THE COUNTY OF GALVESTON

RUFUS G. CROWDER, CPPO, CPPB
PURCHASING AGENT

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ASST. PURCHASING AGENT

COUNTY COURTHOUSE
722 Moody (21st Street)
Fifth (5th) Floor
GALVESTON, TEXAS 77550

November 3, 2020

PROJECT NAME: Carbide Park Pedestrian Bridge

SOLICITATION NO: B201046

RE: ADDENDUM #1

To All Prospective Bidders:

The following information is being provided to aid in preparation of your bid submittal(s):

Architects clarification: The ramps indicated in the plan provide the length necessary to gain the needed elevation. The actual configuration must meet existing trail conditions.

Question #1: Will the County be providing the Bridge Components or will the contractor be required to supply them?

Response: Contractor to supply all components.

Question #2: Is there a specific bid form and bond forms to be used for this project, or will you accept a proposal on contractor letterhead?

Response: The Bid Form and Bond forms are included in the Project Manual.

See General Provisions – Invitation to Bid item 38 Bid Guarantee for requirements and Special Provisions Item C.

Question #3: We have some questions about the discrepancies between the written specs and the drawings. The specifications look like they were taken from another project since the bridge length does not match the plans.

- ***Specs calls out a 120" bridge and the plans call out a 60" span***
- ***Specs call out a Connector bridge and the plans show a Capstone model***
- ***Specs call out an under-hung floor bean configuration and the plans show an H-section***
- ***Specs call out vertical picket safety rails and the plans show horizontal safety rails***
- ***Specs call out 85psf live loading and the plans call out 100psf live loading***

Response: The Specifications have been revised to reflect the 60'-0" span, Connector truss model, H section, Horizontal safety rails, and 100 lbs/ft live loading.
Revised Specification 028900 attached to this addendum.

Question #4: ***Do you have an original digital file of the drawings for the Carbide Park Pedestrian Bridge project? The drawings included in the publication on the county website aren't legible.***

Response: The full-sized digital plans are available at Galveston Blueprint, 1419 23rd Street, Galveston Texas 77550, (409) 763-1661. galvestoncountyblueprint.com

As a reminder, all questions regarding this bid must be submitted in writing to:

Rufus G. Crowder, CPPO CPPB
Galveston County Purchasing Agent
722 Moody, Fifth (5th) Floor
Galveston, Texas 77550
E-mail: purchasing.bids@co.galveston.tx.us

If you have any further questions regarding this bid, please address them to Rufus Crowder, CPPO CPPB, Purchasing Agent, via e-mail at purchasing.bids@co.galveston.tx.us, or contact the Purchasing Department at (409) 770-5371.

Please excuse us for any inconvenience that this may have caused.

Sincerely,

Rufus Crowder

Rufus G. Crowder, CPPO CPPB
Purchasing Agent
Galveston County

SECTION 028900

PREFABRICATED BRIDGE

PART 1 - GENERAL

1.1 SCOPE

A. This specification is for a fully engineered clear span bridge of steel construction and shall be regarded as minimum standards for design and construction. These specifications as well as the design of the bridge substructure are based on products designed and manufactured by Continental Bridge, 8301 State Highway 29 North, Alexandria, MN 56308. Phone 1-800-328-2047.

1.2 MANUFACTURER

A. The inclusion of this guide specification in the Contract Documents is not to preclude in any way the submission by the Contractor of a substitution bridge by another manufacturer. However, any proposed substitution must meet or exceed the design intent and performance requirements contained herein and be submitted to the Architect in accordance with Section 01631 – Substitutions and shall address the items identified in Part 13 of this specification. In addition, the cost associated with the redesign of the bridge's substructure due to acceptance of a Contractor's substitution shall be borne by the Contractor.

1.3 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the unit price Schedule.

1.4 SUBMITTALS

A. See Parts 6 – Submittals and 13 – Approval Checklist of this specification.

PART 2 - GENERAL FEATURES OF DESIGN

2.1 SPAN

A. Bridge spans shall be ~~120'-00"~~ 60'-0"(straight 1 inc dimension) and shall be as measured from each end of the bridge structure.

