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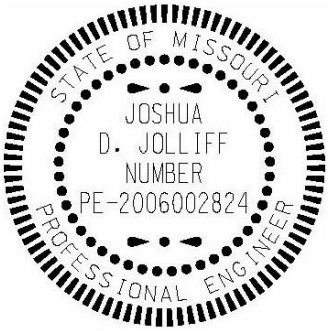

09/10/2024 12:29:39 PM
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MO PE-2006002824

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If a seal is present on this sheet, JSP's has been electronically sealed and dated.

JOB NO. J7P3425C
Webster County, MO
Date Prepared: 9/10/2024

Only the following items of the Job Special Provisions (Bridge) are authenticated by this seal: All

A. CONSTRUCTION REQUIREMENTS

1.0 Description. This provision contains general construction requirements for this project.

2.0 Construction Requirements. The geotechnical report for the new structure(s) are included in the contract in the bridge electronic deliverables zip file for informational purposes only.

2.1 In order to assure the least traffic interference, the work shall be scheduled so that a lane closure is for the absolute minimum amount of time required to complete the work. A lane shall not be closed until material is available for continuous construction and the contractor is prepared to diligently pursue the work until the closed lane is opened to traffic.

2.2 Provisions shall be made to prevent any debris and material from falling onto the roadway. If determined necessary by the engineer, any debris and material that falls below the bridge outside the previously specified limits shall be removed as approved by the engineer at the contractor's expense. Traffic under the bridge shall be maintained in accordance with the contract documents.

2.3 Provisions shall be made to prevent damage to any existing utilities. Any damage sustained to the utilities as a result of the contractor's operations shall be the responsibility of the contractor. All costs of repair and disruption of service shall be as determined by the utility owners and as approved by the engineer.

3.0 Method of Measurement. No measurement will be made.

4.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract unit price for other items included in the contract.

B. FORM LINERS

1.0 Description. This work item shall consist of constructing the form liner aesthetic treatment on mechanically stabilized earth (MSE) wall systems as shown on the plans and described in this special provision.

2.0 Materials.

2.1 Shop Drawings. Contractor shall provide complete shop drawings of all aesthetic treatments.

2.2 Formwork. Formwork for aesthetic treatment of concrete facing panels for the MSE wall systems shall be a type that produces uniform results consistent in both, pattern and depth of relief with the project design aesthetics. The contractor shall be responsible to coordinate the aesthetic treatments of all components to meet the design aesthetic criteria described herein and as shown on plans. No mixing of pattern numbers or manufacturers will be permitted. The form liner pattern shall be one of the patterns listed on the plans or approved equal.

2.3 Form Ties. Wall form ties shall be placed in a uniform pattern. In surface areas receiving the aesthetic treatment form liner, all form ties shall be placed in the simulated stone surface. Form ties shall be fiberglass ties that shall hold the forms in the correct alignment. The color of the ties shall closely match the concrete wall color. Ties shall be ground flush with the surface of concrete prior to pressure washing.

2.4 Form Release Agent. Form release agents shall be the manufacturer's standard non-staining, non-petroleum based and compatible with surface sealer finish coating. Form release agents shall be applied to all surfaces of the form liner at the manufacturer's recommended rate.

2.5 Gaskets. Closed cell compressible neoprene of such thickness as is appropriate to assure leakage prevention shall be used to prevent joint leakage. One face shall be coated with an adhesive tape to assure proper positioning at the time of form closure. The neoprene shall be sufficiently compressible as to assure virtual "zero" separation of the forms as a result of the use of this product.

2.6 Aggregates.

2.6.1 Aggregate Source. The aggregate incorporated into the concrete mix of all aesthetic concrete MSE Wall components shall be from the same source. The aggregate incorporated into the concrete mix of all aesthetic concrete bridge components shall be from the same source as the balance of the bridge concrete work. The purpose for this provision is to ensure uniformity of materials and color once areas are pressure washed and aggregates become exposed. Single-source shall be interpreted as one contiguous rock quarry, gravel pit or dredging location. This provision in no way alters the specification requirements for aggregate quality specified in other sections of the project specifications.

2.6.2 Aggregate Gradation. Concrete mixes supplied for the construction of the aesthetic treatments shall be in accordance with the following requirements. The concrete aggregate for the aesthetic treatment mix shall be Gradation E in accordance with Sec 1005 for any areas where aesthetic treatment is formed monolithically with the structure. This requirement for aggregate size is necessary to permit concrete mixture to flow freely and fill completely into reveals and form liner proposed in the aesthetic treatment. Gradation E aggregate shall meet the aggregate source requirements.

