Project Manual

March 10, 2025

Little Obed River Greenway,
Phase 1
Pre-Engineered Pedestrian Bridge
Crossville, TN

City of Crossville
Crossville, TN

Wold Architects and Engineers
214 Centerview Drive, Suite 300
Brentwood, TN 37027
woldae.com | 615 370 8500

PLANNERS
ARCHITECTS
ENGINEERS

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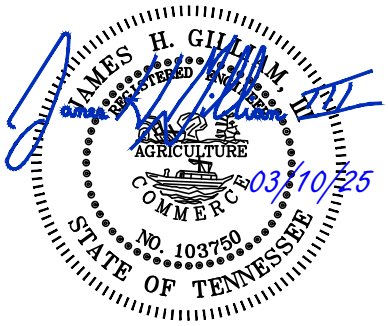
DIVISION 00 –PROCUREMENT AND CONTRACTING REQUIREMENTS



DIVISION 01 - GENERAL REQUIREMENTS

ATTACHMENT: CERTIFICATION REGARDING EQUAL EMPLOYMENT – TITLE V
STATEMENT OF COMPLIANCE CERTIFICATE – IRAN DIVESTMENT ACT

SECTION 00 11 16
INVITATION TO BID

Wold Architects & Engineers
214 Centerview Drive, Suite 300
Brentwood, TN 37024-1974
Attention: Jim Gilliam
Email Address: jgilliam@woldae.com

PROJECT:
Little Obed River Greenway, Phase 1
Pre-Engineered Bridge
City of Crossville, Tennessee
Issue Date: March 10, 2025
Commission No. 247012

OWNER:
City of Crossville
Attn: City Clerk/Bids
392 N. Main Street
Crossville, TN 38555

Vendors are invited to submit a hard copy bid to the Owner located at the above address before 2:00 P.M., Thursday, March 27, 2025, for the following project:

Design, fabrication and delivery to the job site of a 10' wide, 70' long pre-engineered self-weathering steel bridge including the design of the concrete bridge abutments.

Bid Documents for a Stipulated Price/Sum contract may be obtained in hard copy or electronic format from the office of the Architect/Engineer. Hard copies of Bid Documents may be obtained upon receipt of a deposit by check made payable to Wold Architects & Engineers in the amount of $100 for one set. Electronic copies of Bid Documents may be obtained free of charge upon presentation of a valid email address to Architect/Engineer.

Documents can only be obtained by Bidders. Others may view the Bid Documents at the office of the Architect/Engineer, and the following construction associations: Associated Vendors – East TN and Nashville, Builders Exchange, Construct Connect, Dodge Construction Network- All Regions, ISqFT Plan Room

Additional sets may be purchased as indicated in Instructions to Bidders.

Contact: Lynn Clements, lclements@woldae.com, Wold Architects & Engineers.

Bidders are invited to attend a Pre-Bid Conference to be held at Crossville City Hall, at 2:00 PM. on Tuesday, March 20, 2025.

Title Owner reserves the right to waive informalities and to reject bids.

END OF INVITATION TO BID

DOCUMENT 00 21 13
INSTRUCTIONS TO BIDDERS

1.1 DEFINITIONS

A. Bid Documents: Contract Documents supplemented with Invitation to Bid, Instructions to Bidders, Bid Form, Bid Securities, identified herein.

B. Contract Documents: including issued Addenda.

C. Bid: A complete and properly signed proposal to do the Work for the sums stipulated therein, submitted following Bidding Documents.

D. Base Bid: The sum stated in Bid for which Bidder offers to perform Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

E. Alternate: An amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

F. Unit Price: An amount stated as a price per unit of measurement for materials, equipment or services, or a portion of the Work as described in Bidding Documents. Include Unit Prices in the Base Bid.

G. Prime Bidder: Person or entity, usually a General Contractor, properly licensed in the appropriate classification, who submits a Bid.

H. Sub-bidder: Person or entity, properly licensed in the appropriate classification, usually a subcontractor or material supplier, who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

1.2 BIDDER'S REPRESENTATIONS

A. The Bidder by making a Bid represents that:
1. The Bidder has carefully read and understands Bidding Documents and has found them complete and free from ambiguities and sufficient for the purpose intended; further that,
2. The Bid is made following the Bidding Documents; further that,
3. The Bidder has read and understands Bidding Documents to the extent that such documentation relates to the Work for which the Bid is submitted, for other portions of the Project, if any, being bid concurrently or presently under construction; further that,
4. The Bidder has visited the site, become familiar with local conditions under which Work is to be done and has correlated the Bidder's personal observations with requirements of proposed Contract Documents. Contractors will not be given extra payment for conditions which can be decided by examining site and Documents; further that,
5. Neither the Bidder nor any of the Bidder's employees, agents, intended suppliers or subcontractors have relied upon any verbal, telephone or fax representations, allegedly authorized or unauthorized from the Owner, or the Owner's employees or agents including architects, engineers or consultants, in assembling the bid figure; and further that,
6. The bid figure is based solely upon the Bid documents and properly issued written addenda and not upon any other written representation.

1.3 COPIES OF BIDDING DOCUMENTS

A. Prime Contract Bidders may obtain Bidding Documents at the office of the Architect/Engineer for deposit sum identified in Invitation to Bid or free of charge in electronic format. Bidding Documents will not be issued directly to Sub-bidders or others unless specifically offered in the Invitation to Bid. Deposit is fully refundable.

B. Extra complete sets of Bidding Documents may be purchased by Bidders and Sub-Bidders, major Subcontractors and material suppliers at cost which is not refundable. The cost per set is $ 100.00.

C. Individual sheets of Drawings and pages of Project Manual may not be purchased.

D. One set of Bid Documents can be obtained by general contract bidders. Mechanical, plumbing and electrical subcontractors may obtain one set of Bidding Documents from issuing office for deposit sum identified in Invitation to Bid.

E. Request for Bidding Documents will be honored by Architect/Engineer upon receipt of deposit made payable to Wold Architects & Engineers addressed as follows:
WOLD ARCHITECTS AND ENGINEERS
214 Centerview Drive, Suite 300
Brentwood, TN 37024
Attention: Jim Gilliam – jgilliam@woldae.com

F. Bidders shall use complete sets of Bidding Documents in preparing Bids; neither Owner nor Architect/Engineer assumes responsibility for errors or misinterpretations resulting from use of incomplete sets of Bidding Documents.

G. In making copies of Bidding Documents available on above terms, Owner and Architect/Engineer do so only for purposes of obtaining Bids on the Work and do not confer a license or grant permission for any other use of Bidding Documents.

1.4 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

A. Carefully study and compare Bidding Documents with each other and with other work being bid concurrently or presently under construction to the extent that it relates to Work for which Bid is submitted. Report at once to Architect/Engineer errors, inconsistencies, or ambiguities discovered.

1.5 QUESTIONS

A. Submit requests for clarification or interpretations of Bidding Documents to Architect/Engineer in writing, via email, or via fax transmission at least 7 calendar days before Bid opening date. Use Section 016362 or other form as approved by Architect/Engineer when requesting information from the Architect/Engineer.

B. Replies will be issued to Bidders by Addenda and will become a part of Contract Documents. Architect/Engineer and Owner will not make oral clarifications. Interpretations, corrections, and changes of Bidding Documents made in any manner other than Addenda will not be binding, and Bidders shall not rely upon them.

1.6 PRE-BID PRODUCT SUBSTITUTIONS

A. Where the Bid Documents stipulate a particular Product and indicate that substitutions will be considered by Architect/Engineer, send written request for approval of alternate products to Architect/Engineer in writing or via fax on Form 016232 or other form as approved by Architect/Engineer no later than 10 days before Bid date. Requests received after that date will not be considered. Verbal and telephone requests will not be considered.

B. Requests shall describe clearly product for which approval is requested and include complete data and samples required for Architect/Engineer's evaluation. Architect/Engineer will be sole judge of products' acceptability. Acceptable products will be identified in addenda.

C. The burden of proof of the merit of the proposed substitution is on the proposer. The Engineer's decision of approval or disapproval of a proposed substitution shall be final.

1.7 ADDENDA

A. Addenda will be available to all who are known by issuing office to have received Bidding Documents. Addenda, both by mail and fax, will be sent to the address provided when Bidding Documents were requested. Copies of Addenda will be made available for inspection whenever Bidding Documents are on file for that purpose.

B. No Addenda will be issued later than three calendar days prior to Bid opening date except an Addendum withdrawing request for Bids or one which includes a postponement of date for receipt of Bids which can be issued no later than two calendar days prior to Bid opening date.

C. Each Bidder shall ascertain prior to submitting a Bid that Bidder has received all Addenda issued, whether written, telephone or fax and Bidder shall acknowledge their receipt in Bid.

D. Addenda issued after receipt of Bids will be transmitted only to Bidders from whom Bids have been received and adequate time will be allowed for response thereto.

1.8 SITE EXAMINATION

A. Bidders are encouraged to examine the site before submitting a Bid.

B. The Bidder is required to contact the Owner in order to arrange a date and time to visit the project site.

C. The currently occupied premises at the project site are open for examination by Bidders only during the following hours:
   1. Monday through Friday: 9:00 a.m. to 4:00 p.m.
   2. Weekends: Not available.

1.9 PRE-BID CONFERENCE

A. Bidders are invited to attend a Pre-Bid Conference as indicated in the Invitation to Bid.

B. Representatives of the Owner and Architect/Engineer and related personnel will be in attendance.

C. Summarized minutes of this meeting may or may not be circulated to attendees at the discretion of the Architect/Engineer. These minutes will be for information only and will not form a part of this Contract.

D. Information relevant to the Bid Documents will be recorded in an Addendum. Addenda will be the only binding contractual commitment to the Owner.

E. The following Agenda Outline may be used in the meeting:
   1. Open meeting; introduction of project stake holders.
   2. Confirm that Bidders have full Bid Pack and addenda to date.
   3. Review sequence & timetable for questions & addenda, and remind bidders that no changes are binding and no clarifications are reliable unless confirmed in writing by addenda.
   4. Review special bid structures, if applicable, such as Alternates and Unit Prices.
   5. Review special administration, if applicable, such as Scheduling and Commissioning.
   6. Review of Project and Contract Time; emphasizing structured Time Phases, site access restrictions.
   7. Remind bidders that conditional or qualified bids are unacceptable.
   8. Required plan for scheduling, coordinating, and monitoring the Work under the Project Contract.
   9. Confirm bid date and place.
   10. General requirements, bid packages, and bid opening procedures.
   11. Site tour.
   12. Questions and answers.
   13. Close meeting.

1.10 FORM AND STYLE OF BIDS

A. Fill in all blank spaces on Bid Form; failure to do so will be cause for rejection. No segregated Bids or assignments will be considered. No qualifying letters or statements will be considered.

B. Where so indicated by makeup of Bid Form, sums shall be expressed in both words and figures and in case of discrepancy between the two, the amount written in words shall govern.

C. Make Bids on unaltered Bid Forms furnished by Architect/Engineer. Submit one copy of Bid Form. Bids shall be signed by person or persons legally authorized to bind Bidder to contract with name typed or legibly printed below signature.

1.11 SUBMISSION OF HARD COPY BIDS

A. Submit Bid and Bid Security in a sealed opaque envelope. If any of these provisions conflict with appropriate statutes regarding bidders' disclosures in bid documents, then the statutes will take precedence. It is the Bidders' responsibility to comply with all applicable laws, rules and regulations no matter what these bid documents indicate.
   1. Identify envelopes with Project name, Bidder's name and address as licensed.
   2. Failure to comply with these provisions will void the Bid. Noncompliance with these provisions will result in the bid envelope's not being opened and the bid's not being considered.

B. Enclose sealed Bids sent by mail in a separate mailing envelope. Clearly mark mailing envelopes "SEALED BID ENCLOSED" on the face thereof.

C. To submit Bids, follow Invitation to Bid. It is the Bidder's responsibility to ensure receipt of his (or her) Bid, before time set and at place identified for receipt of Bids.

D. Include a fully executed Document 004500 - Drug Free Affidavit with the Bid.

E. Include a fully executed – Title VI of the 1964 Civil Rights Act with the Bid.

F. Include a fully executed – IRAN Divestment Act with the Bid

G. Oral, telephonic, telegraphic, or email Bids are invalid and will not be considered.

1.12 REJECTION OF BIDS

A. Owner reserves right to accept or reject any or all Bids, reject a Bid not accompanied by a required Bid Security or by other data required by Bidding Documents, reject a Bid which is in any way incomplete, illegible, unsigned, improperly signed or sealed, obscure, or reject a Bid which contains arithmetical errors, erasures, alterations, or irregularities of any kind.

B. Evidence of collusion with intent to defraud or other illegal practices by Bidder may result in Bid disqualification by Owner before or after Bid opening.

C. Bids received after scheduled opening time will be returned to Bidder unopened.

1.13 MODIFICATION OR WITHDRAWAL OF BID

A. Withdrawal of a submitted Bid before scheduled opening time requires a written request signed by a person legally authorized to bind Bidder to the Contract. Withdrawn Bids may not be resubmitted.

B. Bid modifications shall be written as add or deduct only and require signature of a person legally authorized to bind Bidder to contract.

C. Bids shall not be withdrawn or modified after scheduled Bid opening time.

D. Bids shall not be withdrawn or canceled for time period stated in Bid Form subsequent to Bid opening without Owner's written permission.

1.14 OPENING OF BIDS

A. Bids will be opened publicly immediately after time for receipt of Bids. An abstract of Bids will be made available to Bidders.

1.15 ACCEPTANCE OF BID (AWARD)

A. Owner intends to award a Contract to lowest responsible Bidder provided Bid has been submitted following requirements of Bidding Documents and does not exceed funds available. Owner shall have right to waive informalities or irregularities in a Bid received and to negotiate contract terms with various Bidders following applicable laws in Owner's best interests.

B. The Owner shall have right to accept Alternates in any order or combination, unless otherwise specifically provided in Bidding Documents and to decide low Bidder on basis of sum of Base Bid and Alternates accepted.

1.16 EXECUTION OF CONTRACT

A. The City of Crossville will award the successful low Bidder a purchase order for the manufacturer and delivery of the Weathered Steel Pedestrian Bridge.

END OF INSTRUCTIONS TO BIDDERS

Geotechnical Exploration Report

New Pedestrian Bridge
Crossville, Tennessee

for
Neel-Schaffer, Inc.

June 28, 2022

GeoEngineers
Earth Science + Technology

Geotechnical Exploration Report

New Pedestrian Bridge
Crossville, Tennessee

for
Neel-Schaffer, Inc.

June 28, 2022

GeoEngineers

5409 Maryland Way, Suite 150
Brentwood, Tennessee 37027
615.712.2180

Richard D. Heckel

Digitally signed by Richard D. Heckel
Date: 2022.06.28 16:55:14 -05'00'

Geotechnical Exploration Report

New Pedestrian Bridge
Crossville, Tennessee

File No. 26045-001-00

June 28, 2022

Prepared for:

Neel-Schaffer, Inc.
210 25th Avenue North, Suite 800
Nashville, Tennessee 37203

Attention: Henry Pate, PE

Prepared by:

GeoEngineers, Inc.
5409 Maryland Way, Suite 150
Brentwood, Tennessee 37027
615.712.2180

Emily C. Reed, PE
Geotechnical Engineer

Richard D. Heckel, PE, D.GE
Principal

ECR:RDH:kc

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APPENDICES

1.0 INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) is pleased to submit this geotechnical exploration report to Neel-Schaffer, Inc. (NSI) in support of a new pedestrian bridge project in Crossville, Tennessee. Our services were provided in accordance with our Proposal for Geotechnical Services dated April 22, 2022. NSI authorized our services by signing the referenced proposal on May 18, 2022.

2.0 PROJECT UNDERSTANDING

The City of Crossville (the City) is planning to construct a pedestrian bridge across the Little Obed River about 600 feet north of Industrial Boulevard and about 2,000 feet west of State Route 298. According to the preliminary bridge layout prepared by NSI dated May 5, 2022, the three-span bridge will have an overall length of 70 feet and a width of 13 feet. A handrail embedded into a 6-inch by 6-inch curb will be constructed on both sides of the bridge. There will be one bent near the top of bank on both sides of the river. The proposed bridge structure will consist of steel beams supported by HP 10 x 42 columns anchored to spread footings bearing on bedrock. Spread footings will be 3 ½ feet square. We infer the axial compression loads for the abutments and bents will be about 60 kips per column.

A profile provided by the City shows the Little Obed River is about Elevation 1731 feet and the top of the riverbank is about Elevation 1736 feet. We understand the bridge will be constructed to span a flood elevation of about 1742 feet. We have assumed up to 6 feet of fill will be needed for the south abutment and up to 4 feet of fill will be needed for the north abutment. The bridge will connect an existing unpaved walking trail to a proposed unpaved walking trail.

