STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Paul R. LePage
GOVERNOR

David Bernhardt
COMMISSIONER

March 9, 2012
Subject: **York**
Federal Project No: BR-1266(500)X
State PIN: 012665.00
Amendment No. 3

Dear Sir/Ms:

Make the following changes to the Bid Documents:

In the Bid Book (page 1) "NOTICE TO CONTRACTORS" first paragraph, first sentence **CHANGE** the bid opening date from "March 14, 2012" to read "**March 21, 2012**". Make this change in pen and ink.

In the Bid Book (pages 4 thru 9) **REMOVE** the "SCHEDULE OF ITEMS" 6 pages dated 120215 and **REPLACE** with the attached new "SCHEDULE OF ITEMS" 6 pages dated 1203xx.

In the Bid Book (page 83) **REMOVE** "SPECIAL PROVISION, SECTION 403, HOT MIX ASPHALT" 1 page dated January 10, 2012 and **REPLACE** with the attached new "SPECIAL PROVISION, SECTION 403, HOT MIX ASPHALT" 1 page dated March 7, 2012

In the Bid Book (page 84) **REMOVE** "SPECIAL PROVISION, SECTION 400, HOT MIX ASPHALT PAVEMENTS, (Polymer Modified PGAB for HMA)" 1 page dated September 22, 2011 and **REPLACE** with the attached "SPECIAL PROVISION, SECTION 400, HOT MIX ASPHALT PAVEMENTS, (Polymer Modified PGAB for HMA)" 1 page dated March 21, 2011.

In the Bid Book (pages 115 thru 120) **REMOVE** "SPECIAL PROVISION, SECTION 528, STRUCTURAL TIMBER, (Structural Timber and structural Glued Laminated Timber)" 6 pages dated February 15, 2012 and REPLACE with the attached new "SPECIAL PROVISION, SECTION 528, STRUCTURAL TIMBER, (Structural Timber and structural Glued Laminated Timber)" 7 pages dated March 7, 2012.

REVISED ANSWER AMENDMENT #2

QUESTION: What species of wood is specified or suggested for the structural timber? We can find no species with a value of 165 psi for Fvo. SYP No. 1 meets all other requirements but has a value of 110psi for Fvo.

REVISED RESPONSE: The design values provided on the plans for structural timber are based on Southern Pine No. 1 which has a value of 165 psi for Fvo per AASHTO LRFD Bridge Design Specifications Table 8.4.1.1.4-1. The 1991 NDS manual has a value of 110 psi for Fvo. This was increased to 165 psi in the 2005 NDS manual. The following questions have been received:

The following questions have been received:

Question: Since item 528.08 "Structural Timber Repair" is based on field discovered conditions, we request that the bid item be changed to a board foot unit measure.

Response: Special Provision 528 has been revised and will be reissued in a contract amendment. Item 528.08, Structural Timber-Repair has been deleted and replaced with item 528.49, Structural Timber – Repair with a board foot unit measure.

Question: Please refer to Section 506 – Fusion Bonded Epoxy. Since the reinforcing steel is not epoxy coated, does this mean that the pipe piles and H-piles are not coated either?

Response: The pipe piles and H-piles are not coated.

Question: Amendment #2 states that the "drift bolts" are stainless. Does this include the drift bolts through the stringers into the caps?

Response: The drift bolts that connect the stringers to the pile caps may be galvanized in accordance with special provision 528 or stainless steel in accordance with SUBSTRUCTURE NOTE #1 on sheet 2 of 50.

Question: There is a tolerance for the fabrication of the F.R.P. Is there a tolerance for the installation of the F.R.P.?
Response: FRP columns shall not be out of position by more than one (1) inch from the dimensions shown on the plans or out of alignment more than one (1) percent from that shown on the plans. Components and connections that are prefabricated or pre-drilled may require tight construction tolerances to ensure proper fit-up and member alignment.

Question: What steel is paid for under item 504.70?

