CLARK COUNTY COMMISSION
111 E. COURT ST., SUITE 110
KAHOKA, MO 63445

REQUEST FOR BID

BID OF

MoDOT Vendor Number (if required)_____

Bidder Name_____

Bidder Address_____

_____

FOR
CONSTRUCTING OR IMPROVING

BRIDGE NO. 11000371
RRP-000S(582)

CART RD 110
Clark County

4-18-2023

Howe Company LLC
804 E. Patton St.
Macon, MO 63552
(660)-395-4693 (Tel)
660-395-4694(Fax)
www.howecompany.com

Revised 9-20-2017

RRP-000S(582)

CLARK COUNTY COMMISSION
111 E. COURT ST., SUITE 110
KAHOKA, MO 63445

CONTRACT

AND

BOND

FOR

CONSTRUCTING OR IMPROVING

BRIDGE NO. 11000371
RRP-000S(582)

CART RD 110
Clark County

ADVERTISEMENT – ROAD & BRIDGE WORK
NOTICE TO CONTRACTORS

Sealed proposals, addressed to "**CLARK COUNTY COMMISSION**" and endorsed "PROPOSAL FOR CONSTRUCTING **BRIDGE NO. 11000371**, will be received by the Commission until 11:00 a.m. on May 18, 2023 at the office of the County Clerk and at that time will be publicly opened and read. Bids should be delivered to: Clark County Clerk, 111 E. Court St., Suite 110, Kahoka, MO 63445

Project RRP-000S(582), Bridge No. 11000371, County Road 110 over BNSF Railroad, will be awarded to the lowest responsive, responsible bidder - complying with the Conditions of the Contract Documents within the Owner's budget - whose bid provides the lowest price for Clark County Project RRP-000S(582) may be awarded as an individual project or as a packaged bundle including Project RRP-000S(581), Sycamore Road Over BNSF Railroad, a similar nearby bridge project.

The proposed work includes: The construction of a new 210' three span, NU-43 prestressed concrete I-girder bridge over BNSF Railways with steel piling (14" CE CIP), concrete abutments, concrete piers, concrete barrier curb with chain link fence, steel guardrail, traffic control, and all appurtenances.

Special Needs: If you have special needs addressed by the Americans with Disabilities Act, please notify the County Clerk at 660-727-8241 at least 5 working days prior to the bid opening you plan to attend.

The wage rates applicable to this project have been predetermined as required by law and are set forth in the bid proposal. When Federal wage rates are applicable and included, this contract is subject to the "Work Hours Act of 1962" (P.L. 87-581; Stat. 357) and implementing regulations.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract, Section 3, Segregated Facility, Section 109, and E.O. 11246

The County of Clark hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, businesses owned and controlled by socially and economically disadvantaged individuals will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, religion, creed, sex, age, ancestry, or national origin in consideration for an award.

All bidders must be on MoDOT's Qualified Contractor List per Section 102.2 of the Missouri Standard Specifications for Highway Construction, 2020 Edition including all revisions. The contractor questionnaire must be on file 7 days prior to bid opening. No bidder may withdraw his bid within 90 days after the actual date of the opening thereof.

Contractors and subcontractors who sign a contract to work on public works projects must provide a 10-hour OSHA construction safety program, or similar program approved by the Department of Labor and Industrial Relations, to be completed by their on-site employees within sixty (60) days of beginning work on the construction project.

Plans and specifications are on file at the office of the Consulting Engineer, HOWE COMPANY, LLC., 804 E. PATTON ST., MACON, MO. Complete instructions to bidders and proposal blanks may be obtained at the Engineers Office for a **nonrefundable** fee of $50.00. The plans and specifications will be mailed upon payment of $25.00 for shipping and handling, for a total of $75.00 for each set. The shipping and handling charges will be waived if the prospective bidder contacts the Engineer with a valid account number for shipping services with United Parcel Service (UPS), so the shipping cost is billed to the bidder. Hard copies of the bid documents can be ordered by calling 660-395-4693. A PDF version of the bid documents may be obtained from www.howecompany.com for a nonrefundable fee of $50.00 paid through PAYPAL. Bidders must obtain their bid documents from either Howe Company, LLC., or www.howecompany.com and be plan holders in order to bid the project. All proposals must be on the forms provided in the bid documents.

The right is reserved to reject any or all bids. A certified or cashier's check or a bid bond in the amount of 5% shall be submitted with each proposal. The DBE goal for this project is 5%.
No 2nd tier subcontracting will be allowed on this project.

BIDDER CHECKLIST
FINAL CHECKLIST BEFORE SUBMITTING BID

- ☐ 1. Submit completed Contractor Questionnaire and/or Contractor Prequalification Questionnaire with attachments not later than seven (7) days prior to the date and hour of the bid opening. See Secs 101-103 of the Standard Specifications, and Rule 7 CSR 10-15.900, "Prequalifications to Bid of Certain Contractors". Questionnaire and Contact information are provided on MoDOT's website. (if applicable – required on highway and bridge projects)

- ☐ 2. For submittal of paper bids, the complete set of bidding documents includes all information through the DBE forms (for DBE forms see #7). The Technical Specifications/Job Special Provisions are for the bidder's information only and is not to be returned with the bid.

- ☐ 3. If submitting the bid by mail, it is to be completed, executed, and submitted in a sealed envelope addressed to Clark County Commission, 111 E. Court St., Suite 110., Kahoka, MO 63445. **Provide the vendor name, vendor address, vendor number, county, route and federal project number on the outside of the envelope**.

- ☐ 4. Please read all items in the bidding document carefully. For paper bids, complete all items in ink or by typing in the information.

- ☐ 5. Sign this bidding document properly. If submitted in the name of a firm or corporation, the legal name of the firm or corporation should appear in the space designated, and be signed for by one or more persons legally qualified to execute papers in the name of said firm or corporation. Affix Corporate Seal if the Bidder is a Corporation.

- ☐ 6. For paper bids submit a bid bond executed by bidder and surety, or attach cashier's check to the bid bond form.

- ☐ 7. Submit the DBE Identification Submittal within 3 business days of the Bid Opening.

- ☐ 8. For paper bids, staple addenda to the bid in the appropriate part of the bid. The letter accompanying the addenda should be stapled to the inside of the back cover of the bid and returned. The bidder should retain a duplicate copy. (if applicable)

♦♦

Below is a list of common mistakes made by bidders leading to non-responsive bids. Please refer to the Standard Specifications for the appropriate procedures for completing and submitting a bid.

a) Not signing the bid
b) Not incorporating the addendum into the bidding documents, including attaching the letter to the bid
c) Not providing a bid bond
d) Using pencil to fill out the bid
e) Using white out to make corrections to the itemized bid sheets
f) Not initialing changes made

♦♦

All questions concerning the bid document preparation can be directed to the Clark County Commission at 660-727-8241. Project specific questions can be directed to Howe Company, LLC, 660-395-4693.

Special Needs: If you have special needs addressed by the Americans with Disabilities Act, please notify the Clark County Commission, at 660-727-8241 or through Missouri Relay System, TDD 1-800-735-2966, at least five (5) working days prior to the bid opening.

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NOTICE TO CONTRACTORS

Sealed bids, addressed to Clark County Commission 111 E. Court St., Suite 110 Kahoka, MO 63445 for the proposed work will be received by the Clark County Commission until 11:00 a.m. (prevailing local time) on May 18, 2023, at the office of the Clark County Commission, and at that time will be publicly opened. Bids should be delivered to: 111 E. Court St., Suite 110 Kahoka, MO 63445

(1) PROPOSED WORK: The proposed work, hereinafter called the work, includes:

The proposed work includes: The construction of a new 210' three span, NU-43 prestressed concrete I-girder bridge over BNSF Railways with steel piling (14" CE CIP), concrete abutments, concrete piers, concrete barrier curb with chain link fence, steel guardrail, traffic control, and all appurtenances.

(2) COMPLIANCE WITH CONTRACT PROVISIONS: The bidder, having examined and being familiar with the local conditions affecting the work, and with the contract, contract documents, including the project plans sealed 3-4-2022, the current version of the Missouri Highways and Transportation Commission's "Missouri Standard Specifications for Highway Construction," their revisions, and the request for bid, including appendices, the special provisions and plans, hereby proposes to furnish all labor, materials, equipment, services, etc., required for the performance and completion of the work. All references are to the Missouri Standard Specifications for Highway Construction, as revised, unless otherwise noted.

The following documents are available on the Missouri Department of Transportation web page at www.modot.mo.gov under "Business with MoDOT" "Standards and Specifications". The effective version shall be determined by the letting date of the project.

Missouri Standard Specifications for Highway Construction, 2020

Supplemental Revisions to Missouri Standard Specifications for Highway Construction, 2020 (if applicable)

These supplemental bidding documents contain all current revisions to the bound printed versions and have important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

Please note that within the above-listed documents, the term "Commission" shall be replaced with the term, Clark County Commission, and the term "Engineer" is a reference to the Engineer of Record from Howe Company, LLC.

The contracting authority for this contract is Clark County Commission.

(3) PERIOD OF PERFORMANCE: If the bid is accepted, the bidder agrees that work shall be diligently prosecuted at such rate and in such manner as, in the judgment of the engineer, is necessary for the completion of the work within the time specified as follows in accordance with Sec 108:

Anticipated Notice to Proceed – July 2023

Completion Date – June 30, 2024 or 180 calendar days after the road is closed, whichever comes first.

(4) LIQUIDATED DAMAGES: The bidder agrees that, should the bidder fail to complete the work in the time specified or such additional time as may be allowed by the engineer under the contract, the amount of liquidated damages to be recovered in accordance with Sec 108 shall be as follows:

Liquidated damages per day $1,100.00

(5) **BID GUARANTY**: The bidder shall submit a Bid Guaranty meeting the requirements of Section 102 of the Missouri Standard Specifications for Highway Construction. A sample project bid bond form is included in the bid book. The bidder shall mark the box below to identify the type of Bid Guaranty.

- ☐ Paper Bid Bond
- ☐ Cashier's Check

(6) **CERTIFICATIONS FOR FEDERAL JOBS**: By signing and submitting this bid, the bidder makes the certifications appearing in Sec. 102.18.1 (regarding affirmative action and equal opportunity), Sec. 102.18.2 (regarding disbarment, eligibility, indictments, convictions, or civil judgments), Sec. 102.18.3 (regarding anti-collusion), and Sec. 102.18.4 (regarding lobbying activities). Any necessary documentation is to accompany the bid submission, as required by these sections. As provided in Sec. 108.13, the contracting authority may terminate the contract for acts of misconduct, which includes but is not limited to fraud, dishonesty, and material misrepresentation or omission of fact within the bid submission.

(7) **ANTIDISCRIMINATION**: The Contracting Authority hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, businesses owned and controlled by socially and economically disadvantaged individuals will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, religion, creed, sex, age, ancestry, or national origin in consideration for an award.

(8) **FEDERAL AND STATE INSPECTION**: The Federal Government is participating in the cost of construction of this project. All applicable Federal laws, and the regulations made pursuant to such laws, shall be observed by the contractor, and the work will be subject to the inspection of the appropriate State or Federal Agency in the same manner as provided in Sec 105.10 of the Missouri Standard Specifications for Highway Construction with all revisions applicable to this bid and contract.

(9) **PREVAILING WAGE (FEDERAL AND STATE)**: This contract requires payment of the prevailing hourly rate of wages for each craft or type of work required to execute the contract as determined by the Missouri Department of Labor and Industrial Relations, and requires adherence to a schedule of minimum wages as determined by the United States Department of Labor. For work performed anywhere on this project, the contractor and the contractor's subcontractors shall pay the higher of these two applicable wage rates. The applicable state wage rates for this contract are detailed in "Annual Wage Order No. 29", that is attached to this bidding document. The applicable federal wage rates for this contract are the effective Davis-Bacon federal wage rates posted the tenth day before the bid opening date and are attached herein.

These supplemental bidding documents have important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

(10) **WORKER ELIGIBILITY REQUIREMENTS:** Execution of the construction contract for this project is dependent upon the awarded bidder providing an Affidavit of Compliance AND E-Verify Memorandum-of-Understanding (MOU) between the bidder and Department of Homeland Security to the Contracting Authority as required by section 285.530 RSMo. The cover page and signature page of the E-Verify MOU and the Affidavit must be submitted prior to award of this contract.

A sample Affidavit of Compliance can be found at the Missouri Attorney General's website at the following link:

http://ago.mo.gov/forms/Affidavit_of_Compliance.pdf

All bidders must also be enrolled in the E-Verify Program, and include their MOU prior to contract execution. Bidders who are not enrolled will need to go to the following website link and select "Enroll in the Program" to get started. After completing the program, they will receive their E-Verify MOU with Department of Homeland Security. This document will need to be printed out and kept on file so that a copy can be attached to the Affidavit of Compliance.

http://www.dhs.gov/files/programs/gc_1185221678150.shtm

This requirement also applies to subcontractors and contract labor, but this contract only requires submittal of the verification documents for the prime contractor. It is the prime contractor's responsibility to verify the worker eligibility of their subcontractors in order to protect their own company from liability as required by section 285.530 RSMo.

(11) OSHA TEN HOUR TRAINING REQUIREMENTS: Missouri Law, 292.675 RSMO, requires any awarded contractor and its subcontractor(s) to provide a ten-hour Occupational Safety and Health Administration (OSHA) Construction Safety Program (or a similar program approved by the Missouri Department of Labor and Industrial Relations as a qualified substitute) for their on-site employees (laborers, workmen, drivers, equipment operators, and craftsmen) who have not previously completed such a program and are directly engaged in actual construction of the improvement (or working at a nearby or adjacent facility used for construction of the improvement). The awarded contractor and its subcontractor(s) shall require all such employees to complete this ten-hour program, pursuant to 292.675 RSMO, unless they hold documentation on their prior completion of said program. Penalties, for Non-Compliance include contractor forfeiture to the Contracting Authority in the amount of $2,500, plus $100 per contractor and subcontractor employee for each calendar day such employee is employed beyond the elapsed time period for required program completion under 292.675 RSMO.

