AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE | PAGE OF PAGES: 1 of 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
2	26-Sep-2003		

6. ISSUED BY CODE

US Army Corps of Engineers, Kansas City District
760 Federal Building, 601 East 12th Street
Kansas City, Missouri 64106-2896

7. ADMINISTERED BY *(If other than item 6)* CODE

8. NAME AND ADDRESS OF CONTRACTOR *(No.,street, county, State and ZIP Code)*

CODE FACILITY CODE

(x) X

9a. AMENDMENT OF SOLICITATION NO.
DACW41-03-B-0013

9B. DATED *(SEE ITEM 11)*
8/25/2003

10A. MODIFICATION OF CONTRACT/ORDER NO.

10B. DATED *(SEE ITEM 13)*

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above number solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [X] is extended, [ ] is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitaiton or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning_____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegraph which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(x) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBER CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF:

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

Blue River Channel Project: Railroad Bridge Modifications (B20, B21, B21b, and B21c)
Jackson County, Missouri

BID OPENING IS DELAYED UNTIL 2:00 PM, LOCAL TIME, 28 OCTOBER 2003, ROOM 164 FEDERAL BLDG, 601 E. 12TH STREET, KCMO 64106-2896

The Solicitation is amended in accordance with the following pages.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
_____ *(Signature of person authorized to sign)*		BY _____ *(Signature of Contracting Officer)*	

The SOLICITATION is amended as follows:

1. SPECIFICATIONS:

   a. Revised Pages: The following pages are deleted and replaced with revised pages of the same numbers. Copies of the revised pages are included in this amendment.

      SF1442 – Page 1 of 169
      Pages 3 thru 9 of 169 (Bidding Schedule)
      02050-3
      02100-1
      02110-2
      02228-3
      02456-4
      02456-8

   b. Deleted Page: Page 5a, which was added by Amendment 0001, has been superceded and is deleted in its entirety.

   c. Revised Section: Section 02221 EXCAVATION, EMBANKMENT, AND BACKFILLING, is deleted and replaced with a section of the same number. A copy of the revised section is included in this amendment.

   d. Submittal Register: The Submittal Register is deleted and replaced with a revised Submittal Register. A copy of the revised Submittal Register is included in this amendment.

2. DRAWINGS: The following changes have been made.

   a. Revised Sheets: Sheets C-1 and S-02 are deleted and replaced with revised sheets of the same numbers. A copy of each revised sheet is included with this amendment.

   b. Narrative Changes: The following changes are made narratively to the drawings.

      1) Sheet S-36, Bridge B21B Table of Elevations is revised to read as follows:

LOCATION	PIER NO. 2	PIER NO. 3	PIER NO. 4
Top of Cap Elevation	755.14	755.14	755.14
Top of Drilled Shaft Elev.	748.64	748.64	748.64
Approximate Rock Elev. *	705.4	704.8	704.6
Top of Rock Socket Elev.	700.4	699.8	699.6
Bottom of Rock Socket Elev.	688.4	687.8	687.6
"L" Dimension	48.2	48.8	49.0

      2) Sheet S-49: In Table of Pile Data, estimated Pile Tip Elevation is changed **to "703".**

      3) Sheet S-18: Change elevation shown for bottom of pier cap from "747.16" **to "747.21".**

4) Sheet S-52, S-53, Bridge B21C: The Tables of Elevations are changed to read as follows:

LOCATION	PIER NO.1		PIER NO. 4	
	SPAN 1	SPAN 2	SPAN 4	SPAN 5
Top of Cap Elevation	755.59	755.34	755.45	755.59
Top of Drilled Shaft Elev.	748.84	748.84	748.84	748.84
Approx. Rock Elev. *	708.8		706	
Top of Rock Socket Elev.	703.8		701	
Bottom of Rock Socket Elev.	691.8		689	
"L" Dimension	45.0		47.8	

LOCATION	PIER NO. 2	PIER NO. 3
Top of Cap Elevation	755.34	755.34
Top of Drilled Shaft Elev.	748.84	748.84
Approx. Rock Elev. *	705.4	703.8
Top of Rock Socket Elev.	700.4	698.8
Bottom of Rock Socket Elev.	688.4	686.8
"L" Dimension	48.4	50.0

3. Bidders are required to acknowledge receipt of this amendment on the Bidding Form, in the space provided, or by separate letter or telegram prior to opening of bids. Failure to acknowledge all amendments may cause rejection of the bid.

4. Bids will be received until 2:00 p.m., local time, 28 October 2003, in Room 164 Federal Building, 601 E. 12th Street, Kansas City, Missouri 64106-2896, and at that time publicly opened. Points of Contact are as follows:

Contract Specialist:	Rosalind Whitfield	816-983-3923
Technical Manager	Daniel Jones	816-983-3603

SOLICITATION, OFFER, AND AWARD (Construction, Alteration, or Repair)	1. SOLICITATION NO.	2. TYPE OF SOLICITATION	3. DATE ISSUED	PAGE OF	PAGES
	DACW41-03-B-0013	[X] SEALED BID (IFB) [ ] NEGOTIATED (RFP)	8/25/2003	1	479

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.
	W58XUW-3136-6249	

7. ISSUED BY CODE	8. ADDRESS OFFER TO
U.S. Army Engineer District, Kansas City 760 Federal Building, 601 E. 12th Street Kansas City, Missouri 64106-2896 Tel: (816) 983-3845 Fax: (816) 426-5169	See Item 7 Bid Opening Room: 164

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. (Include area code)	
	Rosalind Whitfield	816-983-3923	Ext. (NO COLLECT CALLS)

SOLICITATION

NOTE: In sealed bid solicitation "offer" and "offeror" mean "bid" and "Bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying no., date):*

Blue River Channel Project:
Railroad Bridge Modifications (Bridges B20, B21, B21b, and B21c)
Jackson County, Missouri

Description of Work: Remove or partially remove four existing railroad bridges. Reconstruct two existing single track bridges. Construct a new double track bridge, including widening the track bed approach. Construction consists of structural steel and concrete, precast prestressed concrete panels, H-piles, drilled piers and close coordination with the Railroad and a channel construction contractor. All track work will be performed by the Railroad.

NAICS: 237990
FSC: Y222

11. The Contractor shall begin performance within 10 calendar days and complete it within 450 calendar days after receiving
[ ] award [X] notice to proceed. This performance period is [X] mandatory, [ ] negotiable. (See Section 00800)

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES", indicate within how many calendar days after award in Item 12B.)*	12B. CALENDAR DAYS
[X] YES [ ] NO	10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and one copies to perform the work required are due at the place specified in Item 8 by 2:00 p.m. local time 10/28/2003 *(date).* If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee [X] is, [ ] is not required. NOT TO EXCEED 20% OF TOTAL BID AMOUNT

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 90 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

Project: Blue River Channel Project: Union Pacific Railroad (UPRR) Bridge Modifications (Bridges B21, B21b, and B21c) Jackson County, Missouri

BIDDING SCHEDULE

ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	EST. AMT.
0001	Contingency Plan		Lump Sum		
0002	Demolition General		Lump Sum		
0003	Protective Services		Lump Sum	$40,000	
0004	Clearing and Grubbing		Lump Sum		
0005	Common Excavation	105,000	Cubic Yard		
0006	Railroad Embankment	1,620	Cubic Yard		
0007	Solid Waste Excavation	3,000	Cubic Yards		
0008	In-Channel Fill	14,700	Cubic Yards		
0009	Waste Tires	300	Each		
0010	Riprap, 15”	8,000	Ton		
0011	Riprap, 24”	25,360	Ton		
0012	Riprap, 36”	930	Ton		
0013	Bedding	9,700	Ton		
0014	Seeding & Mulching	15	Acre		
0015	Stone Surfacing for Access Roads	1,900	Ton		
0016	72” RCP, Class III		Lump Sum		
0017	Load Test H-Piles		Lump Sum		
0018	Load Test Drilled Piers		Lump Sum		

ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	EST. AMT.
	Bridge No. B21				
0019	Remove existing Bridges B20 & B21		Lump Sum		
0020	Bridge B21		Lump Sum		
0021	Steel Piles (HP14x89), B21	4,493	LF		
0022	Miscellaneous Steel ASTM A36 (Galv.) B21		Lump Sum		
0023	Miscellaneous Items, B21		Lump Sum		
				Subtotal B21	

ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	EST. AMT.
	Bridge No. B21B				
0024	Remove existing Bridge B21B		Lump Sum		
0025	Bridge B21B		Lump Sum		
0026	Steel Piles (HP14x89), B21B	489	LF		
0027	72” Drilled Piers, B21B	292	LF		
0028	72” Drilling (Soil Drilling), B21B	154	LF		
0029	72” Drilling (Rock Drilling), B21B	30	LF		
0030	Drilled Pier (Rock Socket), B21B	72.0	LF		
				Subtotal B21B	

ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	EST. AMT.
	Bridge B21C				
0031	Remove existing Bridge B21C		Lump Sum		
0032	Bridge B21C		Lump Sum		
0033	Steel Piles (HP14x89), B21C	453	LF		
0034	72” Drilled Piers, B21C	384	LF		
0035	72” Drilling (Soil Drilling), B21C	204	LF		
0036	72” Drilling (Rock Drilling), B21C	40	LF		
0037	Drilled Pier (Rock Socket), B21C	96.0	LF		
				Subtotal B21C	
0038	Mobilization and Demobilization		Lump Sum		
0039	Performance and Payment Bonds		Lump Sum	**Subtotal Items 0038 and 0039**	
0040	OPTION 1: Predrilling, H-Piles	100	LF	**Subtotal Option 1**	

GRAND TOTAL OF BID ITEMS $_____

NOTICE TO BIDDERS; For your bid to be responsive, you must declare below the single accounting practice that you apply to contracts to calculate field office overhead for all change orders, modifications and requests for equitable adjustment. Pursuant to Federal Acquisition Regulations (FAR) Parts 31.105(d)(3) and 31.203(d)(1), an accounting practice that varies from modification to modification is not allowable. Select one of the following:

1. TIME DISTRIBUTION BASE FOR A PER DIEM RATE _____
   If you use this practice, see Special Clause
   “Field Office Overhead Per Diem Rate.”