3.0 GEOTECHNICAL EXPLORATION

3.1. Site Conditions

The subject site is situated within a heavily wooded area which is bounded by agricultural fields to the north and limited commercial and residential development to the south. Historic aerial photographs indicate the woods are recently undisturbed with the only exception being an existing walking trail leading to the project site. The Little Obed River is a tributary of the Obed River and eventually flows into Lake Holiday. Based on information provided by the City, we understand that a gravity sewer line is located parallel to the Little Obed River but does not conflict with the proposed bridge.

Topographically speaking, the ground surface near the riverbanks is relatively flat and starts to gently slope up about 20 to 30 feet away from the water's edge on both sides. Based on our site observations, both sides of the riverbank are covered with thick vegetation but had a steep drop off likely due to historical erosion. Water was flowing in the river at the time of exploration, and it appeared that the riverbed was comprised of sandstone bedrock.

A vicinity map of the project site is provided in Figure 1.

3.2. Site Geology

According to the "Geologic Map and Mineral Resources Summary of the Crossville Quadrangle, Tennessee" (Tennessee Division of Geology, 1981), the site is underlain by the Rockcastle Conglomerate. This formation typically consists of fine to coarse-grained white to light gray sandstone. Localized conglomerate quartz pebbles are also present. The sandstone typically weathers to produce a thin layer of residual soils consisting of clayey sands and sandy clays up to about 10 feet thick. Soils close to the Little Obed River also likely include unmapped alluvial soils deposited by flowing water from the river. The composition and consistency of alluvial soils can vary abruptly both vertically and horizontally because of the complex depositional environment, as well as periods of scour and redeposition.

3.3. Subsurface Conditions

Four test pits were excavated at the site using a small backhoe and mini excavator. The approximate exploration locations are shown in Figure 2, and logs of the test pits are provided in Appendix A. Laboratory test results are included on the test pit logs. Field and laboratory testing procedures are discussed in Appendix A and definitions of terms potentially used in this report are included in Appendix B.

Most of the test pits initially encountered silty or sandy alluvial clays underlain by residual clayey sand or sandy clay soils. The alluvial soils were typically 2 ½ to 3 feet thick in the test pits closest to the riverbank, and about 1 foot thick in the test pits about 20 feet away from the riverbank. The alluvial soils were generally classified as clays with variable amounts of silt, sand, and organics. However, the alluvium in Test Pit TP-1 consisted of slightly silty sand. Based on visual observation and pocket penetrometer readings, it appeared the alluvial soils were typically soft to medium stiff in consistency. The water content of the alluvial soils varied from 24 to 58 percent. The residual soils encountered beneath the alluvium were generally classified as clayey sand, sandy clay, or silty clay. Most of the residual soils contained medium-sized roots. The residual clays were typically medium stiff in terms of consistency based on our visual observations and pocket penetrometer readings. The water content of the residual soils ranged from 24 to 35 percent.

Refusal was encountered in each test pit at depths ranging from about 4 to 7 ¼ feet below ground surface (bgs). Core drilling into refusal materials was beyond the scope of this exploration. However, in general, we expect refusal represents the top of sandstone bedrock.

3.4. Groundwater Conditions

Groundwater was encountered in both test pits on the south bank of the river at depths ranging from about 6 to 6 ¾ feet bgs. On the north bank of the river at Test Pit TP-3, groundwater was encountered at about 7 ¼ feet bgs while the other test pit was dry. Groundwater levels can fluctuate with seasons, weather conditions, construction activity, and other site-specific factors, most notably changing pool levels in the nearby river.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1. Site Preparation

4.1.1. Tree Removal and Clearing

Trees at the proposed bridge site should be removed. Some clearing associated with the project has already occurred to facilitate the field exploration, but these activities are not complete. Tree clearing activities will disturb the surficial soils. Contributing factors to the depth of the disturbed soil include the following:

- weather conditions when tree clearing begins (rutting),
- tree clearing equipment used (rutting), and
- vegetation, brush, and tree root depths.

We recommend that tree removal activities include the complete removal of tree stumps and associated rootballs within the areas of present and future construction. After tree and rootball removal, any remaining roots larger than about ½ inch in diameter should be grubbed. Stripping/grubbing depths are expected to range from about 2 to 3 feet or more at tree locations depending on the depth of the rootball and the factors previously described; while areas with minor vegetation (grass, small shrubbery) may only require 6 to 12 inches of stripping and grubbing. The tree stump and rootball excavations should be backfilled with properly placed and compacted structural fill.

4.1.2. Subgrade Preparation

To prepare the project site for construction, surface organic materials consisting of sod, topsoil, roots, etc., should be stripped from the construction area plus 10 feet beyond. Topsoil can be stockpiled on site for reuse in grassed areas if the materials are acceptable for that purpose. Otherwise, topsoil should be wasted from the site.

Subgrade surfaces exposed after clearing, grubbing, and stripping should be proof rolled to evaluate stability. Proof rolling should be performed after cut areas reach planned grade and before fill placement in fill areas. Proof rolling should be conducted by having a loaded dump truck make several passes over each section of the subgrade. Our geotechnical engineer should observe the proof-rolling process and make recommendations if unstable areas are observed. In general, unstable subgrades should be undercut to competent soils and backfilled with compacted soil or surge stone. It may also be feasible to bridge over the unstable subgrade using an initial lift of surge stone where the structural fill will be 4 feet or more in thickness.

Laboratory testing indicates the water content is at or above the liquid limit in some instances indicative of wet soils. Wet soils likely cause areas of subgrade instability. The amount of subgrade repair will depend, in part, on the weather conditions at the time of construction. Based on information from the City, the construction schedule for this project is largely dependent on the timing for the external funding source which is currently unknown. If the majority of grading occurs in wet weather, the number of repairs associated with subgrade instability can be expected to increase. A contingency budget should be established for subgrade repair consistent with the time of year grading will take place.

Subgrades which are initially stable can become unstable when subjected to repeated passes from heavy construction equipment, particularly during wet weather. Locations on the project site where construction

traffic will be concentrated should have construction roads prepared consisting of 3 to 4 feet of durable shot rock or surge stone placed over an 8-ounce geotextile filter fabric. Areas damaged by construction traffic should be repaired by undercutting and replacement.

4.2. Structural Fill

A site grading plan was not available at the time of this report. Fill materials imported to the site should consist of durable shot rock or low-plasticity clays. On-site low to medium plasticity soils which are free of topsoil, roots and other deleterious materials can also be used as fill material but some of these soils will have to be dried to facilitate compaction. Drying the soil in wet, cool weather (typically November through May) can be difficult to impractical. Fill material and compaction criteria are included in Table 4.1.

TABLE 4.1. SUMMARY OF FILL CRITERIA

Characteristics	Compaction Procedures	Compaction Control
Shot Rock Fill: ■ Less than about 10 percent fines (silt and clay) by volume ■ Maximum particle size of 18 inches ■ Material is well graded with adequate fines to effectively "choke" the larger rock pieces by filling voids or open spaces ■ Rock type durable sandstone	■ Maximum lift thickness of 24 inches ■ The larger rock pieces should be placed flat and not overlap each other ■ The fill should be compacted by making multiple passes with a large bulldozer such as a Caterpillar D8. Sufficient passes should be made to demonstrate the material is densified, stable, and unyielding.	A trained geotechnical technician working under the direction of our geotechnical engineer should observe shot-rock fill placement and compaction techniques on a full-time basis. The technician should document fill constituents, lift thickness, and compaction techniques.
Clay Soil Fill: ■ Less than about 30 percent gravels and cobbles ■ Particle size no greater than 4 inches ■ Allowable organic content of 3 percent by weight but no large roots ■ Plasticity index less than 30 (off-site borrow only)	■ Maximum loose lift thickness of 8 inches ■ The fill should be compacted by making multiple passes with a large self-propelled sheepsfoot roller such as a Caterpillar 815. Fill should be compacted to at least 95 percent of the maximum dry density (MDD) as determined by the Standard Proctor Test (ASTM D698). ■ Water content at time of compaction should be within 3 percent of the optimum water content	A trained geotechnical technician working under the direction of our geotechnical engineer should observe soil fill placement and compaction techniques on a full-time basis. The technician should document fill constituents, lift thickness, compaction techniques, and perform in-place density tests to check percent compaction. The number of in-place density tests should be determined by our geotechnical engineer based on the size of the fill area and other factors.

Formations in the Crossville area may include intervals of shale. In general, we recommend avoiding use of shaly bedrock as fill because of the potential for these materials to degrade over time. If it becomes necessary to use shale as fill, the Tennessee Department of Transportation has procedures for determining whether the rock being used is sufficiently durable or not. Only durable materials should be used. We also note the shales in the area can be pyritic and could lead to acid runoff.

4.3. Bridge Foundations

4.3.1. Foundation Design and Construction

We recommend supporting the bridge abutments and bents using spread footings bearing on sandstone bedrock. Footings bearing on sandstone bedrock should be designed for an allowable bearing pressure of 5,000 pounds per square foot (psf). Acceptable bearing materials are defined as sandstone that cannot be excavated with a track-mounted excavator such as Caterpillar 320. Individual footings should be at least 24 inches wide and should bear 30 inches or more below adjacent grade. Rip rap should be considered to protect the foundations where scour is likely to occur.

Footing excavations should be level or benched. Loose soil or rock, roots, other foreign matter, and groundwater should be removed from the footing bottoms before reinforcing steel and concrete placement. If needed because of excessive foundation depth or to aid with groundwater removal, it will be acceptable to construct the foundations on Number 57 crushed stone backfill placed on top of the bedrock. Number 57 stone should be placed in lifts no greater than 6 inches and compacted using a vibratory sled.

4.3.2. Lateral Resistance

Footings subjected to horizontal loads can be designed assuming resistance to movement is provided by friction along the foundation base and passive soil resistance along the side of the footing opposite loading. A friction coefficient of 0.55 and a passive soil resistance of 300 psf per foot of depth can be used. The passive soil resistance assumes the footing is poured neat to the excavation or is backfilled with compacted soil or crushed stone.

A safety factor has not been included in the passive resistance or friction coefficient. A safety factor of 2 or more should be applied in the design by the structural engineer.

4.3.3. Uplift Resistance

The ultimate uplift capacity of shallow foundations is normally assumed to consist of the weight of the foundation and the weight of any soil above the foundation. We recommend using a buoyant unit weight of 50 pounds per cubic foot (pcf) for properly placed and compacted structural fill. A buoyant unit weight of 85 pcf may be used for concrete. We recommend using a factor of safety of 1.5 or more to determine the allowable uplift resistance.

4.3.4. Footing Settlement

For footings bearing on sandstone bedrock, experience indicates total settlements should be less than ½ of an inch. The settlement estimate assumes the excavation reaches competent sandstone as described earlier, silts accumulating within the excavation are removed, and granular backfill, if used, is compacted as recommended in this report.

4.4. Retaining Walls

According to Henry Pate, PE with NSI, small retaining walls might be required for the bridge project. Retaining walls that are restrained from rotation should be designed for the at-rest earth pressure condition using an equivalent fluid pressure of 50 pcf. Retaining walls that are unrestrained and free to rotate can be designed for the active earth pressure condition using an equivalent fluid pressure of 30 pcf. Where the retaining walls will have turns or "dog legs", either the entire wall should be designed for the at-rest case to avoid rotation or a joint should be included at the corner or dog leg. Otherwise, a large crack is likely to form because the free end of the walls will rotate but the corners and dog legs will be at least partially restrained.

Both equivalent fluid pressures recommended above assume the backfill within a zone of 1H:1V from the footing upward to the ground surface is backfilled with crushed stone. The recommended equivalent fluid pressures do not include sloping backfill surfaces, hydrostatic pressures, surcharge loads or earthquake forces, nor are they applicable if using soil as backfill material.

We recommend backfilling the walls with No. 57 crushed stone placed in 6-inch-thick lifts and compacted by making several passes with a hand-guided compactor such as a vibratory plate or whacker packer. Large construction equipment should not be allowed within 5 feet of the retaining walls. Crushed stone backfill should be separated from the adjacent earthen slope with a minimum 6-ounce, non-woven geotextile filter fabric. A 4-inch diameter perforated drainpipe should be included at the base of walls and gravity drained to an acceptable discharge point. The filter fabric should be draped over the top of the backfill zone. A 12-inch thick layer of clay should then be placed over the filter fabric to retard surface water infiltration into the backfill zone.

Footings for the retaining walls should bear on firm (or better) residual clays, new compacted fill or sandstone bedrock. Footings bearing on the above materials can be designed for an allowable bearing pressure of 2,000 psf. Any soft soils encountered near the foundation bearing level should be undercut and backfilled with compacted Number 57 stone. Footings should be founded at least 30 inches below adjacent grade to provide protective embedment.

4.5. Seismic Site Classification

Shear wave testing was beyond the scope of this exploration. Based on one of the empirical procedures in the 2014 AASHTO LRFD Seismic Bridge Design Specifications, we recommend designing the structures for Seismic Site Class "D". Based on the seismic design maps available from the 2014 AASHTO LRFD Seismic Bridge Design Specifications and with Seismic Site Class "D," the estimated seismic design coefficients are as follows:

- S_{DS} = 0.32g
- S_{D1} = 0.156g

We also considered whether the subsurface soils might liquefy during an earthquake. Given the soil profile is mostly clays, it is our opinion the subsurface soils are not susceptible to liquefaction.

5.0 CONSTRUCTION CONSIDERATIONS

5.1. Site Grading and Drainage

Positive drainage should be established at the beginning of construction activities and maintained throughout construction to reduce ponding water at the site as well as to reduce surface water infiltration. Finished site grades should slope away from the bridge.

5.2. Groundwater Control

Groundwater was encountered within three of the four test pit excavations made for this project. The soils are relatively sandy and are located close to the Little Obed River. Flow rates into the test pits were moderately high and could be greater at other times of year. Groundwater can normally be removed from construction excavations by pumping from sump pits or collector trenches placed near the point of seepage. For heavier seepage, it might be advisable to dewater the area in sumps or trenches placed outside of the footing excavations to allow greater flexibility in handling groundwater removal. Our geotechnical engineer should review site conditions at the time of construction and provide additional recommendations for groundwater control based on the actual field conditions observed.

5.3. Temporary Excavations

Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Temporary cuts greater than 4 feet in height should be shored or sloped in accordance with current guidance outlined in Occupational Safety and Health Administration (OSHA) regulations in the Code of Federal Regulations (CFR), Title 29, Part 1926 (29 CFR 1926) or any other applicable local regulations. We classify the near-surface in-situ soils as Type C based on our test pits. Excavations in Type C soils should be inclined no steeper than 1.5H:1V (horizontal to vertical). If sloughing or raveling is observed in temporary excavations or soils other than Type C soils are encountered, the slopes should be flattened to a stable inclination.

For temporary excavations and cut slopes, we recommend the following:

- Traffic, construction equipment, and supplies/stockpiles should not be allowed within a distance of at least 5 feet from the top of the cut; and
- Surface water should be diverted away from the excavations.

The contractor has control of construction operations and is responsible for providing a competent person to evaluate the stability of cut slopes, as well as excavation safety. Shoring and temporary slopes must conform to applicable local, state, and federal safety regulations. GeoEngineers is not responsible for excavation and other aspects of jobsite safety. The contractor is solely responsible for jobsite safety.

5.4. Fill Slopes

Some fill slopes could be required depending on the grading plan. We recommend the fill extend 3 feet or more beyond the edge of the pavement before sloping. If the fill is comprised of clayey soils, it can be difficult to compact the edges of fill areas often causing the slope to contain a loose, surface veneer. Fill slopes should be slightly overbuilt and then cut to the planned line and grade to remove the weak veneer. If overbuilding the slope is not possible, then we recommend having a large bulldozer track up and down the slope to provide some compaction. Vegetation should be established on fill slopes soon after grading

to reduce rills and infiltration that could lead to slope instability. Utilities should not be located near the crest of slopes where leaking lines could cause the slope to become unstable. Typically, fill slopes can be constructed at 2.5H:1V, but flatter slopes may be desirable for mowing. Shallow slumping failures can occur on fill slopes and should be promptly repaired to prevent water from accumulating within the sliding mass and causing a larger landslide. Typically, shallow slumps are repaired by removing the sliding mass and backfilling with surge stone or rip rap. Our geotechnical engineer should provide recommendations for any needed repairs based on the actual field conditions encountered.

6.0 LIMITATIONS

We have prepared this report exclusively for NSI for the project described herein. Within the limitations of scope, schedule and budget, our services have been performed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. The conclusions, recommendations and opinions expressed in this report are based on our professional knowledge, judgment, and experience. No warranty or other conditions, express or implied, should be understood.