Response: The steel connection hardware for the fiberglass composite bents is included under item 504.40. See Substructure Note 2 on plan sheet 2 of 50.

Question: How will the stringers that are to be salvaged and reused as "exterior stringers" be paid for along with the associated work to perform this task?

Response: Salvaging the "Exterior Stringers" and associated work will be paid for under the new pay item, 528.49 Structural Timber Salvage & Reuse.

Question: Does the Department have a list of FRP suppliers for this project? Will it be distributed to the Contractors?

Response: See Amendment # 2, the Department does not maintain a list of vendors for the FRP members.

Question: On plan sheet 34 of 50, what is shown as a bearing material under the Interior (Glulam) Stringer Elevation? How is this material paid for?

Response: The ends of the glulam and timber stringers at pier bent #11 and #12 are notched at the bottom to accommodate the steel shim plate at the ends of the steel beams at span #12. This shim plate is shown on sheet 35 of 50. The steel shim plate is included under item 528.9106 per TIMBER AND GLULAM STRINGER Note #4 on sheet 2 of 50.

Question: What type of material is the waterline on the bridge? Is the waterline insulated? Are there any hazardous materials to be disposed of? Will the York Water District retain the piping and all other material present?

Response: The waterline is ductile iron and insulated with foam. The Contractor may assume the insulation is not hazardous. The Contractor is responsible for removing the waterline and loading the material onto the water district's trucks. The Contractor shall coordinate this work with the York Water District.

Question: Is it the Department's intent to have a Polymer modified liquid in the base layer, for the bridge deck and the approach areas, or just the surface layer?

Response: Yes, polymer modified pavement shall be used on the bridge and bridge approaches. Please see the bid amendment and updated Special Provision, Section 403, Hot Mix Asphalt.

Question: Under 401.05, it states "the polymer additive shall consist of unvulcanized SRR in latex form." Is this statement correct?

Response: Special Provision, Section 400, Hot Mix Asphalt Pavements, has been replaced in the bid amendment.

Question: Section 501, Steel Pipe Piles; I know the pipe material is ASTM A252, Grade 3 Fy=45 KSI Min. Are the pipe piles straight seam, seamless or spiral weld?

Response: The pipe pile may be straight seam, seamless, or spiral weld.

Question: Since there are only 3 working days between now and the bid and there are many outstanding questions, I am requesting that the bid date be pushed back a week.

Response: Yes, the date has been changed. Please see the bid amendment.

Consider these changes and information prior to submitting your bid on March 14, 2012.

Sincerely,

George Macdougall
Acting Contracts & Specifications Engineer

CONTRACT ID: 012665.00 PROJECT(S): BR-1266(500)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
SECTION 0001 ITEMS						
0010	202.19 REMOVING EXISTING BRIDGE	LUMP	LUMP			
0020	202.202 REMOVING PAVEMENT SURFACE	930.000 SY				
0030	203.20 COMMON EXCAVATION	340.000 CY				
0040	203.25 GRANULAR BORROW	115.000 CY				
0050	206.082 STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	225.000 CY				
0060	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	340.000 CY				
0070	403.2101 9.5 MM POLYMER MODIFIED HMA	348.000 T				
0080	409.15 BITUMINOUS TACK COAT - APPLIED	74.000 G				
0090	429.34 GRID/ FABRIC FABRIC COMPOSITE PAVEMENT INTERLAYER	5720.000 SF				
0100	501.231 DYNAMIC LOADING TEST	4.000 EA				