(12) BUY AMERICA REQUIREMENTS: Construction contracts shall assure compliance with Section 165 of the Surface Transportation Assistance Act of 1982, Section 337 of the Surface Transportation and Uniform Relocation Assistance Act of 1987, and 23 CFR 635.410 regarding Buy America provisions on the procurement of foreign products and materials. On all contracts involving Federal-aid, all products of iron, steel, or a coating of steel which are incorporated into the work must have been manufactured in the United States. The Contracting Authority may allow minimal amounts of these materials from foreign sources, provided the cost does not exceed 0.1 percent of the contract sum or $2,500, whichever is greater. The Contractor certifies that these materials are of domestic origin. Additional information regarding the "Buy America" requirements can be found at:

https://www.fhwa.dot.gov/construction/cqit/buyam.cfm

(13) ADDENDUM ACKNOWLEDGEMENT: The undersigned states that the all addenda (if applicable) have been received, acknowledged and incorporated into their bid, prior to submittal. For paper bids, staple addenda to the bid in the appropriate part of the bid.

(14) SIGNATURE AND IDENTITY OF BIDDER: The undersigned states that the following provided information is correct and that (if not signing with the intention to bind themselves to become the responsible and sole bidder) they are the agent of, and they are signing and executing this, as the bid of

_____, which is the correct LEGAL NAME as stated on the contractor questionnaire.

a) The organization submitting this bid is a(n) (1) individual bidder, (2) partnership, (3) joint venturer (whether individuals or corporations, and whether doing business under a fictitious name), or (4) corporation. Indicate by marking the appropriate box below.

☐ sole individual ☐ partnership ☐ joint venture

☐ corporation, incorporated under laws of state of _____.

b) If the bidder is doing business under a fictitious name, indicate below by filling in the fictitious name

_____

Executed by bidder this _____ day of _____ 20____.

THE BIDDER CERTIFIES THAT THE BIDDER AND ITS OFFICIALS, AGENTS, AND EMPLOYEES HAVE NEITHER DIRECTLY NOR INDIRECTLY ENTERED INTO ANY AGREEMENT, PARTICIPATED IN ANY COLLUSION, OR OTHERWISE TAKEN ANY ACTION IN RESTRAINT OF FREE COMPETITIVE BIDDING IN CONNECTION WITH THIS BID, AND THAT THE BIDDER INTENDS TO PERFORM THE WORK WITH ITS OWN BONAFIDE EMPLOYEES AND SUBCONTRACTORS, AND DID NOT BID FOR THE BENEFIT OF ANOTHER CONTRACTOR.

THE BIDDER ACKNOWLEDGES THAT THIS IS AN UNSWORN DECLARATION, EXECUTED UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE UNITED STATES AND/OR FALSE DECLARATION UNDER THE LAWS OF MISSOURI, AND ANY OTHER APPLICABLE STATE OR FEDERAL LAWS. THE FAILURE TO PROVIDE THIS CERTIFICATION IN THIS BID MAY MAKE THIS BID NON-RESPONSIVE, AND CAUSE IT TO BE REJECTED.

THE BIDDER CERTIFIES THAT THE BIDDER'S COMPANY KNOWINGLY EMPLOYS ONLY INDIVIDUALS WHO ARE AUTHORIZED TO WORK IN THE UNITED STATES IN ACCORDANCE WITH APPLICABLE FEDERAL AND STATE LAWS AND ALL PROVISIONS OF MISSOURI EXECUTIVE ORDER NO. 07-13 FOR CONTRACTS WITH THE CONTRACTING AUTHORITY.

☐ Check this box ONLY if the bidder REFUSES to make any or all of these certifications. The bidder may provide an explanation for the refusal(s) with this submittal.

_____

Signature of Bidder's Owner, Officer, Partner or Authorized Agent

_____

Please print or type name and title of person signing here

Attest:

_____

Secretary of Corporation if Bidder is a Corporation

Affix Corporate Seal (If Bidder is a Corporation)

NOTE: If bidder is doing business under a fictitious name, the bid shall be executed in the legal name of the individual, partners, joint ventures, or corporation, and registration of fictitious name filed with the secretary of state, as required by sections 417.200 to 417.230 RSMo. If the bidder is a corporation not organized under the laws of Missouri, it shall procure a certificate of authority to do business in Missouri, as required by section 351.572 et seq RSMo. A certified copy of such registration of fictitious name or certificate of authority to do business in Missouri shall be filed with the Missouri Highways and Transportation Commission, as required by the standard specifications.

(15) **TRAINEES**: By submitting this bid, the bidder certifies that the bidder is familiar with the Training Provision in the Missouri Highways and Transportation Commission's "General Provisions and Supplement Specifications" which are available on the Missouri Department of Transportation web page at www.modot.mo.gov under "Business with MoDOT" "Standards and Specifications". The number of trainee hours provided under this contract will be **0 slots** at 1000 hours per slot or **0 hours**.

(16) **SUBCONTRACTOR DISCLOSURE:** Requirements contained within Sec 102.7.8 of the Missouri Standard Specification for Highway Construction shall be waived for this contract.

(17) **PROJECT AWARD:** Project RRP-000S(582), County Road 110 over BNSF Railroad, will be awarded to the lowest responsive, responsible bidder - complying with the Conditions of the Contract Documents within the Owner's budget - whose bid provides the lowest price for Clark County. RRP-000S(582) may be awarded as an individual project or as a packaged bundle including RRP-000S(581), Sycamore Road Over BNSF Railroad, a similar nearby bridge project. A bid form is provided for entering a bid on RRP-000S(582) only. A second bid form is provided for entering a bid on a package of RRP-000S(581) and RRP-000S(582). The contractor may submit one or both forms.

(18) **MATERIALS INSPECTIONS**: All technicians who perform, or are required by the FHWA to witness, such sampling and testing shall be deemed as qualified by virtue of successfully completing the requirements of EPG 106.18 Technician Certification Program, for that specific technical area.

(19) **PRIME CONTRACTOR REQUIREMENTS:** The limitation in Sec 108.1.1 of the Missouri Standard Specifications for Highway Construction that "the contractor's organization shall perform work amounting to not less than 40 percent of the total contract cost" is waived for this contract. Instead, the less restrictive terms of the Federal Highway Administration's rule at Title 23 Code of Federal Regulations (CFR) § 635.116(a) shall apply, so that the contractor must perform project work with its own organization equal to and not less than 30 percent of the total original contract price. Second-tier subcontracting will not be permitted on this contract. All other provisions in Sec 108.1.1 et seq. of the Missouri

Standard Specifications for Highway Construction shall remain in full force and effect, and shall continue to govern the contractor and its subcontractors, in accordance with the provisions of Title 23 CFR § 635.116.

(20) **SALES AND USE TAX EXEMPTION:** Clark County, a tax exempt entity, will furnish a Missouri Project Exemption Certificate as described in Section 144.062 RSMo to the awarded contractor who in turn may use the certificate to purchase materials for a specific project performed for the tax exempt entity. Only the materials and supplies incorporated or consumed during the construction of the project are exempt. The certificate will be issued to the contractor for a specific project for a defined period of time.

(21) **RETAINAGE**: In accordance with the Missouri Prompt Pay Act (34.057 RSMo), the owner may withhold payment for any of the reasons outlined in RSMO 34.057, or as determined by the engineer.

ITEMIZED BID: The bidder should complete the following section in accordance with Sec 102.7. The bidder proposes to furnish all labor, materials, equipment, services, etc. required for the performance and completion of the work, as follows:

CLARK COUNTY BRIDGE NO. 110000371
ITEMIZED PROPOSAL
ROADWAY ITEMS BY CONTRACTOR

LINE	ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
1	201	Clearing and Grubbing	ACRE	2		
2	202	Removal of Improvements	L.S.	1		
3	203	Embankment in Place	C.Y.	13,791		
4	203	Unclassified Excavation	C.Y.	2,221		
5	310	4” Layer Roadway Aggregate	S.Y.	2,718		
6	606	Terminal Connector & Connector Plate	EACH	4		
7	606	MGS Bridge Approach Transition Section	EACH	4		
8	606	Crashworthy End Terminal	EACH	4		
9	607	Fence (woven wire)	L.F.	952		
10	607	Field Entrance Gate - 20 Foot	Each	2		
11	616	Movable Barricades	EACH	4		
12	616	Construction Signs	EACH	4		
13	618	Mobilization	L.S.	1		
14	627	Contractor Surveying & Staking	L.S.	1		

LINE	ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
15	805/JSP	Seeding	ACRE	2.83		
16	806	Silt Fence	L.F.	1,056		
17	JSP	Storm Water Pollution Prevention Plan (S.W.P.P.P.)	L.S.	1		
18	JSP	Demolition Plan	L.S.	1		
19	JSP	Erection Plan	L.S.	1		
20	JSP	Relocation & Reconnection of Underground Electric	L.S.	1		

Sub-Total Roadway Items = _____

BRIDGE ITEMS BY CONTRACTOR

LINE	ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
21	206	Excavation for Structure (Est. Quantity: 235 C.Y.)	L.S.	1		
22	216	Removal of Bridge	L.S.	1		
23	501	Class B-1 Substructure Concrete	C.Y.	160		
24	501	Class B-2 Superstructure Concrete	C.Y.	200		
25	607	Barrier Curb with Chain Link Fence	L.F.	432		

LINE	ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
26	611.3	MoDOT Type 2 Rock Blanket	C.Y.	456		
27	624	MoDOT Perm. Erosion Control Fabric	S.Y.	715		
28	806/JSP	Turf Reinforcement Mat	S.Y.	954		
29	806/JSP	6" Layer 3” Base Rock (on Geotextile Fabric)	S.Y.	466		
30	JSP/702	14" CE C.I.P. Piling (Galvanized)	L.F.	2540		
31	702	Pre-Boring For Piling	L.F.	60		
32	705	Prestressed Concrete Deck Panels	S.Y.	260		
33	705	NU-43 Prest. Conc. I-Girders (Span 1-2)	EACH	4		
34	705	NU-43 Prest. Conc. I-Girders (Span 2-3)	EACH	4		
35	705	NU-43 Prest. Conc. I-Girders (Span 3-4)	EACH	4		
36	706	Reinforcing Steel	LBS	70,144		
37	JSP	BNSF Flagman	Days	100		
38	JSP	Misc. Railroad Fees	L.S.	1		

LINE	ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
39	716	Neoprene Bearing Pads (1/2”)	EACH	24		

Sub-Total Roadway Items =

TOTAL CONTRACT =

REPRESENTING:

ADDENDUM # INITIAL TO SHOW ACKNOWLEDGEMENT

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we _____
_____
as principal and _____
as surety, are held and firmly bound unto the CLARK COUNTY COMMISSION in the penal sum of_____
_____ Dollars ($) to be paid to the commission to be credited to the state road fund, the principal and surety binding themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____

THE CONDITION OF THIS OBLIGATION is such that

WHEREAS the principal is submitting herewith a bid to the commission on route(s) _____
_____
in _____ County(ies),
project (s) _____
_____
for construction or improvement of state highway as set out in said bid;

NOW THEREFORE, if the commission shall accept the bid of the principal and if the principal shall properly execute and deliver to the commission the contract, contract bond, and evidence of insurance coverage in compliance with the requirements of the bid, the specifications, and the provisions of section 227.100 RSMo, to the satisfaction of the commission, then this obligation shall be void and of no effect, otherwise to remain in full force and effect.

In the event the said principal shall, in the judgment of the commission, fail to comply with any requirement as set forth in the preceding paragraph, then the state of Missouri, acting by and through the commission, shall immediately and forthwith be entitled to recover the full penal sum above set out, together with court costs, attorney's fees, and any other expense of recovery.

The principal and surety hereby certify that the document is the original or a verbatim copy of the bid bond form furnished by the Commission, in accordance with Sec 102.9 of the Missouri Standard Specifications for Highway Construction.

_____
Principal

SEAL By_____
Signature

_____
Surety

SEAL By_____
Signature of Attorney in Fact

NOTE: This bond must be executed by the principal, and by a corporate surety authorized to conduct surety business in the state of Missouri.

Missouri Department of Transportation
DBE Identification Submittal Form

Contract ID: RRP-000S (582) Job Number: 20H3366

Route: County: CLARK

Prime Contractor: Contract Amount:

Identification of Participating DBE's: Provide the requested information below for each DBE participating on the project. Submit this information with your bid or to the External Civil Rights Division (ECR) no later than 4:00 p.m. on the 3rd working day after the bid opening. Fax or email transmittal is permitted. The fax number is (573) 526-0558 and the email address is dbe@modot.mo.gov. Contact ECR at (573) 526-2978 for questions and assistance on completion. **This document must be received for each DBE utilized on the project.**

All information must be provided.

If awarded the contract for this project, the undersigned will use the following DBE to perform or furnish the work, supplies, and/or services as shown below:

DBE Name: Address:

If DBE is supplying material to a subcontractor, list name of subcontractor here:

Respectfully submitted:

Company Name (Prime Contractor)

Signed (Prime Contractor)

DBE Identification Submittal Form

Line No.	Dollar Value of DBE Work** (Unit Price x Quantity of the Item in (A), or Lump Sum)	Dollar value applicable to DBE Goal** Enter either 100% or 60%	Dollar amount applicable to DBE Goal (B x C)	Percent of total contract amount for line item (D divided by total contract amount)

**Cannot exceed bid amount for given item of work.

Trucking services credited at 100% if the DBE owns the trucks or is leasing from a DBE firm.

Allowed amount of participation will be in accordance with 49 CFR Part 26.

Brokered services will only receive credit for fees.

DBE Total	$	-	Total % This Page	0.00%
DBE Total all Pages	**$**	**-**	**Total % all Pages**	**0.00%**

SUBCONTRACTOR CERTIFICATION REGARDING AFFIRMATIVE ACTION

REVISED 01-01-2009

Project: _____
Job No. _____
Route: _____
County: _____

Certification Regarding Affirmative Action and Equal Opportunity: The bidder (prospective prime contractor) or proposed subcontractor certifies:

1. Affirmative Action Program: That it has developed and has on file at each of its establishments affirmative action programs pursuant to 41 CFR Part 60-2.

2. Equal Opportunity Clause: That it has participated in a previous contract or subcontract subject to the equal opportunity clause set forth in 41 CFR Part 69-1.4 and executive order no. 11246.

3. Compliance Reports: That it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs and his designate, or the Equal Employment Opportunity Commission, all reports due under the applicable filing requirements contained in 41 CFR Part 60-1.

If the text of the certification above is incorrect, the bidder or subcontractor making the certification shall correct it below:

_____
_____
_____

NOTE: This certification applies to and must be executed by each bidder (prospective prime contractor) or proposed subcontractor if its proposed contract or subcontract on this project will equal or exceed $10,000 or that contractor or subcontractor has contracts or subcontracts on federally assisted projects in any 12-month period which have or can reasonably be expected to have, an aggregate total value exceeding $10,000 41 CFR Part 60-1.5(a)(1). It is a duty and contract obligation of the prime contractor to insure that each of its subcontractors, which meet this criterion, executes and submits to the commission this certification also.