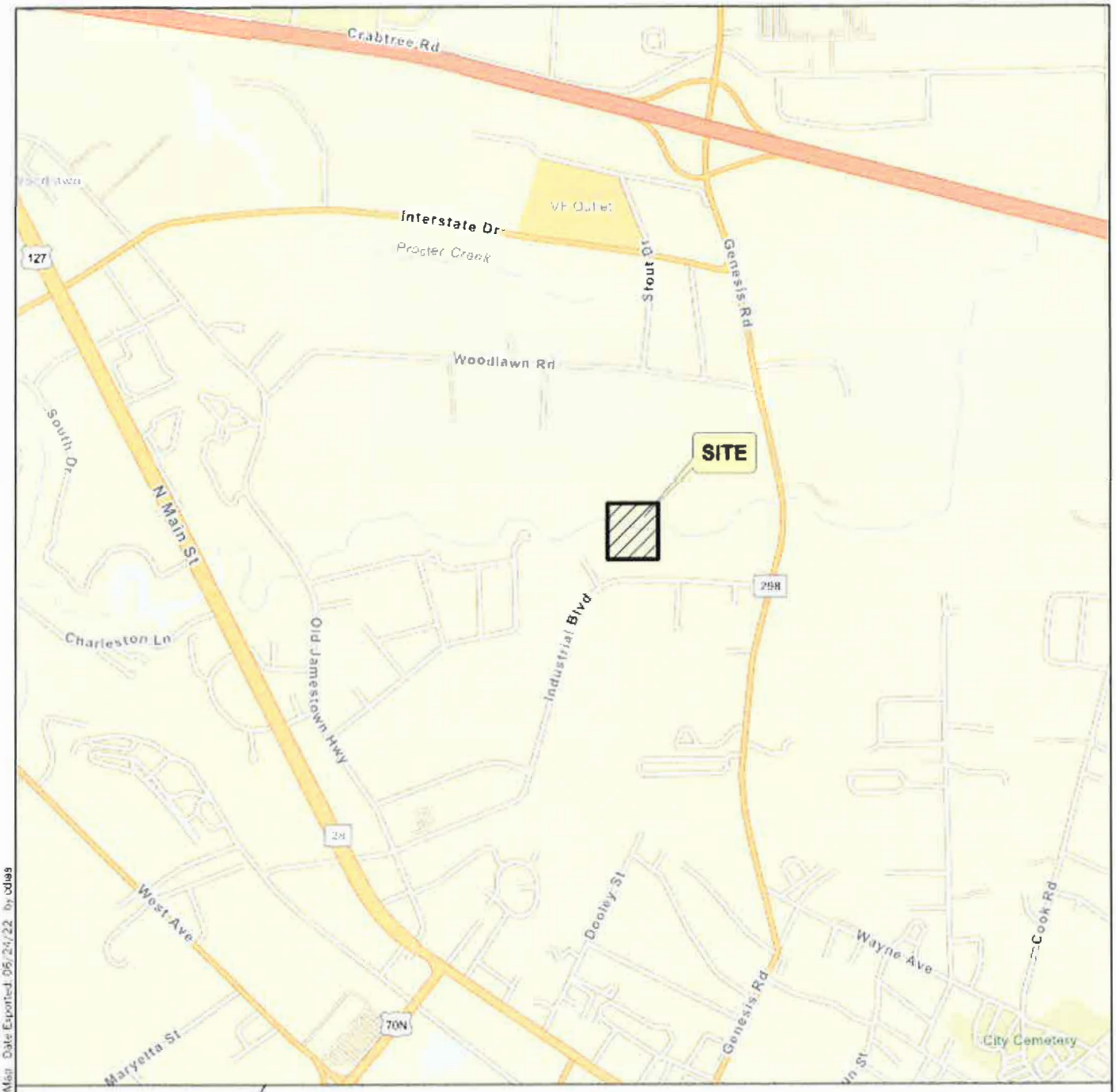
Any electronic form, facsimile or hard copy of the original document (email, text and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers and will serve as the official document of record.

Please refer to Appendix C titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

7.0 CLOSING

GeoEngineers appreciates the opportunity to be of service to you. If you have questions, please email or call.

GeoEngineers



N
W E
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2,000 0 2,000

Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 16S

Vicinity Map

New Pedestrian Bridge
Crossville, Tennessee

GeoEngineers

Figure 1

P:\26\26045024\GIS\26045024_VicinityMap Date Exported: 05/24/22 by cdias

Legend

TP-1 Test Pit by GeoEngineers, Inc , 2022

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Aerial from Google Earth Pro, dated 06/2022

Projection: TN State Plane, NAD83, US Foot

N W E S

80 0 80
Feet

Test Pit Location Plan

New Pedestrian Bridge
Crossville, Tennessee

GeoEngineers

Figure 2

GeoEngineers

APPENDIX A
Field Exploration and Laboratory Testing

APPENDIX A
FIELD EXPLORATION AND LABORATORY TESTING

This appendix describes the field exploration and laboratory testing program performed to support this project.

General Field Exploration Information

GeoEngineers' field exploration took place on June 8, 2022. A small backhoe was used for test pits TP-1 and TP-2 and a mini excavator was used for TP-3 and TP-4. The daily field report for this work is included in this appendix.

Test Pits

Four test pits were excavated at the site to explore the subsurface conditions using a small backhoe or mini excavator. Our engineer observed the excavations and classified the soils using the Unified Soil Classification System (USCS) and visual-manual methods (ASTM D2488). Our engineer also evaluated soil consistency by pocket penetrometer tests at selected locations. Our interpretation of the conditions encountered in the test pits can be found on the test pit logs within this appendix. Each test pit was backfilled after completion by placing the excavation spoils back into the hole and occasionally tamping the backfill with the backhoe bucket.

Laboratory Testing

General

Eleven soil samples were tested in the laboratory to measure their natural water content (ASTM D2216), six samples were tested to determine their fines content (ASTM D1140), and two samples were tested to determine their Atterberg limits (ASTM D4318).

Water Content

Water content tests were completed in general accordance with ASTM D2216 for representative samples obtained from the test pits. Test results are documented on the test pit logs.

Percent Fines

An analysis of the percentage of fines was performed on selected samples in general accordance with ASTM D1140. This test method involves washing the soil samples over a Number 200 sieve. The results of the tests are used to assist in soil classification as well as engineering design. Test results are documented on the test pit logs.

Atterberg Limits

Atterberg limits testing was performed on selected samples in general accordance with ASTM D4318. This test method determines the liquid limit (LL), plastic limit (PL) and plasticity index (PI) of soil particles passing the No. 40 sieve. The results of the tests are used to assist in soil classification as well as engineering design. Test results are documented on the test pit logs.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
BEDROCK	LIMESTONE			LMST	BEDROCK, ROCK FRAGMENTS, BOULDERS, COBBLES, GRAVEL
	SANDSTONE			SSTN	
	SHALE			SHAL	
	SILTSTONE			SLST	
COARSE GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLYGRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	FILL	Fill
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Water level observed at time of exploration

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

- Standard Penetration Test (SPT)
- Shelby Tube
- Dynamic Cone Penetrometer
- Direct-Push
- Bulk or Grab
- Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
LL	Liquid limit
MC	Water content
MD	Water content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Plastic limit
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

GeoEngineers

Figure A-1

Date Excavated 6/8/2022	Total Depth (ft) 7	Logged By ECR Checked By RDH	Excavator City of Crossville - Public Works Equipment Cat 420F Backhoe	See "Remarks" section for groundwater observed Caving not observed
Surface Elevation (ft) 1736.4 Vertical Datum NAVD88		Easting (X) 2257812.237 Northing (Y) 597912.2073		Coordinate System Geographic Horizontal Datum NAD83 (feet)

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Water Content (%)	Liquid Limit (LL), %	Plastic Limit (PL), %	Plasticity Index (PI), %	REMARKS
1736	0		1 MC		SP-SM	Brown fine grained sand with silt and thin roots (moist) (alluvium)	24				STA 0+72.5, Left 5.3 feet.
1735	1										
1734	2										
1733	3		2 MC/%F		SC	Light brown clayey sand with silt, medium roots, and sandstone fragments (moist) (residuum)	24				%F = 44
1732	4										
1731	5										
1730	6		3 MC/%F		SC	Light brown clayey sand with silt, medium roots, and sandstone fragments (wet)	35				%F = 40 Groundwater observed at 6 feet below ground surface
	7					Test pit refusal at 7 feet below ground surface.					

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ¼ foot.
Coordinates Data Source: Elevations and locations provided by City of Crossville Engineeering Department.

Log of Test Pit TP-1

GeoEngineers

Project: New Pedestrian Bridge
Project Location: Crossville, Tennessee
Project Number: 26045-001-00

Figure A-2
Sheet 1 of 1

Date Excavated 6/8/2022	Total Depth (ft) 6.75	Logged By ECR Checked By RDH	Excavator City of Crossville - Public Works Equipment Cat 420F Backhoe	See "Remarks" section for groundwater observed Caving not observed	
Surface Elevation (ft) 1736.3 Vertical Datum NAVD88		Easting (X) 2257803.579 Northing (Y) 597894.6988		Coordinate System Geographic Horizontal Datum NAD83 (feet)	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Water Content (%)	Liquid Limit (LL), %	Plastic Limit (PL), %	Plasticity Index (PI), %	REMARKS
1736	0		1 MC/%F		CL	Dark brown sandy clay with thin roots (moist) (alluvium)	43				STA 0+53.5, Left 0.5 feet. %F = 67
1735	1		2 MC/AL		CL	Brown silty clay with sand and medium roots (moist) (residuum)	28	27	17	10	
1734	2										PP = 2.5 tsf
1733	3										
1732	4										PP = 1.5 - 2.0 tsf
1731	5										
1730	6		3 MC				31				Groundwater observed at 6¾ feet below ground surface

Test pit refusal at 6¾ feet below ground surface.

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ¼ foot.
Coordinates Data Source: Elevations and locations provided by City of Crossville Engineeering Department.

Log of Test Pit TP-2

GeoEngineers

Project: New Pedestrian Bridge
Project Location: Crossville, Tennessee
Project Number: 26045-001-00

Date Excavated 6/8/2022	Total Depth (ft) 7.25	Logged By ECR Checked By RDH	Excavator City of Crossville - Public Works Equipment Cat 305 Mini Excavator	See "Remarks" section for groundwater observed Caving not observed
Surface Elevation (ft) 1736.5 Vertical Datum NAVD88		Easting (X) 2257843.476 Northing (Y) 597941.1597		Coordinate System Geographic Horizontal Datum NAD83 (feet)

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Water Content (%)	Liquid Limit (LL), %	Plastic Limit (PL), %	Plasticity Index (PI), %	REMARKS
1736	0		1 MC		CL	Dark brown silty clay with sand and thin roots (moist) (alluvium)	43				STA 1+14.2, Left 0.12 feet.
1735	1										
1734	2										PP = 1.5 tsf
			2 MC/%F		CL	Brown very sandy clay with medium roots and sandstone boulders (moist) (residuum)	20				%F = 51
1733	3										
1732	4										PP = 1.0 - 1.5 tsf
1731	5		3 MC/%F		SC	Light brown clayey sand with silt, sandstone fragments, and medium roots (moist)	24				%F = 37
1730	6										
	7		4								Groundwater observed at 7¼ feet below ground surface

Test pit refusal at 7¼ feet below ground surface.

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ¼ foot.
Coordinates Data Source: Elevations and locations provided by City of Crossville Engineeering Department.

Log of Test Pit TP-3

GeoEngineers

Project: New Pedestrian Bridge
Project Location: Crossville, Tennessee
Project Number: 26045-001-00

Figure A-4
Sheet 1 of 1

Date Excavated 6/8/2022	Total Depth (ft) 4	Logged By ECR Checked By RDH	Excavator City of Crossville - Public Works Equipment Cat 305 Mini Excavator	Groundwater not observed Caving not observed
Surface Elevation (ft) 1738.5 Vertical Datum NAVD88		Easting (X) 2257862.497 Northing (Y) 597947.9707		Coordinate System Geographic Horizontal Datum NAD83 (feet)

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Water Content (%)	Liquid Limit (LL), %	Plastic Limit (PL), %	Plasticity Index (PI), %	REMARKS
1738	0		1 MC		CL	Dark brown clay with silt, sand, and thin roots (moist) (alluvium)	58				STA 1+31.7, Left 10.28 feet. PP = 1.0
1737	1		2 MC/%F/AL		CL	Brown very sandy clay with sandstone boulders and medium roots (moist) (residuum)	29	29	17	12	%F = 63
1736	2										
1735	3										PP = 1.0
	4										

Test pit refusal at 4 feet below ground surface.

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ¼ foot.
Coordinates Data Source: Elevations and locations provided by City of Crossville Engineeering Department.

Log of Test Pit TP-4

GeoEngineers

Project: New Pedestrian Bridge
Project Location: Crossville, Tennessee
Project Number: 26045-001-00

Figure A-5
Sheet 1 of 1

Date: 8/24/22 Path: P:\26\26045001\GINT\26045001.GPJ DBLibrary\Library-GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEB_TESTPIT_1P_GEOTEC_NWL

GeoEngineers

5409 Maryland Way
Suite 150
Brentwood, TN 37027
615.712.2180

Daily Field Report

File Number: 26045-001-00			
Project: Crossville Pedestrian Bridge			Date: June 8, 2022
Owner: City of Crossville		Time of Arrival: 09:45	Report Name: DFR-01_26045-001-00_06-08-2022
Prepared by: Emily Reed, PE	Location: Crossville, Tennessee	Time of Departure: 13:30	Page: 1 of 7
Purpose of visit: Geotechnical Exploration	Weather: Overcast, 70's	Travel Time: 2:15 hr	Permit Number: N/A

Upon arrival to the site I assessed personal safety hazards: ☒ Yes and/or ☐ Referred to Site Safety Plan and Safety Tailgate if applicable

Safety Hazards Were Addressed by: ☒ Staying Alert to Construction and Equipment Hazards ☒ Donning PPE and observing safety standards

Personnel

GeoEngineers Field Representatives: Emily Reed, Leonardo Ramon
City of Crossville: Tim Begley

Equipment:

City of Crossville: Cat 420F Backhoe, Cat 305 Mini Excavator
GeoEngineers Rental Vehicle

Test Pit Summary:

EXPLORATION ID	EXPLORATION DEPTH (FT)	TODAY (FT)	TO DATE (FT)	% COMPLETE
TP-1	10	7	7[1]	100
TP-2	10	6.7	6.7[1]	100
TP-3	10	7.2	7.2[1]	100
TP-4	10	4	4[1]	100

[1] Test pit encountered refusal at indicated depth

Activities:

07:30 I, Emily Reed of GeoEngineers, Inc. (GeoEngineers), depart my residence in Murfreesboro, Tennessee, pick up a rental vehicle, and travel to the project location in Crossville, Tennessee.

09:45 I arrive at the project location and meet with Leonardo Ramon (GeoEngineers) and Tim Begley of the City of Crossville (City). We walk to the proposed bridge location on the south side of the Little Obed River. An operator with a backhoe is setup on the south side of the river, and another operator with a mini excavator is setup on the north side of the river.

Tim and I discuss the proposed locations of the test pits relative to the proposed bridge foundations. For the cassion foundations, we decide to excavate as close to the river as safely possible on each side. For the abutment foundation test pits, we decide to offset about 20 feet towards the bank from the cassion test pits.

☐ THIS FIELD REPORT IS PRELIMINARY A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.	FIELD REPRESENTATIVE Emily C. Reed, PE	DATE 6/8/2022
☑ THIS FIELD REPORT IS FINAL A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.	REVIEWED BY Alicia R. Sellers, PE	DATE 6/15/2022

Attachments: GeoEngineers Job Hazard Analysis

Distribution: Neel-Schaffer, Inc.

10:00 The City excavates TP-1, and I monitor and sample the soils encountered.

TEST PIT NO. 1 (TP-1): PRE-EXCAVATION

10:30 The City completes TP-1 at a depth of 7 feet and backfills with the spoils.

TEST PIT NO. 1 (TP-1): EXCAVATION (LEFT) AND SPOILS (RIGHT)

10:50 The City finishes backfilling TP-1, and we mobilize to TP-2.

TEST PIT NO. 1 (TP-1): BACKFILLED

11:00 The City excavates TP-2, and I monitor and sample the soils encountered.

TEST PIT NO. 2 (TP-2): PRE-EXCAVATION

11:30 The City completes TP-2 at a depth of 6.7 feet and backfills with the spoils.

TEST PIT NO. 2 (TP-2): EXCAVATION (LEFT) AND SPOILS (RIGHT)

11:45 The City finishes backfilling TP-2, and we mobilize across the river to the north side. We take the walking trail to TP-3.