CONTRACT ID: 012665.00 PROJECT(S): BR-1266(500)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0110	501.36 STEEL H-BEAM PILES 36 LBS/FT, DELIVERED	826.000 LF				
0120	501.361 STEEL H-BEAM PILES 36 LBS/FT, IN PLACE	826.000 LF				
0130	501.70 STEEL PIPE PILES, DELIVERED	3528.000 LF				
0140	501.701 STEEL PIPE PILES, IN PLACE	3528.000 LF				
0150	501.90 PILE TIPS	62.000 EA				
0160	501.91 PILE SPLICES	66.000 EA				
0170	501.92 PILE DRIVING EQUIPMENT MOBILIZATION	LUMP	LUMP			
0180	502.219 STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS	LUMP	LUMP			
0190	504.70 STRUCTURAL STEEL FABRICATED AND DELIVERED	LUMP	LUMP			
0200	504.701 STRUCTURAL STEEL FABRICATED AND DELIVERED, ROLLED	LUMP	LUMP			
0210	504.71 STRUCTURAL STEEL ERECTION	LUMP	LUMP			

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0220	506.9101 GALVANIZING (AND TOP COATING)	LUMP	LUMP			
0230	509.90 FIBERGLASS COMPOSITE - CONCRETE FILLED	1700.000 LF				
0240	509.901 FIBERGLASS COMPOSITE - CONCRETE FILLED REINFORCED	900.000 LF				
0250	515.21 PROTECTIVE COATING FOR CONCRETE SURFACES	LUMP	LUMP			
0260	520.232 EXPANSION DEVICE - ASPHALTIC PLUG JOINT	44.000 LF				
0270	526.301 TEMPORARY CONCRETE BARRIER TYPE I	LUMP	LUMP			
0280	528.08 STRUCTURAL TIMBER	LUMP	LUMP			
0290	528.49 STRUCTURAL TIMBER REPAIR	500.000 BF				
0300	528.49 STRUCTURAL TIMBER SALVAGE & REUSE	3575.000 BF				
0310	528.91 GLUE - LAMINATED TIMBER BRIDGE RAIL	505.000 LF				
0320	528.9103 GLUE - LAMINATED PIER CAP	LUMP	LUMP			

CONTRACT ID: 012665.00 PROJECT(S): BR-1266(500)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0330	528.9105 GLUE - LAMINATED DECK PANEL	LUMP LUMP				
0340	528.9106 GLUE - LAMINATED TIMBER STRINGERS	LUMP LUMP				
0350	606.363 GUARDRAIL REMOVE AND DISPOSE	325.000 LF				
0360	606.61 STEEL - BACKED TIMBER GUARDRAIL	315.000 LF				
0370	606.6121 STEEL - BACKED TIMBER GUARDRAIL TERMINAL SBT-FAT	2.000 EA				
0380	607.292 REMOVE AND REBUILD STONE WALL	120.000 LF				
0390	610.08 PLAIN RIPRAP	210.000 CY				
0400	620.58 EROSION CONTROL GEOTEXTILE	275.000 SY				
0410	627.18 12 " SOLID WHITE PAVEMENT MARKING	19.000 LF				
0420	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	650.000 LF				
0430	629.05 HAND LABOR, STRAIGHT TIME	30.000 HR				

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0440	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	30.000 HR				
0450	631.171 TRUCK - SMALL (INCLUDING OPERATOR)	30.000 HR				
0460	639.18 FIELD OFFICE TYPE A	1.000 EA				
0470	645.106 DEMOUNT REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	6.000 EA				
0480	645.116 REINSTALL REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	5.000 EA				
0490	652.312 TYPE III BARRICADE	4.000 EA				
0500	652.33 DRUM	50.000 EA				
0510	652.34 CONE	50.000 EA				
0520	652.35 CONSTRUCTION SIGNS	300.000 SF				
0530	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP	LUMP			
0540	652.38 FLAGGER	150.000 HR				

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0550	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP	LUMP			
0560	659.10 MOBILIZATION	LUMP	LUMP			
	SECTION 0001 TOTAL					