_____
Company

By: _____

Date: _____ _____
Title

ANTI-COLLUSION STATEMENT

01-01-09

STATE OF MISSOURI

COUNTY OF CLARK

_____

_____ being first duly sworn, deposes and says that he is

_____
Title of Person Signing

of _____

_____
Name of Bidder

that all statements made and facts set out in the proposal for the above project are true and correct; and the bidder (The person, firm, association, or corporation making said bid) has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with said bid or any contract which may result from its acceptance.

Affiant further certifies that bidder is not financially interested in, or financially affiliated with, any other bidder for the above project.

BY_____

BY_____

BY_____

SWORN to before me this _____ day of _____ 20 ___.

_____
Notary Public

My Commission Expires_____

NOTICE OF AWARD

TO:

Project Description: The proposed work includes: The construction of a new 210' three span, NU-43 prestressed concrete I-girder bridge over BNSF Railways with steel piling (14" CE CIP), concrete abutments, concrete piers, concrete barrier curb with chain link fence, steel guardrail, traffic control, and all appurtenances.

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of $_____ subject to concurrence of the Missouri DOT / Federal Highway Administration.

The County has requested a concurrence of award from the MoDOT. You will be notified by our Engineer when the MoDOT has issued a concurrence of award. You are required by the Information for Bidders to execute the Agreement and furnish the required Contractor's Performance Bond and Payment Bond within ten calendar days from the date you receive the notification from the Engineer.

If you fail to execute said Agreement and to furnish said bonds within ten days from the date of the notification from the Engineer, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 2023

CLARK COUNTY COMMISSION

By_____ By_____

Title Presiding Commissioner Title County Clerk .

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

By_____this the _____ day of _____, 2023.

By _____ Title: _____

NOTICE TO PROCEED

DATE:

TO:

PROJECT: CLARK COUNTY BRIDGE NO. 11000371 RRP-000S(582)

PROJECT DESCRIPTION:
The proposed work includes: The construction of a new 210' three span, NU-43 prestressed concrete I-girder bridge over BNSF Railways with steel piling (14" CE CIP), concrete abutments, concrete piers, concrete barrier curb with chain link fence, steel guardrail, traffic control, and all appurtenances.

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 2023, on or before _____, 2023 and you are to complete the WORK by June 30, 2024, or 180 calendar days after the road is closed, whichever comes first.

_____ _____ _____

CLARK COUNTY COMMISSION

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED
Is hereby acknowledged by:

_____

DATE: _____

By _____

Title _____

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into by and between the Clark County Commission, (hereinafter referred to as the Owner) and _____ (herein referred to as the Contractor).

WITNESSETH: That for and in consideration of the acceptance of Contractor's bid and the award of this contract to said Contractor by the Owner and in further consideration of the agreements of the parties herein contained, to be well and truly observed and faithfully kept by them, and each of them, it is agreed between the parties as follows, to wit:

The Contractor at its own expense hereby agrees to do or furnish all labor, materials, and equipment called for in the proposal designated and marked:

Clark County Bridge 11000371 RRP-000S(582)

and agrees to perform all the work required by the contract as shown on the plans and specifications. The "Notice to Contractor," "Plans," "Proposal," "Contract Bond," "Acknowledgment," "Notice to Proceed", and all change orders are made a part hereof as fully as set out herein.

It is understood and agreed that, except as may be otherwise provided for by "Job Special Provisions," "General Provisions," and "Supplemental Specifications," included in the Proposal, the work shall be done in accordance with the most current "Missouri Standard Specifications for Highway Construction" and "Missouri Standard Plans for Highway Construction", including all revisions to these documents, which are part and parcel of this contract, and are incorporated in this contract as fully and effectively as if set forth in detail herein.

The Contractor further agrees that it is fully informed regarding all of the conditions affecting the work to be done, and labor and materials to be furnished for the completion of this contract, and that its information was secured by personal investigation and research and not from any estimates of the Owner; and that it will make no claim against the Owner by reason of estimates, tests, or representation of any officer, agent, or employees of the Owner.

The said Contractor agrees further to begin work not later than the authorization date in the Notice to Proceed and to complete the work within the time specified in the proposal or such additional time as may be allowed by the engineer under the contract.

The work shall be done to complete satisfaction of the Engineer of the Owner and, in case the Federal Government or any agency thereof is participating in the payment of the cost of construction of the work, shall also be subject to inspection and approval at all times by the proper agent or agents of such government agency.

The parties hereto agree that this contract in all things shall be governed by the laws of the State of Missouri.

The Contractor agrees that it will comply with all federal and state laws and regulations and local ordinances and that it will comply and cause each of its subcontractors, if any, to comply with all federal and state laws and federal regulations and directives pertaining to nondiscrimination against any person on the ground of race, color, religion, creed, sex, age, ancestry, or national origin in connection with this contract, including procurement of materials and lease of equipment therefore, in accordance with the special provisions on that subject attached hereto, incorporated in and made a part of the contract.

The Contractor expressly warrants that it has employed no third person to solicit or obtain this contract on its behalf, or to cause or procure the same to be obtained upon compensation in any way contingent, in whole or in part, upon such procurement; and that it has not paid, or promised or agreed to pay, to any third person, in consideration of such procurement, or in compensation for services in connection therewith, any brokerage, commission, or percentage upon the amount receivable by it hereunder, and that it has not, in estimating the contract price demanded by it, included any sum by reason of any such brokerage, commission, or percentage, and that all moneys payable to it hereunder are free from obligation to other entities for services rendered, or supposed to have been rendered, in the procurement of this contract. Contractor further agrees that any breach of this warranty shall constitute adequate cause for the annulment of this contract by the Owner, and the Owner may retain to its own use from any sums due or to become due hereunder an amount equal to any brokerage, commission, or percentage so paid, or agreed to be paid.

Under penalty of perjury under the laws of the United States and/or false declaration under the laws of Missouri, and any other applicable state or federal laws, the Contractor Signatory certifies that the Contractor and its officials, agents, and employees have neither directly nor indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this contract, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

The Owner agrees to pay the Contractor in the manner and in the amount provided in the said Standard Specifications and Proposals.

IN WITNESS WHEREOF, the parties hereunto have hereunto set their hands and affixed their seals, this _____ day of _____, 2023.

Clark County, acting by and through the
Clark County Commission

By _____
Steven Krueger, Presiding Commissioner

ATTEST: (SEAL)

_____
Kelly Waples, County Clerk

Contractor

By _____
Authorized Contractor Signature

_____
Printed Name of Signatory

ATTEST: (SEAL)

_____
Attest Person Signature

_____
Attest Person Printed Name

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____

_____

as principle, and _____

as surety, are held and firmly bound unto the Clark County Commission in the penal sum of: _____

_____

DOLLARS ($ _____) as the same may be increased by any and all changes in or additions to said contract which may hereafter be made, lawful money of the United States, to be paid to the said Clark County Commission or to its certain agents, attorneys, assigns, or to the Clark County Commission, for which sums of money, well and truly to be paid, we bind ourselves, our heirs, successors, assigns, executors, and administrators, jointly and severally, firmly by these presents.

SEALED with our seals and dated _____

The condition of this obligation is such that

WHEREAS, the said bounden principal has entered into a certain contract with the Clark County Commission acting by and through the Clark County Commission, said contract being marked.

_____

_____

_____

a copy of said contract being hereto attached and made a part hereof and bearing date of _____

_____

NOW, THEREFORE, if the said principal shall comply with and fulfill all the conditions of said contract, including those under which principal agrees to pay the prevailing hourly rate of wages for each craft or type of workman required to execute the contract in the locality as determined by State and Federal authority, as applicable, or by final judicial determination, and properly and promptly complete the work in accordance with the provisions of said contract, plans and specifications without any hidden defects, and furnish all the labor and materials required by said contract, and any and all changes in, or additions to said contract, which may hereafter be made, and shall perform all the undertakings stipulated by said bounden principal to be performed and within the time mentioned in said contract, or within any additional time granted by the Ray County Commission, which may be granted without notice to or consent from the surety, and shall pay for all materials, lubricants, fuel, coal and coke, repairs on machinery, groceries and foodstuff, equipment and tools consumed or used in connection with the construction of such work, and all insurance premiums, both compensation, and all other kinds of insurance, on said work, and for all labor performed in such work, whether by subcontractor or claimant in person or by its employee, agent, servant, bailee, or bailor, then this to be void; otherwise it shall be and remain in full force and effect.

ATTEST: (SEAL)

_____
Secretary

_____
Principal

By _____

Title _____

_____
Surety

ATTEST: (SEAL)

_____

By _____

Title _____

_____
Address – Agent or Broker

_____
Street

_____
City

Name and Street Address of Agent to Whom All Correspondence Should be Directed Relating to Contract and Bond.

_____
Name

_____
Street

_____
City, State

CONTRACTOR'S ACKNOWLEDGEMENT

1. ***Form to be used if Contractor is an individual.***

State of _____)
) ss.
County of _____)

On this _____ day of _____, 20_____, before me personally appeared _____, to me known to be the person described in and who executed the foregoing proposal, contract agreement, and bond, and being first duly sworn, acknowledged that he/she executed the same as his/her free act and deed.

Witness my hand and seal at _____, _____, the day and year first above written.

(SEAL) _____
Notary Public

My commission expires _____, 20 _____.

2. ***Form to be used if Contractor is a partnership or unincorporated company.***

State of _____)
) ss.
County of _____)

On this _____ day of _____, 20 _____, before me personally appeared _____, to me known to be the person described in and who executed the foregoing proposal, contract agreement, and bond, and being first duly sworn, acknowledged that he/she executed the same as the free act and deed of the partnership or company, and stated that all of the members of the partnership or company are correctly shown in the proposal.

Witness my hand and seal at _____, _____, the day and year first above written.

(SEAL) _____
Notary Public

My commission expires _____, 20 _____.

3. ***Form to be used if Contractor is a corporation***

State of _____)
) ss.
County of _____)

On this _____ day of _____, 20 _____, before me appeared _____, to me personally known, who being by me duly sworn, did say that he/she is the _____ of _____ (the Contractor) and that the seal affixed to the foregoing agreement and contract bond is the corporate seal of said corporation, and that the foregoing proposal, contract agreement, and contract bond were signed and sealed in behalf of said corporation by authority of its board of directors, and he/she acknowledges said instruments to be the free act and deed of said corporation.

Witness my hand and seal at _____, _____, the day and year first above written.

(SEAL)

_____
Notary Public

My commission expires _____, 20 _____.

GENERAL SPECIAL PROVISIONS

General

The work of this project shall be performed in accordance with the "Missouri Standard Specifications for Highway Construction" English Edition, dated 2020 as amended or supplemented herein.

Materials will be accepted on the basis of certification of structural steel compliance and substantiating test reports furnished by manufacturers and/or fabricators.

Field testing will be performed by the consultant according to the requirements of the current Local Public Agency Manual, provided by the Missouri Highway & Transportation Commission.

GENERAL PROVISIONS – TABLE OF CONTENTS

DIVISION 100

GENERAL CONDITIONS OF THE CONTRACT

SECTION 105 – CONTROL OF WORK

105.8 Delete this Section in its entirety and substitute the following.

105.8 Construction Stakes, Lines and Grades.

All construction work shall be done to the lines and grades shown on the plans. The Owner will establish on the site the required bench marks and baselines as shown on the plans. Detailed survey and staking for location and grade of individual structures or other construction, as well as measurements and elevations within structures shall be performed by the contractor.

Amend Section 105.10 to include the following:

105.10.2.1 Observations and job control tests will generally be made by the engineer on the following items of work. It shall be the responsibility of the contractor to notify the engineer by 12:00 p.m. of the week day preceding any operation which affects these items.

- Initial Layout
- Pile Driving Operations
- Drilled Shaft Operations
- Excavation for Footings
- Girder Setting Operations
- Reinforcing Steel Placement
- All Concrete Operations
- All Roadway Compaction and Material Placement
- Placement of Geotextile Fabric, Rock Blanket, and Turf Reinforcement Mat

The lack of field presence by the engineer shall not relieve the contractor of the responsibility to construct the project according to the plans and specifications. Any work performed without notification to the engineer, may be ordered removed and replaced at the contractor's expense. Any work performed using materials for which acceptable certifications are not provided may be ordered removed and replaced at the contractor's expense.

All technicians who perform, or are required by the MoDOT/FHWA to witness, such as sampling and testing of materials and products incorporated into the project, shall be deemed as qualified by virtue of successfully completing the requirements of the MoDOT Technician Certification Program, for the specific technical area(s) observed or sampled.

SECTION 106 – CONTROL OF MATERIAL

Delete Section 106.3 and substitute the following:

106.3 Samples, Tests, and Cited Specification. The contractor shall submit certifications and substantiating test reports, furnished by the supplier or fabricator, certifying that material and manufacturing procedures conform to the specifications. All offsite sampling and testing required by the specifications shall be performed by the supplier in accordance with these specifications, and the results shall be signed, sealed and stamped according to laws related to professional engineers. There shall be no direct charge to the Owner for materials taken as samples, either for field tests or for laboratory tests. If a specification of a recognized national standard agency (ASTM, AASHTO, AWWA, AWS, etc.) is designated, the material may, unless otherwise specified, meet either the designated specification or the latest revisionthereof in effect at the time of letting of the contract.

SECTION 108 - PROSECUTION AND PROGRESS

Delete Section 108.4 through Section 108.4.4 and substitute the following:

108.4 Work Schedule. The contractor shall deliver to the engineer prior to or at the pre-construction meeting a schedule for the project showing milestones which will be met on a weekly basis.

SECTION 109 – MEASUREMENT AND PAYMENT

109.6 Delete this Section in its entirety and substitute the following:

109.6 Method of Payment. The contractor shall submit a copy of the payment estimate to the Engineer for review, approval, and forwarding to the County. The County intends to make payment to the Contractor within 45 days of their acceptance of the pay estimate. More details regarding payment will be discussed during the pre-construction meeting.