2. DIRECT COST DISTRIBUTION BASE FOR A PERCENTAGE MARKUP _____
   If you use this practice, see Special Clause
   “Field Office Overhead Per Diem Rate.”

3. OTHER ACCOUNTING PRACTICE THAT IS ALLOWABLE UNDER THE FAR AND THAT USES A SINGLE DISTRIBUTION BASE _____

YOU MUST DESCRIBE THE ACCOUNTING PRACTICE IN SUFFICIENT DETAIL BELOW TO ALLOW THE CONTRACTING OFFICER TO DETERMINE WHAT ACCOUNTING PRACTICE IS BEING UTILIZED BY YOUR COMPANY AND THAT IT COMPLIES WITH THE FAR.

FAILURE TO FULLY COMPLY WITH THE ABOVE REQUIREMENT OR, IF ALTERNATIVE 3 IS DECLARED, FAILURE TO PROVIDE A DESCRIPTION WHICH CLEARLY STATES OR DESCRIBES A CONSISTENT ACCOUNTING PRACTICE USING A SINGLE DISTRIBUTION BASE, WILL BE CAUSE FOR YOUR BID TO BE REJECTED.

NOTES:

(1) Bid prices must be entered for all items of the Bidding Schedule. Award will be made as a whole to one Contractor.

(2) All quantities are estimated.

(3) All extensions of the unit prices shown will be subject to verification by the Contracting Officer. In case of variation between the unit price and the extension, the unit price will be considered to be the bid.

(4) If a modification to a bid is submitted which provides for a lump sum adjustment to the total cost, the application of the lump sum adjustment to each price in the Bidding Schedule must be stated. If it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every price in the Bidding Schedule.

(5) Bidder’s attention is directed to SECTION 00100 paragraph titled “Arithmetic Discrepancies” wherein are procedures for correction of errors.

(6) Bidder’s attention is directed to SECTION 00100 paragraph titled “Missouri Sales and Use Tax.”

(7) Bidder’s attention is directed to CONTRACT CLAUSE titled “Contract Prices—Bidding Schedules.”

(8) Bidder’s attention is directed to the CONTRACT CLAUSES wherein the apparent low bidder is required to submit a subcontracting small business and small disadvantaged business subcontracting plan. The subcontracting plan shall be submitted on form which appears at the end of SECTION 00600. Submission of the plan is required prior to award. Award will not be made under this solicitation before the plan is approved by the Contracting Officer.

(9) Award will be made to the low responsive and responsible bidder and as a whole to one Contractor. Bidders are required to bid on all items. Bidder's attention is directed to paragraph entitled "Contract Award - - Sealed Bidding - - Construction" in SECTION 00800 for details.

(10) Items in the bidding Schedule represent all work required in the plans and specifications. The descriptive title given above, of the principal features of each item as listed, does not in any way limit the responsibility of the bidder for making a thorough investigation of the drawings and specifications to determine the scope of work included in each item.

(11) Bid item descriptions are supplemented by details and dimensions on the drawings and by the following approximate quantities and references.

(i) Item 0001, "Contingency Plan", includes all work required to prepare a Contingency Plan in accordance with SECTION: CONTINGENCY PLAN in the event Hazardous or Toxic Materials are encountered during the duration of the contract.

(ii) Item 0002, "Demolition General", includes all work required to demolish and dispose of existing items of construction in accordance with SECTION 02050: DEMOLITION, other than those items of demolition for which a separate lump sum amount is listed in the Bidding Schedule.

(iii) Item 0003, “Protective Services”, includes services provided by the Railroads on the project site as described in SECTION 02100: CONSTRUCTION GENERAL.

(iv) Item 0004, “Clearing and Grubbing”, includes all work specified in SECTION 02110: CLEARING AND GRUBBING for channel improvements, access roads, railroad track embankment, bridge work and clearing overbank fill areas for wasting excavated bank material .

(v) Item 0005, “Common Excavation”, includes excavating, hauling, and disposal of excavated materials as specified in SECTION: EXCAVATION, EMBANKMENT, AND BACKFILLING. It includes excavation of approximately 8,000 cubic yards of existing rock to be reused. It excludes solid waste excavation, waste tires, and placement of existing rock.

(vi) Item 0006, “Railroad Embankment”, includes all work necessary to construct the railroad track bed embankment required as shown in the plans and as specified in SECTION 02221: Excavation, Embankment, and Backfilling.

(vii) Item 0007, “Solid Waste Excavation” includes all work necessary to excavate, haul and dispose of solid waste materials (including tipping fees) as specified in SECTION 02221: Excavation, Embankment, and Backfilling.

(viii) Item 0008, “In-Channel Fill” includes all work required to place in-channel fill (including 8000 cubic yards of existing rock) as noted in the drawings and as specified in SECTION: EXCAVATION, EMBANKMENT, AND BACKFILLING, and SECTION: ROCKFILL.

(ix) Item 0009, “Waste Tires” includes all work necessary to remove, haul and dispose of surface and buried waste tires (including disposal fees) as specified in SECTION 02221: Excavation, Embankment, and Bankfilling.”

(x) Item 0010, “Riprap, 15”, includes furnishing, delivering, and placing all 15” riprap as specified under SECTION: RIPRAP).

(xi) Item 0011, “Riprap, 24”, includes furnishing, delivering, and placing all 24” riprap as specified under SECTION: RIPRAP.

(xii) Item 0012, “Riprap, 36”, includes furnishing, delivering, and placing all 36” riprap as specified under SECTION: RIPRAP.

(xiii) Item 0013, “Bedding”, includes all work required to furnish, deliver, and place bedding for riprap as specified in SECTION: RIPRAP.

(xiv) Item 0014, “Seeding and Mulching”, includes all grading, tillage, fertilization, seeding, and mulching as specified in SECTION: SEEDING AND MULCHING. Acreage is area estimated for native seeding.

(xv) Item 0015, “Stone Surfacing for Access Roads”, includes materials and work required to construct roads for site access and maintenance (Approx. 32 Sta.). The item includes grading and surfacing aggregate, as specified in SECTION: CRUSHED STONE SURFACING (TEXT DELETED).

(xvi) Item 0016, “72” RCP, Class III”, includes all work required to furnish and install 44 lineal feet of access road pipe and two flared end sections as specified in SECTION: DRAINAGE PIPE.

(xvii) Item 0017, “Load Test H-Piles” includes testing H-piles in Abutment No. 1, Piers No. 1 thru 3, and Abutment No.2 in Bridge B21; (b) Abutment No. 1 in Bridge B21B; (c) Abutment No. 1 in Bridge B21C as covered in SECTION 02456: STEEL H-PILES.

(xviii) Item 0018, “Load Test Drilled Piers” includes testing drilled piers at (a) Piers No. 2 thru 4 in Bridge B21B; Piers No.1 thru 4 in Bridge B21C as covered in SECTION 02466: DRILLED PIERS.

(xix) Item 0019, "Remove existing Bridges B20 & B21”; Item 0024, “Remove existing Bridge B21B”(Spans 1 thru 4); Item 0031, “Remove existing Bridge B21C” (spans 1 thru 5), includes all work required to demolish and dispose of the existing railroad bridge and appurtenances as indicated on the contract drawings and specified in SECTION 02050: DEMOLITION and SECTION 02100: CONSTRUCTION GENERAL.

(xx) Item 0020, “ Bridge B21”; Item 0025, “Bridge B21B”; and Item 0032, “Bridge B21C” includes:

(a) Structural Concrete in Abutment No.1, Piers No. 1 thru 3, Abutment No. 2 in Bridge B21; Abutment No. 1, Piers No. 2 thru 4 (pier cap and pier above existing groundline) in Bridge B21B; Abutment No. 1, Piers 1 thru 4 (pier cap and pier above existing groundline), exist pier 5 in Bridge B21C as specified in SECTION 03300: CAST-IN-PLACE STRUCTURAL CONCRETE;
(b) Reinforcing Steel A615, (Grade 60) in Abutment No.1, Piers No. 1 thru 3, Abutment No.2 in Bridge B21; Abutment No.1, Piers No. 2 thru 4 (pier cap and pier above existing groundline) in Bridge B21B; Abutment No. 1, Piers No. 1 thru 4 (pier cap and pier above existing groundline), exist Pier No. 5 in Bridge B21C as indicated and as specified in section 03200 CONCRETE REINFORCEMENT;
(c) Structural Steel ASTM A709, Grade 50W and bearing devices in spans 1 thru 4 in Bridge B21; spans 1 thru 4 in Bridge B21B; spans 1 thru 5 in Bridge B21C as indicated and as specified in SECTION 05120 STRUCTURAL STEEL .
(d) Precast Prestressed Concrete Panels in Bridge B21 (Concrete, reinforcing steel, prestressing strands as covered in specification SECTION 03415: PRECAST-PRESTRESSED CONCRETE and SECTION 03230: STEEL STRESSING TENDONS AND ACCESSORIES FOR PRESTRESSED CONCRETE).
(e) Deck waterproofing materials in Bridge B21 includes Butyl rubber sheets, Asphalt sheets, Butyl Gum tape, Butyl rubber cement, adhesive as indicated in the drawings and specification.
(f) All required structural excavation as noted on the drawings, dewatering for piers, hauling, and disposal as specified in SECTION 02221: EARTHWORK, EMBANKMENT AND BACKFILLING.

