb pressure at sharp edges and crumbles with firm hand pressure.
90-100	Excellent	Very Soft	Rock disintegrates or easily compresses when touched; can be hard to very hard soil

RQD =	$\frac{\text{Sum of 4 in. and longer Rock Pieces Recovered}}{\text{Length of Core Run}} \times 100$	43 RQD	<u>Core Diameter</u>	<u>Inches</u>
		NQ	BQ	1-7/16
RQD =	$\frac{\text{Length of Rock Core Recovered}}{\text{Length of Core Run}} \times 100$	63 REC	NQ	1-7/8
			HQ	2-1/2

SYMBOLS

KEY TO MATERIAL TYPES										SOIL PROPERTY SYMBOLS	
	Conglomerate		Shale		USCS GM		USCS OH		USCS SP	N:	Standard Penetration, BPF
	Sandstone		Limestone		USCS GP-GC		USCS OL-OH		USCS SW-SM	M:	Moisture Content, %
	Calcareous Sandstone		Dolomite		USCS GP-GM		USCS OL		USCS SW	LL:	Liquid Limit, %
	Dolomitic Sandstone		Bedded Chert		USCS GP		USCS PT			PL:	Plastic Limit, %
	Siltstone		USCS CH		USCS GW-GC		USCS SC-SM			PI:	Plasticity Index, %
	Cherty Shale		USCS CL-ML		USCS GW-GM		USCS SC			Qp:	Pocket Penetrometer Value, TSF
	Marl		USCS CL		USCS GW		USCS SM			Qu:	Unconfined Compressive Strength, TSF
			USCS GC-GM		USCS MH		USCS SP-SC			γ_d :	Dry Unit Weight, PCF
			USCS GC		USCS ML		USCS SP-SM			F:	Fines Content

LOG SYMBOLS	
	Undisturbed Sample
	Standard Penetration Test Sample
	Rock Core Sample
	- Proposed Grade Marker
	- Borehole Cave Depth
	- Water Level at Time of Drilling
	- Delayed Water Level Markers

PROJECT: Carmichael Road Over Long Creek White Pine, Tennessee S&ME Project No. 214694				BORING LOG: B-01A <i>Sheet 1 of 1</i>			
DATE DRILLED: 06/30/2021			ELEVATION: 1160 ft		NOTES: Soil descriptions based off visual observation of recovered materials. boring offset 1 foot.		
DRILL RIG: Diedrich D-50			DATUM: NAVD88				
DRILLER: Michael Bowens			BORING DEPTH: 30.8 ft				
HAMMER TYPE: Automatic hammer			CLOSURE: Soil Cuttings with Hole Closure Device				
DRILLING METHOD: 3-1/4" HSA, NQ			LOGGED BY: Claudia Bible		LATITUDE: LONGITUDE:		
SAMPLING METHOD: CORE				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Tennessee FIPS 4100 Feet			

DEPTH (feet)	NOTES	Depositional Environment	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA					ELEVATION
							20	40	60	80		
0					ASPHALT, 7 inches						1160	
					AGGREGATE BASE, 7 inches							
					SANDY FAT CLAY (CH), brown with tan							
5					LEANCLAY (CL), few sand, gray						1155	
10											1150	
12.5	Auger refusal at 12.5 feet											
15				01 REC-94% RQD-73%	DOLOMITE LIMESTONE, gray with light gray, very thickly bedded, continuous, fair to excellent quality, finely crystalline, 45°, slightly weathered, hard						1145	
20				02 REC-100% RQD-86%							1140	
25				03 REC-100% RQD-66%							1135	
30				04 REC-96% RQD-92%							1130	
					Borehole terminated at 30.8 feet							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
DURING ADVANCE	☒			
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED.
 LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave

PROJECT: Carmichael Road Over Long Creek White Pine, Tennessee S&ME Project No. 214694				BORING LOG: B-02 <i>Sheet 1 of 2</i>			
DATE DRILLED: 06/29/2021		ELEVATION: 1160 ft		NOTES: Soil descriptions based off visual observation of recovered materials.			
DRILL RIG: Diedrich D-50		DATUM: NAVD88					
DRILLER: Michael Bowens		BORING DEPTH: 39.9 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Soil Cuttings with Hole Closure Device					
DRILLING METHOD: 3-1/4" HSA, NQ		LOGGED BY: Claudia Bible		LATITUDE: 36.092002 LONGITUDE: -83.33335			
SAMPLING METHOD: SS, CORE				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Tennessee FIPS 4100 Feet			