Delete Section 109.7.2 and substitute the following:

109.7.2 The engineer may, in any payment estimate include the value of any non-perishable material that will be finally incorporated in the completed work. The material shall be in conformity with the plans and specifications in the contract, and shall not have been used at the time of such estimate. The required certifications of such materials shall be submitted prior to the payment estimate. The material shall be delivered to the project or other location that is approved by the engineer. Any storage are not within the right of way shall be leased at the contractor's expense with provision for right of entry by the engineer during the period of storage. Certifications and invoices for material payment shall be submitted to the engineer with the payment estimate. Receipts for all material payments previously allowed on the estimate shall be submitted to the engineer within 45 days of the date of the estimate on which material allowance was made or such material shall reduce the amount of other partial or final payments due the contractor for the work performed as the materials are fabricated or incorporated in the completed work.

Delete Section 109.14 in its entirety.

DIVISION 200

GRADING AND REMOVALS

SECTION 201 – CLEARING AND GRUBBING

Delete Section 201.3 in its entirety

Delete Section 201.4 and substitute the following:

201.4 Basis of Payment. Payment for this work will be included in the lump sum price for the item, Clearing and Grubbing.

SECTION 202.30 – REMOVAL OF IMPROVEMENTS FOR ROADWAY CONTRACTS.

Delete Sections 202.30.2 and 202.30.3 in their entirety and substitute with the following:

202.30.2 Basis of Measurement and Payment. This work will not be measured for payment, but will be considered a lump sum unit. Payment for this work will be included in the lump sum price for the item, Removal of Improvements.

SECTION 203 – ROADWAY AND DRAINAGE EXCAVATION, EMBANKEMENT AND COMPACTION

Construction of all roadway embankments shall conform to Section 203.6. Method of Measurement shall conform to Section 203.8.1.

Delete Section 203.5.9 in its entirety.

DIVISION 500

RIGID PAVEMENTS

SECTION 501 –CONCRETE

Delete Section 501.3 in its entirety and substitute the following:

501.3 Mix Design. The contractor shall be responsible for the mix design. The Engineer has no responsibility for the volume on concrete produced or furnished for the work.

Actual mix design shall be acquired and submitted by the Contractor to the Engineer for approval. The design shall be within the applicable limits of the specifications for the class of concrete specified in the contract.

The Contractor shall provide certification from the concrete supplier that the plant has been calibrated by the Missouri Department of Transportation.

If certain testing procedures are specified for acceptance of materials in the "Standard Specifications", then materials will be accepted for use in this project upon receipt from the supplier of a certification that the product or material meets the requirements for the "Standard Specifications."

Concrete may be accepted on the basis of conventional field sampling and testing for characteristics such as slump and air, where specified, and test cylinders, with only intermittent or random plant inspection as deemed necessary for control by the project engineer. Under this system, arrangements should be made for the producer to state on the delivery ticket accompanying each load of concrete; the class of concrete being furnished, the weights of cement, aggregate and water used in the batch and the time of batching. Cement shall be certified by the manufacturer.

The testing lab can use sulfur mortar for capping compressive test cylinders or a reusable Neoprene Cap as approved by the Engineer.

Add the following as Section 051.4.1

501.4.1 Unless otherwise specified, all concrete shall be subject to visual observations, job control tests, and compressive strength tests performed on job control samples. These observations and job control tests and samples will be performed by the engineer, at no expense to the contractor.

Add the following as Section 501.4.2

501.4.2 The engineer will make at least one strength test for each 100 cubic yards, or fraction thereof, of each mix design of concrete placed in any 1 day. The strength tests may be waived by the engineer if, in his judgement, adequate evidence of satisfactory strength has been demonstrated for the same kind of concrete supplied by the same concrete plant to the same project when the total quantity of concrete with a given mix design is less than 50 cubic yards.

Add the following as Section 501.8.6

501.8.6 Additional mix water may only be added to the concrete mixture on-site if it has been withheld at the plant and the amount of water withheld is shown on the ticket. The amount added on-site shall not exceed the amount withheld and the water/cement ration shall not exceed what was pre-approved. The Contractor may use admixtures to increase slump on-site in accordance with the recommendations of the admixture manufacturer.

DIVISION 700

STRUCTURES

SECTION 702 – LOAD BEARING PILES

Replace all references to “nominal axial compressive resistance” with “design bearing.”
Add the following to 702.6.6

702.6.6 Only one splice per pile will be authorized for every 20 feet of additional pile length driven.

SECTION 706 – REINFORCING STEEL FOR CONCRETE STRUCTURES

Add Section 706.2.3 as follows:

706.2.3 The contractor (or their supplier/fabricator) shall thoroughly review the structural detail plan sheets and bar bill, prior to delivery of the reinforcing steel, and notify the engineer of any discrepancies, so they can be dealt with prior to fabrication and delivery. No additional compensation to the contractor will be made to the contractor for changes in reinforcing steel other than payment of unit price for the quantity of the adjustments.

DIVISION 800

ROADSIDE DEVELOPMENT

SECTION 801 – LIME AND FERTILIZER

Add Section 801.1.1

801.1.1 The effective calcium shall be applied at the rate of 600 pounds per acre.

Add Section 801.1.2

801.1.2 The following commercial fertilizer shall be applied at the rate specified below.

Nitrogen	90 lbs. per acre
Phosphoric Acid	180 lbs. per acre
Potash	45 lbs. per acre

SECTION 802 – MULCHING

Delete Section 802.3.2 and substitute the following:

802.3.2 Stabilization. Vegetative mulch shall be secured from movement by mulch overspray.

Delete Section 802.3.2.2 in its entirety.

SECTION 805 – SEEDING

Add Section 805.1.1

805.1.1 The following seed mixture shall be applied at the rate specified below.

	MIXTURE	
Kentucky Bluegrass	30%	
Tall Fescue	60%	
White Clover	10%	
	100%	80 lbs. per acre

In addition to the seed mixture described above, at least 50 pounds of perennial rye or wheat shall be incorporated into the seed applied to the site.

As specified in Section 805.7, no direct payment will be made for liming, fertilizing or seedbed preparation.

SECTION 806 – POLLUTION, ERISION AND SEDIMENT CONTROL

Delete Section 806.30.2.5 in its entirety and replace with;

Section 806.30.2.5 Basis of Measurement
Measurement for ditch checks will be made for each completed unit.

Delete Sections 806.30.3.1 and Section 806.30.3.2 in their entirety.

Delete Section 806.30.4 in its entirety and replace with;

Section 806.30.4 Basis of Payment
Payment for ditch check will be made for each completed unit, at the contract unit proce, up to the plan quantity.

Delete Section 806.70.3.1 in its entirety

Delete Section 806.70.5 in its entirety and replace with;

Section 806.70.5 Basis of Payment
Payment for silt fence will be made per linear foot, at the contract unit price, up to the plan quantity.

DIVISION 1000

MATERIAL DETAILS

SECTION 1036 – REINFORCING STEEL FOR CONCRETE

Add the following as Section 1036.2.4

1036.2.4 If certain testing procedures are specified for acceptance of materials in the "Standard Specifications", materials will be accepted for use in this project upon receipt from the supplier of a certification that the product or material meets the requirements of the MoDOT "Standard Specifications."

JOB SPECIAL PROVISIONS

** TABLE OF CONTENTS **

(Job Special Provisions shall prevail
over General Special Provisions
whenever in conflict therewith.)

4-18-2023

JOB SPECIAL PROVISIONS

A. RESPONSIBLE PERSONS FOR COUNTY IN CHARGE OF WORK

Steven Krueger, Presiding Commissioner
111 E. Court St., Suite 110
Kahoka, MO 63445
660-727-8241

B. CONSULTANT'S REPRESENTATIVE FOR CONSTRUCTION INSPECTION

Shannon Howe, P.E., S.E.
Howe Company, LLC
804 E. Patton St.
Macon, MO 63552
660-395-4693 office
660-651-1582 mobile

C. ACCEPTANCE TESTING

Field sampling and testing of ready mix concrete will be performed by the Consultant hired by the Local Agency using technicians that are MoDOT certified.

D. COORDINATION BETWEEN THE CONTRACTOR AND ENGINEER

The Contractor shall notify the engineer 24 to 48 hours prior to beginning the following construction activities.

A. Structure Layout
B. Excavation & Backfilling
C. Placement of Concrete
D. Placement of Embankment
E. Placement of Surfacing Materials
F. Placement of Rock Blanket & Geotextile Fabric
G. Driving of Pile
H. Setting Girders
I. Relocation of Utilities

E. PROCESSING PAY REQUESTS

Pay requests will not be processed until the following are completed:

- Certifications for materials used for any bid item on the pay request has been received and reviewed by the engineer.
- Payroll reports for the period covered by the pay requests have been reviewed by the engineer.
- At least one wage rate interview has been completed for each pay period covered by the pay request.
- Buy America certifications on mill certificates for applicable materials used for pay items on the pay request.

Once the pay request has been approved by the Engineer, it will be sent to the County for review and approval. Once it is approved by the County, a request for reimbursement will be filed with MoDOT. Once the County receives the reimbursement money, they will pay the Contractor.

The Contractor is encouraged to submit a pay request as soon as some initial work has been performed which exceeds $1000. The Contractor should expect payment for the first pay request to take 6-8 weeks.

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F. LPA Buy America Requirements JSP-18-08

106.9 Buy America Requirement. On all federal-aid projects, the contractor's attention is directed to Title 23 CFR 635.410 Buy America Requirements. Where steel or iron products are to be permanently incorporated into the contract work, steel and iron material shall be manufactured in the USA except for "minor usage" as described herein. Furthermore, any coating process of the steel or iron shall be performed in the USA. The use of pig iron and processed, pelletized and reduced iron ore manufactured outside of the USA will be permitted in the domestic manufacturing process for steel or iron material.

106.9.1 Any sources other than the USA as defined will be considered foreign. The required domestic manufacturing process shall include formation of ingots and any subsequent process. Coatings shall include any surface finish that protects or adds value to the product.

106.9.2 "Minor usage" of foreign steel, iron or coating processes will be permitted, provided the cost of such products does not exceed 1/10 of one percent of the total contract cost or $2,500.00, whichever is greater. If foreign steel, iron or coating processes are used, invoices to document the cost of the foreign portion, as delivered to the project, shall be provided and the engineer's written approval obtained prior to placing the material in any work.

106.9.3 Buy America requirements include a step certification for all fabrication processes of all steel or iron materials that are accepted per Sec 1000.

106.9.3.1 Items designated as Category 1 will consist of steel girders, piling, and reinforcing steel installed on site. Category 1 items require supporting documentation prior to incorporation into the project showing all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements. This includes the Mill Test Report from the original producing steel mill and certifications documenting the manufacturing process for all subsequent fabrication, including coatings. The certification shall include language that certifies the following. That all steel and iron materials permanently incorporated in this project was procured and processed domestically and all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410.

106.9.3.2 Items designated as Category 2 will include all other steel or iron products not in Category 1 and permanently incorporated in the project. Category 2 items shall consist of, but not be limited to items such as fencing, guardrail, signing, lighting and signal supports. The prime contractor is required to submit a material of origin form certification prior to incorporation into the project from the fabricator

for each item that the product is domestic. The Certificate of Materials Origin form (link to certificate form) from the fabricator must show all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements and be signed by a fabricator representative. The Engineer reserves the right to request additional information and documentation to verify that all Buy America requirements have been satisfied. These documents shall be submitted upon request by the Engineer and retained for a period of 3 years after the last reimbursement of the material.

106.9.3.3 Any minor miscellaneous steel or iron items that are not included in the materials specifications shall be certified by the prime contractor as being procured domestically. Examples of these items would be bolts for sign posts, anchorage inserts, etc. The certification shall read "I certify that all steel and iron materials permanently incorporated in this project during all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements procured and processed domestically in accordance with CFR Title 23 Section 635.410 Buy America Requirements. Any foreign steel used was submitted and accepted under minor usage". The certification shall be signed by an authorized representative of the prime contractor.

106.9.4 When permitted in the contract, alternate bids may be submitted for foreign steel and iron products. The award of the contract when alternate bids are permitted will be based on the lowest total bid of the contract based on furnishing domestic steel or iron products or 125 percent of the lowest total bid based on furnishing foreign steel or iron products. If foreign steel or iron products are awarded the contract, domestic steel or iron products may be used; however, payment will be at the contract unit price for foreign steel or iron products.

In addition to Section 106.9 of the Missouri Standard Specifications for Highway Construction, the following requirements will also be in effect for this project.

1.0 Description. The Bipartisan Infrastructure Law (BIL) was enacted on November 15, 2021. The BIL includes Build America, Buy America Act Publication L. No. 117-58. This provision expands the Buy America requirements beyond what is currently only required for steel and iron products. The steel and iron provisions have not changed with the new bill. Cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives are excluded from this requirement. All other materials and manufactured products permanently incorporated into the project will be subject to Buy America requirements. There are three categories requiring Buy America Certification:

a) Iron and steel – no changes to the current specification requirements.

b) Manufactured products – these are currently exempted under the 1983 waiver from FHWA.
c) Construction materials consisting primarily of:
    - Non-ferrous metals;
    - Plastic and polymer-based products (including polyvinylchloride, composite build materials, and polymers used in fiber optic cables);
    - Glass (including optic glass);
    - Lumber; or
    - Drywall

1.1 All products and or materials will only be classified under one of these categories and not under multiple categories. It is the prime contractor's responsibility to assure all submittals required for Buy America are submitted to the Engineer prior to the products and or materials being incorporated in the job. The implementation of this policy will be in effect for all projects awarded after November 10, 2022.

1.2 New items designated as construction materials under this requirement will require the prime contractor to submit a material of origin form certification prior to incorporation into the project. The Certificate of Material origin form (link to certificate form) from the supplier and/or fabricator must show all steps of the manufacturing being completed in the United States. The Certificate of Material form shall be filed with the contract documents.

1.3 Any minor miscellaneous construction material items that are not included in the materials specifications shall be certified by the prime contractor as being procured domestically The certification shall read "I certify all materials permanently incorporated in this project covered under this provision have been to the best of my knowledge procured and all manufactured domestically." The certification shall be signed by an authorized representative of the prime contractor.

1.4 The National Transportation Product Evaluation Program (NTPEP) compliance program verifies that some non-iron and steel products fabrication processes conform to 23 CFR
635.410 Buy America Requirements and an acceptable standard per 23 CFR 635.410(d). NTPEP compliant suppliers will not be required to submit step certification documentation with the shipment for some selected non-iron and steel materials. The NTPEP compliant supplier shall maintain the step certification documentation on file and shall provide this documentation to the engineer upon request.