TEST PIT NO. 2 (TP-2): BACKFILLED

12:00 The City excavates TP-3, and I monitor and sample the soils encountered.

TEST PIT NO. 3 (TP-3): PRE-EXCAVATION

12:30 The City completes TP-3 at a depth of 7.2 feet and backfills with the spoils.

TEST PIT NO. 3 (TP-3): EXCAVATION (LEFT) AND SPOILS (RIGHT)

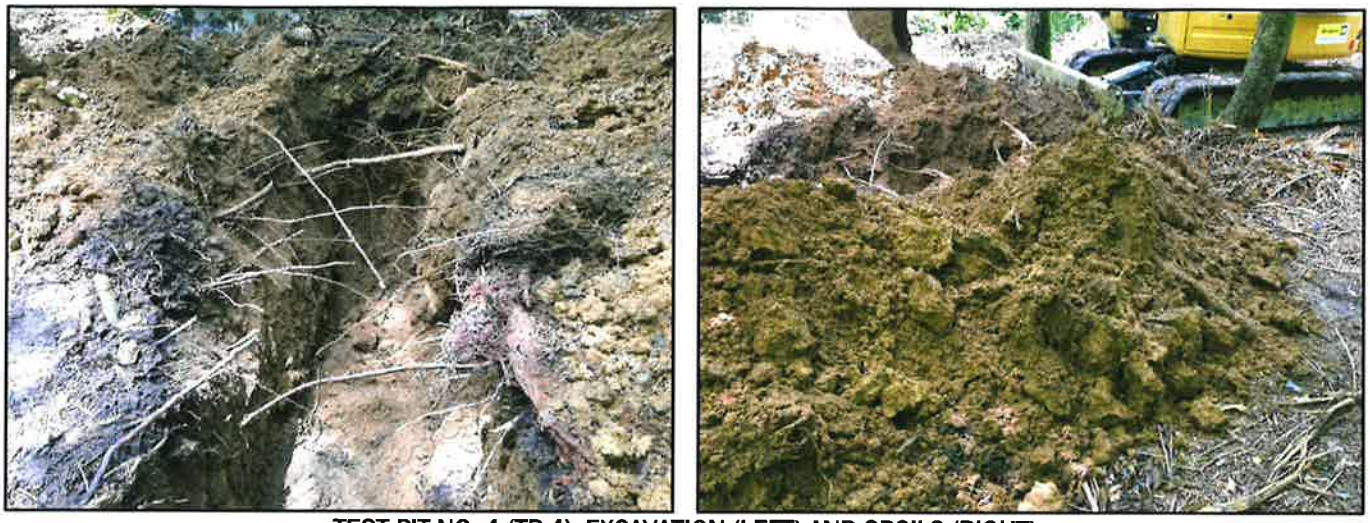
12:40 The City finishes backfilling TP-3, and we mobilize to TP-4.

TEST PIT NO. 3 (TP-3): BACKFILLED

12:45 The City excavates TP-4, and I monitor and sample the soils encountered.

TEST PIT NO. 4 (TP-4): PRE-EXCAVATION

13:00 The City completes TP-4 at a depth of 4 feet and backfills with the spoils.



TEST PIT NO. 4 (TP-4): EXCAVATION (LEFT) AND SPOILS (RIGHT)

13:15 The City finishes backfilling TP-4.

TEST PIT NO. 4 (TP-4): BACKFILLED

13:30 Leonardo and I follow the walking trail back to our vehicles and leave the site.

18:45 I arrive at my residence.

JOB HAZARD ANALYSIS

Field Exploration Activities

GeoEngineers

Project Name: Crossville Pedestrian Bridge **File No:** 26045-001-00		**Date:** June 8, 2022	**Site Location:** Crossville, Tennessee
Development Team:	**Position/Title:**	**Reviewed by:**	**Position/Title:**
Hunter Hayes	Staff Engineer	Alicia Sellers	Project Manager

Minimum Required Protective Equipment: (see critical actions for task-specific requirements)

PPE	Equipment	Tools	Actions
☒ Hard Hat	☐ Safety Beacons	☒ Cell Phone	☒ Stay Visible
☒ Eye Protection	☐ Safety Cones	☒ GPS	☒ Equipment Inspection
☐ Hearing Protection	☒ First Aid Kit		☒ Work in Pairs
☒ Gloves	☒ Fire Extinguisher		
☒ High Visibility Vest	☒ Eye Wash/ Drinking Water		
☒ Steel Toe Boots			

Job Steps	Potential Hazards	Critical Actions to Mitigate Hazards
Drive to work site location	Unfamiliar locations, congestion, unpaved roads, mechanical failure, flat tires, vehicle fire, exhaust leaks, vehicle collision, internal projectiles	■ Inspect the vehicle before departure: ▪ Check for tire cuts, fluid leaks, flat tires, body damage, windshield cracks, and other damage. ▪ Check lights, wipers, fluid levels, and seat belts. ▪ Ensure the vehicle has a complete and current First Aid kit and fire extinguisher. ▪ Ensure the vehicle is equipped with warning signs and/or flares and that the warning flashers operate. ■ Review map and plan route prior to beginning the trip. ■ Drive defensively. ■ Use only vehicles appropriate for the work needs and the driving conditions expected. ■ Place heavy objects behind a secure safety cage if they must be carried in a passenger compartment. ■ Use parking brake and don't leave vehicle unattended while it is running. ■ Ensure vehicle has fuel to get you to and from your destinations. ■ Inspect area behind vehicle prior to backing and use spotter, as needed. ■ Inform your Project Manager of your destination and estimated time of return. ■ Carry extra food, water, and clothing.
	Pre-Job Activities	■ Conduct a tailgate safety meeting discussing the jobs, the hazards and the actions that will be taken to prevent injury. ■ Discuss "Stop Work Authority" as it applies to each site member. ■ Discuss appropriate PPE including high visibility clothing.
Working inside a trench	Injury due to slipping or falling while climbing into/out of trench, cave-in, an object falling from above	■ Do not enter the trench unless it has been sloped or shored in accordance with proper OSHA guidelines. In addition, proper means of ingress/egress such as slopes or ladders are present. ■ Notify a site supervisor that you will be entering the trench. Have someone at the ground surface watching to make sure you are safe. ■ Watch footing when climbing into and out of trench. Be aware of loose earth or slippery conditions after rain. ■ Wear proper PPE (hard hat) to protect your head from objects that may fall into the trench from above.
Working around heavy equipment	Injury due to being struck or run over by equipment on site	■ Check in at the site upon arrival. ■ Wear high visibility clothing to make yourself more visible to others. ■ Be aware of heavy equipment around you.

		■ Make eye contact with the operator. ■ Stay out of the swing radius of equipment with extendable pieces.
Physical Hazards	Traffic (including pedestrian)	■ Watch out for moving vehicles and equipment. Inspect area behind vehicle prior to backing. Use a spotter. ■ Be alert to potential hazards that may be created by others. ■ Work within the line of sight of the equipment operator and maintain visual contact when approaching. Wear appropriate PPE including a high visibility vest.
	Heat/Cold Stress	■ Take breaks as needed. ■ Consume adequate food and beverages. ■ If possible, adjust work schedule to avoid heat/cold stresses.
Biological Hazards	Insects, Snakes, Wildlife, Vegetation	■ Inspect work areas when arrive at site to identify hazard(s). ■ Use insect repellant as necessary. ■ If employee has bee sting allergy, carry epi-pen. ■ Use caution when opening enclosures. ■ Be cautious of poison ivy/oak/sumac. ■ Stay alert and safe distance away from biological hazards. ■ Wear appropriate PPE including gloves and long pants.
Communication	No communication in case of emergency	■ Verify cell phone is working. ■ Maintain communication with Project Manager throughout job task. ■ Verify location and contact numbers for emergency medical assistance or 911.
Biological Hazards	Emergency	■ Dial 911 ■ Hospital Route (Attached)

Required Control Measures: (check the box when complete)

☒ Perform a pre-work vehicle and boat inspection (First Aid kit, fire extinguisher).

☒ Drive defensively looking out for "the other guy".

☒ Conduct a pre-work safety meeting.

☒ Wear Personal Protective Equipment (PPE).

☒ Conduct Task Safety Assessments throughout the job.

Additional Comments:

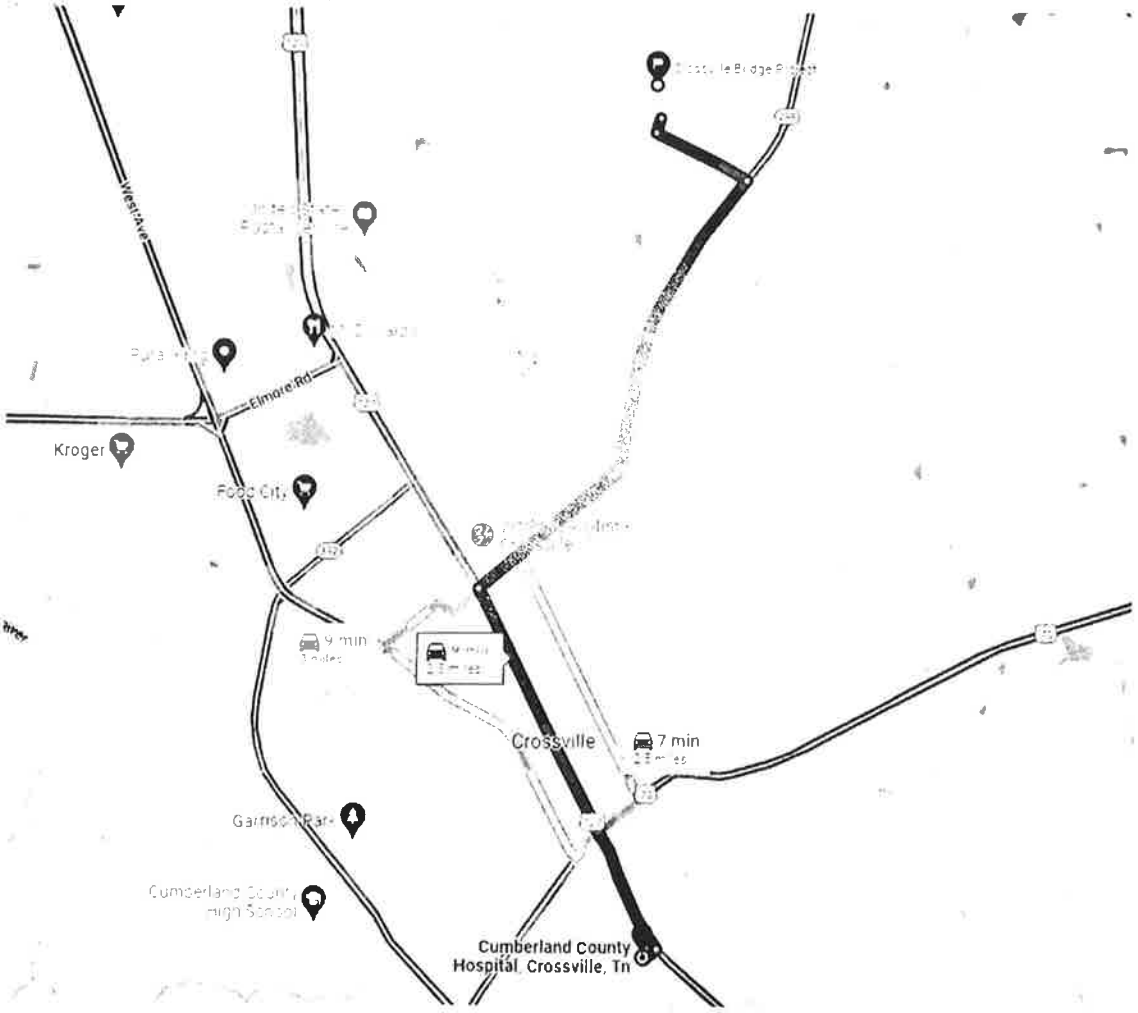
Job tasks and procedures shall be performed in accordance with State/Federal OSHA safety regulations, and GeoEngineers Health and Safety Program

DAILY JHA RECORD OF SAFETY MEETINGS

Signature	Date	Signature	Date
[signature]	6/8/22		
[signature]	6/8/22		
[signature]	6/8/22		
[signature]	6-8-22		
[signature]	6/8/22		

HOSPITAL ROUTE

Cumberland County Hospital
Justice Center Drive, Crossville, TN 38555



APPENDIX B
Definitions

APPENDIX B
DEFINITIONS

The following describes terms that may have been used in this report.

SUBSURFACE EXPLORATION – The planning, collection, interpretation, and analysis of geotechnical data from widely spaced borings and/or test pits. Field data, results of laboratory tests (if applicable), and data obtained from site reconnaissance are used to form one or more models of the expected subsurface conditions and associated engineering properties of the soils and rock. Local geology and alterations of the surface and subsurface conditions by previous and proposed construction are also important considerations. As such, there is considerable engineering judgement involved in estimating the subsurface conditions that will likely be exposed during construction and in the design and performance of foundations and any other structures being planned. In this report, geotechnical or subsurface exploration are not close examination, systematic inquiry, or thorough investigation of site subsurface conditions. Rather, geotechnical (subsurface) exploration is the limited sampling and testing of subsurface materials and geotechnical analysis using the care and skill ordinarily exercised by reputable members of our profession practicing under similar conditions for the location and time of the project.

Residuum – Soil that is derived in-place from the chemical and/or mechanical weathering of the bedrock.

Alluvium – Soil that is deposited by flowing water in rivers and streams.

Colluvium – Soil that has moved from an upland area or slope downhill because of landslides, creep (slow-rate movement), sloughing, and/or erosion.

Loess – Soil that is deposited by wind.

Fill – Material placed by man.

Clay – Soil with greater than 50 percent passing the number 200 sieve and meeting certain plasticity characteristics. Clays with a liquid limit less than 50 are classified as lean clay, CL, and clays with a liquid limit greater than 50 are classified as fat clay, CH.

Silt – Soil with greater than 50 percent passing the number 200 sieve and meeting certain plasticity characteristics. Silts with a liquid limit less than 50 are classified as ML, silt, and silts with a liquid limit greater than 50 are classified as MH, elastic silt.

Sand – Soil with greater than 50 percent retained on the number 200 sieve and with a greater percentage of the coarse fraction passing the number 4 sieve. If the sand has less than 5 percent fines passing the number 200 sieve it is either well graded sand, SW, or poorly graded sand, SP, depending on certain gradation criteria. If the sand has more than 12 percent fines passing the number 200 sieve, it is silty sand, SM, if the fines classify as silt, or clayey sand, SC, if the fines classify as clay. Sand with a fines content between 5 and 12 percent receives one of the following dual classifications: sand with silt, SP-SM or SW-SM, or sand with clay, SP-SC or SW-SC.

Gravel – Soil with greater than 50 percent retained on the number 200 sieve and with a greater percentage of the coarse fraction retained on the number 4 sieve. If the gravel has less than 5 percent fines passing the number 200 sieve it is either well graded gravel, GW, or poorly graded gravel, GP, depending on certain

gradation criteria. If the gravel has more than 12 percent fines passing the number 200 sieve, it is silty gravel, GM, if the fines classify as silt, or clayey gravel, GC, if the fines classify as clay. Gravel with a fines content between 5 and 12 percent receives one of the following dual classifications: gravel with silt, GP-GM or GW-GM or gravel with clay, GP-GC or GW-GC.

Number 200 sieve – Mesh with 0.075-millimeter openings used to mechanically determine the grain size of soils.

Number 4 sieve – Mesh with 4.75-millimeter openings used to mechanically determine the grain size of soils.

Cobbles – Particles passing through a 12-inch square opening and retained on a 3-inch sieve.

Boulders – Particles not passing through a 12-inch square opening.

In some cases, the percentage of boulders, cobbles, gravel, sand and/or fines may be estimated in terms of ranges using the following criteria:

- Trace – Particles are present but estimated to be less than 5 percent
- Occasional – 5 to 15 percent
- With – 15 to 30 percent
- Abundant – more than 30 percent

APPENDIX C
Report Limitations and Guidelines for Use

APPENDIX C
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers includes the following explanatory "limitations" provisions in its reports. Please confer with GeoEngineers if you need to know more about how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared exclusively for Neel-Schaffer, Inc. for the Project specifically identified in this report. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the Project, and its schedule and budget, our services have been executed in accordance with our Agreement with Neel-Schaffer, Inc. dated May 18, 2022, and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

A Geotechnical Engineering or Geologic Report is based on a Unique Set of Project-Specific Factors

This report has been prepared for exclusively for the project site located along the Little Obed River in Crossville, Tennessee. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

For example, changes that can affect the applicability of this report include:

- the function of the proposed structure;
- elevation, configuration, location, orientation, or weight of the proposed structure;

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[1] Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org.