DEPTH (feet)	NOTES	Depositional Environment	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA					ELEVATION
							20	40	60	80		
0					ASPHALT, 6 inches	2-4-12 N= 16						1160
				01	AGGREGATE BASE, 5 inches							
		Fill			FAT CLAY (CH), some wood, trace sand, very stiff, red brown with gray, slightly moist	4-2-2 N= 4						
5				02	SANDY FAT CLAY (CH), little gravel, soft to very stiff, brown with red brown, slightly moist							
						2-13-3 N= 16						
				03								
				04	SANDY FAT CLAY (CH), firm, red brown to gray, moist	2-2-3 N= 5						1155
10												1150
	Auger refusal at 12.2 feet			01	DOLOMITE LIMESTONE (Driller's thought this may be a boulder, but could be a pinnacle as well)							
15				REC-11% RQD-0%								
			Residium			SANDY FAT CLAY (CH), very soft, brown with red brown, wet						
					05		1-1-1 N= 2					
20												1140
				02	DOLOMITE LIMESTONE, dark gray, very thickly bedded, continuous excellent quality finely crystalline, 45°, fresh, hard							
25				REC-94% RQD-94%								1135
				03								
				REC-100% RQD-97%								
30												1130

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
DURING ADVANCE	☒			
END OF DRILLING	☒	06/29/2021	6.0	
AFTER DRILLING	☒			
AFTER DRILLING	☒			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED.

LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave

PROJECT: Carmichael Road Over Long Creek White Pine, Tennessee S&ME Project No. 214694				BORING LOG: B-02 <i>Sheet 2 of 2</i>			
DATE DRILLED: 06/29/2021		ELEVATION: 1160 ft		NOTES: Soil descriptions based off visual observation of recovered materials.			
DRILL RIG: Diedrich D-50		DATUM: NAVD88					
DRILLER: Michael Bowens		BORING DEPTH: 39.9 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Soil Cuttings with Hole Closure Device					
DRILLING METHOD: 3-1/4" HSA, NQ		LOGGED BY: Claudia Bible		LATITUDE: 36.092002 LONGITUDE: -83.33335			
SAMPLING METHOD: SS, CORE				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Tennessee FIPS 4100 Feet			

DEPTH (feet)	NOTES	Depositional Environment	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA					ELEVATION
							20	40	60	80		
							△ % Fines ○ NMC H PL-LL					
35				04 REC-100% RQD-100%	DOLOMITE LIMESTONE, dark gray, very thickly bedded, continuous excellent quality finely crystalline, 45°, fresh, hard						1125	
40				05 REC-100% RQD-92%							1120	
45					Borehole terminated at 39.9 feet						1115	
50											1110	
55											1105	
60											1100	

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
DURING ADVANCE	☒			
END OF DRILLING	☒	06/29/2021	6.0	
AFTER DRILLING	☒			
AFTER DRILLING	☒			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED.
 LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave

Boring B-01A



RUN	DEPTH (FT)	RQD (%)	RECOVERY (%)	ROCK DESCRIPTION
1	12.5 – 15.8	73	94	12.5'-30.8': DOLOMITE LIMESTONE with white calcite veins, light and dark gray, 45° bedding, continuous, fair to excellent quality, slightly weathered, hard.
2	15.8 – 20.8	86	100	
3	20.8 – 25.8	66	100	
4	25.8 – 30.8	92	96	

Boring B-02



RUN	DEPTH (FT)	RQD (%)	RECOVERY (%)	ROCK DESCRIPTION
1	12.2 – 14.2	0	11	12.2'-14.2': DOLOMITE LIMESONE BOULDER 23.3'-39.9': DOLOMITE LIMESTONE with white calcite veins, light gray, 30° to 45° bedding, continuous, excellent quality, fresh, hard.
2	23.3 – 24.9	94	94	
3	24.9 – 29.9	97	100	
4	29.9 – 34.9	100	100	
5	34.9 – 39.9	92	100	

Appendix III

Laboratory Test Results

LABORATORY DETERMINATION OF WATER CONTENT

☒

7

[illegible]

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

Date _____

Victor Zor
Signature

Signature

Date _____

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LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX



Quality Assurance

ASTM D4318



AASHTO T 89



AASHTO T 90



S&ME, Inc. - Knoxville: 1413 Topside Road, Louisville, TN 37777

Project #: 214694

Report Date: 7/20/2021

Project Name: TDOT Bridge on Carmichael Road over Long Creek

Test Date(s) 7/13/2021

Client Name: Jefferson County Highway Department

Client Address: Jefferson County, TN

Boring #: B-01

Sample #: SS-4

Sample Date: 6/30/2021

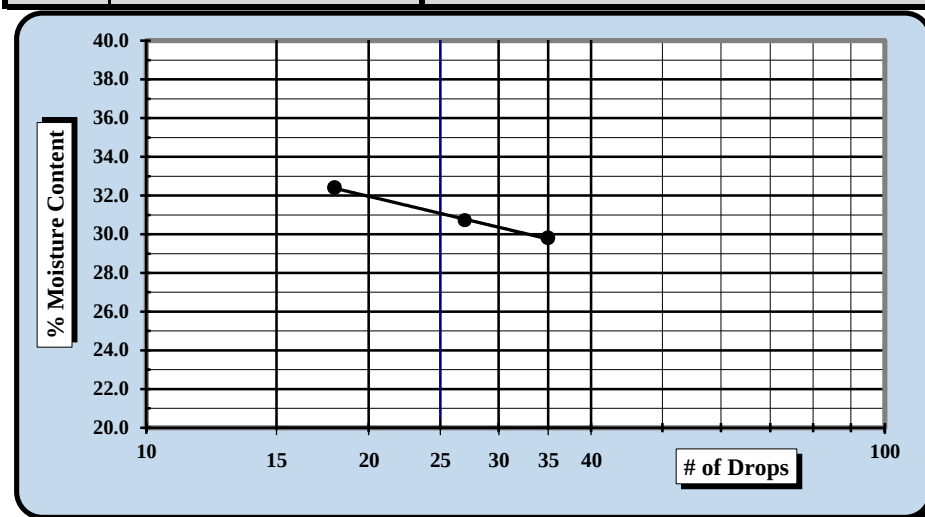
Log #: 43-3435

Depth: 8.5 - 10 ft

Description: Dark gray lean clay with sand

Type and Specification	S&ME ID #	Cal Date:	Type and Specification	S&ME ID #	Cal Date:
Balance (0.01 g)	18435	2/23/2021	Grooving tool	14372	5/11/2021
LL Apparatus	18414	8/29/2020	No. 40 Sieve	26797	10/8/2020
Oven	12872	3/3/2021			

Pan #		Liquid Limit						Plastic Limit		
Tare #:		5	21	4				23	12	
A	Tare Weight	15.32	15.44	15.39				15.37	15.51	
B	Wet Soil Weight + A	30.57	31.52	32.86				24.38	24.02	
C	Dry Soil Weight + A	26.84	27.74	28.85				23.10	22.81	
D	Water Weight (B-C)	3.73	3.78	4.01				1.28	1.21	
E	Dry Soil Weight (C-A)	11.52	12.30	13.46				7.73	7.30	
F	% Moisture (D/E)*100	32.4%	30.7%	29.8%				16.6%	16.6%	
N	# OF DROPS	18	27	35				Moisture Contents determined by ASTM D2216		
LL	LL = F * FACTOR									
Ave.	Average							16.6%		



One Point Liquid Limit			
N	Factor	N	Factor
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic ☐Liquid Limit **31**Plastic Limit **17**Plastic Index **14**Group Symbol **CL**Multipoint Method ☒One-point Method ☐Wet Preparation ☐ Dry Preparation ☒ Air Dried ☒Notes / Deviations / References: **Group symbol is for minus No. 40 portion only.**