2.0 Basis of Payment. Any costs incurred by the contractor by reason of compliance with the above requirements shall be considered as included in and completely covered by the unit price bid for the various items of work included in the contract.

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CERTIFICATE OF MATERIALS ORIGIN

PROJECT NUMBER		CONTRACT ID	
ITEM DESCRIPTION		BID ITEM NUMBER	
INVOICE NUMBER		QUANTITY	
DATE RECEIVED		BILL OF LADING No.	

MATERIAL SOURCE (NAME AND ADDRESS) TO INCLUDE EACH SUPPLIER, FABRICATOR, AND MANUFACTURER INCLUDING HEAT/BATCH NUMBERS IF AVAILABLE

MATERIAL DESCRIPTION

DESCRIPTION OF MATERIALS OF UNKNOWN ORIGIN OR FOREIGN MATERIALS DELIVERED TO THE PROJECT

This certification is made for the purpose of establishing the materials acceptance under the Buy America Certification (23CFR 635.410) and the Contract Special Provisions. All iron and steel manufacturing processes, including protective coating for the domestic materials described above occurred in the United States of America. Manufacturer's certificates verify the origin above described in the domestic materials and will be kept on file for three years by the suppliers following final payment. Copies will be provided to the Missouri Department of Transportation upon request.

I declare under penalty of perjury under the Missouri and Federal Laws that the foregoing is true and correct.

Company Name and Address	Authorized Representative
	Name: **Title:** **Signature:** **Date:**

G. TRAFFIC CONTROL PLAN

Handling traffic shall conform to Section 616 of the Standard Specifications, and specifically as follows:

- The road shall be closed to thru traffic during construction.
- Signs shall be posted at the nearest intersections advising the traveling public the road is closed ahead.
- Barricades shall be placed at the project limits in a staggered arrangement to allow local traffic through and to prevent the thru traffic from using the roadway through the project.
- The contractor shall accommodate local traffic by allowing the public to use of any temporary bypass crossings or tubes which may be installed to facilitate construction.
- All materials, components, placement, and installation shall conform to the latest MUTCD manual.

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H. UTILITIES

1.0 For informational purposes only, the following is a list of names, addresses, and telephone numbers of the known utility companies in the area of the construction work for this improvement:

Utility Name	Known Required Adjustment
Lewis County Rural Electric Coop., Inc. 18256 State Hwy. 16 Lewistown, MO 63452 Contact: Terry O'Brien 573-215-4000 Tobrien@lewiscountyrec.coop	Yes
Mark Twain Rural Telephone P.O. Box 68 Hurdland, MO 63547 660-423-5211	No
Sinclair Transportation Company 26036 Old Highway 24 Carrollton, MO 64633 Contact: Mark England 660-542-0206 (O) 660-322-0083 (C) mengland@sinclairoil.com	Yes
Clark County Consolidated PWSD No. 1 114 W. Court Kahoka, MO 63445 660-727-1411	No

Lewis county rural electric cooperative will relocate existing poles, transformers, and meters located at approximately station 5+00.00 and 5+75.00 to sta 4+00.

The contractor shall be responsible for installing two new power poles, run a new overhead electric service, and connect to the existing railroad signal with an above ground junction.

The contractor shall run a new underground service line from the meters at sta 4+00 to the rectifier (relocated by sinclair).

Mark Twain Rural Telephone has no lines in conflict with the project.

Clark County Consolidated PWSD no. 1 has no lines in conflict with the project.

Sinclair Transportation Company- The north most gas line (closest to the railway) is capped and abandoned. The line shall remain in place and should not be damaged by construction activities.

South gas line-Lewis County Rural Electric will relocate power poles located at approximate station 5+00.00 and 5+75.00 which contains the cathodic protection system. Sinclair Transportation Company to relocate transformer located on pole at approximate station 5+00.00.

1.1 The existence and approximate location of utility facilities known to exist, as shown on the plans, are based upon the best information available to the Owner at this time. This information is provided by the Owner "as-is" and the Owner expressly disclaims any representation or warranty as to the completeness, accuracy, or suitability of the information for any use. Reliance upon this information is done at the risk and peril of the user, and the County shall not be liable for any damages that may arise from any error in the information. It is, therefore, the responsibility of the contractor to verify the above listing information indicating existence, location and status of any facility. Such verification includes direct contact with the listed utilities.

1.2 The contractor agrees that any effects of the presence of the utilities, their relocation, contractor's coordination of work with the utilities and any delay in utility relocation shall not be compensable as a suspension of work, extra work, a change in the work, as a differing site condition or otherwise including but, without limitation, delay, impact, incidental or consequential damages. The contractor's sole remedy for the effects of the presence of utilities, delay in their relocation or any other effects shall be an excusable delay as provided in Section 105.7.3.
The contractor waives, for itself, its subcontractors and suppliers the compensability of the presence of utilities, delay in their relocation and any cost to the contractor, it's subcontractors and suppliers in any claim or action arising out of or in relation to the work under the contract.

1.3 The contractor shall be solely responsible and liable for incidental and consequential damage to any utility facilities or interruption of the service caused by it or its subcontractors operation. The contractor shall hold and save harmless the County and its Engineer from damages to any utility facilities interruption of service by it or it's subcontractor's operation.

2.0 It shall be noted by the contractor that MoDOT is a member of Missouri One Call (800 Dig Rite). Some work on this project may be in the vicinity of MoDOT utility facilities, which includes but is not limited to traffic signal cables, highway lighting circuits, ITS cables, cathodic protection cables, etc. Prior to beginning work, the contractor shall request locates from Missouri One Call. The contractor shall also complete the Notice of Intent to Perform Work form located at the Missouri Department of Transportation website:

http://www.modot.mo.gov/asp/intentToWork.shtml

The contractor shall submit the form over the web (preferred method) or by fax to the numbers on the printed form. The notice must be submitted a minimum of 2 and a maximum of 10 working days prior to excavation just as Missouri One Call requires.

I. GUIDELINES FOR OBTAINING ENVIRONMENTAL CLEARANCE FOR PROJECT SPECIFIC LOCATIONS.

The Contractor shall follow the MoDOT EPG Section 127.27. A copy of this section is included after this section for reference.

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127.27 Guidelines for Obtaining Environmental Clearance for Project Specific Locations

From Engineering Policy Guide

This article provides guidelines for obtaining environmental clearance for disturbed areas such as:

Borrow Sites
Burn Pits
and Spoil Sites
Haul Roads
Staging Areas

at project-specific locations.

The necessary clearances for disturbed areas such as those referenced above shall be obtained prior to using these areas for projects. The contractor is encouraged to consider using material from previously disturbed locations (substantial disturbance) or disturbed areas that have previously been cleared, precluding the need to address most, if not all, of the issues described below. The contractor should include the federal project number on all correspondence. The following addresses the primary environmental issues related to clearance of disturbed areas such as borrow sites:

127.27.1 The Endangered Species Act

The Federal Endangered Species Act protects rare species and their habitats. The U.S. Fish and Wildlife Service (USFWS) administers the Act. Violations of this act can result in extensive project delays and severe fines. To determine if an activity will impact any rare species or their habitats, contact the Missouri Department of Conservation's Policy and Coordination Section at (573) 751-4115 to request a query of the MDC Heritage Database. All queries must be accompanied by a good quality map illustrating the location of the proposed site with a description of the activity. Allow at least three weeks for a response to all requests.

If there are no known records of rare species or sensitive habitats at the proposed site, and it is unlikely that any will be impacted by the activity, the contractor will be given clearance to proceed. However, if rare species are known or likely to occur at the site, or known critical habitat exists, further coordination with MDC and the USFWS will be

necessary. Written clearance from the U.S. Fish and Wildlife Service may be required before the project can proceed.

Missouri Department of Conservation (MDC)
Planning Division
P.O. Box 180
Jefferson City MO 65102-0180
Telephone Number (573) 751-4115 or FAX (573) 751-4495

U.S. Fish and Wildlife Service (FWS)
Columbia Field Office
101 Park DeVille Drive - Suite A
Columbia, MO 65203-0007
Telephone Number (573) 234-2131 or Fax (573) 234-2182

127.27.2 Floodplain/Regulatory Floodway

An evaluation of floodplain impacts is mandated by Executive Order 11988, Floodplain Management, and subsequent federal floodplain management guidelines. When available, flood hazard boundary maps (National Flood Insurance Program) and flood insurance studies for the project area are used to determine the limits of the base (100-year) floodplain and the extent of encroachment.

The Federal Emergency Management Agency (FEMA) and Federal Highway Administration (FHWA) guidelines 23 CFR 650 have identified the base (100-year) flood as the flood having a one percent probability of being equaled or exceeded in any given year. The base floodplain is the area of 100-year flood hazard within a county or community. The regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that projects can cause no rise in the regulatory floodway, and a one-foot cumulative rise for all projects in the base (100-year) floodplain. For projects that involve the state of Missouri, the State Emergency Management Agency (SEMA) issues floodplain development permits. In the case of projects proposed within regulatory floodways, a "No-Rise" Certification, if applicable, should be obtained prior to issuance of a permit.

Questions regarding floodplain and regulatory floodway should be addressed to:

SEMA
P.O. Box 116
Jefferson City MO
65102
(573) 526-9141

Documentation of consultation with SEMA regarding the presence of 100-year floodplain/regulatory floodway should be included in the final collection of information to be submitted to MoDOT staff.

127.27.3 Federal Emergency Management Agency (FEMA) Buyout Lands

The Flood Disaster Protection Act of 1973, as amended by the Disaster Relief and Emergency Assistance Act of 1988 (The Stafford Act), identified the use of disaster relief funds under Section 404 for the Hazard Mitigation Grand Program (HMGP), including the acquisition and relocation of flood damaged property. The Volkmer Bill further expanded the use of HMGP funds under Section 404 to “buy out” flood damaged property, which had been affected by the Great Flood of 1993.

There are numerous restrictions on these FEMA buyout properties. No structures or improvements may be erected on these properties unless they are open on all sides. The site shall be used only for open space purposes, and shall stay in public ownership. These conditions and restrictions (among others), along with the right to enforce same, are deemed to be covenants running with the land in perpetuity and are binding on subsequent successors, grantees, or assigns. Any decision involving these properties should take into consideration that 2-3 years is necessary to process an exemption from FEMA to utilize this parcel. This exemption would likely be a permanent easement rather than a transfer of property. If any proposed site is located on a FEMA buyout property, an alternative site should be chosen.

127.27.4 Farmland Protection

In order to comply with the Farmland Protection Policy Act, which has the purpose of minimizing Federal programs' contributions to the unnecessary and irreversible

conversion of farmland caused by nonagricultural uses, the Form AD-1006 will need to be completed. This can be accomplished through coordination with United States Department of Agricultural (USDA)-Natural Resources Conservation Service (NRCS), and the completion of Form AD-1006. To receive the Form AD-1006, call the NRCS State office in Columbia at (573) 876-9411. An aerial map of the site or sites will also be required with the area to be disturbed identified on the map. This aerial map can be obtained from the local SCS office. In some areas of the state this office may be located in an adjoining county.

The contractor will need to complete Parts I and III of Form AD-1006. The form should then be sent to the NRCS State Office for completion of Parts II, IV and V. The address for NRCS State Office is:

Mr. Dennis Potter
State Soil Scientist
Natural Resource Conservation Service
601 Business Loop 70 West
Parkade Center, Suite 250
Columbia, MO 65203
1-573-876-9411

After the NRCS office returns the form, the contractor will complete remaining Parts VI and VII. The contractor will provide a copy of the completed form to the MoDOT district contact to document compliance with the Farmland Protection Policy Act.

127.27.5 Wetlands

Federal executive order has decreed a national policy of "no net loss of wetlands." Under this policy, impacts to wetlands must be avoided if at all practical. Where wetlands are impacted, these impacts must be mitigated by construction or enhancement of a like quantity **and** quality of new wetlands. For these reasons, avoiding impacts to wetlands is a primary goal.

To determine whether wetlands occur on a site, contact the USDA, NRCS. The NRCS has identified and mapped wetlands as a requirement under the Food Security Act. These maps are available from county NRCS offices, usually located in the county seat. For all other non-farmland sites, consult the US Fish and Wildlife Service's Wetlands Map. If wetlands are identified on Food Security Act wetland maps, a site visit may be

needed to confirm the location of wetlands. If there are no wetland impacts, no other action need be taken.

If there are any questions about the extent of wetlands in the event that wetlands cannot be avoided, contact the U.S. Army Corps of Engineers (COE). If wetlands cannot be avoided, a COE Section 404 permit would be processed through the appropriate COE district. There are five COE districts in Missouri. Information about COE district locations, addresses and phone numbers is available on the COE website

127.27.6 Water Quality/Land Disturbance

The National Pollutant Discharge Elimination Systems (NPDES) program regulates construction activities where 1 acre or more of land is disturbed. If the project proponent has a general NPDES permit for all of their construction activities, this is adequate. If the project proponent does not have a valid general permit and the site to be disturbed is greater than 1 acre in size, a project-specific NPDES permit from DNR is required. If the project is entirely within MoDOT right of way, the sponsor may use MoDOT's general permit. In either case, the sponsor will need to develop a site-specific stormwater pollution prevention plan for the project. The sponsor shall contact the Missouri Department of Natural Resources (DNR) NPDES Storm Water Program office at (573) 751-1300 or (800) 361-4827 for further directions. A few cities (Kansas City, Columbia, and others) and counties have obtained their own land disturbance permits from DNR for generic land disturbance purposes; see additional discussion on stormwater and erosion control in 136.4 Environmental and Cultural Requirements of the LPA Policy.

127.27.7 Hazardous Waste Sites

More than likely, areas to be disturbed will be located in rural areas that have been used for agriculture or similar purposes. Hazardous wastes are most typically associated with commercial or previous industrial properties.

If the proposed area is basically farmland or pasture, and has not been used for any commercial activity or dumping, hazardous wastes are unlikely. The contractor should simply document the existing and historic land use of the parcel and tell how this assessment was obtained.

In nonrural, suburban or commercial areas a nonintrusive investigation may be used to "diagnose" the environmental conditions of a selected site. The following is a list of suggested items, but not inclusive, for a cursory nonintrusive investigation.