2.2 WIDTH

A. Bridge widths shall be 8'-0" and shall be as measured from the inside face of structural elements at deck level.

2.3 TRUSS TYPE

A. Bridges shall be designed as a half-through "Pratt" truss with one (1) diagonal per panel and square end vertical members. All end vertical members, unless specified otherwise, shall be plumb. Interior vertical members shall be perpendicular to the chord faces.

1. Bridges shall be designed utilizing an H section. ~~underhung floor beam (top of floor beam welded to the bottom of the bottom chord)~~ .
2. The distance from the top of the deck to the top and bottom truss members shall be determined by the bridge manufacturer based upon structural and/or shipping requirements.

3. The top of the top chord shall not be less than ~~54~~ 48 inches above the deck (measured from the high point of the riding surface).

2.4 MEMBER COMPONENTS

A. All members of the vertical trusses (top and bottom chords, verticals, and diagonals) shall be fabricated from square and/or rectangular structural steel tubing. Other structural members and bracing shall be fabricated from structural steel shapes or square and rectangular structural steel tubing.

B. To provide lateral support for the top flange of open shape stringers (w-shapes or channels), a minimum of one stiffener shall be provided in each stringer at every floor beam location.

2.5 ATTACHMENTS

A. Safety Rails

1. ~~Vertical~~ Horizontal safety rails shall be placed on the structure up to a minimum height of 48″ above the deck surface. Safety rails shall be placed so as to prevent a 4″ sphere from passing through the truss. Safety rails shall be 1-1/4″ x 1-1/4″ x 1/8″ angles, welded to the inside or ~~outside~~ of the structure ~~at the bridge fabricators option~~. If placed inside the truss, the safety rails shall have a maximum span of 5′-8″, measured from centerline to centerline of support post or truss vertical.
2. ~~If placed outside the structure, this maximum span may be increased to 6′-6″. Safety rails placed on the inside of the truss shall have their ends sealed and ground smooth so as to produce no sharp edges.~~
3. The safety rail system shall be designed for an infill loading of 200 pounds, applied horizontally at right angles, to a one square foot area at any point in the system.

B. Toe Plate

1. The bridge shall be supplied with a 1/4″ x 6″ steel toe plate mounted to the inside face of both trusses. The toe plate shall be welded to the truss members at a height adequate to provide a 2″ gap between the bottom of the plate and the top of the deck or the top of the bottom chord, whichever is higher. The span of the toe plate (from center to center of supports) shall not exceed 5′-8″.

C. Rub Rails

1. The bridge will be supplied with a nominal 5/4″ x 6″ naturally durable hardwood Ipe (Tabebuia Spp) Lapacho Group or Cumaru (Dipteryx Odorta) rubrail. Rubrail shall be partially air dried to a moisture content of 15% to 20%, shall be supplied S4S (surfaced four sides), E4E (eased four edges), with the edges eased to a radius of 1/8″. Measured at 30% moisture content, the width and thickness shall not vary from specified dimensions by more than ± 0.04 inches. Ends of each piece shall be sealed with Mobil CER-M or an equal aqueous wax log sealer.
2. Rubrails shall be attached flush to the inside face of the bridge truss verticals and fastened with two carriage bolts at each support location. The span of the rubrail from centerline to centerline of support shall not exceed 6′-6″.

2.6 CAMBER

A. The bridge shall have a vertical camber dimension at midspan equal to 100% of the full dead load deflection plus 1% of the full length of the bridge.

2.7 ELEVATION DIFFERENCE

A. The bridge abutments shall be constructed at the same elevation on both ends of the bridge.

PART 3 - ENGINEERING

A. Structural design of the bridge structures shall be performed by or under the direct supervision of a licensed professional engineer and done in accordance with recognized engineering practices and principles. The engineer shall be licensed to practice in the State of Texas.

3.1 DESIGN LOADS

In considering design and fabrication issues, this structure shall be assumed to be statically loaded. No dynamic analysis shall be required nor shall fabrication issues typically considered for dynamically loaded structures be considered for this bridge.

3.1.1 Dead Load

The bridge structure shall be designed considering its own dead load (superstructure and original decking).