SECTION 0002 UTILITY OPTION

0570	626.27 4 INCH DIAMETER UTILITY CONDUIT SYSTEM	LUMP	LUMP			
	SECTION 0002 TOTAL					
	TOTAL BID					

York
12665.00
Organug Road
Bridge Replacement
March 7, 2012

SPECIAL PROVISION
SECTION 403
HOT MIX ASPHALT

Desc. Of Course	Grad Design.	Item Number	Bit Cont. % of Mix	Total Thick	No. Of Layers	Comp. Notes
Bridge Deck						
Wearing	9.5 mm	403.2101	N/A	1.5 in	1	1,2,4,8,23
Base	9.5 mm	403.2101	N/A	Varies	1	1,2,4,8,22,23
Full Depth - Organug and Seabury Roads Travel Way, Shoulder, and Approach Areas						
Wearing	9.5 mm	403.2101	N/A	1.5 in	1	1,4,8
Base	9.5 mm	403.2101	N/A	1.5 in	1	1,4,8
Overlay – Organug, Seabury and Lindsay Roads Travel Way, Shoulder, and Approach Areas						
Wearing	9.5 mm	403.2101	N/A	1.5 in	1	1,4,8

COMPLEMENTARY NOTES

1. The required PGAB for this mixture will meet a **PG 70-28** to **PG 76-28** grading. Refer to Special Provision 400 – Polymer Modified PGAB for HMA, for additional testing and documentation requirements. The use of Recycled Asphalt Pavement (RAP) will not be permitted in mixtures utilizing modified PGAB's.
2. The density requirements are waived. In addition, the use of an oscillating steel roller shall be required to compact all HMA pavements placed on bridge decks.
4. The design traffic level for mix placed shall be 0.3 to <3 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **50 gyrations.**
8. Section 106.6 Acceptance, (2) Method B.
22. The base course varies in thickness from 2.167 in. at the centerline to 1.5 in. at the guardrail, see plans for details
23. Refer to Special Provision Division 400, Section 429 – Pavement Reinforcing Fabric.

Tack Coat

A tack coat of emulsified asphalt, RS-1, Item 409.15 shall be applied to any existing pavement at a rate of approximately 0.025 gal/yd², and on milled pavement approximately 0.05 gal/yd², prior to placing a new course. A fog coat of emulsified asphalt shall be applied between shim / intermediate course and the surface course, at a rate not to exceed 0.025 gal/yd².

Tack used between layers of pavement will be paid for at the contract unit price for Item 409.15 Bituminous Tack Coat.

SPECIAL PROVISION
SECTION 400
HOT MIX ASPHALT PAVEMENTS
(Polymer Modified PGAB for HMA)

401.05 Performance Graded Asphalt Binder This section and Special Provision 403 has been amended as follows:

The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. Performance Graded Asphalt Binder shall be polymer modified as detailed below and shall conform to the requirements of AASHTO M 320. The required PGAB shall be a storage-stable, pre-blended, homogeneous, polymer modified asphalt binder that meets a **PG 70-28** to **PG 76-28** grading.

The RTFOT (AASHTO T 240) residue of the polymer modified PGAB shall be tested by the Contractor according to ASTM D 6084 and have a minimum elastic recovery value of 60% at a test temperature of 25 °C. The Contractor shall provide the Department with documentation and test results from the asphalt binder provider showing that the PGAB meets the requirements of this special provision. The Department may take an informational sample of the polymer modified PGAB at any time to evaluate its elastic recovery value.

Payments will be made under the appropriate mixture type used:

Pay Item		Pay Unit
403.2071	19.0 mm Polymer Mod. Hot Mix Asphalt Base	Ton
403.2081	12.5 mm Polymer Mod. Hot Mix Asphalt Surface	Ton
403.2101	9.5 mm Polymer Mod. Hot Mix Asphalt	Ton
403.2111	9.5 mm Polymer Mod. Hot Mix Asphalt Shim	Ton
403.2121	4.75 mm Polymer Mod. Hot Mix Asphalt Shim	Ton
403.2131	12.5 mm Polymer Mod. Hot Mix Asphalt Base	Ton

SPECIAL PROVISION
SECTION 528
STRUCTURAL TIMBER
(Structural Timber and Structural Glued Laminated Timber)

Description
This work shall consist of detailing, furnishing, fabricating, transporting, framing, and placing or erecting structural timber, or structural glued laminated timber; installing hardware; and applying preservative treatment.