(xxi) Item 0021 in Bridge B21, Item 0026 in Bridge B21B and Item 00033 in Bridge B21C, “Steel Piles (HP 14x89)” includes all work and materials required to install bridge piling, including pile point reinforcement in (a) Abutment No.1, Piers No. 1 thru 3, Abutment No. 2 in Bridge B21; (b) Abutment No 1 in Bridge B21B; (c) Abutment No. 1 in Bridge B21C as covered in the plans and as specified in SECTION 02456: STEEL H-PILES.

(xxii) Item 0027 in Bridge B21B and Item 0034 in Bridge B21C, “72” Drilled Piers” includes all work and materials required (excluding drilling) to construct 72” diameter drilled pier shafts from top of drilled shaft to 5’ below top of bedrock elevation, including concrete, reinforcing steel, and permanent casing, for (a) Piers No. 2 thru 4 in Bridge B21B; (b) Piers No. 1 thru 4 in Bridge B21C, as shown in the plans and as specified in SECTION: DRILLED PIERS.

(xxiii) Item 0028 in Bridge B21B and Item 0035 in Bridge B21C, “72 Drilled Piers (Soil Drilling)”, includes all work and materials required for drilling the 72” shaft in soil from existing groundline to top of bedrock elevation as shown on the drawings and as specified in SECTION: DRILLED PIERS.

(xxiv) Item 0029 in Bridge B21B and Item 0036 in Bridge B21C, "72" Drilled Piers (Rock Drilling), includes all work and materials required for drilling the 72" shaft in rock as shown in the drawings and as specified in SECTION: DRILLED PIERS.

(xxv) Item 0030 in Bridge B21B and Item 0037 in Bridge B21C: "Drilled Pier (Rock Socket)" includes all work and materials required to construct 5'-6" diameter drilled pier rock sockets at (a) Piers No. 2 thru 4 in Bridge B21B; (b) Piers No. 1 thru 4 in Bridge B21C as shown in the plans and as specified in SECTION 02466: DRILLED PIERS.

(xxvi) Item 0022 in Bridge B21, "Miscellaneous Steel ASTM A36 (Galv.)", includes handrail posts, handrail brace, 3/8"x 2 1/2" x 2 1/2" plates, cover plates, deck drains, grip strut brace supports, and (at Pier 2 only), sheet pile and anchor bolts , as shown in the plans and as specified in SECTION 05500: MISCELLANEOUS METALS.

(xxvii) Item 0023, "Miscellaneous Items, B-21", includes miscellaneous items covered in the drawings and specified in SECTION 05500: MISCELLANEOUS METALS", not included in Item 0022, above.

(xvii) Item 0040 (OPTION 1), "Predrilling H-Piles" includes all work and materials required to predrill for H-Pile installation at the B-21 bridge piers as directed by the Contracting Officer as specified in SECTION: STEEL H-PILES.

(xviii) PAYMENT FOR MOBILIZATION AND DEMOBILIZATION, PAYMENT ITEM NO. 0038 (DFAR 252.236-7004)(DEC 1991)

(a) The Government will pay all costs for the mobilization and demobilization of all of the Contractor's plant and equipment at the contract lump sum price for this item.

(1) Sixty percent (60%) of the lump sum price upon completion of the Contractor's mobilization at the work site.

(2) The remaining percent upon completion of demobilization.

(b) The Contracting Officer may require the Contractor to furnish cost data to justify this portion of the bid if the Contracting Officer believes that the percentages in paragraph (a)(1) and (2) of this clause do not bear a reasonable relation to the cost of the work in this contract.

(1) Failure to justify such price to the satisfaction of the Contracting Officer will result in payment, as determined by the Contracting Officer, of--

(i) Actual mobilization costs at completion of mobilization;
(ii) Actual demobilization costs at completion of demobilization; and
(iii) The remainder of this item in the final payment under this contract.

(2) The Contracting Officer's determination of the actual costs in paragraph (b)(1) of this clause is not subject to appeal.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 EXISTING STRUCTURES

Existing bridge structures shall be removed as indicated. TEXT DELETED.

3.2 UTILITIES

When utility lines are encountered that are not indicated on the drawings, the Contracting Officer shall be notified prior to further work in that area.

3.3 DISPOSITION OF MATERIAL

Title to material and equipment to be demolished, except Government salvage, any historical items, and Railroad items as discussed under SECTION 02100: CONSTRUCTION GENERAL, is vested in the Contractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed.

3.3.1 Salvageable Items and Material

Contractor shall salvage items and material to the maximum extent possible.

3.3.1.1 Material Salvaged by the Contractor

Material salvaged by the Contractor shall be stored as approved by the Contracting Officer and shall be removed from Government property before completion of the contract. Material salvaged by the Contractor shall not be sold on the site.

3.3.1.2 Items Salvaged for the Government and Railroad

Salvaged items which are to remain the property of the Government or Railroad shall be removed in a manner to prevent damage, and packed or crated as needed to protect the items from damage while in storage or during shipment. Items damaged during removal or storage shall be repaired or replaced to match existing items. Containers shall be properly identified as to contents.

3.3.1.3 Historical Items

Historical items discovered on the project shall be reported to the Contracting Officers Representative and removed in a manner to prevent damage. The following historical items shall be delivered to the Government for disposition: Corner stones, contents of corner stones, and document boxes wherever located on the site.

3.4 CLEAN UP

Debris and rubbish shall be removed from excavations. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply. See SECTION 02221: Excavation, Embankment, and Backfilling for solid waste disposal.

3.5 BIDDING SCHEDULE ITEMS

Bid schedule items applicable to the work in this section are as follows:

SECTION 02100

CONSTRUCTION, GENERAL

PART 1 GENERAL

1.1 SCOPE

This section outlines general construction requirements. Detailed requirements are specified in subsequent sections.

1.1.1 UP Railroad's Obligations (UPRR-Government Agreement dated 14 SEP 1994 and Amended Agreement dated April 2, 2003.

The Railroad will furnish all labor, material and equipment required to perform and complete the following work:

a. All trackwork, including removal, construction and relocation;
b. Preparation of railroad subgrade [existing roadbed] and placement of subballast for trackwork, and construction/alteration of railroad access roads [i.e., access roads used solely by the Railroad, and not for COE contractor use];
c. All temporary and permanent alterations, removals, and installation of railway signals, appurtenances, communication facilities, and wire lines;
d. Installation of new bridge ties and reinstallation of rail, installation of walkways and handrails on new or reconstructed portions of bridges B-21b and B-21c;
e. Engineering/supervision/permitting to perform the above;
f. All flagmen, inspectors, and protective services as required to perform the above; and
g. Incidental work necessary to perform the above.

1.1.2 Government Obligations (By Above Agreements)

The Government Contractor is responsible for performing and completing the Government's obligations. The plans and specifications detail the work to be performed by the Contractor, and include the following:

a. Removal of existing bridges B-20 and B-21;
Construction of new bridge B-21;
b. Alteration of bridges B-21b and B-21c (excluding the work described in Paragraph 1.1.1 (d) above);
c. Construction of an earth embankment at the new bridge B-21;
d. Obtain any permits necessary to perform the work;
e. Execute a Contractor's Right-of-Entry Agreement from the Railroad before commencing work on Railroad property (which will include access for construction to be used by COE contractor);
f. Pro
vide evidence of required insurance coverage to the Government at least 10 calendar days prior to entering Railroad property; and
g. Notify the Railroad in advance of commencing/cessation of work on or near Railroad property in accordance with Railroad requirements.

1.1.3 Channel Construction

The channel construction work shown under the bridges was deleted from a previous channel contract and is now included as part of this contract.

1.1.4 Burlington Northern Railroad

Excavation and rock placement work will be performed adjacent to BNSF main line

3.1.3 Removal of Existing Structures

Existing structures shall be removed within the limits of the work and at other locations as required, unless otherwise noted. Ends of abandoned pipe remaining in place beyond the excavation limits shall be plugged with concrete for a minimum distance of 2 feet. Abandoned pipes or conduits 2 inches or less in diameter may be removed, capped, or plugged, unless otherwise indicated.

3.2 BLASTING

Blasting will not be allowed.

3.3 DISPOSAL

All material shall be handled and disposed of in accordance with all applicable federal, state and local regulations.

3.3.1 Concrete, Bricks, and Waste Tires

Concrete, asphaltic concrete, cinderblocks, bricks, and waste tires shall be disposed of as stated in SECTION: EXCAVATION, EMBANKMENT, AND BACKFILLING.

3.3.2 Wood Materials

Materials such as cleared and grubbed wood materials, brush, limbs, and other similar materials may be chipped and disposed of off-site or in a permitted disposal facility. Disposal by burning will not be permitted. The contractor may, at his option, make such materials available to the public for firewood as specified below.