ASTM D4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

Derek Baker

Technician Name

7/13/2021

Date

Tori Iggoe

Technical Responsibility

7/20/2021

Date

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Sieve Analysis of Soils



Quality Assurance

ASTM D6913 Method A

S&ME, Inc., 1413 Topside Road, Louisville, TN 37777

Project #: 214694

Report Date: 7/20/2021

Project Name: TDOT Bridge on Carmichael Road over Long Creek

Test Date(s): 7/13-15/2021

Client Name: Jefferson County Highway Department

Client Address: Jefferson County, Tennessee

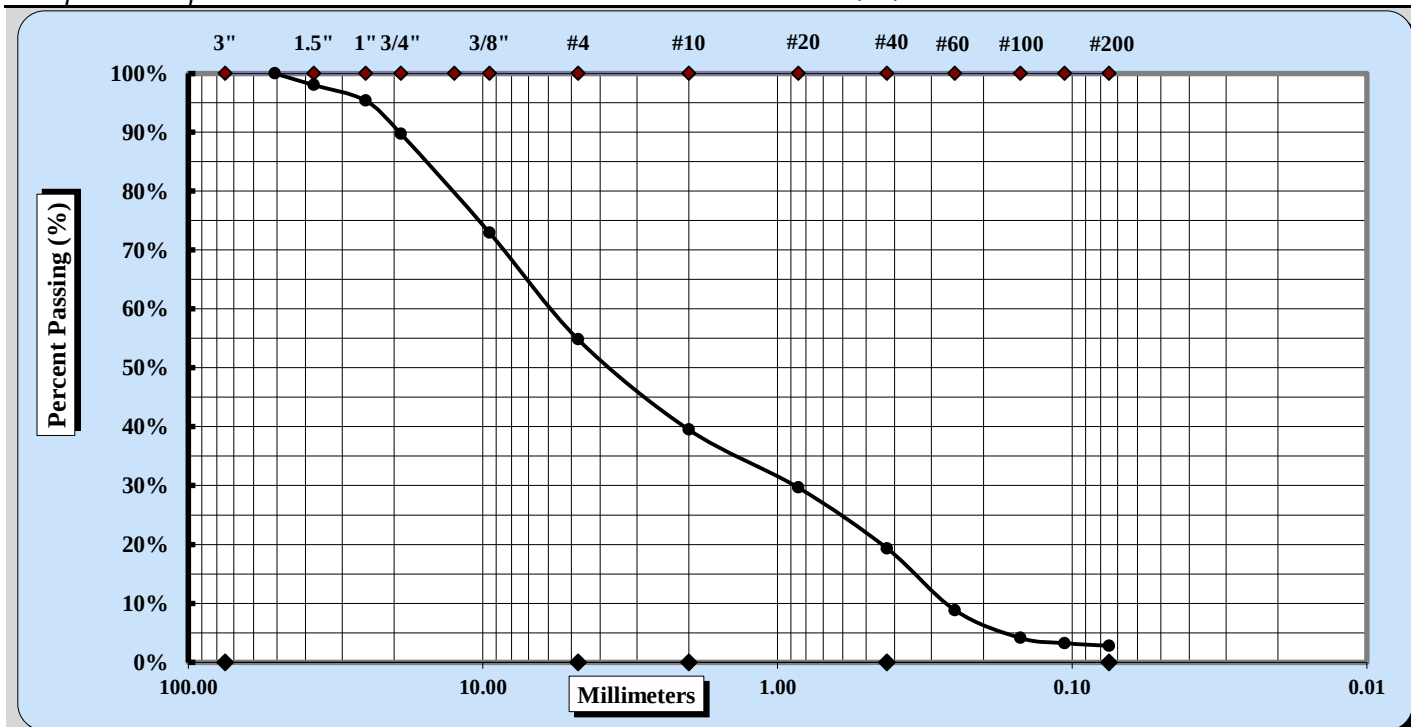
Sample ID: Creek Bottom

Type: Bulk

Sample Date: 6/30/2021

Sample Log No.: 43-3435

Sample Description: POORLY GRADED SAND WITH GRAVEL (SP), brown



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm
Gravel	< 75 mm and > 4.75 mm (#4)	Silt and Clay	< 0.075 mm
Coarse Sand	< 4.75 mm and > 2.00 mm (#10)		
Medium Sand	< 2.00 mm and > 0.425 mm (#40)		

Maximum Particle Size 2 In.
Gravel 45%

Coarse Sand 15%
Medium Sand 20%

Fine Sand 17%
Silt & Clay 3%

Description of Sand & Gravel Particles:

Rounded ☒Angular ☒Hard & Durable ☒Soft ☐Weathered & Friable ☐

Notes / Deviations / References:

Tori Igooe

Technical Responsibility

Signature

Engineering Technician

Position

7/20/2021

Date

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UNCONFINED COMPRESSION (ASTM D7012 Method C)



S&ME, Inc. - Knoxville 1413 Topside Road, Louisville, TN 37777

Project Name: TDOT Bridge on Carmichael Road over Long Creek
Project Number: 214694