Structural timber shall include solid sawn pier caps, Abutment No. 1 sill cap, Abutment No. 2 wearing plate, Abutment No. 2 timber compression blocks, Abutment No. 2 timber beveled washers, timber for Abutment No. 2 repairs, and stringer bridging.

Structural Glued Laminated Timber shall include glued laminated pier caps, glued laminated stringers and the glued laminated deck.

This work shall also consist of the protection, re-use, and reconstruction of salvaged bridge components that are to remain in conjunction with the rehabilitation work shown in the plans.

Materials
Materials shall meet the following requirements:

Structural Timber Structural timber shall conform to the species and stress-grades specified in the Contract and shall be acceptable to the Resident.

(a) Grading Structural timber shall be graded in accordance with the requirements of AASHTO M 168.

(b) Moisture Content The maximum moisture content of material prior to treatment shall be 19 percent.

(c) Minimum Stress Requirements Unless otherwise specified in the Contract, The material shall meet the allowable unit stress requirements for "No. 1 Grade" or better material as specified in the AASHTO *LRFD Bridge Design Specifications*.

(d) Lumber Dimensions

(1) Full-Sawn Minimum full-sawn lumber sizes are nominal dimension sawn sizes after seasoning. Pieces shall be sawn to obtain the full

nominal dimensions specified with only occasional slight variation permitted. Thickness and width dimensions are somewhat variable depending upon the sawmill equipment used.

(2) Rough-Sawn Rough-dry sized lumber is minimally 1/8 inch larger in each dimension than standard (seasoned) dressed sized lumber. Thickness and width dimensions are somewhat variable depending upon the sawmill equipment used.

(3) Dressed Dressed lumber sizes are the finished planed dimensions of material after seasoning. Minimum net finished dimensions for dressed lumber shall be 1/2inch less than nominal dimension, except that the minimum net width of dressed lumber exceeding 6 inches shall be 3/4 inch less than nominal dimension.

(e) Lumber Finish As specified per AASHTO M 168 for manufacturing classifications: e.g., Rough Lumber or Dressed (Surfaced) Lumber.

(f) Soundness Material shall be sound and free from any incipient or advanced form of decay.

(g) Preservative Treatment Preservatives and pressure treatment processes for structural timber shall conform to the requirements of AASHTO M 133.

Structural timber including solid sawn pile caps, Abutment No. 1 sill cap, Abutment No. 2 wearing plate, Abutment No. 2 timber compression blocks, Abutment No. 2 timber beveled washers, and timber for Abutment No. 2 repairs shall be treated with Pentachlorophenol (PCP-A) conforming to AWPA Standard P9 to a minimum retention of 0.50 PCF for a use category (UC) of UC4B.

Structural Glued Laminate Timber

(a) Material Unless otherwise specified, structural glued laminated timber shall conform to the species and stress grades specified in the contract and shall meet the requirements of Section 16 of the AASHTO *LRFD Bridge Construction Specifications.*

Adhesives used in the lamination process shall be for wet-use conforming to ASTM D 2559 and shall comply with all other requirements of ANSI/AITC A190.1. Unless otherwise specified, the appearance grade of the finished glulam products shall be “Industrial.”

(b) Seasoning Unless otherwise specified, all material shall have a moisture content not exceeding 16 percent at the time of gluing laminations.

(c) Preservative Treatment Preservatives and pressure treatment processes for timber shall conform to the requirements of AASHTO M 133.

Glued Laminated Timber Glued laminated timber including glued laminated pile caps, glued laminated stringers and the glued laminated deck shall be treated with Pentachlorophenol (PCP-A) conforming to AWPA Standard P9 to a minimum retention of 0.50 PCF for a use category (UC) of UC4B.