- Examine any noticeable contamination in the form of surface staining, oil sheen, odors, stressed vegetation, spills, leaks, illegal dumping, etc.
- Conduct interviews of local citizens and current owners to identify past land use practices and hazardous waste management practices.
- Consult with local and state (Missouri Department of Natural Resources, Hazardous Waste Program, 573-751-3176) environmental regulatory agencies to identify if any past problems (complaints, citations, etc.) have occurred at the site, if any permits/licenses have been filed for the site, or if enforcement actions have occurred.

If the above analyses produce negative results, the contractor should provide documentation to the MoDOT Design Division-Environmental Section as to who was contacted and the results of the contact. However, if through the search for information described above, potential problems are identified, it would be wise to locate another site.

The potential to encounter wastes from sites that are unknown should always be a consideration. Any unknown sites that are found will be handled in accordance with Federal and State Laws and Regulations.

127.27.8 Historic Preservation

All jobs requiring environmental clearance for historic preservation (archaeological sites, buildings, and structures) must be reviewed and approved by the State Historic Preservation office (SHPO), Department of Natural Resources. To initiate SHPO's review and clearance of a proposed site for cultural resources, a "Section 106 Project Information Form" must be completed and submitted to SHPO along with a copy of a United States Geological Survey (USGS) topographic map indicating the location of the project. In addition, photographs of any structures that will be impacted must be provided. The "Section 106 Project Information Form" can be obtained from the SHPO website or requested from the SHPO by telephone, (573) 751-7858, or mail:

Missouri Department of Natural Resources
State Historic Preservation Office
Attn: Section 106 Review
P.O. Box 176
Jefferson City, MO, 65102-0176

Based on the information supplied, SHPO may clear the project at that time or request that the contractor acquire the services of an archaeological consultant to conduct a historic preservation survey of the proposed area. A listing of currently acceptable and available archaeological consultants who can complete a survey if required can be viewed at the SHPO's website. Any questions can be directed to the Design Division-Historic Preservation Section, at (573) 751-0473.

127.27.9 Public Land

If borrow sites are proposed on any publicly owned land, contact the MoDOT district representative before proceeding. Section 4(f) of the Department of Transportation Act of 1966 (now codified as 49 U.S.C. 303 and 23 U.S.C. 138) protects certain public lands. Section 4(f) requires that all U.S. DOT-funded transportation projects must avoid impacts to public parkland and wildlife refuges (and cultural resources deemed eligible for the National Register of Historic Places), unless it is successfully demonstrated that no feasible and prudent alternative exists that avoid “use” or impacts to the park or refuge. It is strongly recommended that public lands not be considered as potential borrow sites.

Once the contractor has obtained all of the above information, it should be provided to the MoDOT district contact. The transmittal letter must include **county, route and job number** of the project, along with a map depicting the location and limits of the site(s).

All submittals should be made to HOWE COMPANY, LLC. instead of MoDOT.

MEASUREMENT & PAYMENT

No direct payment will be made for obtaining the required clearances for borrow areas. An adjustment in contract time will be considered for any delay caused by receiving the required clearances if the delay cannot be avoided by changing borrow sites.

J. SUBSURFACE – GEOTECHNICAL REPORT

The report containing the soil boring data and foundation recommendations is being provided with this section.

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CROCKETT
GEOTECHNICAL - TESTING LAB

1000 W Nifong Boulevard, Building 1
Columbia, Missouri 65203
(573) 447-0292

July 14, 2020

Howe Company, LLC
804 E. Patton Street
Macon, MO 63552

Attn: Mr. Shannon Howe, P.E.

Re: Geotechnical Engineering Report
Clark County Bridge 1100037
Wyaconda, Missouri
Crockett GTL Project Number: G20562

Dear Mr. Howe:

Crockett Geotechnical Testing Lab (Crockett GTL) has conducted a geotechnical investigation for a new replacement-bridge planned to be located near Wyaconda, Missouri.

Site Location:

Item	Description
Location	This project is located where County Road 110 crosses the BNSF railway approximately 0.43 miles south of the intersection of County Road 110 and County Road 128, and is approximately 1.3 miles northeast of the City of Wyaconda, Missouri A Site Location Map showing the approximate location of this project is included with this report
Lat. / Long. Coordinates	40.395502, -91.901827
Existing improvements	Existing three span bridge
Current ground cover	Existing bridge and gravel surfaced road with vegetation off of shoulders

Project Description:

Item	Description
Proposed structure	A new three span replacement bridge
Bridge Construction	It is anticipated each bent will be supported by driven pipe-piles or drilled piers

Item	Description
Grading	Site grading will consist of up to 8 feet of fill and minor cuts
Slopes	Slope design is not part of this scope
Below grade areas	Bridge abutments

Scope of Services: Our services included the drilling of two (2) borings at accessible locations on each side of the bridge. Boring locations were designated by a CGTL geotechnical engineer and were staked in the field by the drill crew. Boring elevations were obtained by the drill crew using a level and grade rod referencing the elevation of the existing bridge deck. Boring elevations were rounded to the nearest half-foot. Logs of the borings are attached to this letter. Laboratory tests were also performed and the test results are included on the boring logs. Boring locations are indicated on the boring location diagram also attached to this letter.

Encountered Subsurface Conditions: Borings B-1 and B-2 encountered about 10-inches and 5-inches, respectively, of crushed limestone base rock at the ground surface. Underlying the crushed limestone base rock in both borings was lean clay that extended to an approximate depth of 1.5 feet.

Underlying the base rock and lean clay was fill material that was comprised of lean to fat clay. This lean to fat clay fill material extended to an approximate depth of 8 feet in both borings.

Underlying the lean to fat clay fill material in both borings was fat clay that was visually identified as glacial drift. The fat clay extended to an approximate depth of 18 feet in borings.

Underlying the fat clay, and extending to the planned termination of 70 feet in both borings was lean to fat clay that was visually identified as glacial drift. Bedrock was not encountered in either boring.

Detailed descriptions of the encountered materials are listed on the individual boring logs included in the Appendix of this report. Strata lines indicate the approximate location of changes in material types. The transition between material types may be gradual.

Groundwater was not encountered in boring B-1, but was encountered in boring B-2 at depths ranging from 43 feet in depth while drilling, 68 feet in depth at the completion of drilling and at 68 feet in depth about 30-minutes after the completion of drilling. Details are provided on the boring logs.

Groundwater levels depend on seasonal and climatic variations. Groundwater may be present at different levels in the future. In addition, without extended periods of observation, accurate groundwater level measurements may not be possible, particularly in low permeability soils.

Pockets, lenses, and stringers of sand are sometimes encountered in the glacial soils found in the vicinity of the referenced project. These sand pockets are normally discontinuous and often contain water of variable quality and quantity. These sand pockets may be encountered during foundation excavation.

Monitored Fill Settlement: It is our understanding that this project will include approximately 20 feet of new structural fill being placed at and near the end bents of the proposed replacement bridge. We have estimated that fill induced settlement on the order of 2.5 inches may occur. Sufficient time should be

allowed for the construction of the new engineered fill for the fill induced settlement to occur. Due to this anticipated settlement, the planned height of the proposed fill and to ensure acceptable performance of the subsequent deep foundations that will be installed to support the proposed bridge replacement, we recommend the settlement be monitored. Monitoring points should be positioned where the proposed fill thickness is thickest. The settlement monitoring points should be regularly monitored by a survey crew and recorded. Settlement should be monitored as follows:

Recommended Settlement Monitoring Schedule	
Week 1 and 2	3 times per week
Week 3 and 4	2 times per week
Week 5+	1 time per week

The borings and samples performed and obtained for this investigation do not provide enough information to accurately estimate the time need for settlement to occur. However, settlement often occurs much quicker than conventional geotechnical calculations indicate.

Foundation Recommendations: Based on subsurface conditions encountered at the boring locations, we recommend the bridge abutments be supported by a driven friction (pipe) pile foundation system or by drilled piers.

Pipe Pile Foundation: The allowable pipe pile capacity for various penetration elevations are provided in the following table.

Allowable Pile Capacity Vs. Pile Tip Elevation [1, 2, 3]				
Pile Tip Elevation, feet	Bent 1 Allowable Pile Capacity, kips	Bent 2 Allowable Pile Capacity, kips	Bent 3 Allowable Pile Capacity, kips	Bent 4 Allowable Pile Capacity, kips
695	48.2	19.4	13.7	61.7
690	57.1	26.5	20.5	69.7
685	66.3	37.2	27.4	77.7
680	76.8	47.9	34.8	86.5
675	87.5	58.6	42.8	95.5
670	98.2	69.3	51.2	104.6
665	108.9	80.0	59.2	112.6

1. Allowable pile capacity based upon a factor of safety = 3.0
2. Allowable pile capacity values ignore the upper 3.0 feet of the pile embedment due to the effects of freeze/thaw and desiccation
3. Provided capacities accounts for new structural fill being placed prior to pile installation

Steel friction piles with an outside diameter of 14-inches may be used for support. We understand the pipe piles may be equipped with a 14-inch diameter steel closure plate that would be welded to the pipe pile such that it does not protrude excessively outside the wall of the pipe pile exterior wall. The minimum required wall thickness for the piles is 0.25-inches.

Prior to the start of production piles. The ability of the pile-hammer system to attain the desired allowable capacity should be verified. We acknowledge the pile may reach refusal in the native soils above the calculated design load elevation. If this occurs, the design load may still be used for design purposes. Care should be taken not to overdrive and damage the piles during installation. The contractor should be prepared to cut or splice piles, as necessary.

Driven piles should be installed in accordance with Section 702 of MoDOT's Standard Specifications for Highway Construction (most recent version). Further, we recommend the design load bearing capacity of the piles be verified by an appropriate dynamic pile driving formula such as that used by MoDOT. Pile foundations designed and constructed as recommended in this report would be expected to experience total settlement of less than 1 inch and differential settlement of less than ½ inch, in addition to elastic shortening of the pile materials.

Drilled Pier Foundation: The proposed bridge can also be supported on straight shaft drilled piers bearing in clay. The design parameters provided in the table are based on the results of field and laboratory testing, published values, and our past experience with similar soil conditions. Based on the results of the borings, we have developed the following drilled pier design parameters:

Drilled Pier Design Parameters								
Boring B-1								
Approximate Elevation Range (feet) [1]	Unit Weight (pcf) [2]	Cohesion (psf)	Average Blow Count (N Value) Per Foot [3]	Friction Angle, Ø	Allowable End Bearing Pressure (psf) [4]	Allowable Skin Friction (psf) [5]	Lateral Subgrade Modulus (pci) [6]	Strain ε_{50} (in./in) [6]
733 - 730	120	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore
730 - 719	120	3,800	8	-	NR [7]	760	1,265	0.005
719 - 709	120	4,000	14	-	7,500	800	1,330	0.005
709 -695	120	3,900	14	-	7,500	780	1,300	0.005
695 - 690	120	3,000	17	-	7,500	600	1,000	0.005
690 - 663	58	2,500	19	-	7,500	500	830	0.006

1. Elevations are approximate and variations may exist
2. Effective unit weight
3. Blow count listed in this table is averaged for the layers. Detailed blow count information is listed on the boring logs included in the Appendix of this report
4. Minimum pier length of 4 diameters required. CGTL should be contacted if the pier length is less than four times the pier diameter as modifications to our design parameters may be warranted
   Allowable end bearing pressure based on a factor of safety of 3.0

Drilled Pier Design Parameters
5. The skin friction values and cohesion values are based on a constant (rectangular) pressure distribution for cohesive soils and bedrock Skin friction and cohesion should be neglected within 3.0 feet of the final grade Allowable skin friction derived from NAVFAC Design Manual, DM 7.2 (1986) Allowable skin friction based on a factor of safety of 3.0 6. Lateral subgrade modulus and strain values are to be utilized with LPILE software 7. NR = Not Recommended

Drilled Pier Design Parameters								
Boring B-2								
Approximate Elevation Range (feet) [1]	Unit Weight (pcf) [2]	Cohesion (psf)	Average Blow Count (N Value) Per Foot [3]	Friction Angle, Ø	Allowable End Bearing Pressure (psf) [4]	Allowable Skin Friction (psf) [5]	Lateral Subgrade Modulus (pci) [6]	Strain ε_{50} (in./in) [6]
736 - 733	120	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore
733 - 730	120	1,250	-	-	NR [7]	250	375	0.009
730 - 687	120	4,300	15	-	7,500	860	1,430	0.005
687 - 685	58	4,300	15	-	7,500	860	1,430	0.005
685 - 671	58	3,100	18	-	7,500	620	1,030	0.005
671 - 660	58	4,200	18	-	7,500	840	1,400	0.005

1. Elevations are approximate and variations may exist
2. Effective unit weight
3. Blow count listed in this table is averaged for the layers. Detailed blow count information is listed on the boring logs included in the Appendix of this report
4. Minimum pier length of 4 diameters required. CGTL should be contacted if the pier length is less than four times the pier diameter as modifications to our design parameters may be warranted
   Allowable end bearing pressure based on a factor of safety of 3.0
5. The skin friction values and cohesion values are based on a constant (rectangular) pressure distribution for cohesive soils and bedrock
   Skin friction and cohesion should be neglected within 3.0 feet of the final grade
   Allowable skin friction derived from NAVFAC Design Manual, DM 7.2 (1986)
   Allowable skin friction based on a factor of safety of 3.0
6. Lateral subgrade modulus and strain values are to be utilized with LPILE software
7. NR = Not Recommended

Pier/Pile Group Effect – Laterally Loaded Piers/Piles: Laterally loaded piers and piles behave as a group when center to center spacing is less than 8 diameters in the direction of loading. Allowable passive resistance provided by a row of piers or piles in line with the direction of the load should be reduced as determined by multiplying the individual lateral resistances of the piers or piles by the number of piers/piles in line and the appropriate reduction factor provided in the following table:

Pier/Pile Spacing D = Pier/Pile Diameter	Lateral Resistance Reduction Factor
8D	1.00
6D	0.70
4D	0.40
3D	0.25

Lateral loads acting perpendicular to a row of piers with center-to-center spacing of 3 diameters or less will cause the piers to react essentially as a vertical wall. With spacing of greater than 3 diameters, the values provided in the previous table for individual piers may be used.

General Comments: The recommendations provided herein are for the exclusive use of our client. Our recommendations are specific only to the project described herein and are not meant to supersede more stringent requirements of local ordinances or codes. The recommendations are based on subsurface information obtained at our boring locations, sample locations, our understanding of the project as described in this report, and geotechnical engineering practice consistent with the current standard of care. No warranty is expressed or implied. CGTL should be contacted if conditions encountered are not consistent with those described.