3.3.3 Solid Waste

Materials defined as solid waste in 10 CSR 80-2, "General Provisions" (such as garbage, scrap lumber, metal objects, fencing, etc.) shall be disposed of in a permitted landfill.

3.3.4 Salvage Operations

Contractor may claim and salvage any timber which he may consider of value, but shall not delay in any manner the work under this Contract with salvage operations. Contractor may, at his option, make timber available to the public through establishment of a permitting process implemented and administered by Contractor. Access to timber shall be granted only to those individuals or parties which obtain a permit from Contractor; a condition of the permit will be indemnification of the Government from all losses or injuries resulting from the granting of access to the timber.

3.4 MEASUREMENT AND PAYMENT

Payment shall be made at the contract lump sum bid price. The lump sum bid price shall include all labor, materials, hauling, tipping fees, and use of all equipment and tools required to complete the accepted work.

3.5 BIDDING SCHEDULE ITEMS

The Bidding Schedule item applicable to the work covered by this section is as follows:

Item	Unit
Clearing and Grubbing	Lump Sum

Existing rockfill shall be placed at the locations as indicated in the plans, and on the upper left bank slopes between Bridges B-21 and B-21B. Placement on the left bank slope will be allowed as directed after the indicated areas are completed first. Except for rockfill materials placed against structures, and rockfill placed below the existing water surface, which may be placed in one lift, rockfill shall otherwise be placed in lifts not exceeding 3 feet in thickness. Care shall be taken in placing stone against pipes and other structures; stone placed within a distance of 1 foot from the exterior of pipes or structures shall be placed by hand; stone placed in the remainder of the area may be placed in one lift. Bridging shall be broken down so that the resulting fill forms a fully stable mass. Dumping and spreading shall be controlled to obtain rock to rock contact and to not concentrate larger pieces of stone. Rockfill placed on upper bank slopes shall be spread to a 2-foot thickness in a manner that presents a uniform appearance as determined by the Contracting Officer's field representative.

3.2 SCALES AND WEIGHHOUSE

Scales shall be standard truck scales of the beam type and of sufficient size and capacity to accommodate all trucks used in hauling material. Scales shall be tested, approved, and sealed by an inspector of the State Inspection Bureau charged with scales inspection within the State of Missouri, or by the Contracting Officer if the services of an official inspection bureau of the State are not available. Scales shall be recalibrated and resealed as often as necessary to ensure continuous accuracy. The number of standard weights necessary for testing the scales shall be on hand at all times.

3.3 MAINTENANCE

The contractor shall maintain the rock fill until the project is completed and any material displaced by any cause, except as provided in paragraph: DAMAGE TO WORK of the SPECIAL CLAUSES, shall be repaired to the lines and grades shown on the drawings as directed.

3.4 MEASUREMENT AND COMPUTATION OF QUANTITIES

Rockfill shall be paid for at the unit price per ton listed in the Bidding Schedule. Payment quantities will be based on weigh bills delivered to the Contracting Officer concurrent with the delivery of each truckload of rockfill.

3.5 BIDDING SCHEDULE ITEMS

Bidding schedule item applicable to work covered by this section is as follows:

- SECTION INCLUDED ONLY FOR PLACEMENT INFORMATION-

For a differential type hammer, there is a slight rise of the hammer base during each upward stroke. The type of hammer used shall be subject to demonstration by the Contractor and approval by the Contracting officer. The Contractor shall submit the following information for each impact hammer proposed; (a). Make and Model; (b). Ram Weight; (c). Anvil Weight; (d). Rated Stroke; (e). Rated Energy Range; (f). Rated speed; (g). cushion weight, dimensions and material type.

2.2.2 Driving Helmets and Pile Cushions

A driving helmet, including hammer cushion, shall be used between the top of the pile and the ram to prevent impact damage to the pile. The driving helmet and cushion combination, shall be capable of protecting the head of the pile, minimizing energy absorption and dissipation, and transmitting hammer energy uniformly over the top of the pile. The driving helmet shall fit loosely around the top of the pile so that the pile is not restrained by the driving cap if the pile tends to rotate during driving. The cushion may be made of solid wood or of laminated construction using plywood, softwood, or hardwood boards or other cushion material as approved by the Contracting Officer. The cushion shall completely cover the top surface of the pile and shall be retained by the driving helmet. The minimum thickness of the cushion shall be 3 inches and the thickness shall be increased so as to be suitable for the size and length of pile, character of subsurface material encountered, hammer characteristics, and required driving resistance.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Pile Driving

Excavation shall be stopped at 1 foot above foundation grade before piles are driven. When pile driving is completed, excavation shall be completed to lines and grades shown. Piles shall be driven to or below the "calculated" tip elevation to reach the required bearing capacity. The pile hammer used for driving shall be the same type, operated at the same rate and in the same manner, as that used for driving the test piles A new pile cushion shall be used at the start of driving for each pile and the cushion shall be replaced whenever it has become highly compressed, charred, burned, or deteriorated in any manner during driving. Each pile shall be driven continuously and without interruption until the required depth of penetration and penetration rate per blow have been attained. When driving is interrupted or the rate of blows retarded for any reason, a careful record shall be kept of the extent of the delay or retardation. Any decrease in the penetration per blow immediately following such stoppage, shall be cause to suspect the interpretation of the preceding blows per foot. Wave equation analysis will be used to determine estimated pile bearing capacity from driving resistance and pile stresses during driving for each hammer/cushion combination to be used on the jobsite. A bearing graph and pile stresses shall be provided by the Contractor. If a pile fails to reach the "calculated" tip elevation or if a pile reaches the "calculated" tip elevation without reaching the required driving resistance, the Contractor shall notify the Contracting Officer and perform directed corrective measures.

3.1.2 Pre-Drilling

Drilling or augering will be permitted only with the approval of the Contracting Officer. The hole shall be two inches less in diameter than the diagonal dimension of the pile and shall be backfilled with an approved flowable fill material after installation of the pile.

3.1.3 Jetting of Piles

minimum, the daily report shall include the calculated driving stresses, transferred energy, and estimated pile capacity at the time of testing. Variations from previous trends in the dynamic test data shall also be noted. Daily field reports shall be faxed to 816-426-5462 ATTN: Dan Jones.

3.2.6.2 Formal Reports

Typed formal reports summarizing the dynamic testing results shall be submitted to the Contracting Officer by the subcontractor within 5 days after completion of all test pile driving at each bridge.

3.2.7 Additional Testing

If the number of dynamic tests are adjusted during pile installation, an equitable adjustment in contract price will be made as discussed in the Construction Clauses.

3.3 COMPUTATION OF QUANTITIES

Quantities of piling will be computed in linear feet. The computations will be based on the information contained in the Contractor's driving log, and the following controls:

Full allowance for the number of linear feet of satisfactorily driven piles below the cutoff elevation.

Fifty percent allowance for cutoffs. Lengths of cutoffs will be determined by subtracting the actual length driven below cutoff elevation and the length indicated on the drawings or as directed.

Full allowance below cutoff elevation plus an additional 50 percent allowance below cutoff elevation for piles which are pulled at the direction on the Contracting officer and determined to be in good condition.

Fifty percent allowance below cutoff elevation of pulled piles which are redriven and which have previously been determined to be in good condition.

No allowance for piles which are pulled at the direction of the contracting officer and determined not to be in good condition.

Full allowance for piles which are pulled at the direction of the Contracting Officer and determined not be in good condition.

Splices: No direct payment will be made for splicing.

3.4 BIDDING SCHEDULE ITEMS

Bid schedule items applicable to work covered in this section are as follows:

ITEMS	UNIT
Steel H-Piles (HP14x89), B21	Linear Foot
Steel H-Piles (HP14x89), B21B	Linear Foot
Steel H-Piles (HP14x89), B21C	Linear Foot
Load Test H-Piles	Lump Sum
Predrilling, H-Piles	Linear Foot

-- End of Section --

SECTION 02221

EXCAVATION, EMBANKMENT AND BACKFILLING

PART 1 GENERAL

1.1 GENERAL

This section covers all earthwork, including excavation, embankment, and backfilling, complete.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AREMA	(2003) American Railway Engineering and Maintenance of Way Association

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 698	(1998) Laboratory Compaction Characteristics of Soil Using Standard Effort (56,000 ft-lbf/cu. ft.)
ASTM D 422	(1963; R 1998) Particle-Size Analysis of Soils
ASTM D 1140	(1997) Amount of Material in Soils Finer than the No. 200 Sieve
ASTM D 1556	(R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 2167	(1994) Density and Unit Weight of Soil in in Place by Sand Cone Method
ASTM D 2216	(1998) Laboratory Determination of Water (Moisture) Content of Soil and Rock
ASTM D 2487	(1998) Classification of Soils for Engineering Purposes
ASTM D 2937	(1994) Density of Soil and Soil-Aggregate in Place by hte Drive-Cylinder Method
ASTM D 3017	(R1996) Water Content of Soil and Rock in Place by Nuclear Methods
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 4318	(1998) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

MISSOURI CODE OF STATE REGULATIONS (CSR)

10 CSR 80	Solid Waste Management Regulations

1.3 DEFINITIONS

Degree of Compaction: degree of compaction required is expressed as a percentage of the maximum dry density obtained by the test procedure presented in ASTM D 698, abbreviated hereinafter as percent laboratory maximum density.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Procedure for Excavation, Hauling, and Disposal; G, GD.

Construction Methods; G, RE.