(d) Dimensions The designated dimensions for glued laminated timber shall be taken as the actual net dimensions.

(e) Handling Glued laminated timber shall be carefully handled to avoid damaging the edges and surfaces. The handling, transit, and erection procedures shall meet the requirements of specification AITC 111-79.

General Fabrication Requirements

Glued laminated timber furnished under this Section shall be fabricated by an AITC licensed laminator and shall comply with ANSI/AITC A190.1. In addition to being a licensed laminator, the Fabricator must demonstrate the capability to fabricate the end products specified.

Unless otherwise specified, all material shall be fabricated prior to preservative treatment.

Any field treatment required shall be furnished, prepared, and applied in accordance with the provisions of AWPA Miscellaneous Standard M4.

Prior to handling or erecting pressure treated timber, the Contractor shall read and provide a copy of any Material Safety Data Sheets (or Consumer Information Sheets required for the material) to the Resident. The Contractor shall also provide the Resident with a plan detailing clean-up, storage, and disposal procedures for pressure treated sawdust and cutoffs.

Dimensions and bolt hole locations of prefabricated material shall be within a tolerance of 1/16 inch of the details specified.

Miscellaneous Hardware, Shapes, and Fabricated Materials

(a) Unless otherwise specified, bolts, studs, threaded rods, nuts, and washers shall conform to the requirements of ASTM F 568M, Class 4.6 (ASTM A 307). Carbon steel nuts (unless otherwise specified) shall conform to the requirements of AASHTO M 291M (AASHTO M 291).

(b) Nails and spikes shall conform to the requirements of ASTM F 1667.

(c) Lag screws shall be of low to medium carbon steel and shall be of good commercial quality.

(d) Unless otherwise specified, all steel hardware and fabricated materials shall be galvanized in accordance with AASHTO M 111M/M 111 or AASHTO M232M/M 232, whichever is applicable.

Drawings

As soon as practical after award of the Contract, the Contractor shall prepare and submit Fabrication Drawings for glued laminated timber in accordance with Section 105.

The Contractor shall prepare and submit Construction Drawings for structural timber erection in accordance with Section 105.

The erection plan shall include methods and sequence of structural timber erection, temporary bracing requirements, the equipment to be used for the erection, the necessary computations to indicate the magnitude of stress in the segments during erection and to demonstrate that all of the erection equipment has adequate capacity for the work to be performed, and provisions for all stages of construction, including temporary stoppages. The Contractor shall follow the erection plan as submitted.

Storage

Timber and glued laminated materials stored on the site shall be kept in orderly piles, open stacked, and on supports that provide at least 12 inches of ground clearance. For outside storage, the ground area in the vicinity of the material shall be cleared of grass, weeds, and rubbish. Free circulation of air shall be provided between the tiers, courses, and the ground.

Timber and glued laminated timber (treated or untreated) shall be stored under cover. The covering shall adequately protect these materials from direct and blowing rain or snow while providing full circulation of air.

Fabricated material shall be stored in a manner that will prevent dimensional changes in the members prior to assembly.

Handling

Material shall be carefully handled to avoid damaging the edges or surface and to keep it clean.

Materials shall be picked up or moved with slings or other devices that will not damage or mar the surface. Peavies, cant hooks, timber dogs, or other pointed tools will not be permitted.

Cranes, lifting devices, and other equipment for all structural timber erection shall be of adequate design and capacity to safely erect, align, and secure all members and components in their final positions without damage. The Contractor is solely responsible for the methods and equipment employed for the erection of the structural timber members.

Framing

Timber and glued laminated timber shall be accurately cut and framed to a close fit in such a manner that the joints will have full and even bearing over the entire contact surface. Except as indicated in the Contract, shimming will not be permitted in making joints, and open joints will not be accepted. Nails and spikes shall be driven with the heads set flush with the surface of the wood. Except as directed by the Resident, structure framing and boarding shall be constructed square, plumb, and straight.