2.7 Joint Materials. Bond breaker material shall be polyethylene tape, coated paper, metal foil or similar type materials. The backup material shall be compressible, non-shrink, non-reactive with the sealant and non-absorptive material type such as extruded butyl or polychloroprene foam rubber. The joint sealant shall be an elastomeric, multi-component sealant, in accordance with Federal Specification TT-S-227, Type II. The sealant color shall match the pressure washed concrete surface color.

3.0 Construction Requirements.

3.1 Reveals and Texture. All reveals and texture shall be continuous from element to element through construction joints and around corners. Techniques shall be utilized to ensure true continuous texture between separate elements. Sand blasting will not be permitted for cleaning concrete surface, as sand blasting will reduce the special surface texture specified. Pressure washing with water is the preferred method of removing laitance. Pressure washing cleaning shall provide a minimum pressure of 3000 psi at a rate of 3 to 4 gallons per minute (11.4 to 15.1 L/min) using a fan nozzle held perpendicular to the surface at a distance of 2 to 3 feet. The completed surface shall be free of blemishes, discolorations, surface voids and conspicuous form marks to the satisfaction of the engineer.

3.2 Sample Test Panels. Sample test panels shall be constructed to demonstrate the contractor's workmanship for all form liner textures and patterns as shown on the plans. The sample test panels may also be used for demonstration special surface finish if approved by the engineer. The architectural surface treatment of the finished work shall achieve the same final

effect as demonstrated on the approved sample test panels. The materials used in construction of the sample test panels shall be in accordance with all standards as listed in this specification and the plans. The concrete mix shall be consistent with the project specifications and criteria. The minimum size of the sample test panels shall be 6 x 6 feet x 8 inches. The form liner finish shall be demonstrated in a vertical strip covering one-half to three-quarters of the sample test panel(s).

3.3 Patches. Holes and defects in concrete surface shall be filled within 48 hours of when the forms are removed. The same patching materials and techniques shall be used that were approved on sample test panels. The patches shall be made with a stiff mortar made with the same material sources as the concrete. The mortar mix proportions shall be adjusted so the dry patch matches the dry adjacent concrete. White cement shall be added to the mortar mix if necessary to lighten the mortar mix.

3.4 Joints. Joints shall be sealed when the sealant, air and concrete temperatures are above 40°F. Joints shall be primed and filled flush with joint sealant in accordance with the manufacturer's recommendation. All construction control and expansion joints shall occur within the vertical joints as shown in the elevation views on the plans. All vertical expansion joints shall be filled with preformed fiber expansion joint filler covered with bond break tape and sealed with elastomeric, multi-component sealant.

4.0 Method of Measurement.

4.1 Form Liners on MSE Wall Systems. No measurement of form liners on MSE wall systems shall be made.

5.0 Basis of Payment.

5.1 Form Liners on MSE Wall Systems. Payment for the above described work, including all material, additional concrete, equipment, labor and any other incidental work necessary to complete this item, will be considered completely covered by the contract unit price for "MSE Wall Systems".

C. PIPE PILE SPACERS

1.0 Description. In lieu of using pipe pile spacers, the contractor will have the option to use pile jackets. This job special provision contains general requirements for furnishing and placing pile jackets on piles.

2.0 Material. All material shall be in accordance with Division 1000, Material Details, and specifically as follows.

2.1 Pile Jackets.

2.1.1 The pile jacket material shall meet or exceed the following physical requirements:

Pile Jackets		
Property	**Specification**	**Requirement**
Specific Gravity	ASTM D 1505	0.906 g/cc
Tensile @ Yield	ASTM D 638	4,000 psi

Pile Jackets		
Property	**Specification**	**Requirement**
Flexural Modulus	ASTM D 790	195,000 psi
Elongation @ Break	ASTM D 638	> 500%
Heat Deflection Temperature @ 66 psi	ASTM D 648	190°F
Impact Strength, Notched Izod @ 73°F	ASTM D 256	No Break ft-lb/in
Rockwell Hardness	ASTM D 785	75 R scale

3.0 Construction Requirements.

3.1 For pile jacket option, the contractor shall drive piles before construction of the mechanically stabilized earth (MSE) wall. Pile jackets shall be installed on each pile and placed in the zone between the bottom of the levelling pad and the bottom of beam cap. The pile jacket shall be installed and backfill and soil reinforcements shall be placed around the pile jacket per the pile jacket manufacturer's installation requirements and recommendations. The contractor shall adequately support the piling to ensure that proper pile alignment is maintained during wall construction. The contractor's plan for bracing the pile shall be submitted to the engineer for review. The contractor shall avoid any damage to pile jacket during MSE wall construction. For damaged pile jacket sections, the contractor shall follow manufacturer's recommendations for the proper methods of in-place repair.