3.1.2 Uniform Live Load

3.1.2.1 Pedestrian Live Load

Main Members: Main supporting members, including girders, trusses and arches shall be designed for a pedestrian live load of ~~85~~ 100 pounds per square foot of bridge walkway area. The pedestrian live load shall be applied to those areas of the walkway so as to produce maximum stress in the member being designed.

3.1.3 Vehicle Loads

The bridge superstructure, floor system and decking shall be designed for each of the following point load conditions:

3.1.3.1 Maintenance Vehicle

Bridge shall be designed for an occasional single maintenance vehicle load of 5,000 pounds. The load shall be distributed as a four-wheel vehicle with four equal loads. The maintenance vehicle load shall not be placed in combination with the pedestrian load. A vehicle impact allowance is <u>not</u> required.

3.1.4 Wind Load

3.1.4.1 Horizontal Forces

The bridges shall be designed for a wind load of 25 pounds per square foot on the full vertical projected area of the bridge as if enclosed. The wind load shall be applied horizontally at right angles to the longitudinal axis of the structure.

The wind loading shall be considered both in the design of the lateral load bracing system and in the design of the truss vertical members, floor beams and their connections.

3.1.4.2 Overturning Forces

The effect of forces tending to overturn structures shall be calculated assuming that the wind direction is at right angles to the longitudinal axis of the structure. In addition, an upward force shall be applied at the windward quarter point of the transverse superstructure width. This force shall be 20 pounds per square foot of deck.

3.1.5 Top Chord Railing Loads

The top chord, truss verticals, and floor beams shall be designed for lateral wind loads and for any loads required to provide top chord stability; however, in no case shall the load be less than 50 pounds per lineal foot or a 200 pound point load, whichever produces greater stresses, applied in any direction at any point along the top chord.

3.1.6 Load Combinations

The loads listed herein shall be considered to act in the following combinations, whichever produce the most unfavorable effects on the bridge superstructure or structural member concerned.

[DL=Dead Load; LL = Live Load; WL = Wind Load; VEH = Vehicle Load]

DL + LL
DL + VEH
DL+WL
DL+LL+WL
DL+VEH+.3WL

NOTE: Allowable stresses may be increased 1/3 above the values otherwise provided when produced by wind loading, acting alone or in combination with the design dead and live loads.

3.2 DESIGN LIMITATIONS

3.2.1 Deflection

3.2.1.1 Vertical Deflection

The vertical deflection of the main trusses due to service pedestrian live load shall not exceed 1/400 of the span.

The vertical deflection of cantilever spans of the structure due to service pedestrian live load shall not exceed 1/300 of the cantilever arm length.

The deflection of the floor system members (floor beams and stringers) due to service pedestrian live load shall not exceed 1/360 of their respective spans.

The service pedestrian live load shall be 65 PSF.

Deflection limits due to occasional vehicular traffic shall not be considered.

3.2.1.2 Horizontal Deflection

The horizontal deflection of the structure due to lateral wind loads shall not exceed 1/500 of the span under an 85 MPH wind load.

3.2.2 Minimum Thickness of Metal

The minimum thickness of all structural steel members shall be 3/16" nominal and be in accordance with the AISC Manual of Steel Constructions' "Standard Mill Practice Guidelines". For ASTM A500 and ASTM A847 tubing, the section properties used for design shall be per the Steel Tube Institute of North America's Hollow Structural Sections "Dimensions and Section Properties".

3.3 GOVERNING DESIGN CODES / REFERENCES

Structural members shall be designed in accordance with recognized engineering practices and principles as follows:

3.3.1 Structural Steel Allowable Stresses

American Institute of Steel Construction (AISC).

Structural steel design shall be in accordance with those sections of the "Manual of Steel Construction: Allowable Stress Design" related to design requirements and allowable stresses.

3.3.2 Welded Tubular Connections

American National Standards Institute / American Welding Society (ANSI/AWS) and the Canadian Institute of Steel Construction (CISC).

All welded tubular connections shall be checked, when within applicable limits, for the limiting failure modes outlined in the 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).