- composition of the design team; or
- project ownership.

If changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Environmental Concerns are Not Covered

Unless environmental services were specifically included in our scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Geotechnical and Geologic Findings are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted, or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

Geotechnical Engineering Report Recommendations are Not Final

We have developed the recommendations in this report based on data gathered from subsurface exploration(s). These explorations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work

differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable, but separating logs from the report can create a risk of misinterpretation.

Give Contractors a Complete Report and Guidance

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- encourages contractors to conduct additional study to obtain the specific types of information they need or prefer.

Contractors are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we use sources that we reasonably believe to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

GeoEngineers

DOCUMENT 00 41 13
BID FORM

Submitted _____, 2025

TO:

City of Crossville
Attn: City Clerk/Bids
392 N. Main Street
Crossville, TN 38555

PROJECT:

Little Obed River Greenway, Phase 1
Pre-Engineered Bridge
City of Crossville, Tennessee

SUBMITTED BY:

(Full name)

_____

(Full address)

_____

_____

Gentlemen:

1. The undersigned, as Bidder, hereby declares that this Bid is made without any expressed or implied connection (financial or otherwise) with any other person or company or parties making a bid on the above named Project; and that this Bid is, in all respects, fair and in good faith without collusion or fraud.

2. The undersigned as Bidder acknowledges by his (or her) signature that he (or she) has visited and examined the site of the proposed construction and has received and examined the documents titled "Project Manual" for the Construction of the above mentioned Project, Drawings and other documents and has included their provisions in his (or her) Bid.

3. The Bidder acknowledges that he (or she) has received the following Addenda. The modifications to the Bid Documents noted therein have been considered and all costs thereto are included in the Bid Sum.

   a. Addendum Number _____ Dated _____

   b. Addendum Number _____ Dated _____

   c. Addendum Number _____ Dated _____

4. In submitting this Bid, the Bidder agrees:

   a. To hold open his (or her) Bid for 60 days from the date shown above.

   b. To enter into and execute a Contract, if awarded, on the basis of this Bid.

c. To accomplish the Work according to the Contract Documents.

d. To provide in full and complete accordance with the shown, noted, described and reasonably intended requirements of Drawings and Specifications and the Contract Documents, to furnish all labor, materials, transportation and appliances to complete the work to the full and entire satisfaction of the Owner (with a definite understanding that no money will be allowed for extras except as set forth in the Contract Documents), for the amounts listed below.

e. To begin the Work within ten (10) days after written notification of the acceptance of this Bid.

f. To deliver the bridge in 250 calendar days from the date of the notice to proceed.

g. To accept the conditions for liquidated damages in the amount of $250 per calendar day.

5. The Bidder agrees to deliver the Bridge of the Base Bid for this Project for the Lump Sum (Fixed) Price of (show amount in both words and figures).

_____

_____ ($_____) DOLLARS.

6. The Bidder acknowledges by his (or her) signature that he (or she) agrees to requirements contained in the Invitation to Bid and the Instructions to Bidders and, that should he (or she) fail to execute a Contract with the Owner, should the Owner award said Contract to him, that the Owner may rightfully collect the sum of the Bid Security.

BID FORM SIGNATURE(S)

Name of Firm: _____

Signed By: _____ Title: _____

Note: If a corporation, Bid must be signed by person authorized by the corporation by-laws to bind it to contract.

END OF BID FORM

SECTION 00 45 00
DRUG FREE AFFIDAVIT

CITY OF CROSSVILLE
392 N. Main Street
Crossville, Tennessee 38555
Tel (931) 484-5113
FAX (931) 484~7713

STATE OF TENNESSEE
COUNTY OF CUMBERLAND

DRUG-FREE WORKPLACE AFFIDAVIT
OF PRIME BIDDER

NOW COMES AFFIANT, who being duly sworn, deposes and says:

1. He/She is the principal officer for _____;

2. That the bidding entity has submitted a bid to the City of Crossville for the **Little Obed River Greenway, Phase 1 Pre-Engineered Bridge, Crossville, Tennessee.**

3. That the bidding entity employs no less than five (5) employees; _____yes, _____no.

4. That Affiant certifies that the bidding entity has in effect a drug-free workplace program that complies with §50-9-113 *Tennessee Code Annotated.*

5. That this affidavit is made on personal knowledge.

Further Affiant saith not.

_____
AFFIANT

SUBSCRIBED AND SWORN TO before me this _____day of _____2025.

_____
NOTARY PUBLIC

My commission expires:_____

SECTION 01 01 00
SUMMARY OF WORK

PART 1 GENERAL

1.1 RELATED DOCUMENTS

Drawings, general provisions of the Contract, including Contract Clauses and other Division 00 and 01 specification sections, apply to work of this section.

1.2 GENERAL

A. Project Identification: Little Obed River Greenway, Phase 1
Pre-Engineered Bridge
Commission No. 247012
Project Location: Industrial Blvd., Crossville, Cumberland County, Tennessee
Owner: City of Crossville

A. Architect/Engineer Identification: The Contract Documents were prepared for the project by Wold Architects & Engineers , 214 Centerview Drive, Suite 300, Brentwood, TN 37027
In general, the project includes:
Design, fabrication and delivery to the job site, a 10’ wide, 70’ long pre-engineered steel bridge, including the design of the concrete bridge abutments, ready for installation by the Owner’s general contractor. Bridge abutments, 2 each, shall include complete design, stamped by an engineered licensed in the state in which the project is located, for construction/installation by the Owner’s general contractor who will construct the full greenway. Bridge abutments shall provide for each approach slab to bear on the abutment.

1. Scope of Work

A. The term “work” includes all labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in such construction of the Project in accordance with the accompanying drawings and these specifications, except for work which is expressly noted herein as not included in the Contract.

B. Work shall also include the following:

(1) General Contractor to repair any damage it causes to work performed by separate Contractors.

1.3 COORDINATION OF WORK

A. Comply with site restrictions and other requirements of the City of Crossville.

1.4 OWNER OCCUPANCY

A. Owner will occupy site and premises during entire construction period for conduct of his (or her) normal operations.

B. Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage during delivery and unloading of bridge.

C. Schedule the Work to accommodate this requirement.

1.5 OPTIONS IN THE WORK

If the Contractor is given an option of materials and methods used in the work and installation, the aim is to achieve the most economical installation that is acceptable for the work indicated by the option. In such cases it is the intention of the drawings and specifications that the option fully covers all usual items for a completed job whether mentioned specifically or not.

1.11 EFFECT OF ADDENDA, AMENDMENTS, BULLETINS, DELETIONS, OMISSIONS, AND CHANGE ORDERS

No special implication, interpretation, construction, connotation, denotation, import, inference, or meaning shall be assigned to any provision of the Contract Documents because of changes created by the issuance of any (1) addendum, (2) amendment, (3) bulletin, (4) notice of deletion, (5) notice of omission, or (6) change order, other than the precise meaning that the Contract documents would have had if the provision thus created had read originally as it reads subsequently to the (1) addendum, (2) amendment, (3) bulletin, (4) notice of deletion, (5) notice of omission, or (6) change order by which it was created.

1.12 INTENT OF CONTRACT DOCUMENTS

A. If there are any conflicts or discrepancies within or between any of the Contract Documents involving the quality or quantity of work required, it is the intention of the Contract that the work of highest quality or greatest quantity shown or specified shall be furnished, unless such conflict or discrepancy shall have been brought to the Architect/Engineer's attention and clarified by Addendum prior to the opening of bids.

B. Whether or not the word "All" is used in the specifications, coverage is intended to be complete, except where partial coverage is specifically and expressly noted. In all cases where an item is referred to in the singular number, it is intended that the reference shall apply to as many such items as are required to complete the work. Words such as "Install", "Provide", "Furnish", and "Supply" shall be construed as meaning complete furnishing, installing, and constructing unless modified by additional information.

1.13 VERIFICATION OF DIMENSIONS

A. Dimensions, elevations, and locations shown on the Drawings in reference to existing structures and utilities are the best available data obtainable.

B. Before proceeding with work dependent upon the data involved, field check and verify all dimensions, grades, line levels, or other conditions of limitations at the site and building to avoid construction errors. If work is performed by the Contractor or by his Subcontractors prior to adequate verification of applicable data, resultant extra cost for adjustment of work to conform to existing limitations shall be borne by the Contractor without reimbursement or compensation by the City of Crossville.

1.14 CONTRACT TIME

The Work shall be conducted in a single phase and shall continue as rapidly as possible as is consistent with the best interests of the Owner. The Work shall be Substantially Complete, ready for occupancy no later than time set in the Contract.
.

END OF SECTION

SECTION 01 04 00
COORDINATION

PART 1 - GENERAL

1.1 PROJECT COORDINATION

The Bridge Manufacturer shall coordinate the with the General Contractor constructing the greenway and abutments and with the Architect/Engineer as specified in the Contract Documents.

1.2 COORDINATION OF WORK OF SUBCONTRACTORS

A. It is the responsibility of the Bridge Manufacturer to coordinate the work of the City's Contractor's subcontractors. To this end, the Contractor shall require the subcontractors examine and familiarize themselves with the project drawings and they are to frequently consult with each other and all other trades so that the work can be properly coordinated.

B. The Bridge Manufacturer shall carefully check the work of the City's Contractor's subcontractor in order to deliver to the Owner the contract work complete and properly installed in conformance with the Contract requirements.

END OF SECTION

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for
   1. Product substitutions; and comparable products.

1.2 RELATED DOCUMENTS

A. Section 016000 - Product Requirements for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or descriptions.

B. Products Specified by Naming One or More Manufacturers with a Substitute Paragraph or the words, “or equal”: Submit a request for substitution for any manufacturer not specifically named.

C. Products Specified by Naming Several Manufacturers without a Substitute Paragraph or the words, “or equal”: Products of named manufacturers meeting specifications; no options, no substitutions allowed.

D. Products Specified by Naming Several Manufacturers with a Substitute Paragraph and the words, "None Permitted": Products of named manufacturers meeting specifications; no options, no substitutions allowed.

E. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

F. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

G. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers. Specified manufacturers, other than Basis of Design manufacturer, shall provide custom color, profile, and pattern as required to match Basis of Design manufacturer’s color and pattern.

1.4 LIMITATIONS ON SUBSTITUTIONS

A. Only within 30 days after date of Owner-Contractor Agreement, will Architect/Engineer consider requests from Contractor for substitutions. Subsequently, substitutions may be considered only when a product becomes unavailable because of no fault of Contractor.

B. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request, when requested directly by subcontractor or supplier, or when acceptance will require substantial revision of Contract Documents.

C. Substitute products shall not be ordered or installed without written acceptance.

D. Only one request for substitution will be considered for each product. When substitution is not accepted, provide specified product.

E. Architect/Engineer will decide acceptability of proposed substitution and will notify Contractor of acceptance or rejection in writing within a reasonable time.

1.5 REQUESTS FOR SUBSTITUTIONS

A. Submit separate request for each substitution. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

B. Identify product by Specifications section and Article numbers. Provide manufacturer's name and address, trade name of product and model and catalog number. List fabricators and suppliers appropriate.

C. Attach product data as specified in Section 013300.

D. List similar projects using product, dates of installation and names of Architect/Engineer and Owner.

E. Give itemized comparison of proposed substitution with specified product, listing variations in quality, performance, durability, appearance and size. Reference to Specifications section and Article numbers.

F. Give comparison between proposed substitution and specified product including differences in composition and physical and chemical properties.

G. Give cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.

H. List availability of maintenance services and replacement materials.

I. State effect of substitution on construction schedule and changes required in other work or products.

J. Notify Architect/Engineer when Contractor is aware of materials, equipment, or products that meet the aesthetic and programmatic intent of Contract Documents but that are more environmentally sensitive than materials, equipment or products specified or indicated in the Contract Documents. Substitutions under this provision are not subject to the 30-day cut-off time indicated above.

1.6 SUBSTITUTION SUBMITTAL PROCEDURES

A. Submit electronic (PDF) copy of request for substitution on Form 016232 to Architect/Engineer via email.

B. Architect/Engineer will review Contractor's requests for substitutions with reasonable promptness.

C. During the Bidding Period, Architect/Engineer will record acceptable substitutions in Addenda.

D. After award of Contract, Architect/Engineer will notify Contractor, in writing, of decision to accept or reject requested substitution with reasonable promptness.

E. For accepted products, submit shop drawings, product data and samples; follow Section 013000.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 29 76
PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Submit typed schedule on AIA Form G703. Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule. After review by Architect/Engineer revise and resubmit as needed to respond to Architect/Engineer's review comments. Submit revised schedule with each Application for Payment, reflecting changes since previous submittal.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
   1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
      a. Application for Payment forms with Continuation Sheets.
      b. Submittals Schedule.
      c. Contractor's Construction Schedule.
   2. Submit the Schedule of Values to Architect at earliest possible date but no later than 10 days before the date scheduled for submittal of initial Applications for Payment.
   3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
   4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
      a. Include separate line items under principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.

C. Invoice the City for delegated design and materials after award. The City is eligible for reimbursement for a grant and will make payment in April.

1.3 APPLICATION FOR PAYMENT FORMAT

A. AIA G702 - Application and Certificate for Payment and AIA Document G703, Continuation Sheet. Computer generated versions of G702 are not acceptable. Computer generated versions of Continuation Sheet following exact format and wording of original may be acceptable if approved by Architect/Engineer in advance.

1.4 APPLICATION FOR PAYMENT PREPARATION

A. Type required information. Execute certification by signature of authorized officer.

B. Use data on accepted Schedule of Values. Provide dollar value in each column for each line item for portion of Work done and for stored products.

C. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of Work.

D. Prepare Application for Final Payment as specified in Section 017300.

1.5 SUBSTANTIATING DATA

A. When Architect/Engineer requires substantiating information, submit data justifying line item amounts in question.

B. Provide one copy of data with cover letter for each copy of submittal. Show Application number and date and line item by number and description.

C. For materials stored off-site:
   1. Statement identifying where materials are stored, and assuring that materials are tagged to identify them for use in the project.
   2. Bill of sale for materials claimed.
   3. Certificate of insurance covering materials claimed, recognizing Owner's right to make claims.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 0 13 300
SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for submitting shop drawings, product data, samples, and other submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect/Engineer's responsive action.

B. Informational Submittals: Written information that does not require Architect/Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect/Engineer for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination

C. Deliver physical submittals to Architect/Engineer at address listed on cover of Project Manual. Deliver electronic copies of submittals to Architect/Engineer's email address or to extranet location designated for this Project.

D. Identify each submittal item with the following information:
   1. Project Name and Location,
   2. Architect/Engineer name, address, and job number,
   3. Contractor,
   4. Subcontractor,
   5. Supplier and manufacturer,
   6. Pertinent Drawing Sheet and Detail Number, and
   7. Specification Section Number.

E. Deviations from Contract Documents, if any. Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Submittals which lack required identification information will be returned to Contractor with no action taken. No extensions in Contract time will be granted because of delays caused by Contractor's failure to follow procedure.

G. Transmit each item under AIA Form G810 or Architect/Engineer-accepted transmittal form.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

I. Upon receipt of approval, distribute print copies of approved drawings to affected trades. All affected trades shall cooperate in preparation of composite drawings to assure proper coordination.

PART 2 PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.
   1. Submit electronic submittals directly to extranet specifically established for Project.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's written recommendations.
      b. Manufacturer's product specifications.
      d. Standard color charts.
      e. Manufacturer's catalog cuts.
      f. Wiring diagrams showing factory-installed wiring.
      g. Printed performance curves.
      h. Operational range diagrams.
      i. Mill reports.
      j. Standard product operation and maintenance manuals.
      k. Compliance with specified referenced standards.
      l. Testing by recognized testing agency.
      m. Application of testing agency labels and seals.
      n. Notation of coordination requirements.
   4. Submit Product Data before or concurrent with Samples.
   5. Number of Copies: Submit electronic copies of Product Data, unless otherwise indicated. Architect/Engineer will return copies. Print and mark up and retain one returned copy as a Project Record Document.
   6. Do not submit manufacturer’s specifications or installation instructions. Installation instructions and specifications will be returned to Contractor without review.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base shop drawings on reproductions of the Contract Documents or standard printed data.
   1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
      a. Dimensions in US standard units such as feet and inches, pounds, and cubic feet per minute. Drawings that are submitted with metric measurements alone will be summarily rejected.
      b. Identification of products.
      c. Fabrication and installation drawings.
      d. Roughing-in and setting diagrams.
      e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
      f. Shopwork manufacturing instructions.
      g. Templates and patterns.
      h. Schedules.
      i. Design calculations.
      j. Compliance with specified standards.
      k. Notation of coordination requirements.

l. Notation of dimensions established by field measurement.
m. Relationship to adjoining construction clearly indicated.
n. Seal and signature of professional engineer if specified.
o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings formatted electronically on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 24 by 36 inches.
3. Number of Copies: Submit electronic copies of shop drawings, unless otherwise indicated. Architect/Engineer will return copies. Print and mark up and retain one returned copy as a Project Record Document.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of appropriate Specification Section.
3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect/Engineer will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
a. Number of Samples: Submit three sets of Samples. Architect/Engineer will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product, include unique identifier for each product
2. Number and name of room or space
3. Location within room or space
4. Number of Copies: Submit electronic copies of product schedule or list, unless otherwise indicated. Architect/Engineer will return copies.
a. Mark up and retain one returned copy as a Project Record Document.