CGTL should be provided with a set of final plans and specifications, once they are available, to review whether our recommendations have been understood and applied correctly and to assess the need for additional exploration or analysis. Failure to provide these documents to CGTL may nullify some or all of the recommendations provide herein. In addition, any changes in the planned project or changes in site conditions may require revised or additional recommendations on our part.

The scope of our services does not include slope stability or any environmental assessment or investigation for the presence, or absence, of toxic materials in, on, or near the project site. Any statements in this report regarding odors, staining, or other unusual conditions are strictly for the information of our clients.

If you have any questions concerning this report, or if we may be of further service, please contact us.

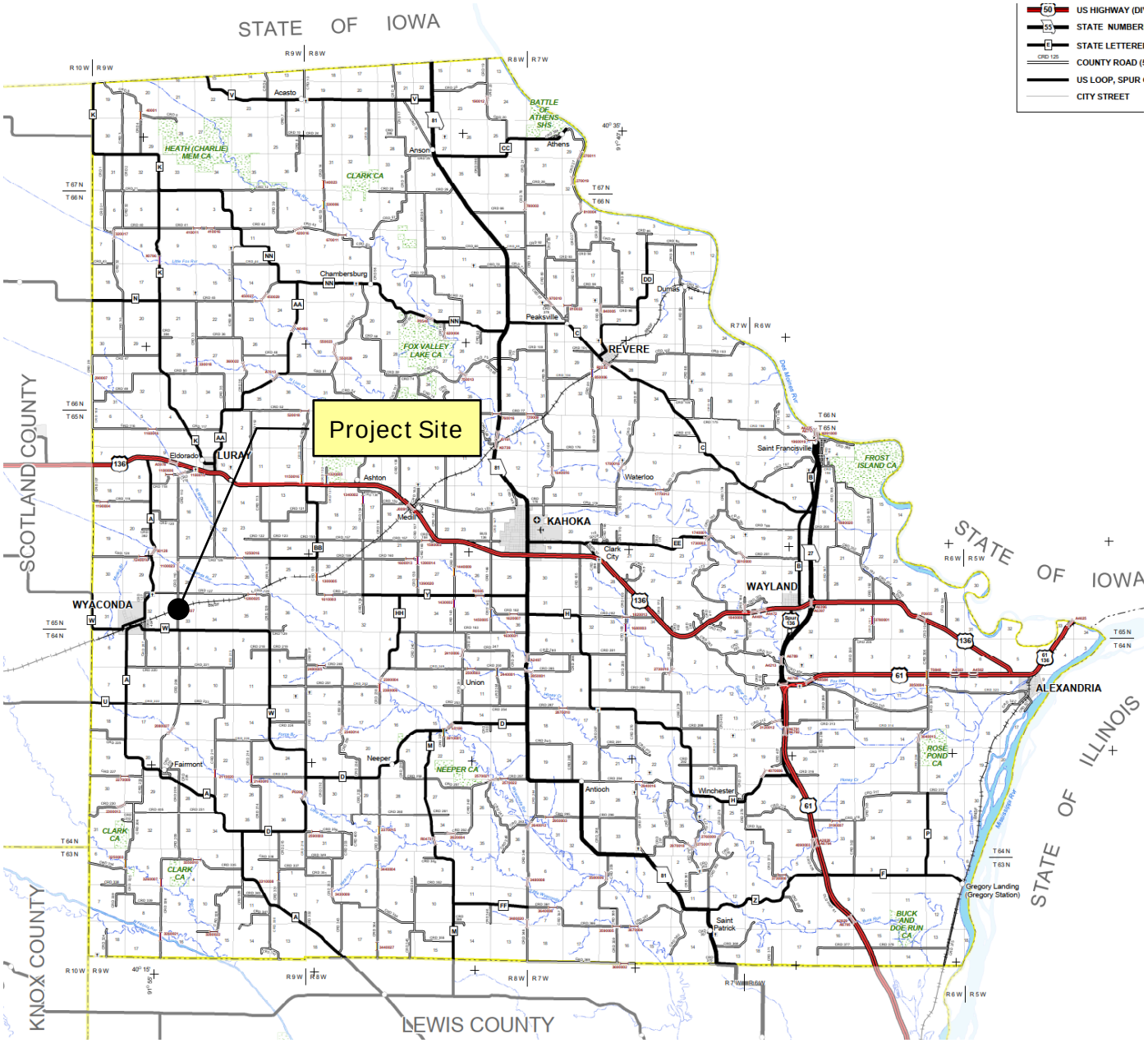
Sincerely,

Shane Steinman, P.E.
Project Manager

Eric H. Lidholm, P.E.
Principal Engineer
Missouri: E-23265

Attachments
- Site Location Plan
- Boring Location Map
- Boring Logs
- Boring Log Legend and Nomenclature

ATTACHMENTS



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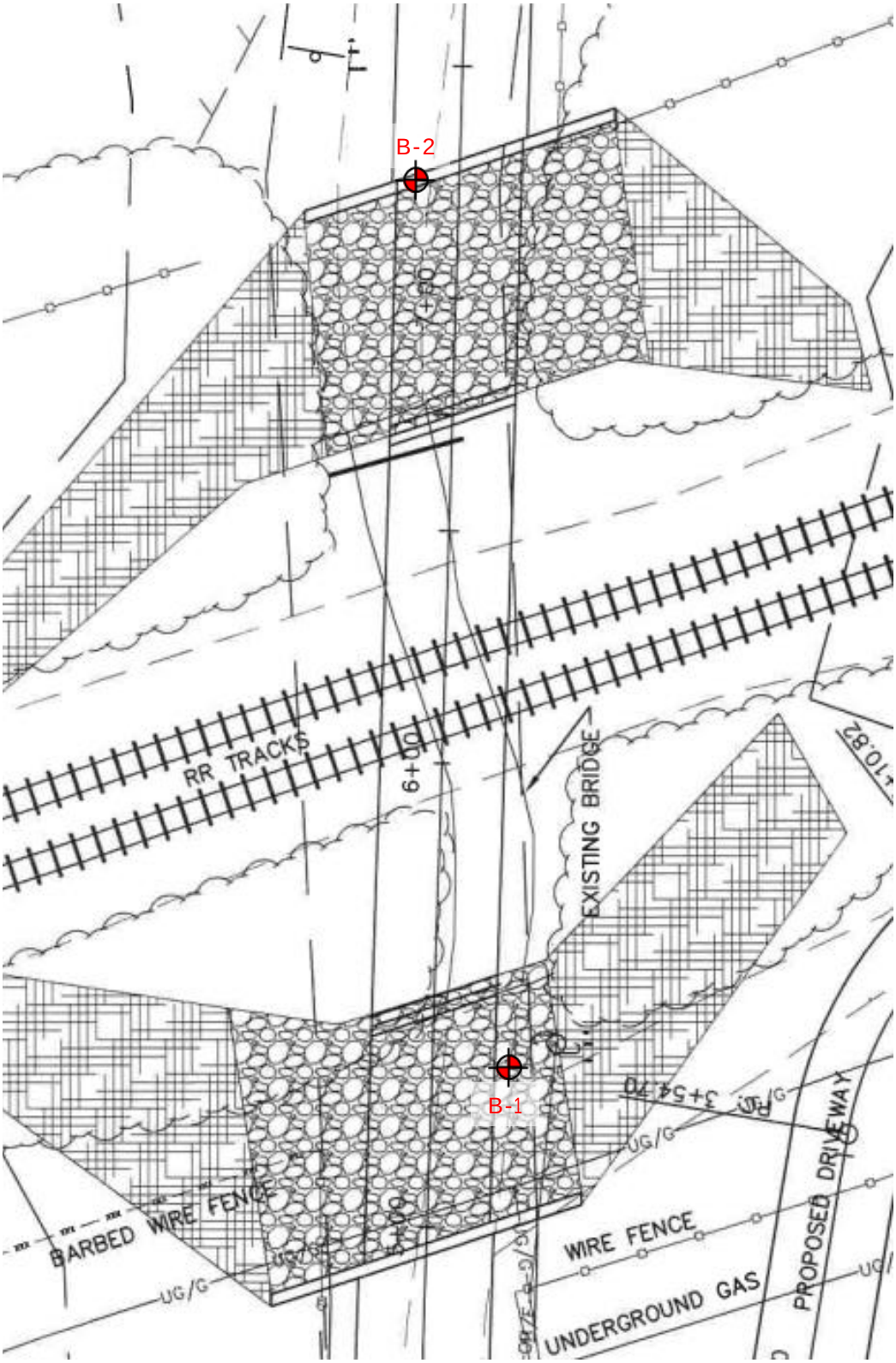
SITE LOCATION MAP

CLARK COUNTY BRIDGE 1100037
WYACONDA, MISSOURI

PROJECT NO.: G20562

Prepared By:
CROCKETT
GEOTECHNICAL - TESTING LAB
1000 W. Nifong Blvd, Building 1
Columbia, MO 65203
573-447-3981
www.CrockettGTL.com



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BORING LOCATION PLAN

CLARK COUNTY BRIDGE 1100037
WYACONDA, MISSOURI

PROJECT NO.: G20562

Prepared By:
CROCKETT
GEOTECHNICAL - TESTING LAB
1000 W. Nifong Blvd, Building 1
Columbia, MO 65203
573-447-3981
www.CrockettGTL.com

Crockett GTL
1000 W Nifong Blvd
Columbia, MO 65203
Telephone: 573-447-0292

CROCKETT
GEOTECHNICAL - TESTING LAB

BORING NUMBER B-1

CLIENT Howe Company, LLC
PROJECT NAME Clark County Bridge 1100037
PROJECT NUMBER G20562
PROJECT LOCATION Wyaconda, Missouri
DATE STARTED 6/29/20 **COMPLETED** 6/29/20
GROUND ELEVATION 733.5 ft MSL or bhdk **HOLE SIZE** 4"
DRILLING CONTRACTOR IPES
GROUND WATER LEVELS:
DRILLING METHOD 4" SSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Lidholm **CHECKED BY** Steinman
AT END OF DRILLING --- Not Encountered
NOTES Borehole backfilled upon completion
1hrs AFTER DRILLING --- Not Encountered

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (tsf)	UNC. COMP. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	ATTERBERG LIMITS PLASTIC LIMIT	ATTERBERG LIMITS PLASTICITY INDEX
0		0.7 BASE ROCK (10-inches)	732.8										
		1.5 LEAN CLAY: Brown, friable	732.0	SPT 1	10	3-4-3 (7)	9000			19			
		FILL: Lean to fat clay, brown and dark brown, trace sand, trace rust stains, very stiff to hard		SPT 2	12	3-3-4 (7)	6500			25			
		8.0	725.5										
10		FAT CLAY: Brown, trace gray, trace reddish brown, trace sand, very stiff to hard (glacial drift)		SPT 3	16	3-4-6 (10)	7500			25			
				SPT 4	13	5-6-8 (14)	9000			11			
		18.0	715.5										
20		LEAN TO FAT CLAY: Brown, trace gray, trace sand and fine gravel, occassional sandier zones, stiff to hard (glacial drift)		SPT 5	16	5-6-10 (16)	8000			11			
				SPT 6	17	3-5-7 (12)	7000			13			
30				SPT 7	17	4-7-8 (15)	9000			17			
				SPT 8	14	4-7-9 (16)	6400			17			
40				SPT 9	16	5-7-10 (17)	9000			16			
				SPT 10	14	5-6-11 (17)	6000			12			
50				SPT 11	15	4-7-10 (17)	4000			16			
		--: becomes grayish brown to gray		SPT 12	15	5-8-11 (19)	5500			21			
60				SPT 13	17	6-7-12 (19)	4000			21			
		--: becomes brown, trace gray		SPT 14	17	7-12-15 (27)	8500			17			
70		70.0	663.5	SPT 15	14	6-8-12 (20)	4500			16			

Bottom of borehole at 70.0 feet.

Crockett GTL
1000 W Nifong Blvd
Columbia, MO 65203
Telephone: 573-447-0292

CROCKETT
GEOTECHNICAL - TESTING LAB

BORING NUMBER B-2

CLIENT Howe Company, LLC
PROJECT NAME Clark County Bridge 1100037
PROJECT NUMBER G20562
PROJECT LOCATION Wyaconda, Missouri
DATE STARTED 6/29/20 **COMPLETED** 6/29/20
GROUND ELEVATION 730.5 ft MSL or bhdk **HOLE SIZE** 4"
DRILLING CONTRACTOR IPES
GROUND WATER LEVELS:
DRILLING METHOD 4" SSA
AT TIME OF DRILLING 43.00 ft / Elev 687.50 ft
LOGGED BY Lidholm **CHECKED BY** Steinman
AT END OF DRILLING 68.00 ft / Elev 662.50 ft
NOTES Borehole backfilled upon completion
0.5hrs AFTER DRILLING 68.00 ft / Elev 662.50 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY LENGTH	BLOW COUNTS (N VALUE)	PENETROMETER (tsf)	UNC. COMP. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT	ATTERBERG LIMITS PLASTIC LIMIT	ATTERBERG LIMITS PLASTICITY INDEX
0		0.4 BASE ROCK (5-inches)	730.1										
		1.5 LEAN CLAY: Brown, friable	729.0	SPT 1	11	2-3-4 (7)	9000			18			
		FILL: Lean to fat clay, brown and dark brown, trace sand, trace rust stains, hard		SPT 2	13	3-3-3 (6)	9000			13			
		8.0	722.5										
10		FAT CLAY: Brown, trace gray, trace reddish brown, trace sand, very stiff to hard (glacial drift)		SPT 3	14	6-13-14 (27)	8000			7			
				SPT 4	14	4-6-7 (13)	9000			11			
		18.0	712.5										
20		LEAN TO FAT CLAY: Brown, trace gray, trace sand and fine gravel, occassional sandier zones, stiff to hard (glacial drift)		SPT 5	19	4-7-12 (19)	9000			11			
				SPT 6	18	5-8-13 (21)	8000			12			
30				SPT 7	18	4-6-8 (14)	9000			17			
				SPT 8	18	5-7-8 (15)	9000			17			
40				SPT 9	18	6-8-12 (20)	8500			18			
		▽		SPT 10	14	5-8-9 (17)	9000			19			
50				SPT 11	15	6-8-12 (20)	6000			17			
				SPT 12	11	5-9-10 (19)	6500			17			
60				SPT 13	14	7-9-12 (21)	9000			14			
				SPT 14	17	7-8-10 (18)	9000			14			
		▼											
70		70.0	660.5	SPT 15	18	5-8-9 (17)	7500			16			
		Bottom of borehole at 70.0 feet.											