When outside the "validity range" defined in these design guidelines, the following limit states
or failure modes will must be checked:

* Chord face plastification
* Punching shear (through main member face)
* Material failure
  - Tension failure of the web member
  - Local buckling of a compression web member

* Weld failure
  - Allowable stress based on "effective lengths"
  - "Ultimate" capacity
* Local buckling of a main member face
* Main member failure:
  - Web or sidewall yielding
  - Web or sidewall crippling
  - Web or sidewall buckling
  - Overall shear failure

All tubular joints shall be plain unstiffened joints (made without the use of reinforcing plates) except as follows:

1. Floor beams hung beneath the lower chord of the structure may be constructed with or without stiffener (or gusset) plates, as required by design.

2. Floor beams which frame directly into the truss verticals (H-Section bridges) may be designed with or without end stiffening plates as required by design.

3. Where chords, end floor beams and in high profiles the top end struts weld to the end verticals, the end verticals (or connections) may require stiffening to transfer the forces from these members into the end vertical.
4. Truss vertical to chord connections.

3.3.3 Wood

American Institute of Timber Construction (AITC), the U.S. Forest Products Laboratory, and the American Forest & Paper Association (AF&PA).

Sawn lumber shall be designed in accordance with the ANSI/AF&PA NDS, "National Design Standard for Wood Construction", as published by the American Forest & Paper Association or the "Timber Construction Manual" as published by the American Institute of Timber Construction (AITC). Design properties for naturally durable hardwoods shall be in accordance with "Tropical Timbers of the World", as published by the U.S. Forest Products Laboratory.

3.3.4 Top Chord Stability

Structural Stability Research Council (SSRC), formerly Column Research Council.

The top chord of a half-through truss shall be considered as a column with elastic lateral supports at the panel points. The critical buckling force of the column, so determined, shall exceed the maximum force from dead load and live load (uniform or vehicular) in any panel of the top chord by not less than 50 percent for parallel chord truss bridges or 100 percent for tied arch bridges. The design approach to prevent top chord buckling shall be as outlined by E.C. Holt's research work in conjunction with the Column Research Council on the stability of the top chord of a half-through truss. See Appendix A for the calculation of the spring constant C and the determination of an appropriate K factor for out-of-plane buckling.

In addition, for the dead load plus vehicle load combination, the spring constant "C" furnished by the transverse "U-Frames" shall not be less than "C" required as defined by:

$$C\,required = \frac{1.46\,P_c}{L}$$

where P_c is the maximum top chord compression due to dead load plus the vehicle load times the appropriate safety factor (1.5 for parallel chord truss bridges or 2.0 for tied arch truss bridges) and L is the length in inches of one truss panel or bay.

For uniformly loaded bridges, the vertical truss members, the floor beams and their connections (transverse frames) in half-through truss spans shall be proportioned to resist a lateral force of not less than 1/100k times the top chord compressive load, but not less than .004 times that top chord load, applied at the top chord panel points of each truss. The top chord load is determined by using the larger top chord axial force in the members on either side of the "U-frame" being analyzed. For end frames, the same concept applies except the transverse force is 1% of the axial load in the end post member.

For bridges with vehicle loads, the lateral force applied at the top chord elevation for design of the transverse frames shall not be less than 1% of the top chord compression due to dead load plus any vehicle loading.

The bending forces in the transverse frames, as determined above, act in conjunction with all forces produced by the actual bridge loads as determined by an appropriate analysis which assumes that the floor beams are "fixed" to the trusses at each end.

PART 4 -MATERIALS

4.1 STEEL

4.1.1 Unpainted Steel

Bridges will not be painted and shall be fabricated from high strength, low alloy, atmospheric corrosion resistant ASTM A847 cold-formed welded square and rectangular tubing and/or ASTM A588, or ASTM A242, ASTM A606 plate and structural steel shapes (Fy = 50,000 psi). The minimum corrosion index of atmospheric corrosion resistant steel, as determined in accordance with ASTM G101, shall be 5.8.

4.2 DECKING

4.2.1 Wood Decking

4.2.1.1. Wood decking shall be naturally durable hardwood Ipe (Tabebuia Spp) Lapacho Group or Cumaru (Dipteryx Odorta). All planks shall be partially air dried to a moisture content of 15% to 20%, and shall be supplied S4S (surfaced four sides) with one face "hit or miss" allowed up to 10% of the total length, E4E (eased four edges), with the edges eased to a radius of 1/8". Measured at 30% moisture content, the width and thickness shall not vary from specified dimensions by more than ± 0.04 inches. All planks shall be supplied with the end sealed with "Anchorseal" Mobil CER-M or an equal aquious wax log sealer.