J. Submittals Schedule: Submit electronically via pdf. Arrange the following information in a tabular format:
   1. Scheduled date for first submittal.
   2. Specification Section number and title.
   3. Submittal category (action or informational).
   4. Name of subcontractor.
   5. Description of the Work covered.
   6. Scheduled date for Architect/Engineer's final release or approval.

F. Application for Payment: Comply with requirements specified in Section 012976 - Payment Procedures.

G. Schedule of Values: Comply with requirements specified in Section 012976 - Payment Procedures.

H. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
   1. Name, address, and telephone number of entity performing subcontract or supplying products.
   2. Number and title of related Specification Section(s) covered by subcontract.
   3. Drawing number and detail references, as appropriate, covered by subcontract.
   4. Number of Copies: Submit electronic copies of subcontractor list, unless otherwise indicated. Architect/Engineer will return copies.
      a. Mark up and retain one returned copy as a Project Record Document.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.
   1. Number of Copies: Submit electronic copies of each submittal, unless otherwise indicated. Architect/Engineer will not return copies.
   2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
   3. Test and Inspection Reports: Comply with requirements specified in Section 014533.

B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

C. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

D. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

E. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

F. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

I. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

J. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   1. Name of evaluation organization
   2. Date of evaluation
   3. Time period when report is in effect
   4. Product and manufacturers' names
   5. Description of product
   6. Test procedures and results.
   7. Limitations of use

K. Schedule of Tests and Inspections: Comply with requirements specified in Section 014000 – Quality Requirements.

L. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

M. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

N. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Section 017821 - Closeout Submittals.

P. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
   1. Name, address, and telephone number of factory-authorized service representative making report.

2. Statement on condition of substrates and their acceptability for installation of product
3. Statement that products at Project site comply with requirements
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements
6. Statement of whether conditions, products, and installation will affect warranty
7. Other required items indicated in individual Specification Sections

R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

S. Material Safety Data Sheets (MSDSs): Submit information directly to Owner if specifically required by Owner; do not submit to Architect/Engineer.
1. Architect/Engineer will not review submittals that include MSDSs and will return the entire submittal for resubmittal.

T. Delegated Design
1. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
2. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect/Engineer.
3. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional. Contractor's design professional shall be licensed in the State in which the Project is located.
4. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect/Engineer.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 COORDINATION OF SUBMITTALS

A. Schedule and coordinate specified submittals and work of the various sections of Specifications to ensure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.

B. Coordinate work of various sections having interdependent responsibilities for installing, connecting to and placing in service, such equipment.

C. Coordinate requests for substitutions to ensure compatibility of space, of operating elements and effect on work of other sections.

D. In instances where submittals affect the work of more than one trade, prepare and submit composite drawings which indicate and define the work under all affected trades, and obtain Architect/Engineer approval.

E. Do not include proposed changes on shop drawings or other submittals; none will be considered approved under any circumstances. Even if a reviewed shop drawing or other submittal has deviations from the Contract Documents, a submittal is not a Change Order and will not be considered to be an approval of such change or Contract deviation.

3.3 NONCOMPLYING SUBMITTALS

A. Submittals not in compliance with this Section will be returned by Architect/Engineer to Contractor for re-submittal with appropriate deficiencies noted. Time extensions will not be allowed for returned non-complying submittals.

B. The Architect/Engineer will not review more than two submittals on any one item.

C. General: Architect/Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

D. Action Submittals: Architect/Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect/Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.

E. Informational Submittals: Architect/Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect/Engineer will forward each submittal to appropriate party.

F. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

G. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

H. “By Others”: Submittals which contain the words, “by others,” or other words which, in the sole opinion of the Architect/Engineer, by their interpretation could be taken to mean that individual components of the Work are not in contract, will be considered as non-compliant and will be returned to the Contractor without action.
   1. No delays or time extensions will be granted to the Contractor for failure to comply with this provision.
   2. The Architect/Engineer’s actions in this regard will be final and will not be subject to further review under provisions of arbitration or mediation.

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for quality assurance and quality control.

1.2 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect/Engineer for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect/Engineer for a decision before proceeding.

1.3 QUALITY CONTROL, GENERAL

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions and workmanship, to produce work of specified quality.

B. Comply with manufacturers' written instructions and recommendations, including each step-in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration and racking.

1.4 TOLERANCES

A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.5 MANUFACTURER'S FIELD SERVICE

A. When specified in respective Specification sections, require supplier or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable and to make appropriate recommendations.

B. Supplier’s or manufacturer’s representative(s) shall report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

C. Submit report in duplicate within 10 days of observation to Architect/Engineer for review.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify that existing substrate will structurally support new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for
   1. Selection of products for use in Project;
   2. Product delivery, storage, and handling;
   3. Manufacturers' standard warranties on products.
   4. Special warranties.

1.2 DEFINITIONS

A. Products: Means new material, machinery, components, equipment, fixtures and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Comply with Specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a Specification section shall be the same and shall be interchangeable.

D. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

1.3 TRANSPORTATION AND HANDLING

A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

C. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct and products are undamaged.

D. Protect building materials made of organic material or those that could absorb moisture in transit from contact with moisture and from collecting organic matter such as leaves, soil or insects.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Store products with seals and labels intact and legible. Follow manufacturer's instructions. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

D. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

E. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

F. Arrange storage to provide access for inspection. Periodically inspect to ensure products are undamaged and are maintained under required conditions.

G. After installation, provide coverings to protect products from damage from traffic and construction operations, remove when no longer needed.

1.5 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.

3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

D. Sample warranties may be required to be submitted for informational purposes.

1. The Architect/Engineer's action or inaction on such submitted sample warranties will not change the terms of the Construction Contract between the Owner and Contractor.

2. Proposed sample warranty language does not govern over the terms of the Construction Contract between the Owner and Contractor.

PART 2 PRODUCTS

2.1 GENERAL PRODUCTS EMISSIONS CRITERIA

A. Formaldehyde: No single product shall contribute more than one half (½) the OEHHA staff recommended indoor air limit of 33 µg/m3 (27 ppb) for formaldehyde. The calculated concentration of formaldehyde shall not exceed 16.5 µg/m3. Same modeling procedure as described above shall be used for formaldehyde. This concentration limit shall apply to all building and occupancy types. (Note 12).

2.2 PROHIBITED MATERIALS

A. Asbestos-containing materials.

B. Urea-formaldehyde foam insulation.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 62 32
SUBSTITUTION REQUEST FORM

Submitted: _____, ____

Contract Date: _____, ____

TO: Wold Architects & Engineers
214 Centerview Dr, Ste 300
Brentwood, TN 37027

Attention: Jim Gilliam

PROJECT:
Little Obed River Greenway, Phase 1
Pre-Engineered Bridge
City of Crossville

Specification Section No. and Title: _____ - _____

Specified Item: _____

Proposed Substitute: _____

Provide a direct, point-by-point, comparison of the *prominent, salient characteristics* of the proposed substitute against the specified item or system. Use separate sheet if necessary. *Leaving this portion blank or simply saying "None," "No differences" or the like may result in automatic rejection of proposed substitute by the Architect/Engineer.*

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

The following are attached: (__) Catalog Data; (__) Laboratory Tests; (__) Spec Data.

1. If the proposed substitute is accepted, then it will result in:
(___) No cost impact (___) A cost increase of $_____
(___) A cost decrease of $_____
(If change in cost is indicated, then provide a breakdown on an attached sheet.)

2.This Substitution will have the following effects on dimensions, gages, weights, other physical characteristics, wiring, piping, duct work and other mechanical and electrical items:
_____

3. This Substitution will have the following effects on other trades:
_____

4. The Substitution will have the following effect on construction Schedules:
_____

5. Manufacturer's warranties for the substitute(s) and the specified product(s) are (check one): (___) The Same (___) Different (if different, then explain below)
_____

6. Names, addresses and phone numbers of fabricators and suppliers for proposed substitute(s) are provided on an attached sheet, if applicable. (___) Attached (___) Not Applicable

7. The undersigned or the firm represented shall pay for additional studies, investigations, submittals, redesign and analysis by the Architect/Engineer required by this substitution request.

8. The undersigned party affirms that no financial or business relationship of any kind exists between itself and either the Owner or the Architect/Engineer; that neither the Owner nor the Architect/Engineer have ownership in whole or in part in the firm being proposed for the Architect/Engineer's consideration;

that neither the Owner nor the Architect/Engineer represent or distribute any of the proposed products; and that there is no reasonable cause for the Architect/Engineer to suspect an Apparent Conflict of Interest exists between any of these parties.
(___) No Apparent Conflicts (___) Possible Conflict of Interest (if Possible Conflict then explain on separate sheet)

When Substitutions are requested, follow applicable Contract Document requirements. After Bidding, substitutions are to be submitted only by the General Contractor and only within 30 days after date of Owner-Contractor Agreement. Do not order or install substitute products without Architect/Engineer's written acceptance.

SUBMITTED BY:

Company Name: _____
Type or print full name: _____
Telephone: (____) _____
Full address: _____
_____
Sign Here: _____

DO NOT WRITE BELOW THIS LINE.

****

REVIEWER COMMENTS

SPECIFICATION WRITER	INITIALS	DATE	CONSULTANT	INITIALS	DATE
ACCEPTED			ACCEPTED		
ACCEPTED AS NOTED			ACCEPTED AS NOTED		
REJECTED			REJECTED		

Comments:
_____
_____

For the Architect/Engineer: Accepted (____)Rejected (___)
_____ _____
(Signature)(Date)

END OF SECTION

SECTION 01 63 64
REQUEST FOR INFORMATION

Project		RFI No.	_____
TO:	Wold Architects & Engineers 214 Centerview Dr, Ste 300 Brentwood, TN 37027	Date	_____
RE:	Little Obed River Greenway, Phase 1 Pre-Engineered Bridge City of Crossville	Contract For	_____

Specification Section: _____ Paragraph: _____ Drawing Reference: _____ Detail: _____

Request:

Contractor's Suggested Resolution:

Signed by:

Architect's Response:

☐ Attachments:

Response From: Wold Architect & Engineers To: _____ Date Ret'd: _____

Signed by:

Copies: ☐ Owner ☐ Consultants ☐_____ ☐_____ ☐_____ ☐_____ ☐ File

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Substantial Completion procedures.
   2. Final Completion procedures.
   3. Warranties.
   4. Final cleaning.
   5. Repair of the Work.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
   1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
   2. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   4. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
   5. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
   6. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
   7. Complete startup testing of systems.
   8. Submit test/adjust/balance records.
   9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   10. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
   11. Complete final cleaning requirements, including touchup painting.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
   1. Submit a final Application for Payment per Division 01 Section "Payment Procedures."

2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 REINSPECTION FEES

A. Should status of completion of Work require reinspection by Architect/Engineer because of failure of Work to comply with Contractor's claims on initial inspection, Owner will deduct the amount of Architect/Engineer compensation for reinspection services from final payment to Contractor.

B. The Architect/Engineer will make only one inspection to decide Substantial Completion. If as a result of this inspection the Architect/Engineer determines that the Work is not substantially complete, either because of major items not completed, an excessive number of punch list items, successive inspections requested by the Contractor, the Contractor will be charged at a rate of $1,000.00 per person per half day. The Owner will withhold such compensation and expense from the next Payment due the Contractor and pay such amount to the Architect/Engineer. The Contract Amount shall be reduced by such amount.

C. The Architect/Engineer will make only one inspection to decide Final Completion. If as a result of this inspection the Architect/Engineer determines that the Work is not finally complete, the Contractor will be charged at a rate of $2,000.00 per person per day. The Owner will withhold such compensation and expense from the next Payment due the Contractor and pay such amount to the Architect/Engineer. The Contract Amount shall be reduced by such amount.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit electronic copies of list (pdfs). Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

1.6 SUBMITTAL OF PROJECT WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
   1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
   2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
   1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
      a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances. Remove tree tags.
      b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
      c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
      d. Remove tools, construction equipment, machinery, and surplus material from Project site.
      e. Remove snow and ice to provide safe access to building.
      f. Clean exposed exterior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
   1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
   2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
   3. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
   4. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
   5. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION

SECTION 01 78 21
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Closeout submittals.
B. Project record documents.
C. Operating and Maintenance Data Binders.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

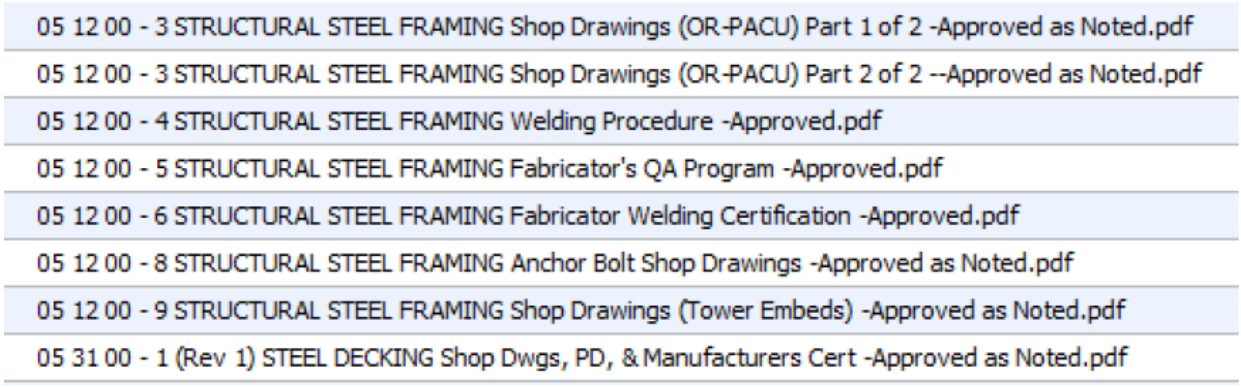
3.1 CLOSEOUT SUBMITTALS

A. Prior to release of retainage submit the following:
   1. Evidence of Compliance with Requirements of Governing Authorities.
      a. Certificate of Occupancy.
      b. Certificates of Inspection required for electrical systems.
   2. Project Record Documents.
   3. Operation and Maintenance Data.
   4. Warranties and Bonds.
   5. Evidence of Payment and Release of Liens following Conditions of the Contract - AIA Document G706A. A Release of Liens from each major subcontractor and supplier shall be attached to this document. The Contractor, at his (or her) option, may provide a bond in the amount of monies owed to subcontractors and suppliers for retainage. Each subcontractor and supplier shall confirm the amount owed by affidavit attached to the bond.
   6. Consent of Surety to Final Payment - AIA Document G707.
   7. Affidavit of Payment of Debts and Claims - AIA Document G706.
   8. Certificates of Insurance for Products and Completed Operations: Follow Supplementary Conditions.
   9. Project Contact List.

B. In addition to hard copies of required information, submit required information in PDF format, on a CD or series of CD’s with the following folder structure:
   1. 01 Record Drawings
   2. 02 Project Contact List
   3. 03 Warranties and Lien Waivers
   4. 04 Permits, Letters of Completion, and AHJ Approval Documents
   5. 05 Approved Submittals and Shop Drawings
   6. 06 O&M Manuals

C. Organize folders for 05 Approved Submittals and Shop Drawings and 06 O&M Manuals into sub-folders broken down by CSI division to which they pertain.

D. Organize electronic files for 05 Approved Submittals per item. Name files by Specification Section number, Submittal Number, and Description. The following is a screen shot of a typical organizational structure:



E. Zip files are not permitted.

3.2 PROJECT RECORD DOCUMENTS

A. In addition to requirements in Agreement, maintain at the site for Owner one record copy of:
1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed shop drawings, product data and samples.
6. Field test records.
7. Inspection certificates.
8. Manufacturer's certificates.
9. Progress Schedule

B. Store Record Documents and Samples in Field Office apart from documents used for construction. Provide files, racks and secure storage for Record Documents and Samples.

C. Label and file Record Documents and Samples. Follow number listings in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

D. Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.

E. Keep Record Documents and Samples available for inspection by Architect/Engineer.

3.3 RECORDING OF PROJECT RECORD DOCUMENTS

A. Promptly following Notice to Proceed, print and pay for one complete set of opaque drawings and a copy of the Project Manual comprising Contract Documents.