Report Date: July 26, 2021
Reviewed By: Nathen DeWitt

Boring No.	Sample No.	Depth (ft)	Dimensions, in.		Shape (See Key)	Area (in ²)	Unit Weight (lbs/ft ³)	Loading Rate (psi/sec)	Maximum Load (lbs)	Strength (psi)	Moisture (%)
			Length	Diameter							
B-01A	Rock	16.3 - 16.65	4.04	1.86	A	2.72	169.9	102	60,040	22,074	0.1
B-02	Rock	23.5 - 23.95	4.29	1.86	B	2.72	168.3	91	35,462	13,038	0.2

NOTES: Effective (as received) unit weight as determined by RTH 109-93.
Loading rates were selected to target reaching failure between 2 and 15 minutes.
Test results for specimens not meeting the requirements of ASTM D4543-19 may differ from a test specimen that meets the requirements of ASTM D4543.

SHAPE KEY

ASTM D4543-19 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content and chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial and error that this is not possible, prepare the rock specimen to the closest tolerances practicable and consider this to be the best effort and report it as such and if allowable or necessary for the intended test, capping the ends of the specimen as discussed in this practice is permitted."

- A Test specimen measurements met the desired shape tolerances of ASTM D4543-19 (side straightness, end flatness & parallelism, and end perpendicularity to axis)
- B Test specimen measurements met the desired shape tolerances of ASTM D4543-19 for end flatness & parallelism, and end perpendicularity to axis. Specimen did not meet the desired tolerance for side straightness. Specimen prepared to closest tolerances practicable.
- C Test specimen measurements met the desired shape tolerances of ASTM D4543-19 for end flatness & parallelism. Specimen did not meet the desired tolerances for side straightness and end perpendicularity to axis. Specimen prepared to closest tolerances practicable.
- D Test specimen measurements met the desired shape tolerances of ASTM D4543-19 for end flatness. Specimen did not meet the desired tolerances for side straightness, parallelism and end perpendicularity to axis. Specimen prepared to closest tolerances practicable.
- E Test specimen measurements met the desired shape tolerances of ASTM D4543-19 for end flatness and end perpendicularity to axis. Specimen did not meet the desired tolerance for side straightness and parallelism. Specimen prepared to closest tolerances practicable.

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**PREPARING ROCK CORE AS CYLINDRICAL TEST SPECIMENS AND VERIFYING
CONFORMANCE TO DIMENSIONAL AND SHAPE TOLERANCES
(ASTM D4543)**



1413 Topside Road, Louisville, TN 37777

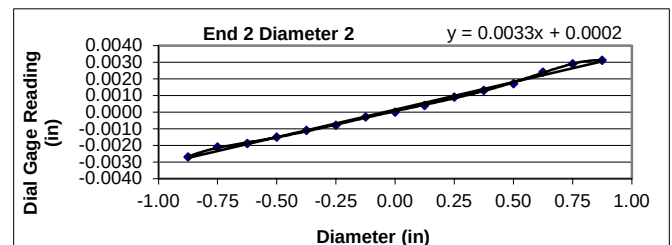
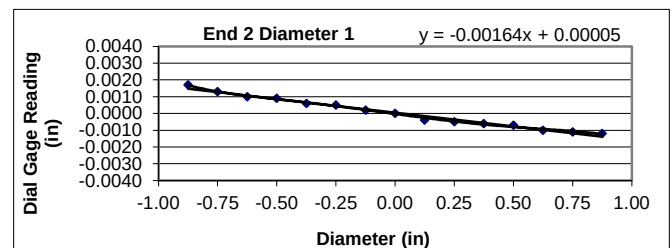
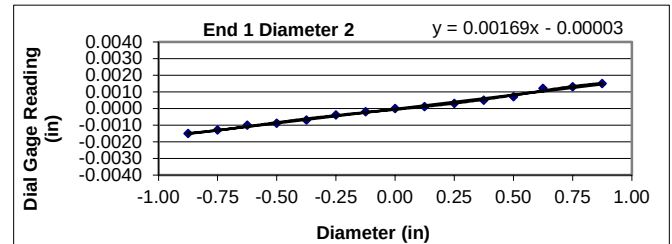
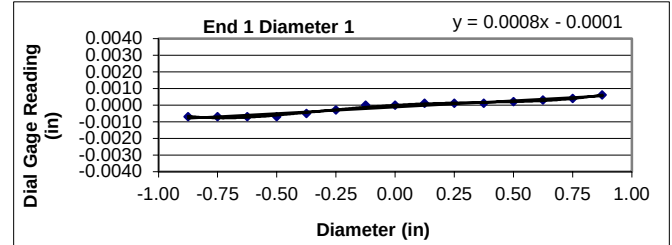
Project: TDOT Bridge on Carmichael Road over Long Creek	Diameter (in): 1.86	Date: 7/15/2021
Project No.: 214694	Length (in): 4.04	Tested by: Tori Igoo
Boring Id: B-01A	Unit Weight (pcf): 169.9	Reviewed by: Nathan DeWitt
Sample No.: Rock	Moisture Content (%): 0.1	
Depth (ft): 16.3 - 16.65		