When permitted by the Resident, forms or temporary braces may be attached to treated material. Upon removal, any holes, cuts, or abrasions shall be treated in accordance with AWPA Standard M4.

Connections

(a) Holes for Bolts, Dowels, Rods, and Lag Screws Holes for metal round drift-bolts or dowels shall be bored with a bit 1/16 inch less in diameter than the drift-bolt or dowel to be used.

Holes for machine bolts shall be bored with a bit the same diameter as the bolt.

Holes for rods shall be bored with a bit 1/16 inch greater in diameter than the rod.

Lead holes for lag screws and spikes shall conform to requirements specified within the latest edition of the AITC Timber Construction Manual.

(b) Bolts and Washers A washer of the size and type specified shall be used under all bolt heads and nuts that would otherwise come in contact with wood. All nuts shall be effectively locked after they have been finally tightened.

Glued Laminated Decking
Glued laminated decking material shall be furnished and installed in accordance with the Contract, approved Fabrication Drawings, or as directed by the Resident.

Sawn Lumber Stringers
Stringers shall be sized at bearings and shall be placed in position so that knots near edges will be in the compression portions of the stringers. Outside stringers may have butt joints with the ends cut on a taper.

Cross-bridging between stringers shall be neatly and accurately framed and securely toe-nailed as shown on the plans. All cross-bridging members shall have full bearing at each end against the sides of stringers. Unless otherwise specified, cross-bridging shall be placed at the center of each span.

Timber Repairs
Timber repairs shall performed as shown on the plans or as directed by the Resident. Repairs include: plugging or sealing abandoned holes in salvaged stringers that are incorporated in the rehabilitated bridge, epoxy repairs of existing timbers at Abutment #2, timber splices and splints at Abutment #2, and removing and replacing deteriorated members in-kind.

Timber material and connection hardware for repair of existing timber shall conform to the requirements of this specification unless otherwise approved by the Resident.

Repair procedures and products shall be submitted to the Resident for approval at least four weeks prior to beginning the work.

Salvage and Reuse
Where portions of the existing bridge or salvaged bridge components are to be reused, they shall be safeguarded, cleaned, or otherwise prepared and incorporated into the work as shown on the Plans or as directed by the Resident.

Existing timber and lumber shall be accurately cut and configured as shown on the plans.

Method of Measurement
The quantity of Structural Timber and Structural Glued Laminated Timber to be measured for payment will be a lump sum for the complete and accepted work.

The quantity of Structural Timber – Repair to be measured for payment will be a board foot measure (BF). Repairs that include new timber, splints, or splices will be based on the nominal dimensions of these members respectively. Epoxy repairs will be based on the nominal dimension of the repair member and the length of repair.

The quantity of Structural Timber Salvage & Reuse will be a board foot measure (BF) complete and in place.

Basis of Payment

Structural Timber and Structural Glued Laminated Timber will be paid for at the Contract lump sum prices. Structural Timber Repair and Structural Timber Salvage & Reuse will be paid for at the Contract unit price per board foot. All costs for plugging or sealing holes in salvaged stringers will not be paid for directly, but will be considered incidental to related items.

Payment will be full compensation for detailing, fabricating, furnishing, transporting, handling, placing or erecting, and treating the material specified, including all hardware and timber connectors; for providing all falsework, forms, bracing, sheeting, or other timber used for erection purposes; for furnishing and implementing the erection plan, when required; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Pay Item	Description	Pay Unit
528.08	Structural Timber	LS/BF
528.49	Structural Timber - Repair	BF
528.49	Structural Timber Salvage & Reuse	BF
528.9103	Glulam Pier Caps	LS/BF
528.9105	Glulam Deck Panel	LS/BF
528.9106	Glulam Timber Stringers	LS/BF