Plan of operations;G, GD.

Advance notice on the opening of excavation. A plan of operations shall be prepared and submitted as specified in SECTION 02100 CONSTRUCTION, GENERAL. Earthwork shall be coordinated in strict accordance with this plan.

Permitted Waste Tire Haulers and/or Disposal Facilities; G, RE.

Names/addresses of permitted waste tire haulers and/or disposal facilities the Contractor intends to use, including evidence of current permitted authority.

- A method that documents the total number, volume or weight of waste tires removed from the project each day.
- Written documentation of all landfills proposed to receive solid waste excavation. Define material destination and provide evidence of current permitted authority.

SD-03 Product Data

Receipts or Invoices from Haulers or Disposal Facilities; G, RE.

Copies of all invoices or receipts received from waste tire haulers and/or disposal facilities.

Receipts or Invoices from Permitted Landfills; G, RE.

Copies of all invoices or receipts received form permitted landfills at which solid waste excavation is disposed.

SD-05 Design Data

Documentation of Shoring/Cofferdam Design.

Documentation of shoring/cofferdam design prepared by Missouri Professional Engineer.

SD-06 Test Reports

Field Testing Lab; G, RE.

Testing.

Within 24 hours of conclusion of physical tests, 5 copies of test results, including calibration curves and results of calibration tests. Send 1 additional copy of test results directly to EC-GD.

SD-07 Certificates

Testing Control. G, RE.

Qualifications of the commercial testing laboratory or Contractor's testing facilities.

1.5 CONTINGENCY PLAN

If potentially contaminated materials (defined in Section: Contingency Plan) are encountered during any phase of excavation, all work in the immediate area shall be discontinued. The Contracting Officer, Railroad's representative, and Contractor's Health and Safety Officer shall be immediately notified and a determination will be made as to whether the Contingency Plan should be activated.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Satisfactory Materials

Satisfactory materials are classified in ASTM D 2487 as CL,CL-ML and CH, and shall be free of trash, debris, roots or other organic matter, or stones larger than 3 inches in any dimension

2.1.2 Unsatisfactory Materials

Unsatisfactory material includes those materials not defined as satisfactory.

2.1.3 Source of Materials

Materials for the embankment, channel fill, and backfill work shall be satisfactory materials obtained from channel banks in the vicinity of the bridges. Other sources proposed by the Contractor shall be made in writing and shall be approved by the Contracting Officer

2.1.4 Use and Disposal of Excavated Materials

Excavated satisfactory materials shall be used to construct the embankment, channel slopes, and backfills. Excess satisfactory materials shall be disposed of in designated fill areas or as directed.

Any concrete, asphalt concrete, cinderblocks, and bricks encountered during excavation shall be disposed of in a designated fill area, and covered with a minimum 2-foot surface layer of satisfactory material. Concrete and asphalt concrete shall not have a dimension exceeding 3 feet. Steel reinforcement shall be cut to within 1 inch of the concrete surface and disposed of as solid waste.

Any excavated material which is classified as solid waste under 10 CSR 80 (such as garbage, scrap lumber, metal), shall be removed from the project site and disposed of in a permitted landfill.

Waste tires that are encountered shall be disposed of in accordance with 10 CSR 80 and all other local, state and federal regulations. Tires

shall not be stockpiled on ground at any location on the project for more than 1 day. For a list of waste tire haulers and disposal companies or general information about the disposal of waste tires, contact the following:

Dan Fester
Missouri Department of Natural Resources
Solid Waste Management Program
P.O. Box 176
Jefferson City, MO 65102
573-526-7635

PART 3 EXECUTION

3.1 EXCAVATION

Excavation shall conform to the limits indicated. Excavation shall extend a sufficient distance from walls and footings to allow for placing and removal of forms. Excavations below indicated depths will not be permitted except to remove unsatisfactory material. Unsatisfactory material encountered below the grades shown shall be removed as directed and replaced with satisfactory material. Satisfactory material removed below the depths indicated without specific direction of the Contracting Officer shall be replaced at no additional cost to the Government to the indicated excavation grade with satisfactory materials, except that concrete footings shall be increased in thickness to the bottom of the overdepth excavations. Satisfactory material shall be placed and compacted as specified in the following paragraphs. Existing rockfill and riprap which is to be removed shall be included as excavation and placed in the areas designated in the plans. Rockfill placed on channel slopes shall be placed to two foot thickness.

3.2 DRAINAGE AND DEWATERING

3.2.1 Drainage

Surface water shall be directed away from excavation and construction site so as to prevent erosion and undermining of foundations. Diversion ditches, dikes and grading shall be provided and maintained as necessary during construction. Excavated and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site and the area immediately surrounding the site and affecting operations at the site shall be continually and effectively drained.

3.2.2 Dewatering

The Contractor shall take actions as required and shall provide and maintain equipment necessary to remove and dispose of all surface and groundwater entering excavations, trenches, or other parts of the work. Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavated slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. French drains, sumps, ditches or trenches will not be permitted within 10 feet of the foundation of any structure, except with specific written approval, and after specific contractual provisions for restoration of the foundation area have been made. Control measures shall be taken by the time the excavation reaches the water level in order to maintain the integrity of the in situ material. While the excavation is open, the water level shall be maintained continuously below the working level.

3.3 DOCUMENTATION OF SHORING/COFFERDAM DESIGN

Shoring, including sheet piling, shall be furnished and installed as necessary to protect workmen, banks, excavation, structures, and utilities. Shoring, bracing, and sheeting shall be removed as excavations are backfilled, in a manner to

prevent caving, unless otherwise approved by the Contracting Officer. Design for shoring, including cofferdams for dewatering, shall be the Contractor's responsibility. The Contractor shall submit documentation that the design and details have been reviewed and approved by a licensed Missouri professional engineer.

3.4 BLASTING

Blasting will not be permitted.

3.5 SLOPES AND SURCHARGES

Existing slopes are unstable in many areas. Slopes shall not be surcharged with stockpiled material, equipment, or other heavy loads near or on the slopes except as provided below. Any surcharging of slopes shall be carefully monitored. The adjacent ground surface shall be observed for the purpose of early detection of any longitudinal cracks approximately paralleling the excavation. In the event that cracks or landslides occur, all work shall be stopped in the immediate area until any necessary repairs are completed as directed by the Contracting Officer. Remedial measures will be at the expense of the Government in accordance with the CONTRACT CLAUSES, unless the slide is due to the failure of the Contractor to comply with the specifications, to take reasonable precautions, or to exercise sound construction practices in the conduct of the work.

3.5.1 Bank Slopes

Bank slopes, including the area within 15 feet landward of the top of bank, shall not be surcharged with loads, equipment of other items, exceeding 600 psf except as noted below.

3.5.2 Other Slopes

Slope surcharging in other areas shall be submitted for approval by the Contracting Officer.

3.5.3 Load Calculation

The surcharge load is calculated using the outer dimensions of the equipment's undercarriage unit exerting the load on the ground surface. This depends on how close the equipment's undercarriage units are spaced, such as the tandem axle assembly or a crane crawler assembly. These assemblies are to be considered as exerting uniform load on the area under the entire assembly. For example, a crane has a gross weight of 200,000 pounds. Each track has a length of 18.0 feet on the ground surface, and the width of the undercarriage out to out of track pads is 14.0 feet (which makes the area under the crawler assembly 18.0 feet times 14.0 feet, which equals 252.0 square feet). The surcharge load on the ground is 200,000 pounds divided by 252.0 square feet, or 793.6 pounds per square foot. Therefore, this crane could not be operated without the use of mats to distribute the surcharge load. Mats must be approved by the Contracting Officer.

3.5.4 Restrictions on Material Hauling Vehicles and Other Construction Equipment

This equipment shall not be parked on haul roads or bank slopes or within 15 feet landward of the top of slope during high river stages or at any other time when it is not necessary as directed by the Contracting Officer's representative. All vehicles delivering material to the construction site shall have a waybill, delivery ticket or bill of lading showing the gross weight of the vehicle and signed by a public or bonded weighmaster. The weighing shall be done on public or other scales which have been certified by the state. Highway vehicles delivering material shall not exceed the state and city gross weight limitations:

Vehicle Description	Maximum Gross Weight

Single axle vehicle	30,000 lbs.
Tandem axle vehicle	46,000 lbs.
Tandem axle pup trailer	34,000 lbs.
Tractor semitrailer vehicles with single axles	48,000 lbs.
Tractor semitrailer vehicles with tandem axles	80,000 lbs.

Vehicles equipped with a triple axle group shall not be used.

Highway vehicles used to haul materials on the construction site, in general, shall not exceed the maximum gross weights shown in the paragraph above. The gross weight of vehicles not having waybills shall be determined by the Contracting Officer's representative using a certified waybill showing the empty weight of the vehicle and calculating the weight of the material being hauled. Off-highway hauling units such as rear dump trucks, motorized wheeled tractor scrapers and motorized wheeled bottom or rear dump units shall not be used to haul materials on public thoroughfares.
Tracked-type tractors equipped with dozers, winches and other attachments shall have a maximum gross weight not to exceed 70,000 pounds. Towed scrapers may be used with the above tracked-type tractors. Motor graders shall have a maximum gross weight not to exceed 36,000 pounds. Loaders, wheel or track type, shall have a maximum gross weight, without load, of 50,000 pounds. Pile driving equipment, cranes, drag lines and hydraulic excavators shall be moved and operated on mats when necessary in accordance with the square foot loads as specified in paragraph: "Slopes and Surcharges." Other types of equipment not specified above shall be approved for use by the Contracting Officer's representative.