All planks shall be graded as FEQ-CAH (First Export Quality -Clear All Heart) or F1F (First One Face) grading rules, defined as follows:

1. Lumber shall be graded both faces and both edges.
2. Lumber shall be straight grained and parallel cut without heart center.
3. Lumber shall be all heartwood.
4. Lumber shall be in sound condition.
5. Allowable Imperfections are:
   All faces: Natural drying checks, Discoloration caused by weathering or chemical reaction, Maximum bow or spring of 0.08 inch per 6 ft of timbers length.
   On one face only: Firm sapwood, Worm holes not going through to the other face, Closed knots with maximum of one knot per 4 foot of timber length, Rowy grain, and Tear out.

6. Imperfections Not Allowed:
Longitudinal heart cracks, Internal cracks, Soft sap wood, Splits, End splits, Ring shades, Fungi affects (blue to gray, brown to red, white to yellow, or incipient decay), Deformation (twisting or cupping) which cannot be removed using normal installation methods and tools.

All planks shall meet or exceed the following mechanical properties (based on the 2" standard) as defined by the U.S. Forest Products Laboratory publications and testing data:

MC% Strength	Bending Strength	Modulus of Elasticity	Max. Crush
12%	27,270 psi	3,030,000 psi	13,720 psi

Janka side hardness is 3540 lbs. at 12% moisture content
Average air-dry density is 62 to 81 pcf.
Basic specific gravity is 0.80 - 0.91.

All planks shall be naturally fire resistant without the use of any fire resistant preservatives to meet NFPA Class A and UBC Class I.

Planks shall be supplied that meet or exceed the Static Coefficient of Friction for both Neolite and leather shoes in accordance with ASTM Test Method C1028-89.

	FORCE IN POUNDS	
SHOE MATERIAL	DRY	WET
Neolite	0.73	0.69
Leather	0.55	0.79

For transverse wood decking, wheel loads shall be assumed to act on one plank only. The wheel loads shown in Section 3.1.3 shall be distributed on the plank along a length equal to the tire print width (W). The plank shall be designed for shear and bending in accordance with the support conditions and spacing. For design, the following unfactored allowable values shall be used:

Allowable Bending = 3700 psi
Allowable Shear = 320 psi
Modulus of Elasticity = 3,000,000 psi

4.2.1.2 Wood Decking Attachment

* At time of installation, planks are to be placed tight together with no gaps.

* Every plank must be attached to at least one support with at least one fastener.

  * Fasteners to be zinc plated bolts. Hex-head bolts, with a steel plank holddown, are to be used at the ends of planks. Carriage bolts are to be used as interior connection fasteners. Power actuated fasteners will not be allowed.

  * Planks are to be drilled prior to installation of bolts.

  * In addition to at least one fastener at either end of every plank (typical for all installations), planks for bridges with widths of 96" to 120" are to receive a minimum of one interior connection bolt at a stringer location approximately near the center of the bridge width.

Bridges wider than 120" are to have interior connection bolts located at a minimum of two interior stringer locations, approximately located at the third points of the bridge width.

* Use of the wood decking to provide lateral support for design of the stringers shall not be allowed.

PART 5 -WELDING

5.1 WELDING

Welding and weld procedure qualification tests shall conform to the provisions of ANSI/AWS D1.1 "Structural Welding Code", 1996 Edition. Filler metal shall be in accordance with the applicable AWS Filler Metal Specification (i.e. AWS A 5.28 for the GMAW Process). For exposed, bare, unpainted applications of corrosion resistant steels (i.e. ASTM A588 and A847), the filler metal shall be in accordance with AWS D1.1, Section 3.7.3.

5.2 WELDERS

Welders shall be properly accredited operators, each of whom shall submit certification of satisfactorily passing AWS standard qualification tests for all positions with unlimited thickness of base metal, have a minimum of 6 months experience in welding tubular structures and have demonstrated the ability to make uniform sound welds of the type required.