4.0 Method of Measurement. The pipe pile spacer or pile jacket will be measured per each.

5.0 Basis of Payment. Payment for furnishing and installing pipe pile spacers or pile jackets complete in place including all equipment, labor, and any other incidental work necessary to complete this item will be considered completely covered by the contract unit price for Pipe Pile Spacers.

D. BRIDGE SLAB (WITH TRANSPARENT FORMS)

1.0 Description. This work shall consist of constructing the concrete bridge slab for Bridge A9137 in accordance with the contract plans and Sec 703 and Sec 706 except that permanent transparent forms shall be used to the extent possible in accordance with the contract plans and the details below.

1.1 The use of precast panels or non-transparent permanent forms will not be considered on Bridge A9137.

2.0 Materials and Fabrication Requirements.

2.1 The steel for the structural joists and tracks shall be in accordance with the requirements of ASTM A 653 with a minimum yield strength of 33 ksi and shall be galvanized.

2.2 The steel for the structural support angles shall be in accordance with the requirements of ASTM A 653 with a minimum yield strength of 36 ksi and shall be galvanized.

2.3 All materials used for connections of transparent formwork to the girders/beams shall be shown on the shop drawing submittal for the review and approval from the engineer.

2.4 The transparent acrylic plastic sheet for the fabricated formwork shall be in accordance with the requirements of ASTM D 4802-16. Dimensions of the sheet shall be specified in the approved shop drawings.

2.5 The permanent transparent forms and ancillary items associated with the pay item shall be supplied by the following:

ClearCast Forms by TrueTech Bridge
11640 North Park Drive
Suite 110
Wake Forest, NC 27587
www.truetechbridge.com

2.6 All permanent forms shall be fabricated with the following tolerances:

Form Dimensions: 1/4 inch
Form Squareness: The difference between the two diagonals shall not exceed 1/2 inch

2.7 All fabricated permanent transparent forms delivered to the contractor shall be stored on pallets at least three inches off the ground with one end elevated to allow for drainage. Binding on permanent transparent forms shall remain in place until immediately prior to installation. Care shall be taken to avoid damage to the transparent forms during handling and installation. Forms shall be lifted from beneath the steel track, not the plastic sheet. Any forms that are damaged shall be replaced at no additional cost, as directed by the engineer.

2.8 The bridge deck concrete and admixtures shall contain no calcium chloride. All concrete admixtures shall be reviewed for compatibility with the acrylic sheeting of the forms.

3.0 Construction Requirements.

3.1 Shop Drawings and Design.

3.1.1 Shop drawings and design calculations shall be submitted to the engineer for review and approval. Submittals shall show complete details of all elements required for proper construction of the system, including complete material specifications.

3.1.2 The forms shall be designed on the basis of dead load of form, reinforcing bars, and plastic concrete plus 50 psf for construction loads. The allowable design pressure shall be shown on the shop drawings. Deflection under the weight of the forms, the plastic concrete and reinforcing bars shall not exceed 1/180 of the form span or 1/2 inch, whichever is less, for spans equal to or less than 10 feet; and shall not exceed 1/240 of the form span or 3/4 inch, whichever is less, for spans greater than 10 feet. However, the deflection loading shall not be less than 120 psf total. The allowable form camber shall be based on the actual dead load condition. Camber shall not be used to compensate for deflection in excess of the foregoing limits. The design span of the form sheets shall be the clear span between the edges of the girders less the minimum bearing length specified by the manufacturer.

3.1.3 The design, materials and construction shall be in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Edition; the AASHTO Guide Design Specifications for Bridge Temporary Works, 1st Edition; AISI S100-12, North American Specification for Cold-Formed Steel Structural Members; ACI 318-14, Building Code Requirements for Structural Concrete; and AISC 360-10, Specification for Structural Steel Buildings.