3.6 EXCAVATED MATERIALS

Satisfactory excavated material shall be used for the embankment and as backfill. Satisfactory material in excess of that required for the permanent work and all unsatisfactory material shall be disposed of in a channel contract fill area or as directed by the Contracting Officer

3.7 CHANNEL CROSSINGS

Channel crossings shall be removed whenever, in the opinion of the Contracting Officer, the river stage and tributary drainage would be adversely affected due to anticipated precipitation and/or river stages. At the conclusion of construction operations, the Contractor shall remove all crossings, and channel capacities shall be restored to their original capacity, or final grade, as a minimum. Low-water crossings may be constructed within the limits of the right-of-way or the sole purpose of providing haul roads for equipment. Culverts installed under channel crossings shall provide a minimum unobstructed opening of 77 square feet (equivalent or two 84-inch diameter pipes). However, the Contractor shall make his own determination as to the required size beyond the minimum, and any loss or damage to these crossings will be his responsibility. The flow line of the culverts shall coincide with the flowline of the channel.

3.8 BACKFILL ADJACENT TO STRUCTURES

Backfill shall be constructed from satisfactory materials free of organic or frozen material and rocks with any dimension greater than 2 inches.
Excavations for all structures, and other deep excavations shall be backfilled as soon as approved by the Contracting Officer to minimize the chance of high water stages or rainfall affecting the undisturbed material standing on temporary construction slopes. As far as practicable, backfill shall be brought up evenly on each side of the structure and sloped to drain away from the walls. Backfill operations shall be performed in conjunction with the excavation to minimize the length of open excavation at any one time. Backfill shall not be placed on

surfaces that are muddy, frozen, contain frost or ponded water nor shall fill contain frozen earth, snow, or ice. Backfill materials shall be placed in loose, uniform horizontal lifts not to exceed 6"thick. Backfill materials shall not be placed against foundation walls prior to 7 days after completion of the walls. Placement adjacent to walls and structures shall be accomplished in such a manner as to prevent wedging action or eccentric loading upon or against any structure. Heavy equipment for spreading and compacting backfill shall not be operated closer to foundation or abutment walls than a distance equal to the height of backfill above the top of footing. Portions of the backfill which are inaccessible to rolling shall be thoroughly compacted by tamping with approved power tampers to the degree of compaction specified. In these areas, compact in layers not more than 4 inches in loose thickness with power-driven hand tampers suitable for the material being compacted. Compaction shall be accomplished by equipment well suited to the material being compacted, as approved by the Contracting Officer and may include sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment well suited to the material being compacted. Backfill adjacent to structures shall be compacted at 95% of maximum dry density with moisture contents ranging from -1% to +3% of optimum moisture content. Backfill requirements adjacent to bridge abutments are further specified in Subparagraph 3.10.2.3, Compaction Requirements.

3.9 IN-CHANNEL SOIL FILL

In-channel fill shall be placed as required on the right bank transitions and under bridges, except as noted on the plans. Placement shall be in horizontal loose lifts of 8-10" thickness and compacted to not less than 90% of maximum lab density. Moisture contents shall be in the range of 0% to +5% of optimum moisture content.

3.10 RAILROAD EMBANKMENT

Railroad embankment shall be constructed by the COE contractor to the limits and cross-section shown in the plans.

3.10.1 Preparation of Ground Surface

Vegetative strippings shall be disposed-of in accordance with SECTION 02110: CLEARING AND GRUBBING. The prepared ground surface shall be scarified to a depth of 6" and moistened or aerated as required just prior to placement of embankment materials to assure adequate bond between embankment material and the prepared ground surface. Depressions and holes resulting from clearing and grubbing operations and voids created by the removal or part removal of old foundations and structures shall be backfilled to original grade, or to the excavation limits shown on the applicable drawing, with impervious material compacted as specified for the site or as directed by the Contracting Officer.

3.10.2 Placement and Compaction

3.10.2.1 Construction

Railroad embankment shall be constructed from satisfactory materials free of organic or frozen material and rocks with any dimension greater than 2 inches. Satisfactory materials shall be placed in horizontal layers not exceeding 6 inches in loose thickness, or 4 inches when hand-operated compactors are used. Unsatisfactory material shall be removed and replaced with satisfactory materials. The surface shall be scarified to a depth of 6 inches before the fill is started. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. Each layer shall be placed full width of the embankment and shall be carried substantially horizontal with sufficient slope to provide satisfactory drainage during construction. Each layer shall be spread uniformly on a soil surface that has been moistened or aerated as necessary and scarified or otherwise broken up in such a manner that the fill will bond with the surface on which it is placed. Where the surface of any layer in the fill has been made too

smooth to bond properly with the succeeding layer, it shall be loosened by scarifying or disking to a depth of 2 to 4 inches, and shall be recompacted. Hauling equipment shall be operated to avoid rutting as much as practicable. When ruts appear in the surface of any layer of material to be rolled, the surface shall be scarified or disked so that all ridges and bridging between ruts are broken down, and the surface of the layer regraded and made uniform before compaction. After spreading, each layer shall be plowed, disked, or otherwise broken up; moistened or aerated as necessary; thoroughly mixed; and compacted.

3.10.2.2 Compaction

Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. Each lift shall be compacted by distributing the travel of the compaction equipment uniformly over the entire length and width of the embankment. Minimum subgrade density shall be as specified. All materials to be compacted shall be placed on surfaces free from water or mud. Areas shall be scarified or disked, and recompacted after becoming unduly wet or after freezing before additional impervious fill material is placed. Other placement requirements include:

a. Materials shall be wetted and dried as necessary to facilitate compaction

b. Fill material shall not be placed upon frozen surfaces nor shall frozen earth, snow, or ice be placed in fill material.

If for any reason, the surface to receive fill becomes compacted in such a manner that a weakness might be induced or made too smooth to bond properly with the succeeding layer, the surface shall again be thoroughly loosened for a depth of 2 to 4 inches, and recompacted. The finished surface shall present a uniform appearance. Haul and spreading equipment shall manipulate the soil to evenly distribute the compactive effort over each lift, unless otherwise directed. Intermediate lifts shall be graded for proper drainage and in a manner which promotes improved drying of placed material for each succeeding lift. The surface of all excavations, embankments, and subgrades shall be finished to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown. The degree of finish for all graded areas shall be within 0.1 foot of the grades and elevations indicated. Gutters and ditches shall be finished in a manner that will result in effective drainage. The surface of areas to be turfed shall be finished to a smoothness suitable for the application of turfing materials.

3.10.2.3 Compaction Requirements

Each layer of fill and backfill shall be compacted to not less than the percentage of maximum dry density specified below:

	Percent Laboratory Maximum Density Satisfactory Material
Fill, backfill and new RR embankment more than 100 feet from bridge abutment backwalls and extending to approximately 300'from abutment backwalls shown on Drwg. RW-04 (By COE Contractor)	95
Fill, backfill, new RR embankment within 100 ft of bridge abutment backwalls (By COE Contractor)	100

Reworked existing railroad roadbed/ subgrade to 2' depth (TO BE PERFORMED BY UPRR FORCES AS NECESSARY). This compaction work is outside the COE contractor construction limits shown on Drawing RW-04 and is a UPRR responsibility.	95

Compaction moisture content for railroad embankment shall be at optimum moisture content or within a range between 0% to -4% of optimum moisture. Approved compacted subgrades that are disturbed by the Contractor's operations or adverse weather shall be scarified to a depth of 6" and recompacted herein before to the required density prior to further construction thereon. Recompaction over underground utilities shall be by hand tamping. The Railroad's engineer, the Contracting Officer's representative, and the Government contractor's supervisor shall be present during placement and compaction testing for both the embankment and backfill work located within 100 ft of abutment backwalls and the subgrade material replacement work.

3.11 OVERBANK FILL AREAS

Fill shall be placed at its natural moisture content in uniform horizontal lifts not exceeding 10" loose thickness and compacted with 3 overlapping passes of a D8 dozer or equivalent. Placement depths in the designated areas with vary from 3-4' or as directed. In addition to in-channel fill and railroad embankment, the following overbank fill areas are available for placement of channel excavation:

a. Designated fill areas "G", "E2" and "D" as shown on Drawing S-02 in the plans.

b. An offsite fill area located upstream of Blue Parkway and adjacent to Brighton Ave (approx. 54th St), as designated by the Contracting Officer. This site will be used last if determined necessary by the Contracting Officer. Fill can be placed in one lift to a depth of 3-4' and bladed to a uniform surface and traffic compacted with a dozer.

3.12 COMPACTION EQUIPMENT

Only equipment approved by the Contracting Officer shall be used for compaction. During embankment construction, continuous use of approved equipment is mandatory.