PART 6 - SUBMITTALS

6.1 SUBMITTAL DRAWINGS

Schematic drawings and diagrams shall be submitted to the OWNER for their review after receipt of order. Submittal drawings shall be unique drawings, prepared to illustrate the specific portion of the work to be done. All relative design information such as member sizes, bridge reactions, and general notes shall be clearly specified on the drawings. Drawings shall have cross referenced details and sheet numbers. All drawings shall be signed and sealed by a Professional Engineer licensed in the State of Texas.

6.2 STRUCTURAL CALCULATIONS

Structural calculations for the bridge superstructure shall be submitted by the bridge manufacturer and reviewed by the approving engineer. All calculations shall be signed and sealed by a Professional Engineer licensed in the State of Texas. The calculations shall include all design information necessary to determine the structural adequacy of the bridge. The calculations shall include the following:

* All AISC allowable stress checks for axial, bending and shear forces in the critical member of each truss member type (i.e. top chord, bottom chord, floor beam, vertical, etc.)

* Checks for the critical connection failure modes for each truss member type (i.e. vertical, diagonal, floor beam, etc.). Special attention shall be given to all welded tube on tube connections.

* All bolted splice connections.

* Main truss deflection checks.

* U-Frame stiffness checks (used to determine K factors for out-of-plane buckling of the top chord) for all half through or "pony" truss bridges.

* Deck design.

NOTE: The analysis and design of triangulated truss bridges shall account for moments induced in members due to joint fixity where applicable. Moments due to both truss deflection and joint eccentricity must be considered.

6.3 Welder certifications in compliance with AWS standard qualification tests.

6.4 Welding procedures in compliance with Section 5.1.

PART 7 - FABRICATION

7.1 GENERAL REQUIREMENTS

7.1.1 Drain Holes

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

7.1.2 Welds

Fillet weld shall be in accordance with AWS D1.1, Section 3.9. Unless determined otherwise by testing, the loss factor "Z" for heel welds shall be in accordance with AWS Table 2.8. Fillet welds which run onto the radius of a tube shall be built up to obtain the full throat thickness. The maximum root openings of fillet welds shall not exceed 3/16" in conformance with AWS D1.1, Section 5.22. Weld size or effective throat dimensions shall be increased in accordance with this same section when applicable (i.e. fit-up gaps> 1/16").

The fabricator shall have verified that the throat thickness of partial joint penetration groove welds (primarily matched edge welds or the flare-bevel-groove welds on underhung floor beams) shall be obtainable with their fit-up and weld procedures. Matched edge welds shall be "flushed" out when required to obtain the full throat or branch member wall thickness.

For full penetration butt welds of tubular members, the backing material shall be fabricated prior to installation in the tube so as to be continuous around the full tube perimeter, including corners. Backing may be of four types:

1. A "box" welded up from four (4) plates.

2. Two "channel" sections, bent to fit the inside radius of the tube, welded together with full penetration welds.

3. A smaller tube section which slides inside the spliced tube.

4. A solid plate cut to fit the inside radius of the tube.
   Corners of the "box" backing, made from four plates, shall be welded and ground to match the inside corner radii of the chords. The solid plate option shall require a weep hole either in the chord wall above the "high side" of the plate or in the plate itself. In all types of backing, the minimum fit-up tolerances for backing must be maintained at the corners of the tubes as well as across the "flats".

7.2 QUALITY CERTIFICATION

Bridges shall be fabricated by a fabricator who is currently certified by the American Institute of Steel Construction to have the personnel, organization, experience, capability, and commitment to produce fabricated structural steel for the category "Simple Steel Bridges" as set forth in the AISC Certification Program. Quality control shall be in accordance with procedures outlined for AISC certification.

PART 8 - FINISHING

8.1 BLAST CLEANING

8.1.1 Bare applications of enhanced corrosion resistant steels.

To aid in providing a uniformly "weathered" appearance, all exposed surfaces of steel shall be blast cleaned in accordance with Steel Structures Painting Council Surface Preparation Specifications No. 7 Brush-Off Blast Cleaning, SSPC-SP7 latest edition.

Exposed surfaces of steel shall be defined as those surfaces seen from the deck and from outside of the structure. Stringers, floor beams, lower brace diagonals and the inside face of the truss below deck and bottom face of the bottom chord shall not be blasted.