B. Record information on opaque drawings and in Project Manual.

C. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.

D. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.

E. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
   1. Measured depths of elements of foundation in relation to finish first floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
   4. Field changes of dimension and detail.
   5. Changes made by Modifications.
   6. Details not on original Contract Drawings.
   7. References to related shop drawings and Modifications.

F. Project Manual: Legibly mark each item to record actual construction, including:
   1. Manufacturer, trade name and catalog number of each product actually installed, particularly optional items and substitute items.
   2. Changes made by Addenda and Modifications.
   3. Submit Project Manual digitally in PDF files with indicated PDF file naming convention. Submit Project Manual as one PDF file with each specification book marked.
   4. PDF file naming convention shall be as follows: BLDG# - ARCHITECT PROJECT # - Spec Section Number and Description - PM.PDF.

G. Other Documents: Maintain manufacturer's certifications, inspection certifications, field test records, required by individual Specifications.

3.4 OPERATIONAL AND MAINTENANCE DATA

A. Provide data in the form of 2 instructional manuals and on two CD’s in Adobe PDF format. Operations and Maintenance Manuals files shall be submitted as one file with each C.S.I. division tabbed or book-marked.
   1. PDF naming convention shall be as follows: BLDG# - ARCHITECT PROJECT # - Spec Section Number and Description - OM.PDF.
   2. Provide one (1) set of disks prior to Substantial Completion. O&M disk(s) and case(s) shall be labeled: O&M Manual, Certificate of Substantial Completion date, official project name, official project number, and disk number. For example:
      O&M Manuals
      Certificate of Substantial Completion Date

B. Submit Operations and Maintenance Manuals prior to Substantial Completion, bound in 8-1/2 x 11 inch three ring side binders with durable plastic covers with typed or printed title, "OPERATION AND MAINTENANCE INSTRUCTIONS", list title of Project and identify subject matter.

C. Provide a separate volume for each system, with a table of contents and index tabs for each volume.

D. Title Sheet and Inside Cover: Project title, Owner name and address, date of submittal, Contractor’s name and address.

E. Table of Contents: Provide listing of all O&M components.

F. Part 1: Directory, listing names, addresses and telephone numbers of: Architect/Engineer and Contractor and all subcontractors and suppliers

G. Part 2: Operation and maintenance instructions, arranged by system. For each system, give written description of each system, where each system is located in building, and how each part functions separately and in the system as a whole. Include names, addresses and telephone numbers of subcontractors and suppliers. List procurement information with numbers and a description for each piece of equipment including:
   1. Appropriate design criteria.
   2. List of equipment.
   3. Parts list.
   4. Operating instructions.
   5. Maintenance instructions, equipment.
   6. Maintenance instructions, finishes.
   7. Shop drawings and product data.
   8. Warranties.
   9. Drawings folded to fit binder.
   10. Complete start up, operation, and shutdown procedures for each system including sequence of events, locations of switches, emergency procedures, and all other critical items.
   11. Lubrication schedules and types of lubricants.

END OF SECTION

SECTION 32 34 00
PRE-ENGINEERED BRIDGES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fully engineered, weathered steel, half through truss (no overhead bracing) bridge of steel construction and shall be regarded as minimum standards for design and fabrication. The work included under this item shall consist of design, fabricating, finishing and transporting the steel truss bridge superstructure including bearings and concrete bridge abutments. Abutments shall provide for approach slab to bear on the abutment.

1.2 PREINSTALLATION MEETINGS

A. Convene a preinstallation meeting 60 days prior to commencing work of this Section for the City's general contractor installing the bridge and abutments.

B. Require attendance of parties directly affecting work of this Section including subcontractor responsible for construction of bridge abutments and bridge manufacturer's representative. Review conditions of installation, installation procedures and coordination with related work.

C. Record, type minutes of the meeting, print and distribute them to all parties concerned within 5 days of the meeting. Transmit one copy of the minutes to meeting participants, Owner, and Designer for information purposes:

1.3 ACTION SUBMITTALS

A. Submit shop drawings and product data per Section 013300.

B. Submittal drawings shall be unique drawings, prepared to illustrate the specific portion of the work to be done. Indicate profiles, sizes, spacing and locations of structural members, connections, attachments, fasteners, cambers and loads. Indicate framing anchor bolt settings, sizes and locations and support loads.
   1. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.
   2. Indicate decking plan, deck profile dimensions, supports, projections, openings, finish, pertinent details and accessories
   3. Indicate concrete bridge abutment design, 2 each.
   4. Prepare shop drawings under seal of a Professional Structural Engineer registered in State of Tennessee

C. Product Data: Provide data on profiles, component dimensions and fasteners. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of the following bridge system components:
   1. Structural-framing system
   2. Paints
   3. Accessories

1.4 INFORMATIONAL SUBMITTALS

A. Delegated-Design Submittal: Provide structural calculations. Indicate profiles, sizes, spacing and locations of structural members, connections, attachments, trim, openings, fasteners, cambers, loads, and accessory items. Submit calculations bearing the seal of a professional structural engineer licensed in the State in which the Project is located.
   1. Indicate bridge system dimensions, panel layout, general construction details, anchorages and method of anchorage and method of installation.
   2. Indicate framing anchor bolt settings, sizes and locations and support loads.
   3. Indicate compliance with applicable seismic design criteria.
   4. Do not use the Drawings prepared by the Designer for installation drawings.
   5. All AISC allowable stress checks for axial, bending and shear forces in critical member of each truss member type (i.e. top chord, bottom chord, floor beam, vertical, etc.).
   6. Checks for critical connection failure modes for each truss member type (i.e. vertical, diagonal, floor beam, etc.). Special attention shall be given to all welded tube on tube connections.
   7. Main truss deflection checks.
   8. U-Frame stiffness checks (used to determine K factors for out-of-plane buckling of the top chord) for all half through or "pony" truss bridges.
   9. Deck design.

B. Fabricator and installer qualifications.

C. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:
   1. Cementitious materials
   2. Steel reinforcement and reinforcement accessories
   3. Fiber reinforcement
   4. Admixtures
   5. Bonding agent or epoxy adhesive
   6. Joint fillers

D. Source quality control test reports.

E. Field quality control reports.

F. Pre-Installation meeting minutes.

1.5 CLOSEOUT SUBMITTALS

A. Submit record documents.

1.6 QUALITY ASSURANCE

A. Bridge Manufacturer Qualifications: Company specializing in bridges of a similar nature with 5 years' experience, have an up to date quality certification by AISC. All suppliers shall fabricate their product utilizing a modern fabrication facility owned and operated by the Bridge Manufacturer that includes the use of CNC beam drilling machines, no brokers are allowed

B. Installer Qualifications: Company specializing in installation of a similar nature with 5 years' experience.

C. Steel Fabricator: Certified by American Institute of Steel Construction Fabrication Certification Program, for the category "Major Steel Bridges."
   1. Fabricator lacking AISC certification may present evidence prepared by independent laboratory indicating fabrication procedures used follow these Specifications.

2. For painted structures, fabricator shall hold a "Sophisticated Paint Endorsement" as set forth in the AISC certification program.

D. Welders, Tackers and Welding Operators: Qualified within past year to perform work required per Code for Welding in Building Construction, AWS D1.1. Retesting is required for certifications that are 12 months old or older. Be responsible for costs in connection with operator certification.

E. All welded tubular connections shall be checked, when within applicable limits, for the limiting failure modes outlined in the ANSI/AWS D1.1 Structural Welding Code or in accordance with the "Design Guide for Hollow Structural Section Connections" as published by the Canadian Institute of Steel Construction (CISC).

F. Design bridge and concrete end bearing structure under direct supervision of Professional engineer registered in Tennessee, experienced in design of similar bridges.

G. Concrete Decking Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

H. ACI Publications: Follow ACI 301 and ACI 302.

I. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

1.7 REGULATORY REQUIREMENTS

A. Conform to applicable federal, state and local codes for fabrication and installation of bridges.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site per Section 016000.

B. Store bridge and related components on wood sleepers with slope for positive drainage.

1.9 WARRANTY

A. Provide a warranty against defects in material and workmanship for a period of ten years.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. “Contech, Continential Bridge – Link Pedestrian,” Contech Engineered Solutions, LLC., West Chester, OH, www.contechES.com.

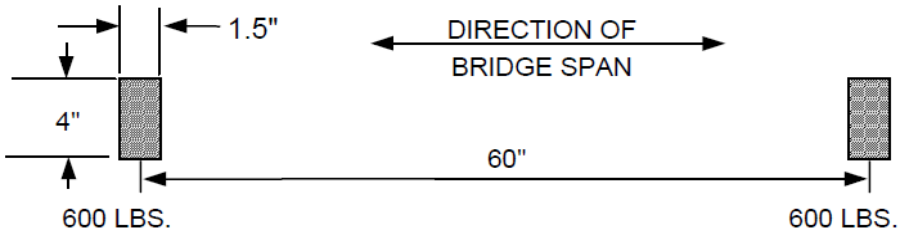
B. Substitutions: Follow 012500.

2.2 PERFORMANCE REQUIREMENTS

A. Bridge shall be designed in compliance with the AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges, 2009 (*AASHTO Ped*). Calculations shall be in accordance with this

document, and formulas shall reference the appropriate sections. Provide bridge which meets the following load criteria:

1. Live Load: 90 lbs per square foot of bridge walkway area; with no reduction allowed.
2. Concentrated Load: 1000 lbs per foot of width with an additional 30% for impact loads or 1000 pounds placed on any area 2.5 ft x 2.5 ft square whichever is greater.
3. Wind Load:
   a) Horizontal forces: 30 pounds per square foot, on the full vertical projected area of the bridge as if enclosed; enough to withstand a 100-mph wind. Wind load shall be applied horizontally at right angles to structure's longitudinal axis. Wind loading shall be considered both in design of lateral load bracing system and in design of truss vertical members, floor beams and their connections.
   b) Overturning forces: Calculate effect of forces tending to overturn structures assuming that wind direction is at right angles to longitudinal axis of structure. In addition, an upward force shall be applied at windward quarter point of transverse superstructure width. This force shall be 20 pounds per square foot of deck.
4. A 1200-pound two-wheel vehicle with a wheelbase and tire print area as shown in the following diagram:



B. Deflection:
   1. Vertical deflection of bridge due to pedestrian live load shall not exceed 1/400 of span length. Load used for deflection check shall be a minimum of 500 pounds per lineal foot of bridge.
   2. Horizontal deflection due to lateral wind load shall not exceed 1/500 of span length.

C. Design bridge per stresses in current AISC manual. Design tubular members and their connections per the AISC "Hollow Structural Sections Connections Manual" latest edition.

D. Perform welding with certified welders; conform to AWS D1.1 standard.

E. Design bridge to allow vertical camber at midspan of 1" per 10'-0" of length or camber dimension equal to 100% of full dead load deflection plus 1% of full length of bridge to promote surface drainage.

F. Bridge shall be designed to accommodate a temperature differential of 120 degrees Fahrenheit. Slip pads of UHMW polyethylene shall be placed between smooth surface of this setting plate and smooth bearing plate of bridge. Provide 1" minimum clearance between bridge and concrete abutments.

G. Bridge span shall be 70'-0" (straight line dimension) and shall be as measured from each end of the bridge structure.

H. Bridge width shall be 10'-0" and shall be as measured from the inside face of structural elements at deck level.

I. Bridge(s) shall be designed utilizing an underhung floor beam (top of floor beam welded to bottom of bottom chord) or be designed utilizing an H-Section configuration where floor beams are placed up inside trusses and attached to truss verticals.

J. In addition to requirements indicated handrail assembly and attachments shall resist the following without damage or permanent set:

1. A concentrated load of 250 pounds at any point and in any direction.
2. A uniformly distributed load of 50 pounds per lineal foot (plf) applied in any direction.

L. In addition to requirements indicated guardrail assembly and attachments shall resist the following without damage or permanent set:
1. A concentrated load of 250 pounds at any point and in any direction at the top of the guardrail.
2. A uniformly distributed load of 50 plf applied horizontally at the required guardrail height and a simultaneous load of 100 plf applied vertically downward at the top of the guardrail.
3. A 250-pound concentrated horizontal load applied on a one foot square area at any point in the system including intermediate rails or other elements serving this purpose.

M. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
1. Aluminum: The lesser of minimum yield strength divided by 1.65 or minimum ultimate tensile strength divided by 1.95.
2. Stainless Steel: 60 percent of minimum yield strength.
3. Steel: 72 percent of minimum yield strength.

N. Top Chord Stability
1. Top chords shall be considered as a column with elastic lateral supports at panel points.
2. For uniformly loaded bridges, vertical truss members, floor beams and their connections (transverse frames) shall be proportioned to resist a lateral force of not less than 1/100k times top chord compressive load, but not less than 0.004 times that top chord load, applied at top chord panel points of each truss.
3. Bending forces in transverse frames, as determined above, act in conjunction with forces produced by actual bridge loads as determined by an appropriate analysis which assumes that floor beams are “fixed” to trusses at each end.

O. Ensure that ramped or sloped bridge surfaces are no longer than 30 feet, no steeper than 8.33% with a cross slope (perpendicular to path of travel) is no greater than 2%.

2.3 MATERIALS

A. Structural Steel Members: Minimum yield (Fy) shall be greater than 50,000 psi; ASTM A36, for painted bridges; minimum 3/16 -inch-thick.

B. Channels, M, S-Shapes: ASTM A 572/A 572M, Grade 50 (345).

C. Angles, Plate and Bar: ASTM A 36/A 36M unless indicated otherwise.

D. Welding Electrodes: Comply with AWS requirements for E70XX.

E. Sheet Steel: ASTM A653 Structural Quality Grade 50 Class 1 structural quality; with G90 galvanized coating.

F. Decking: Galvanized composite floor deck, 22 gauge; G90; manufactured by a member of Steel Deck Institute or have its deck properties certified by Steel Deck Institute.

G. Concrete: ASTM C150 Air Entraining-Type IA, Portland type, gray color, 4000 psi, reinforced.
1. Air Entrainment: 5 to 8 percent.
2. Slump Range: 8 inches for concrete with Type A admixture; 3 inches for other concrete.
3. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.

H. Reinforcing Steel: ASTM A615; 60 ksi yield grade; deformed billet steel bars, unfinished.

I. Welded Steel Wire Fabric: Plain type, ASTM A1064/A1064M; in flat sheets or coiled rolls; unfinished.

J. Tie Wire: Annealed steel, minimum 16 gage size.

K. Bolts, Nuts and Washers: ASTM A325; ASTM A563, heavy hex steel nuts; and ASTM F436, hardened washers; galvanized to ASTM A153. Use bearing-type bolts with thread allowed across the shear plane.

L. Welding Materials: AWS D1.1; type required for materials being welded.

M. Primer for Steel Surfaces: Polyamide epoxy, 56% solids minimum; 4.0 mils minimum DFT.

N. Intermediate Coat for Steel Surfaces: Polyamide epoxy, 54% solids minimum, 4.0 mils minimum DFT.

O. Top Coat for Steel Surfaces: Aliphatic acrylic polyurethane, semi-gloss, 56% solids minimum, 4.0 mils minimum DFT.

P. Touch up Primer for Galvanized Surfaces: Organic zinc rich primer; green or reddish-grey; lead and chromate free; 45% solids by volume minimum; 82% minimum metallic zinc content by weight in dry applied film; 3.49 maximum lbs/gal VOC.

Q. Provide signs at both ends of bridge, indicating load-bearing capacity. Also include verbiage indicating only authorized vehicles may cross bridge. Submit sign working to Architect before fabrication.

2.4 FABRICATION

A. Fabricate structural steel per AISC specification.

B. Fabricate steel sheet per SDI manual.

C. Verify dimensions on site prior to shop fabrication.

D. Fabricate items with joints tightly fitted and seamed.

E. Fit and shop assemble in largest practical sections, for delivery to site.

F. Grind exposed welds flush and smooth with adjacent finished surface. Ease exposed edges to small uniform radius.

G. Make exposed joints butt tight, flush and hairline.

H. Supply components required for anchorage of metal fabrications. Fabricate anchorage and related components of same material and finish as metal fabrication, except where specifically noted otherwise.

I. Railings: All railings shall have a smooth inside surface with no protrusions or depressions. All ends of angles and tubes shall be closed and ground smooth. Provide railings a minimum of 54" above floor deck.

J. Safety Rails: Continuous rails shall be located on inside of trusses; 3’-6” above finish deck. Rails shall be vertical picket rails with a maximum opening of 4 inches.

K. Toe Plate: Provide a 5" steel channel 2" above floor deck; 5’-8” maximum span.

L. Fabricate members of the vertical trusses (top and bottom chords, verticals, and diagonals) from square and/or rectangular structural steel tubing. Fabricate other structural members and bracing from structural steel shapes or square and rectangular structural steel tubing.