Deviation From Straightness (Procedure S1)

Is the maximum gap ≤ 0.02 in. YES Straightness Tolerance Met? YES

End Flatness and Parallelism Readings (Procedure FP1)

Position	End 1	End 1(90)	End 2	End 2(90)
- 7/8	-0.0007	-0.0015	0.0017	-0.0027
- 6/8	-0.0007	-0.0013	0.0013	-0.0021
- 5/8	-0.0007	-0.0010	0.0010	-0.0019
- 4/8	-0.0007	-0.0009	0.0009	-0.0015
- 3/8	-0.0005	-0.0007	0.0006	-0.0011
- 2/8	-0.0003	-0.0004	0.0005	-0.0008
- 1/8	0.0000	-0.0002	0.0002	-0.0003
0	0.0000	0.0000	0.0000	0.0000
1/8	0.0001	0.0001	-0.0004	0.0004
2/8	0.0001	0.0003	-0.0005	0.0009
3/8	0.0001	0.0005	-0.0006	0.0013
4/8	0.0002	0.0007	-0.0007	0.0017
5/8	0.0003	0.0012	-0.0010	0.0024
6/8	0.0004	0.0013	-0.0011	0.0029
7/8	0.0006	0.0015	-0.0012	0.0031



Flatness is met when the difference at any point between a smooth curve drawn through points and a visual best fit line is ≤ 0.001 in.

Flatness Tolerance Met? YES

Parallelism is met when the angular difference between best fit lines on opposing ends is $\leq 0.25^\circ$.

Parallelism Diameter 1

End 1:	Slope of Best Fit Line:	0.00077
	Angle of Best Fit Line:	0.04420
End 2:	Slope of Best Fit Line:	-0.00164
	Angle of Best Fit Line:	-0.09380
	Max Angular Difference:	0.14

Parallelism Diameter 2

End 1:	Slope of Best Fit Line:	0.00169
	Angle of Best Fit Line:	0.09708
End 2:	Slope of Best Fit Line:	0.00332
	Angle of Best Fit Line:	0.19022
	Max Angular Difference:	-0.09

Parallelism Tolerance Met? YES

Perpendicularity (Procedure P1) is met when the difference between max and min readings along each line divided by the diameter is ≤ 0.0043 .

	Difference b/w max & min	Divide by Diameter	Meets Tolerance
End 1 Diam 1	0.0013	0.0007	YES
End 1 Diam 2	0.0030	0.0016	YES
End 2 Diam 1	0.0029	0.0016	YES
End 2 Diam 2	0.0058	0.0031	YES

Perpendicularity Tolerance Met? YES

**PREPARING ROCK CORE AS CYLINDRICAL TEST SPECIMENS AND VERIFYING
CONFORMANCE TO DIMENSIONAL AND SHAPE TOLERANCES
(ASTM D4543)**