PART 9 - DELIVERY AND ERECTION

Delivery is made to a location nearest the site which is easily accessible to normal over-the-road tractor/trailer equipment. All trucks delivering bridge materials will need to be unloaded at the time of arrival.

The manufacturer will provide detailed, written instruction in the proper lifting procedures and splicing procedures (if required). The method and sequence of erection shall be the responsibility of others.

The bridge manufacturer shall provide written inspection and maintenance procedures to be followed by the bridge owner.

PART 10 - BEARINGS

10.1 BEARING DEVICES

Bridge bearings shall consist of a steel setting or slide plate placed on the abutment or grout pad. The bridge bearing plate which is welded to the bridge structure shall bear on this setting plate. One end of the bridge will be fixed by fully tightening the nuts on the anchor bolts at that end. The opposite end will have finger tight only nuts to allow movement under thermal expansion or contraction.
The bridge bearings shall sit in a recessed pocket on the concrete abutment. Minimum 28-day strength for the abutment concrete shall be xxxx PSI.
The bearing seat shall be a minimum of 16" wide. The step height (from bottom of bearing to top-of-deck) shall be determined by the bridge manufacturer.

Bridges in excess of 100 feet in length or bridges with dead load reactions of 15,000 pounds or more (at each bearing location) shall have Teflon on Teflon or stainless steel on Teflon slide bearings placed between the bridge bearing plate and the setting plate. The top slide plate shall be large enough to cover the lower Teflon slide surface at both temperature extremes.

PART 11 - FOUNDATIONS

The bridge manufacturer shall determine the number, size, embedment length, minimum grade and finish of all anchor bolts. The anchor bolts shall be designed to resist all horizontal and uplift forces to be transferred by the superstructure to the supporting foundations. The contractor shall provide all materials for (including anchor bolts) and construction of the bridge supporting foundations. The contractor shall install the anchor bolts in accordance with the manufacturer's requirements.

Information as to bridge support reactions and anchor bolt locations will be furnished by the bridge manufacturer after receipt of order and after the bridge design is complete.

PART 12 - WARRANTY

The bridge manufacturer shall provide a warranty against all defects in material and workmanship for a period of fifteen years from the date of delivery.

PART 13 - APPROVAL CHECKLIST

The following checklist will be used in the evaluation of all submittals to assure compliance with the Specifications for Prefabricated Bridge. This checklist is considered the minimum acceptable requirements for compliance with these specifications. Any deviations from this checklist shall be considered grounds for rejection of the submittal. Any costs associated with delays caused by the rejection of the submittal, due to non-compliance with this checklist, shall be fully borne by the contractor and bridge supplier.

SUBMITTAL DRAWINGS

Data Required to be Shown:

π Bridge Elevation
π Bridge Cross Section
π All Member Sizes
π All Vertical Truss Members are Square or Rectangular Tubing
π Bridge Reactions
π All Bolted Splice Checks (if applicable)
π General Notes Indicating
π AISC Stress Conformance
π Material Specifications to be Followed
π Interior and End Portal Design Checks (if "Box" Truss)
π Design Vehicle Load
π Design Wind Load
π Other Specified Design Loads
π Welding Process
π Blast Cleaning
π Detailed Bolted Splices
π Bolted Splice Location
π Signature and Seal of Professional Engineer, Licensed in the State of Texas
Instructions
π Weld Failure Checks (Ultimate)
π Local Buckling of the Main Member Face Checks
π Main Member Yielding Failure Checks
π Main Member Crippling Failure Checks
π Main Member Buckling Failure Checks
π Main Member Shear Failure Checks
π Main Truss Deflection Checks
π Decking Material Checks
π "U-Frame" Stiffness Checks (if "Pony" Truss)
π Design Live Load
π Based on Determination of Top Chord K Factor
π Consideration of Individual Member
Truss Deflection, Joint Fixity and Joint Electricity

FABRICATION SUBMITTALS

Data Required to be Shown:

π** Written Installation Instructions
π** Written Splicing Instructions
π** Written Maintenance & Inspection
π** Welder Certifications

DESIGN CALCULATIONS
Data Required to be Shown:

- π Data Input for 3-D Analysis of Bridge
  - π Joint Coordinates & Member Incidences
  - π Joint and Member Loads
  - π Member Properties
  - π Load Combinations
- π AISC Member Stress Checks for Each Member Type
- π Critical Connection Failure Mode Checks for Each Member Type
- π Chord Face Plastification Checks
- π Punching Shear Checks
- π Material Failure Checks (Truss Webs)
- π Weld Failure Checks (Effective Length)

- π** Welding Procedures
- π Material Certifications
  - π Structural Steel
  - π Decking
  - π Structural Bolts
- π** Quality Control Section of AISC Certification Manual (if applicable)
  - π Weld Testing Reports

** NOTE: These items are required to be submitted along with Submittal Drawings and Design Calculations. Those Fabrication Submittal Items not marked are to be submitted prior to shipment of the bridge.

THE COUNTY OF GALVESTON

RUFUS G. CROWDER, CPPO, CPPB
PURCHASING AGENT

GWEN MCLAREN, CPPB
ASST. PURCHASING AGENT

COUNTY COURTHOUSE
722 Moody (21st Street)
Fifth (5th) Floor
GALVESTON, TEXAS 77550
(409) 770-5371

November 10, 2020

PROJECT NAME: Carbide Park Pedestrian Bridge

SOLICITATION NO: ITB #B201046

RE: ADDENDUM #2

To All Prospective Bidders:

The following information is being provided to aid in preparation of your bid submittal(s):

Question #1: ***Could you tell me what page the Bid Form is on?***

Response: Attached you will find the Bid Form which was inadvertently not included in the original bid packet.

Question #2: ***Our engineer noted that the specified wind loading in the project documents is for 85mph, 25psf wind which is quite low for the coast. We have executed preliminary design for this criteria as well as for a wind speed of 132mph which, in our experience, is more common to the area. We can quote either of these designs, but obviously the higher wind loading will add cost. Could you confirm the desired criteria for us?***

Response: The engineer recommends that the wind speed be raised to 135 mph but that the wind load of 25 psf is not really an issue because the structure is open.

As a reminder, all questions regarding this bid must be submitted in writing to:

Rufus G. Crowder, CPPO CPPB
Galveston County Purchasing Agent
722 Moody, Fifth (5th) Floor
Galveston, Texas 77550
E-mail: purchasing.bids@co.galveston.tx.us

If you have any further questions regarding this bid, please address them to Rufus Crowder, CPPO CPPB, Purchasing Agent, via e-mail at purchasing.bids@co.galveston.tx.us, or contact the Purchasing Department at (409) 770-5371.

Please excuse us for any inconvenience that this may have caused.

Sincerely,

Rufus G. Crowder, CPPO CPPB
Purchasing Agent
Galveston County

BID #: B201046
OPEN: 11/17/2020
2:00 PM

BID SHEET

Carbide Park Pedestrian Bridge

GALVESTON COUNTY, TEXAS

Having read and understood the instructions, terms, conditions, specifications, and invitation to bid we submit the following:

LINE ITEM $_____

OPTIONS TO RENEW: No Extensions/Non-Applicable

_____ WITNESS

_____ COMPANY NAME

_____ DATE

_____ AUTHORIZED REPRESENTATIVE'S SIGNATURE

_____ PRINTED NAME

_____ TITLE

_____ CORRESPONDENCE ADDRESS

_____ REMIT ADDRESS

_____ CITY, STATE ZIP CODE

_____ CITY, STATE ZIP CODE

_____ TAX IDENTIFICATION NUMBER (TIN/FIEN/SSN)

_____ TELEPHONE NUMBER

_____ FAX NUMBER

ADDENDUM'S RECEIVED #1_____#2_____#3_____

LINE ITEM DETAIL

Carbide Park Pedestrian Bridge

GALVESTON COUNTY, TEXAS

BID #: B201046
OPEN: 11/17/2020
2:00 PM

VENDOR

Item No.	Product Code	Description	Quantity	Units	Catalog #	Unit Price	Extended Price
0001	96100	Carbide Park Pedestrian Bridge	1	EA	_____	$_____	$_____

Extended Price Total of all Items: $_____