M. Unless floor and fastenings are designed specifically to provide adequate lateral support to top flange of open shape stringers (w-shapes or channels), provide a minimum of one stiffener in each stringer at every floor beam location.

N. Tubular joints shall be plain unstiffened joints (made without using reinforcing plates) except as follows:
   1. Floor beams hung beneath structure's lower chord may be constructed with or without stiffener (or gusset) plates, as required by design.
   2. Floor beams which frame directly into truss verticals (H-Section bridges) may be designed with or without end stiffening plates as required by design.
   3. Where chords, end floor beams and in high profiles top end struts weld to end verticals, end verticals (or connections) may require stiffening to transfer forces from these members into end verticals.
   4. Truss vertical to chord connections.

O. When collection of water inside a structural tube is a possibility, either during construction or during service, provide tube with a drain hole at its lowest point to let water out.

P. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete per ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.
   1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

2.5 FINISHING

A. Break sharp edges, such as those created by flame cutting and shearing, prior to surface preparation. Remove weld spatter and hackle heads. Repair surface defects. Round corners of oxygen-cut and sheared edges. Test faying surfaces of slip-critical bolted connections.

B. For corrosion resistant high-strength low-alloy (weathering) steel no surface finish treatment is necessary. All exposed surfaces of structural steel to be cleaned in accordance with Steel Structures Painting Council Surface Preparation Specifications No. 7, SSPC -SP7 brush-off blast cleaning. Exposed surfaces of steel shall be defined as those surfaces seen from the deck or from the outside and bottom of the structure. All other surfaces to have standard mill finish. The steel will be allowed to form a protective weathering patina over time.

C. Clean, prepare and shop prime one coat steel members. Do not shop prime surfaces in direct contact bond with concrete or where field welding is applied.

2.6 SOURCE QUALITY CONTROL

A. Special inspection and testing shall be done; refer to Section 014000 and Section 014533.
   1. Special inspections will not be required if fabrication is performed by a manufacturer registered and approved by authorities having jurisdiction to perform such Work without special inspection.
   2. After fabrication, submit certificate of compliance with copy to authorities having jurisdiction certifying that Work was performed per Contract requirements.

B. Tests and Inspections:
   1. Bolted Connections: Shop-bolted connections shall be tested and inspected per RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
   2. Welded Connections: In addition to visual inspection, shop-welded connections shall be tested and inspected per AWS D1.1 and the following inspection procedures, at inspector's option:
      a. Liquid Penetrant Inspection: ASTM E 165.
      b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.

c. Ultrasonic Inspection: ASTM E 164.
d. Radiographic Inspection: ASTM E 94.

C. Correct deficiencies in Work that test reports and inspections indicate do not comply with the Contract Documents.

PART 3 EXECUTION

3.1 EXAMINATION

A. Ensure bridge abutments have been constructed at same elevation on both ends of bridge.

B. Proceeding with bridge erection shall mean acceptance of existing conditions.

3.2 ERECTION

A. Erect structural steel per AISC Specification.

B. Make provision for erection loads and for sufficient temporary bracing to maintain structure safe, plumb and in true alignment until completion of erection and installation of permanent bracing.

C. Do not field cut or alter structural members without approval of Designer.

D. After steel erection, prime welds, abrasions and surfaces not shop primed or galvanized except surfaces to be in contact with concrete and surfaces of "weathered" steel. Use primer consistent with shop coat and as recommended for galvanized surfaces.

E. Erect metal decking per SDI Design Manual. On steel supports members provide 3 inch minimum bearing. Align and level on supports. Mechanically fasten male/female side laps at 24 inches on center maximum. Weld male/female side lap at 18 inches on center maximum. Verify male/female joint is nested prior to fastening. Install sheet steel strip closures at deck edge upturned to thickness of slab to contain wet concrete. Provide closures of sufficient strength to remain in place without distortion.

F. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement of decking concrete. Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete.

G. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
1. Hot Weather Placement: Comply with ACI 305.
2. Cold Weather Placement: Comply with ACI 306.

H. Decking Finish: Light broom.

I. Concrete Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12-inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.3 FIELD FINISHING

A. Comply with field application procedures as recommended by manufacturer.

3.4 FIELD QUALITY CONTROL – BY CITY'S GENERAL CONTRACTOR

A. Special inspection and testing shall be done per Section 014000.

B. Testing agency shall perform the same testing on concrete as indicated in Section 030500.

C. Tests and Inspections, Steel Components:
   1. High-Strength, Field-Bolted Connections: Connections shall be tested and inspected during installation per RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
   2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected per AWS D1.1 and the following inspection procedures, at inspector's option:
      a. Liquid Penetrant Inspection: ASTM E 165.
      b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
      c. Ultrasonic Inspection: ASTM E 164.
      d. Radiographic Inspection: ASTM E 94.

D. Correct deficiencies in Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION

ATTACHMENT

PUBLIC NOTICE

TITLE VI OF THE 1964 CIVIL RIGHTS ACT

"No person in the United States shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

The City of Crossville provides benefits and services such as police protection, fire protection, water service, sewer service, sanitation service, infrastructure needs, and other related municipal services. The City also provides funds to certain non-profit organizations.

Anyone who believes that an agency or local government receiving the federal funding mentioned above has discriminated against someone on the basis of race, color or national origin has a right to file a complaint within 180 days of the alleged discrimination.

Leah Crockett, Human Resources Administrator
Title VI Coordinator

Please sign and return to the City of Crossville verifying that your company is in compliance with the above Title VI, 1964 Civil Rights Act.

_____ _____
Authorized Signature Company

_____
Print Name

Please return to: City of Crossville
392 N. Main St.
Crossville, TN 38555

~

IRAN DIVESTMENT ACT

In compliance with the Iran Divestment Act (State of Tennessee 2016, Public Chapter No. 817), which became effective on July 1, 2016, certification is required of all bidders on contracts over $1,000.

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 hereto 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 T.C.A. § 12-12-106.

I affirm, under the penalties of perjury, this statement to be true and correct.

_____ _____

Date Signature of Bidder

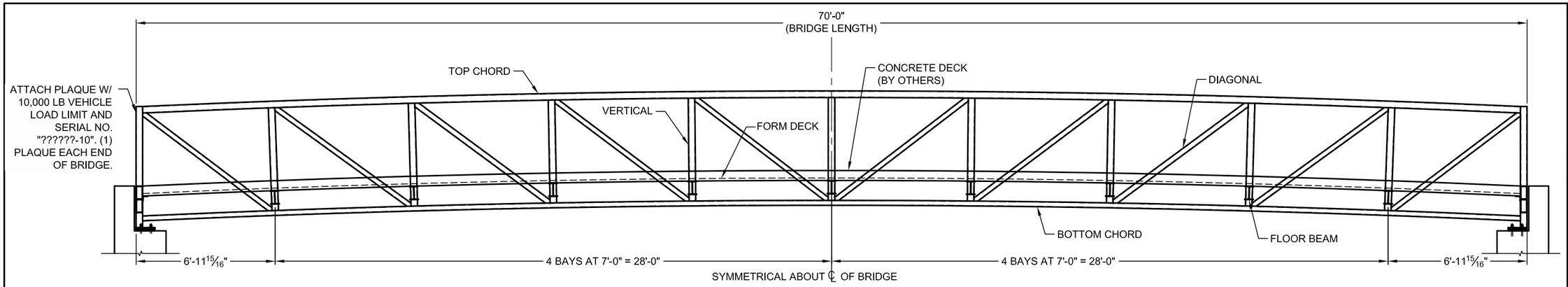
_____

Company

A bid shall not be considered for award nor shall any award be made where the foregoing certification has not been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. The City of Crossville may award a bid to a bidder who cannot make the certification, on a case-by-case basis, if:

(1) The investment activities in Iran were made before July 1, 2016, the investment activities in Iran have not been expanded or renewed on or after July 1, 2016, and the person has adopted, publicized, and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or

(2) The City of Crossville makes a determination that the goods or services are necessary for the City of Crossville to perform its functions and that, absent such an exemption, the political subdivision will be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.



BRIDGE ELEVATION

GENERAL NOTES

1. DESIGN STRESSES ARE IN ACCORDANCE WITH "STANDARD SPECIFICATION FOR HIGHWAY BRIDGES" & "GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES" BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2009.

2. BRIDGE MEMBERS ARE FABRICATED FROM HIGH STRENGTH, LOW ALLOY, ENHANCED ATMOSPHERIC CORROSION RESISTANT ASTM A847 COLD-FORMED WELDED SQUARE AND RECTANGULAR TUBING, AND ASTM A588, ASTM A606, OR ASTM A242 PLATE AND STRUCTURAL SHAPES (Fy=50,000 PSI).

3. CONCRETE DECK: GALVANIZED FORM DECK SUPPLIED BY CONTECH. CONCRETE, REINFORCING, AND EXPANSION MATERIAL SUPPLIED BY OTHERS. SEE CONCRETE DECK SHEET.

4. THE GAS METAL ARC WELDING PROCESS OR FLUX CORED ARC WELDING PROCESS WILL BE USED. WELDING TO BE IN ACCORDANCE WITH AWS D1.1.

5. ALL TOP AND BOTTOM CHORD SHOP SPLICES TO BE COMPLETE PENETRATION TYPE WELDS. WELD BETWEEN TOP CHORD AND END VERTICAL SHALL BE AS DETAILED.

6. UNLESS OTHERWISE NOTED, WELDED CONNECTIONS SHALL BE FILLET WELDS (OR HAVE THE EFFECTIVE THROAT OF A FILLET WELD) OF A SIZE EQUAL TO THE THICKNESS OF THE LIGHTEST GAGE MEMBER IN THE CONNECTION. WELDS SHALL BE APPLIED AS FOLLOWS:

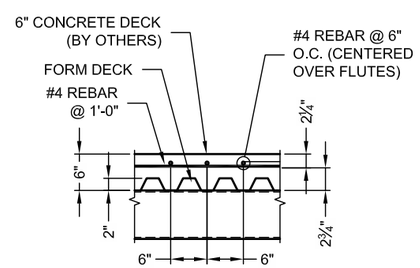
   A. BOTH ENDS OF VERTICALS, DIAGONALS, AND FLOOR BEAMS SHALL BE WELDED ALL AROUND.
   B. BRACE DIAGONALS WILL BE WELDED ALL AROUND.
   C. MISCELLANEOUS NON-STRUCTURAL MEMBERS WILL BE STITCH WELDED TO THEIR SUPPORTING MEMBERS.

7. BRIDGE DESIGN WAS ONLY BASED ON COMBINATIONS OF THE FOLLOWING LOADS WHICH WILL PRODUCE MAXIMUM CRITICAL MEMBER STRESSES.

   A. 90 PSF UNIFORM LIVE LOADING ON THE FULL DECK AREA OR ONE 10,000 LB VEHICLE LOAD. THE LOAD SHALL BE DISTRIBUTED AS A FOUR-WHEEL VEHICLE WITH 80% OF THE LOAD ON THE REAR WHEELS. THE WHEEL TRACK WIDTH OF THE VEHICLE SHALL BE 6'-0" AND THE WHEEL BASE SHALL BE 10'-0". THE VEHICLE SHALL BE POSITIONED SO AS TO PRODUCE THE MAXIMUM STRESSES IN EACH MEMBER, INCLUDING DECKING.
   B. 35 PSF WIND LOAD ON THE FULL HEIGHT OF THE BRIDGE, AS IF ENCLOSED.
   C. 20 PSF UPWARD FORCE APPLIED AT THE WINDWARD QUARTER POINT OF THE TRANVERSE BRIDGE WIDTH (AASHTO 3.15.3).

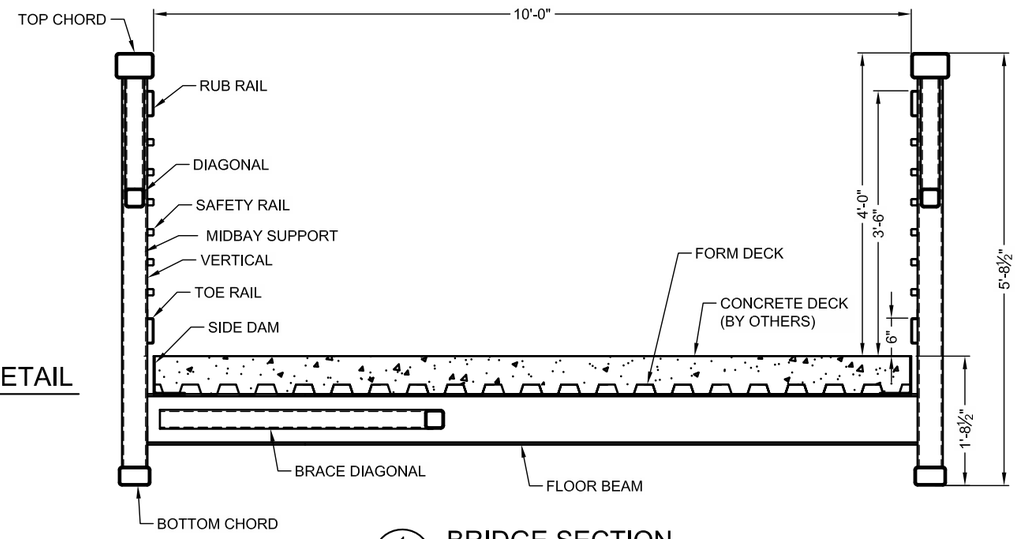
8. CLEANING: ALL EXPOSED SURFACES OF STEEL SHALL BE CLEANED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL SURFACES PREPARATION SPECIFICATIONS NO. 7 BRUSH-OFF BLAST CLEANING. SSPC-SP7-LATEST EDITION.

9. MINIMUM MATERIAL THICKNESS OF 1/4" ON ALL STRUCTURAL MEMBERS.



2/1 TYP SLAB REINFORCEMENT DETAIL

f'c = 4,000 PSI (MINIMUM 28 DAY STRENGTH)
GRADE 60 REINFORCING (fy = 60,000 PSI)



1/1 BRIDGE SECTION

COMBINE REACTIONS AS PER LOCAL OR GOVERNING BUILDING CODES AS REQUIRED

BRIDGE REACTIONS		P (LBS)	H (LBS)	L (LBS)
				+ DOWNWARD LOAD - UPWARD LOAD
DEAD LOAD	②	14,750		
UNIFORM LIVE LOAD		15,750		
VEHICLE LOAD		5,000		
WIND UPLIFT 20 PSF	WINDWARD	-5,690		
	LEEWARD	-1,897		
WIND		±2,565	7,405	
THERMAL	②			2,215

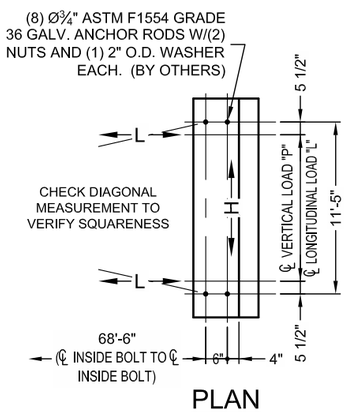
"P" - VERTICAL LOAD EACH BASE PLATE (4 PER BRIDGE)
"H" - HORIZONTAL LOAD EACH FOOTING (2 PER BRIDGE)
"L" - LONGITUDINAL LOAD EACH BASE PLATE (4 PER BRIDGE)

① BRIDGE LIFTING WEIGHT: 16,300 LBS

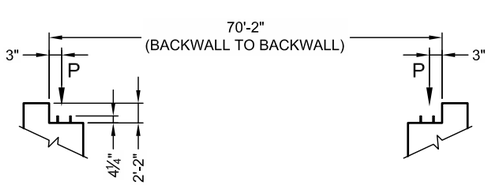
② BRIDGE FINAL WEIGHT: 59,000 LBS

① DOES NOT INCLUDE WEIGHT OF CONCRETE DECK

② INCLUDES WEIGHT OF CONCRETE DECK



PLAN



ANCHOR BOLT ELEVATION

CONTECH
PROPOSAL
DRAWING

AISC CERTIFIED FABRICATOR

MARK	DATE	REVISION DESCRIPTION	BY

70'-0" x 10'-0"
AASHTO EXPRESS
PEDESTRIAN BRIDGE
STANDARD CONCRETE DECK

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
8301 State Highway 29 North, Alexandria, MN 56308
800-328-2047 320-852-7500 320-852-7067 FAX

EXPRESS

DATE: 9/2/2015

DESIGNED:	DRAWN:
XXX	XXX
CHECKED:	APPROVED:
XXX	XXX
PROJECT No.:	SEQUENCE No.:
	XXX

SHEET: 1 OF 1