1413 Topside Road, Louisville, TN 37777

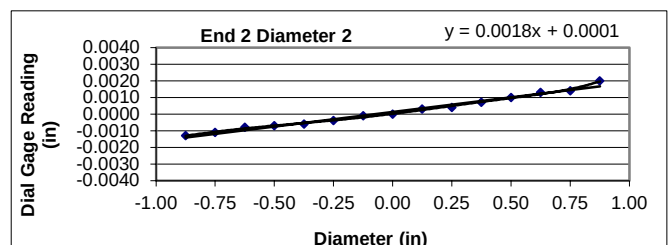
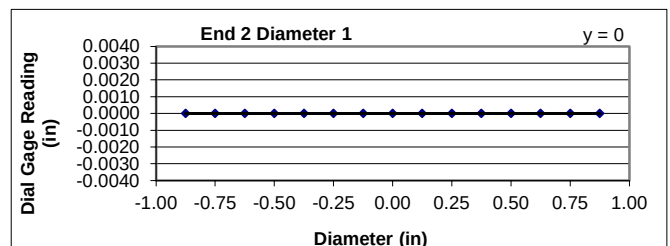
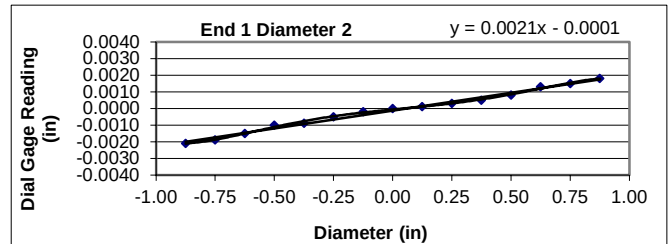
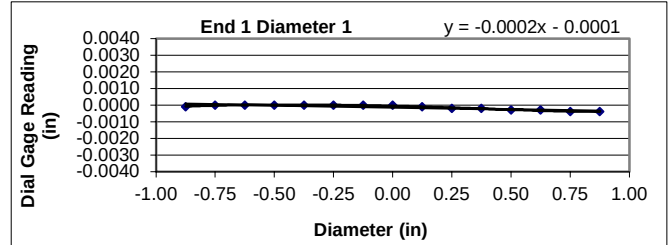
Project:	TDOT Bridge on Carmichael Road over Long Creek	Diameter (in):	1.86	Date:	7/15/2021
Project No.:	214694	Length (in):	4.29	Tested by:	Tori Igoue
Boring Id:	B-02	Unit Weight (pcf):	168.3	Reviewed by:	Nathan DeWitt
Sample No.:	Rock	Moisture Content (%):	0.2		
Depth (ft):	23.5 - 23.95				

Deviation From Straightness (Procedure S1)

Is the maximum gap ≤ 0.02 in.? NO Straightness Tolerance Met? NO

End Flatness and Parallelism Readings (Procedure FP1)

Position	End 1	End 1(90)	End 2	End 2(90)
- 7/8	-0.0001	-0.0021	0.0000	-0.0013
- 6/8	0.0000	-0.0019	0.0000	-0.0011
- 5/8	0.0000	-0.0015	0.0000	-0.0008
- 4/8	0.0000	-0.0010	0.0000	-0.0007
- 3/8	0.0000	-0.0009	0.0000	-0.0006
- 2/8	0.0000	-0.0005	0.0000	-0.0004
- 1/8	0.0000	-0.0002	0.0000	-0.0001
0	0.0000	0.0000	0.0000	0.0000
1/8	-0.0001	0.0001	0.0000	0.0003
2/8	-0.0002	0.0003	0.0000	0.0004
3/8	-0.0002	0.0005	0.0000	0.0007
4/8	-0.0003	0.0008	0.0000	0.0010
5/8	-0.0003	0.0013	0.0000	0.0013
6/8	-0.0004	0.0015	0.0000	0.0014
7/8	-0.0004	0.0018	0.0000	0.0020



Flatness is met when the difference at any point between a smooth curve drawn through points and a visual best fit line is ≤ 0.001 in.

Flatness Tolerance Met? YES

Parallelism is met when the angular difference between best fit lines on opposing ends is $\leq 0.25^\circ$.

Parallelism Diameter 1

End 1:	Slope of Best Fit Line:	-0.00024
	Angle of Best Fit Line:	-0.01359
End 2:	Slope of Best Fit Line:	0.00000
	Angle of Best Fit Line:	0.00000
	Max Angular Difference:	-0.01

Parallelism Diameter 2

End 1:	Slope of Best Fit Line:	0.00214
	Angle of Best Fit Line:	0.12278
End 2:	Slope of Best Fit Line:	0.00175
	Angle of Best Fit Line:	0.10035
	Max Angular Difference:	0.02

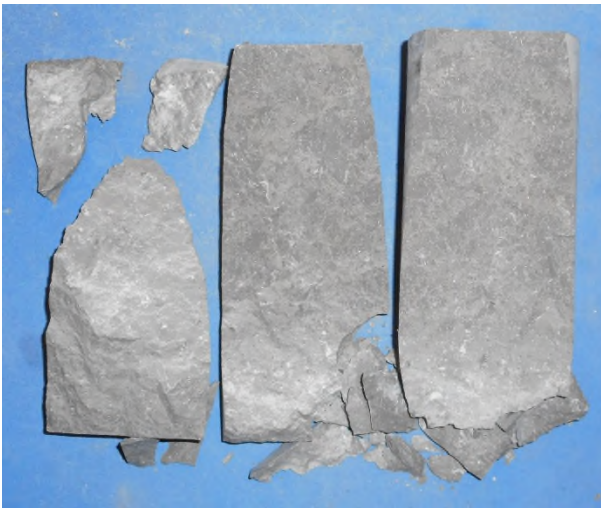
Parallelism Tolerance Met? YES

Perpendicularity (Procedure P1) is met when the difference between max and min readings along each line divided by the diameter is ≤ 0.0043 .