3.12.1 Tamper-type Rollers

Tamper-type rollers shall consist of heavy-duty, double drum units with a drum diameter not less than 60 nor more than 72 inches. The drums shall be liquid or sand and liquid ballasted. Each drum shall have staggered feet uniformly spaced over the cylindrical surface such as to provide approximately 3 tamping feet for each 2 square feet of drum surface. The tamper feet shall be 7 to 9 inches in clear projection from the cylindrical surface of the roller and shall have a face area of not less than 5 nor more than 10 square inches. The weight of the roller shall be between 1,000 pounds and 2,000 pounds per linear foot of drum length empty and be capable of being ballasted to at least 3,500 pounds per foot of linear drum length. The design and operation of the tamping roller shall be subject to approval. Rollers shall be self-propelled or drawn by a crawler-type tractor. Self-propelled rollers exceeding the empty weight requirements may be used provided that by the substitution of tamping feet having a face area not exceeding 14 square inches, the nominal foot pressure on the tamping feet of the self-propelled roller can be adjusted to approximate the nominal foot pressure of the towed roller for the particular working condition required for the towed rollers. If the self-propelled rollers cause shearing of the fill or laminations in the fill, the Contracting Officer may direct that the self-propelled rollers be removed from the fill and that the tractor-drawn tamping rollers be used. For self-propelled rollers, in which steering is accomplished through the use of rubber-tired wheels, the tire pressure shall not exceed 40 pounds per square inch. Rollers shall be operated at a speed not to exceed 3.5 miles per hour.

3.12.2 Crawler-type Tractors

Crawler-type tractor used for traffic compaction shall weigh not less than 40,000 pounds.

3.12.3 Power Tampers

Power tampers shall be approved subject to being capable of obtaining the required densities.

3.12.4 Other

Other types of compaction equipment that the Contractor demonstrates that will obtain results equal to the specified equipment may be used when approved in writing.

3.12.5 Sprinkling Equipment

Sprinkling equipment shall consist of pressure distributors designed to apply water in controlled quantities to variable widths of surface. Sprinkling equipment depending solely on gravity flow for dispensing water to the fill will not be permitted.

3.13 COMPACTION COVERAGE

3.13.1 Tamping Rollers

A pass shall consist of complete coverage of the area to be compacted, with each trip of the roller overlapping the adjacent trip not less than 1 foot.

3.13.2 Crawler Tractor

One pass shall consist of complete coverage by the tractor, with sufficient overlap of the successive tread paths to insure complete coverage.

3.13.3 Power Tampers

Surfaces to be compacted in confined areas inaccessible for rolling shall be tamped uniformly with approved power tampers.

3.14 QUALITY CONTROL

3.14.1 Testing

Testing shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government. Testing shall be performed by an approved commercial testing laboratory or may be tested by the Contractor subject to approval. If the Contractor elects to establish testing facilities, no work requiring testing will be permitted until the Contractor's facilities have been inspected and approved by the Contracting Officer. The first inspection shall be at the expense of the Government. Cost incurred for any subsequent inspections required because of failure of the first inspection will be charged to the Contractor.

3.14.2 Test Standards

The Contractor shall obtain representative samples of the materials required for the tests. In addition, and upon request, samples shall be submitted to the Contracting Officer for Government testing. Tests shall be performed in accordance with the following requirements:

3.14.2.1 Classification

Classification shall be determined in accordance with ASTM D 2487.

3.14.2.2 Atterberg Limits

Atterberg Limits shall be performed in accordance with ASTM D 4318.

3.14.3 Moisture-Density Relationship

The maximum density and the optimum moisture content of the impervious fill material and that portion which has the characteristics of impervious material shall be determined in accordance with ASTM D 698. A minimum of four points shall be run for each curve. Additional points shall be added to develop the curve in the range of specified moisture content.

3.14.4 Density Tests

Density tests on compacted materials shall be taken in the field in accordance with ASTM D 1556. When test results indicate, as determined by the Contracting Officer, that compaction is not as specified, the material shall be removed, replaced, and recompacted to meet specification requirements, at no additional expense to the Government. Tests on recompacted areas shall be performed to determine conformance with specification requirements. Inspections and test results shall be certified by a registered professional civil engineer. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the test. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

3.15 NUMBER OF TESTS

3.15.1 Initial Tests

The Contractor shall test all materials from required excavations or commercial sources that he plans to utilize for fill and backfill. The tests shall be representative of the various materials utilized and shall be sufficient in number to show the range in properties of these materials. The location and elevation sampled shall be carefully selected to truly represent the material to be utilized. The following minimum number of tests shall be performed on the materials prior to the placement of the material in the work:

Minimum Number of Tests

Type of Test	Material	Required as Per
Atterberg Limits	Impervious	Each compaction test and as required to delineate acceptability of material prior to placement in the embankment.
Compaction Test	Impervious	Minimum one each for impervious fill, and as required to develop a full family of compaction curves for the material but not less than one for each soil classification used.

3.15.2 Tests on In-Place Material

The Contractor shall run sufficient in-place density tests and determine in-place moisture contents when applicable to be sure that the moistures are within the specified limits and that the compaction is satisfactory. Sufficient compaction

test specimens shall be run on representative samples from each density test to determine the optimum moisture and density. The location for each test shall be carefully selected to insure that the sample taken is truly representative of the in-place materials in the vicinity. If, in the opinion of the Contracting Officer, the location for a test is not representative of the in-place materials, the Contractor shall change the location of the test as directed. Location, approximate elevation and results of each test shall be recorded. The minimum number of tests shall be as follows:

3.15.3 Fill and Backfill Material Gradation

One test per 500 cubic yards stockpiled or in-place source material. Gradation of fill and backfill material shall be determined in accordance with ASTM D 422.

3.15.4 In-Place Densities

a. One test per 1000 square feet for each lift of embankment fill or backfill areas compacted by other than hand-operated machines.

b. One test per 500 square feet for each lift of embankment fill or backfill areas compacted by hand-operated machines.

c. One test per 100 linear feet for each lift of wall and footing backfill, or every 500 square feet of each lift, whichever is less.

3.15.5 Check Tests on In-Place Densities

If ASTM D 2922 is used, in-place densities shall be checked by ASTM D 1556 at the rate of one test by ASTM D 1556 for every ten tests by ASTM D 2922. At least one field density test performed in accordance with ASTM D 1556 shall be made daily and used as a check of the results obtained with ASTM D 2922.

3.15.6 Moisture Contents and Atterberg Limits

One test of satisfactory materials on each in-place density test.

3.15.7 One Point Compaction Tests

One Per in-place density test.

3.15.8 Additional Tests

Whenever there is a reason to suspect that materials do not meet the specified requirements or that the moisture content or density obtained is not within the specified limits, additional tests shall be performed as directed.

3.15.9 Reporting Data

Reporting data shall include all pertinent information related to the previously specified tests, material sources, type of equipment used, and other information required by the Contracting Officer. Copies of the required form for reporting this data will be furnished by the Contracting Officer. It shall be completed in its entirety and submitted to the Contracting Officer at 30-day intervals.

3.16 SUBGRADE AND EMBANKMENT PROTECTION

During construction, embankments and excavations shall be kept shaped and drained. Ditches and drains along subgrade shall be maintained in such a manner as to drain effectively at all times. The finished subgrade shall not be disturbed by traffic or other operation and shall be protected and maintained by the Contractor in a satisfactory condition until ballast and ties are placed. The storage or stockpiling of materials on the finished subgrade will not be permitted. No ballast shall be laid until the subgrade has been checked and

approved, and in no case shall ballast be placed on a muddy, spongy, or frozen subgrade.

3.17 TEMPORARY RIPRAP PROTECTION

Broken concrete may be used as temporary slope protection at the piers and abutments as approved by the Contracting Officer's representative. Concrete dimension shall not exceed 18 inches. Reinforcement steel shall be removed to within one inch of the surface of the concrete, and disposed of in a permitted landfill. The Contractor shall coordinate with the Contracting Officer to determine timeframe to place permanent riprap before temporary riprap is used.

3.18 MEASUREMENT AND COMPUTATION OF QUANTITIES

3.18.1 Quantities

Quantities will be computed in cubic yards using the average-end-area method, based on the survey data and the indicated finish lines.

3.18.2 Common Excavation and Fill

Excavation, except structural excavation for bridges, shall be paid as "Common Excavation". A survey of the areas to be excavated or filled shall be made by the Contractor after completion of clearing and grubbing operations. The indicated finish lines shown on the drawings, including authorized overexcavation, shall constitute the final lines for measurement purposes and shall include payment for transportation and placement of materials. Removal of materials in slides caused through fault or negligence of the Contractor, unauthorized overexcavation, and excavations for the convenience of the Contractor shall not be measured for payment.

3.18.3 Railroad Embankment

Measurement and payment for Railroad Embankment shall be for the required amount to complete the railroad embankment at the contract unit price per cubic yard for railroad embankment. The embankment to be paid will be the number of cubic yards required to complete the work, measured in the final positions. This payment will constitute full compensation for all labor, equipment, tools, supplies, hauling, and incidentals necessary to complete the work.

3.18.4 Solid Waste Excavation

"Solid Waste Excavation" shall be measured and paid for as described above for Common Excavation. The actual quantity of solid waste removed may vary up or down from the amount indicated in the bid schedule. If the Contracting Officer directs the Contractor to increase or decrease the amount of solid waste waste removed, an equitable adjustment will be made to the contract price as appropriate, by the Contracting Officer.

3.19 WASTE TIRE DISPOSAL

Waste tires shall include all work necessary to remove and dispose of surface and buried tires encountered during construction.
Payment shall be made for each tire removed and disposed of at the unit bid price for "Waste Tires". If the contracting officer determines that additional work is to be performed in the removal of additional tires, the Contractor shall perform all additional work directed by the Contracting Officer and an equitable adjustment will be made to the contract price.