3.2 Installation.

3.2.1 A qualified representative of the form manufacturer shall be present at the beginning of the form installation work.

3.2.2 The masking, provided on the top surface of the transparent form, shall be left in place during installation operations to provide protection of the transparent surface. Only plastic putty knives or scrapers shall be used to remove masking. Care shall be taken to not scratch the surface of the transparent form. Masking shall be removed immediately prior to setting reinforcing steel.

3.2.3 The installed transparent forms shall be protected from any cleaning solutions, solvents such as acetone, gasoline, alcohol or thinners. Any forms that are damaged according to the engineer shall be replaced by the contractor at no additional cost to the Department. Any permanently exposed steel on the forms with damaged galvanized coating shall be cleaned and repaired as directed by the engineer with the zinc alloy stick method in accordance with ASTM A 870.

3.2.4 When forms are cut or drilled, methods shall be submitted to both the supplier and to the engineer for approval prior to work. Cutting by torch or burning will not be allowed.

3.2.5 The form supports shall be set to meet the required screed elevations, deck thickness and plan profile. All dimensions and form support elevations shall be checked and adjusted as required prior to installing the transparent forms.

3.2.6 The welding of form support to tension flanges or to non-weldable grades of steel is not permitted. If field welding is required, it must be in accordance with Sec 712.

3.2.7 The permanent transparent forms shall be placed on form supports to meet the minimum bearing lengths shown on the plans. Forms shall not be set and attached directly on the top of beam flanges. All attachments for form supports shall be made by welds, bolts, clips, or other approved means. The vertical leg of angles used as form supports shall not extend higher than 1/4 inch above the top of the permanent transparent form.

3.2.8 Form supports at steel girder bridges shall be placed in direct contact with the top flange of the girder and shall be adjusted to maintain the required deck thickness. Where straps are used on the top flanges, the straps shall be No. 10 gage thick (min.), fit tight, and may be galvanized at the manufacturers' discretion.

3.2.9 Form supports at prestressed concrete I-girder or NU girder bridges shall be placed in direct contact with the edge of the girder beam flange and shall be adjusted to maintain the required deck thickness. The form supports may be attached to steel inserts cast into the top of the girder,

to straps extending across the top of the flange, to hangers mechanically attached to reinforcing bars extending from the top of the flange, or by other approved means. Where straps are used across the top flange, they shall be No. 10 gage thick, fit tight, and may be galvanized at the manufacturer's discretion. Attachments shall not be welded directly to beam reinforcement. The use of recesses cast into the prestressed beam to serve as a form support will not be allowed.

3.2.10 Transparent forms shall be connected to the form supports immediately upon placement to prevent movement or uplift, before applying any load or walking on the form, and before the end of each work shift.

3.2.11 Joints between adjacent transparent forms and the support angle shall be mortar tight. Joints larger than 1/2 inch shall be sealed with an approved material to prevent leakage of the concrete.

3.2.12 All screws shall be placed such that there is a minimum distance of 0.29 inches between the center of the screw and material edge.

3.2.13 All reinforcing bars shall have a minimum clearance of 1 inch from the forms and be placed in accordance with Sec 706.

3.2.14 Prior to pouring concrete, all debris and extraneous matter shall be removed from the forms. The placement and thickness of concrete shall be controlled such that the pressure applied does not exceed the allowable design pressure.

3.2.15 Concrete shall be placed in accordance with Sec 703, and concrete shall not be dropped from a height greater than 10 inches above the transparent forms. Care shall be taken to avoid contact of equipment, tools, and vibrators with the top of forms. Vibrators shall be rubber tipped.

3.3 Areas Where Transparent Forms Cannot Be Used.

3.3.1 Where transparent forms cannot be used due to restrictive geometry or where shown on the plans, the contractor may use wood or metal forms in accordance with Sec 703.

4.0 Method of Measurement. Final measurement will not be made unless changes from contract plans are authorized by the engineer during construction, or appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity. Where required, quantities for concrete masonry will be computed from dimensions shown on the plans, or as revised in writing by the engineer because of changes to the contract plans or due to appreciable errors, and will be computed to the nearest square yard for each structure.

5.0 Basis of Payment. Payment for the above described work, including all material, equipment, labor and any other incidental work necessary to complete this item, will be considered completely covered by the contract unit price as shown below:

Bridge No. A9137	Slab on Concrete NU-Girder (with Transparent Forms)