	Difference b/w max & min	Divide by Diameter	Meets Tolerance
End 1 Diam 1	0.0004	0.0002	YES
End 1 Diam 2	0.0039	0.0021	YES
End 2 Diam 1	0.0000	0.0000	YES
End 2 Diam 2	0.0033	0.0018	YES

Perpendicularity Tolerance Met? YES

 			Date: 7/23/2021
			Photographer: Tori Igao
1	Location / Orientation	B-01A, Rock (16.3' – 16.65')	
	Remarks	Unconfined Compressive Strength of Rock Core Specimen Before/After (ASTM D7012 Method C)	

 			Date: 7/23/2021
			Photographer: Tori Igao
2	Location / Orientation	B-02, Rock (23.5' – 23.95')	
	Remarks	Unconfined Compressive Strength of Rock Core Specimen Before/After (ASTM D7012 Method C)	

Appendix IV

Important Information About Your Geotechnical Engineering Report



Important Information About Your Geotechnical Engineering Report

Variations in subsurface conditions can be a principal cause of construction delays, cost overruns and claims. The following information is provided to assist you in understanding and managing the risk of these variations.

Geotechnical Findings Are Professional Opinions

Geotechnical engineers cannot specify material properties as other design engineers do. Geotechnical material properties have a far broader range on a given site than any manufactured construction material, and some geotechnical material properties may change over time because of exposure to air and water, or human activity.

Site exploration identifies subsurface conditions at the time of exploration and only at the points where subsurface tests are performed or samples obtained. Geotechnical engineers review field and laboratory data and then apply their judgment to render professional opinions about site subsurface conditions. Their recommendations rely upon these professional opinions. Variations in the vertical and lateral extent of subsurface materials may be encountered during construction that significantly impact construction schedules, methods and material volumes. While higher levels of subsurface exploration can mitigate the risk of encountering unanticipated subsurface conditions, no level of subsurface exploration can eliminate this risk.

Scope of Geotechnical Services

Professional geotechnical engineering judgment is required to develop a geotechnical exploration scope to obtain information necessary to support design and construction. A number of unique project factors are considered in developing the scope of geotechnical services, such as the exploration objective; the location, type, size and weight of the proposed structure; proposed site grades and improvements; the construction schedule and sequence; and the site geology.

Geotechnical engineers apply their experience with construction methods, subsurface conditions and exploration methods to develop the exploration scope. The scope of each exploration is unique based on available project and site information. Incomplete project information or constraints on the scope of exploration increases the risk of variations in subsurface conditions not being identified and addressed in the geotechnical report.

Services Are Performed for Specific Projects

Because the scope of each geotechnical exploration is unique, each geotechnical report is unique. Subsurface conditions are explored and recommendations are made for a specific project. Subsurface information and recommendations may not be adequate for other uses. Changes in a proposed structure location, foundation loads, grades, schedule, etc. may require additional geotechnical exploration, analyses, and consultation. The geotechnical engineer should be consulted to determine if additional services are required in response to changes in proposed construction, location, loads, grades, schedule, etc.

Geo-Environmental Issues

The equipment, techniques, and personnel used to perform a geo-environmental study differ significantly from those used for a geotechnical exploration. Indications of environmental contamination may be encountered incidental to performance of a geotechnical exploration but go unrecognized. Determination of the presence, type or extent of environmental contamination is beyond the scope of a geotechnical exploration.

Geotechnical Recommendations Are Not Final

Recommendations are developed based on the geotechnical engineer's understanding of the proposed construction and professional opinion of site subsurface conditions. Observations and tests must be performed during construction to confirm subsurface conditions exposed by construction excavations are consistent with those assumed in development of recommendations. It is advisable to retain the geotechnical engineer that performed the exploration and developed the geotechnical recommendations to conduct tests and observations during construction. This may reduce the risk that variations in subsurface conditions will not be addressed as recommended in the geotechnical report.