3.20 BIDDING SCHEDULE ITEMS

Bidding schedule items applicable to the work in this section are as follows:

ITEM	UNIT
Common Excavation	Cubic Yard
Railroad Embankment	Cubic Yard
Solid Waste Excavation	Cubic Yard
Waste Tires	Each
In-Channel Fill	Cubic Yard

-- End of Section --

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		01355A	SD-01 Preconstruction Submittals															
			Environmental Protection Plan	1.7	G	RE												
		01600	SD-01 Preconstruction Submittals															
			Accident Prevention Plan		G	GD												
			SD-06 Test Reports															
			Air Monitoring Results	3.2														
			Daily Safety Records	1.3.2														
			Training Records	3.3														
			Site Entry Logs															
			SD-07 Certificates															
			Qualifications of the Certified		G	RE												
			Industrial Hygienist and the															
			Qualified Person(s)															
		01780A	SD-11 Closeout Submittals															
			As-Built Drawings	1.2.1	G	RE												
			As-Built Drawings	1.2.1.5	G	RE												
			Warranty Management Plan	1.3.1	G	RE												
			Warranty Tags	1.3.5	G	RE												
			Final Clean-Up		G	RE												
		01800	SD-01 Preconstruction Submittals															
			Contingency Plan	3.1	G	RE												
		02050	SD-01 Preconstruction Submittals															
			Work Plan		G	RE												
		02221	SD-01 Preconstruction Submittals															
			Procedure for Excavation,		G	GD												
			Hauling, and Disposal															

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		02221	Construction Methods		G	RE												
			Plan of operations		G	GD												
			Permitted Waste Tire Haulers		G	GD												
			and/or Disposal Facilities															
			SD-03 Product Data															
			Receipts or Invoices from Haulers		G	GD												
			or Disposal Facilities															
			Receipts or Invoices from		G	GD												
			Permitted Landfills															
			SD-05 Design Data															
			Documentation of	3.3														
			Shoring/Cofferdam Design															
			SD-06 Test Reports															
			Field Testing Lab		G	RE												
			Testing	3.14.1														
			SD-07 Certificates															
			Testing Control		G	RE												
		02228	SD-03 Product Data															
			Aggregate Sources	2.1.2														
			SD-06 Test Reports															
			Test Methods	1.3.1														
			SD-09 Manufacturer's Field															
			Reports															
			Field Acceptance Tests	1.3.1														
			Survey Data	1.3.2														
			Weigh Bills	3.4														

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		02229	SD-01 Preconstruction Submittals															
			Plan of Operations	1.3.1	G	GD												
			SD-03 Product Data															
			Aggregate Sources		G	RE												
			SD-06 Test Reports															
			Test Methods		G	G												
			SD-09 Manufacturer’s Field															
			Reports															
			Field Test Reports		G	GD												
			Survey Data															
			Weigh Bills and Delivery Tickets															
		02300	SD-03 Product Data															
			Fertilizer	2.6.1														
			SD-04 Samples															
			Mulch	2.6.2	G	RE												
			SD-07 Certificates															
			Organic Mulch Tackifier	2.6.3	G	RE												
			Seed	2.6.4	G	RE												
		02456	SD-02 Shop Drawings															
			Fabricated Additions		G	RE												
			Pile Layout		G	RE												
			SD-03 Product Data															
			Equipment	2.2	G	GD												
			Pile Driving	3.1.1														
			SD-06 Test Reports															
			Field Tests and Inspections		G	GD												

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		02456	SD-07 Certificates															
			Materials	2.1	G	RE												
			Welders	3.1.7	G	RE												
		02466	SD-02 Shop Drawings															
			Drilled Pier Layout		G	GD												
			SD-03 Product Data															
			Equipment		G	RE												
			Drilled Piers		G	RE												
			SD-06 Test Reports															
			Test Methods and Procedures		G	GD												
			Load Tests		G	GD												
			SD-07 Certificates															
			Qualifications	1.5	G	RE												
			Drilled Piers		G	RE												
		02501	SD-03 Product Data															
			Equipment															
			SD-06 Test Reports															
			Sampling and Testing		G	G												
			Density Tests		G	RE												
		02720	SD-07 Certificates															
			Pipeline Testing		G	RE												
			Joint Compounds		G	RE												
			SD-08 Manufacturer’s Instructions															
			Placing and Jointing Pipe		G	RE												
		03100a	SD-02 Shop Drawings															
			Concrete Formwork	3.1	G	RE												

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		03100a	SD-03 Product Data															
			Design Analysis and Calculations	1.3	G	RE												
			Form Materials	2.1	G	RE												
			Falsework		G	RE												
			SD-07 Certificates															
			Fiber Voids		G	RE												
		03200a	SD-02 Shop Drawings															
			Concrete Reinforcement System	3.1	G	GD												
			SD-07 Certificates															
			Reinforcing Steel	2.1	G	GD												
		03230	SD-02 Shop Drawings															
			Installation Drawings for Stressing	3.1.2	G	RE												
			Tendons and Accessories															
			SD-03 Product Data															
			Prestressing Method and	3.1.1	G	RE												
			Equipment															
			Materials Disposition Records	3.3	G	RE												
			Prestressing Operations Records	3.1.8	G	RE												
			SD-06 Test Reports															
			Stressing Tendons and	2.1	G	GD												
			Accessories															
			SD-07 Certificates															
			Certification of Prestressing	1.4	G	RE												
			Technicians															
		03301	SD-03 Product Data															
			Concrete Mixture Proportioning	2.2	G	GD												

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		03301	Batch Plant	3.1.2	G	GD												
			Concrete Mixers	3.1.3	G	GD												
			Capacity	3.1.1	G	GD												
			Conveying Equipment and		G	RE												
			Methods															
			Placing Equipment and Methods		G	RE												
			Testing Technicians	3.7.1	G	RE												
			Concrete Transportation	3.7.1	G	RE												
			Construction Inspector (CTCI)															
			Construction Joint Treatment	3.2.4	G	RE												
			Curing and Protection	3.5	G	RE												
			Cold-Weather Placing	3.3.5	G	RE												
			Hot-Weather Placing	3.3.6	G	RE												
			Finishing		G	RE												
			SD-06 Test Reports															
			Aggregate Quality		G	GD												
			Temperature Study	3.3.1	G	GD												
			Uniformity of Concrete Mixing		G	GD												
			Tests and Inspections	3.7	G	RE												
			SD-07 Certificates															
			Cementitious Materials	2.1.1	G	GD												
			Impervious-Sheet Curing	2.1.4.1	G	GD												
			Materials															
			Air-Entraining Admixture	2.1.3.1	G	GD												
			Other Chemical Admixtures	2.1.3.4	G	GD												

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		03301	Membrane-Forming Curing	2.1.4.2	G	GD												
			Compound															
			Epoxy Resin	2.1.7	G	GD												
			Nonshrink Grout	2.1.6	G	GD												
			SD-04 Samples															
			Aggregates	1.4.1.1	G	RE												
			Cementitious Materials,		G	RE												
			Admixtures, and Curing Compound															
		03415a	SD-02 Shop Drawings															
			Erection	3.9	G	RE												
			SD-03 Product Data															
			Design Calculations	1.2.1.3	G	AE												
			Concrete Mixture Proportions	2.2	G	GD												
			Concrete Mixture Proportions	2.2.2	G	GD												
			Construction Records	3.10	G	RE												
			SD-04 Samples															
			Precast Panel	1.4	G	RE												
			SD-05 Design Data															
			Erection Plan	3.9.4	G	RE												
			SD-06 Test Reports															
			Materials	1.2.2	G	GD												
			Materials	2.1	G	GD												
			Concrete	1.2.2.2	G	RE												
			SD-07 Certificates															
			Cement	2.1.1	G	GD												
			Pozzolan		G	GD												

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ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		03415a	Air-Entraining Admixture	2.1.2	G	GD												
			Water-Reducing Admixture	2.1.2	G	GD												
			Accelerating Admixture		G	GD												
			Aggregates		G	GD												
			Air Content	1.2.2.3	G	RE												
		05090a	SD-03 Product Data															
			Welding Procedure Qualifications	1.5	G	RE												
			Welder, Welding Operator, and	1.6	G	RE												
			Tacker Qualification															
			Inspector Qualification	1.7	G	RE												
			SD-06 Test Reports															
			Quality Control Plan		G	RE												
			Records of tests and inspections															
		05120	SD-01 Preconstruction Submittals															
			Welding Procedures	3.1.3.3														
			SD-02 Shop Drawings															
			Structural Steel System	2.1	G	RE												
			SD-04 Samples															
			High Strength Bolts and Nuts	2.1.5	G	RE												
			Carbon Steel Bolts and Nuts	2.1.6	G	RE												
			Nuts Dimensional Style	2.1.7	G	RE												
			Washers	2.1.8	G	RE												
			Anchor Bolts		G	RE												
			SD-05 Design Data															
			Erection		G	RE												
			SD-07 Certificates															

SUBMITTAL REGISTER

CONTRACT NO.
Civil

TITLE AND LOCATION
Translate Bridges Specs

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		05120	Mill Test Reports		G	GD												
			Welder Qualifications		G	RE												
			Fabrication	3.1	G	RE												
		05500a	SD-02 Shop Drawings															
			Miscellaneous Metal Items	1.6	G	RE												
			SD-04 Samples															
			Miscellaneous Metal Items	1.6	G	RE												
		07131	SD-02 Shop Drawings															
			Waterproofing System		G	RE												
			SD-07 Certificates															
			Materials	2.1	G	GD												
			SD-08 Manufacturer’s Instructions															
			Installation		G	RE												