SAMPLE LENGTH REPORT (TSF) - LAT-LONG TEMPLATE.GDT - 7/10/20 15:51 - V:\===PROJECTS===\GEOT PROJECTS\2020\G20562 - CLARK COUNTY BRIDGE 1100037\G20562 LOGS.GPJ

BORING LOG LEGEND AND NOMENCLATURE

Sample Type	Description
AU	Auger sample, disturbed, obtained from auger cuttings
NR	No recovery or lost sample
RC	Rock core, diamond core bit, nominal 2-inch diameter rock sample (ASTM D 2113)
ST	Thin walled (Shelby) tube sample, relatively undisturbed (ASTM D 1587)
SPT	Split spoon sample, disturbed (ASTM D 1586)
VA	Shear vane (ASTM D 2753)

Grain Size Terminology	
Boulders	Larger than 12-inches
Cobbles	3-inches to 12-inches
Gravel	Retained on #4 sieve to 3-inches
Sand	Retained on #200 sieve but passes #4 sieve
Silt or Clay	Passes #200 sieve

Descriptor	Relative Proportion of Sand and Gravel	Relative Proportion of Fines
Trace	Less than 15% by dry weight	Less than 5% by dry weight
With	15% to 30% by dry weight	5% to 12% by dry weight
Modifier	More than 30% by dry weight	More than 12% by dry weight

Relative Density of Coarse grained Soils	
Descriptive Term	SPT N-Value, Blows/Foot
Very Loose	0 – 3
Loose	4 – 9
Medium Dense	10 – 29
Dense	30 – 49
Very Dense	50+

Consistency of Fine Grained Soils		
Descriptive Term	SPT N-Value, Blows/Foot	Unconfined Compressive Strength, psf
Very Soft	0 – 1	0 – 500
Soft	2 – 3	501 – 1,000
Medium	4 – 9	1,001 – 2,000
Stiff	10 – 29	2,001 – 4,000
Very Stiff	30 – 49	4,001 – 8,000
Hard	50+	› 8,000

USCS Soil Classification System				
Major Divisions			Group Symbol	Group Name
coarse grained soils more than 50% retained on #200 sieve	gravel ›50% of coarse fraction retained on #4 (4.75 mm) sieve	clean gravel ‹5% small than #200 sieve	GW	well-graded gravel, fine to coarse gravel
			GP	poorly graded gravel
		gravel with ›12% fines	GM	silty gravel
			GC	clayey gravel
	sand ›50% of coarse fraction passes #4 (4.75 mm) sieve	clean sand	SW	well-graded sand, fine to coarse sand
			SP	poorly graded sand
		sand with ›12% fines	SM	silty sand
			SC	clayey sand
fine grained soils more than 50% passes #200 sieve	silt and clay liquid limit ‹ 50	inorganic	ML	silt
			CL	clay
		organic	OL	organic silt, organic clay
	silt and clay liquid limit ≥ 50	inorganic	MH	silt of high plasticity, elastic silt
			CH	clay of high plasticity, fat clay
		organic	OH	organic clay, organic silt
highly organic soils			PT	peat

Weathering	Description of Rock Properties
Fresh	No discoloration. Not oxidized.
Slightly weathered	Discoloration or oxidation of most surfaces but or short distance from fractures
Moderately weathered	Discoloration or oxidation extends from fractures, usually throughout. All fractured surfaces are oxidized or discolored.
Severely weathered	Discoloration or oxidation throughout. All fractured surfaces are oxidized or discolored. Surfaces are friable.
Decomposed	Resembles a soil. Partial or complete remnant rock structure may be present.

Rock Quality Designator (RQD)	
RQD, %	Rock Quality
90 – 100	Excellent
75 – 90	Good
50 – 75	Fair
25 – 50	Poor
0 – 25	Very poor

Joint, Bedding, and Foliation Spacing in Rock		
Spacing	Joints	Bedding/Foliation
‹ 2-inches	Very close	Very thin
2-inches – 1-foot	Close	Thin
1-foot – 3-feet	Moderately Close	Medium
3-feet – 10-feet	Wide	Thick
›10-feet	Very Wide	Very thick

K. LANDOWNER REQUIREMENTS

General – There were no known landowner requirements on this project.

Measurement – No direct measurement will be made.

Payment – No additional payment will be provided for any landowner requirements. Any other work or expenses not directly covered by pay items shall be considered incidental to the project.

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L. ACCEPTANCE OF PRECAST CONCRETE MEMBERS AND PANELS

The following procedures have been established for the acceptance of precast concrete girders, slab panels, MSE wall systems, and other structural members. Shop drawings shall be submitted for review and approval to the engineer of record for the local public agency (LPA). The approval is expected to cover only the general design features, and in no case shall this approval be considered to cover errors or omissions in the shop drawings. The LPA or their engineer of record has the option of inspecting the precast units during fabrication or requiring the fabricator to furnish a certification of contract compliance and substantiating test reports. In addition, the reports shown below shall be required.

- Certified mill test reports, including results of physical tests on the prestressing strands and re-bar in reinforcing steel, as required.
- Test reports on concrete cylinder breaks.

The LPA or their engineer of record shall verify and document that the dimensions of the precast units were checked at the jobsite and found to be in compliance with the shop drawings.

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M. RECYCLED BRIDGE MATERIAL

1.0 Description. The contractor shall have the option of using concrete rubble from the existing bridge in lieu of or as part of the quantity of Type 2 Rock Blanket.

2.0 Construction Requirements. This work shall be in accordance with Sec 611.30 as directed by the owner and shall conform to the plans for Type 2 Rock Blanket. All concrete pieces shall be free of exposed rebar. Any concrete rubble determined by the owner to be unsuitable or excess shall become the property of the contractor or shall be disposed of in accordance with Sec. 216.

3.0 Method of Measurement. No final measurement of Furnishing Type 2 Rock Blanket will be made. The method of measurement for Placing Type 2 Rock Blanket will be in accordance with Sec 611.30.4.

4.0 Basis of Payment. The basis of payment for Furnishing Type 2 Rock Blanket will be based on the plan quantity as specified in the contract regardless of where the material is obtained. The basis of payment for Placing Type 2 Rock Blanket will be in accordance with Sec 611.30.5

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N. CRASHWORTHY END TERMINAL

1.0 Description. The contractor shall furnish and install Crashworthy End Terminals as shown on the project plans or as directed by the engineer.

2.0 Construction Requirements. Crashworthy End Terminal shall satisfy the following requirements:

- Listed on MoDOT's Qualified Products Listing under End Terminals, Crash Cushions and Barrier systems.
- Meets NCHRP-350 or MASH TL-2.
- Suitable to connect to 31" tall MGS railing.
- 25-0" in length.
- Features a reflective object marker sticker at the terminal of the railing.

Rail terminals shall be fabricated and installed in accordance with the manufacturer's approved shop drawings, recommendations, and as shown on the plans. Any units damaged during the term of the contract shall be replaced immediately at the contractor's expense.

The contractor shall provide shop drawings, materials submittals for terminals. Mill test reports from the original producing steel mill shall be furnished for all steel products included.

3.0 Method of Measurement. Measurement for Crashworthy End Terminals will be made for each unit assembled, installed, and complete in place. Submittals, shop drawings, material certifications, and mill test reports verifying Buy America requirements shall be included for each unit prior to acceptance.

4.0 Basis of Payment. Crashworthy End Terminals will be paid for at the contract unit price for each unit completed. No additional payment will be made for any field adjustments necessary to accommodate the railing. No additional payment will be made for shop drawings and or submittals.

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O. USE OF A VIBRATORY SCREED

General – A vibratory screed may be used as a part of the bridge deck finishing effort as long as the following requirements are met:

1) The screed shall be shall be set to provide the necessary crown and wide enough to finish the full width of the bridge deck.

2) The screed shall be fitted with guides that restrict the transverse movement to 1" in order to maintain the correct position of the crown.

3) The screed shall be pulled across the bridge using a method provides a smooth and consistent movement. An additional power unit shall be on site in case one of the main units fail. Manual "pushing" of the screed by workers is not acceptable.

4) The placement of concrete, consolidation of concrete, and operation of the screed shall be monitored and adjusted to prevent the concrete from piling up in front of the screed to the point it "rides-up" on the concrete.

5) Placement & finishing operations shall be monitored and adjusted as necessary so the aggregate remains well dispersed in the slab.

6) The vibratory action of the screed shall be turned off when the screed is not moving forward. Any concrete which may be identified by the Engineer as over consolidated shall be removed immediately and replaced with fresh concrete to avoid a cold joint.

7) All other requirements for finishing, texturing, and curing the slab remain in place. The contractor shall plan to utilize a bull float for finishing the deck and a texturing rake to finish the deck.

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P. TURF REINFORCEMENT MAT

General – Turf reinforcement mats shall be installed in accordance with the manufactures published recommendations at the locations shown on the plans.

Material Requirements – All material provided shall be recommended for the following applications in published application guides from the manufacturers:

- 1h : 1v slopes
- Extended Term Application with longevity of 36 months.
- All fasteners shall be suitable for the soil types encountered in the geotechnical investigation.

Installation Requirements – All materials and fasteners shall be installed in strict accordance with the recommendations with extra attention given to the end treatments and perimeter installations. All lime, fertilizer, and seed shall be applied to a prepared seedbed before the turf reinforcement mats are installed.

Measurement – No direct measurement will be made.

Payment – Payment will be made for plan quantity at the contract unit price. Payment includes seeding, fertilizer and lime as well.

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Q. GALVANIZED STRUCTURAL STEEL PILE

1.0 Description. This job special provision contains general requirements for furnishing, coating, and placing galvanized steel piles and bracing as shown on the plans and shall be in addition to the requirements of the MoDOT Standard Specification for Highway Construction (MoDOT) Sec 702.

2.0 Material. Structural steel piles and bracing shall be galvanized in accordance with AASHTO M111/ASTM 123 and MoDOT Sec 1080. Repairs to the galvanized coating and field galvanizing shall be in accordance with ASTM A780 (zinc-based solders or metallizing). Zinc rich paints will not be allowed. Repairs and field galvanizing will not be required where the pile will be encased in concrete or below the limits specified in section 3.0 of this job special provision. Protective Coatings specified in MoDOT Sec 702 will not be required for galvanized piles or bracing.

3.0 Construction Requirements.

3.1 Piling shall be galvanized to a minimm depth or limits provided in the project plans. If no minimum depth or limits for galvanizing are provided the contractor piling shall be provided galvanized for the full length of the pile.

3.2 At the contractor's option, the entire pile length may be galvanized regardless of minimum depths or limits noted in the project plans.

3.3 Pile points or closure plates, and their attaching welds, may be galvanized - or - may be left ungalvanized and may be installed after the galvanizing process is completed.

3.4 Galvanizing material shall be omitted or removed for a minimum of 2 inch on either side of weld locations. The method used to omit or remove the galvanizing material shall be masking, grinding, or other methods as approved by the engineer. If a weld location falls within an area where galvanizing is required, clean the weld area making sure to remove all welding slag. Then field galvanize the weld area in accordance with ASTM A780 (zinc-based solders or metallizing). Zinc rich paints will not be allowed.

3.5 Unless noted otherwise all piling shall be galvanized.

3.6 The galvanized coating need not be removed from piling where encased in concrete.

4.0 Method of Measurement. Galvanized Structural Steel Pile in place will be the actual length to the nearest linear foot for that portion of the pile that remains permanently in the structure. See Sec 702 Basis of Payment for any additional length authorized by the engineer resulting from pile splices. No payment will be made for splices within the planned length of the piling.

5.0 Basis of Payment. The accepted quantity of galvanized and non galvanized pile in place will be paid for at the contract unit price for Galvanized Structural Steel Pile. No direct payment will be made for incidental items necessary to complete the work unless specifically provided as a pay item in the contract.

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R. PROJECT SPECIFIC AGGREGATES

3" Base Rock

General - This material shall be a locally available, large aggregate, base rock gradation. This material is intended for use on top of geotextile fabric in the areas under bridge as showin in the project plans.

Material Requirements – No direct measurement will be made unless the engineer believes the quantity of material used is less than the amount shown on the bid form. Truck scale tickets shall be provided to the engineer.

Payment – Payment will be made for plan quantity at the unit price on the bid form.

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S. STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

1.0 General. The planned land disturbance area for this project is expected to exceed 1 acre, therefore, a land disturbance permit and project stormwater pollution prevention plan (SWPPP) describing erosion and sediment control guidelines and install temporary and permanent erosion and sediment control measures is required.

A general erosion control plan has been included in the project plans. These erosion control measures are intended to be in place at the conclusion of the project in order to prevent damage to the final grading of the project. These erosion control measures may be incorporated into the contractors SWPPP but the contractor will still be responsible for preparing, submitting, and enacting their own SWPPP.

The SWPPP will need to include any borrow sites used by the contractor.

Additional information on SWPPP's may be found at:

https://epg.modot.org/index.php/806.8_Storm_Water_Pollution_Prevention_Plan_(SWPPP)#806.8.1_Introduction_to_the_Storm_Water_Permit_and_Storm_Water_Pollution_Prevention_Plan_.28SWPPP.29

2.0 Requirements of the Contractor. The contractor shall prepare, submit, and enact a SWPPP including:

- Applying for and obtaining a land disturbance permit, including the cost of the permit.
- The contractor shall be the permit holder and responsible for complying with the permit conditions including implementation, execution, and updates to the SWPPP. The contractor is responsible for any fines and penalties which may be assessed by MoDNR or EPA.
- Updating the SWPPP includes adding BMPs if necessary to control sediment from the contractors operations.

3.0 Measurement There will be no direct measurement of work for items covered under the "SWPPP" pay item.

4.0 Payment. Payment for acquiring the land disturbance permit, satisfying the conditions of the land disturbance permit, SWPPP implementation, SWPPP execution, and updates to the SWPPP will be made at the lump sum price for the "SWPPP" bid item when the requirements of the permit have been satisfied.

No additional compensation will be made for any additional BMPs which may be needed as a result of the contractors approach to the project.

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T. RAILWAY COORDINATION REQUIREMENTS

A portion of this project is within the Burlington Northern Santa Fe (BNSF) railroad tracks and right-of-way. The contractor shall be responsible for following the guildelines for construction within railway right-of-way.

The contractor shall furnish insurance as required by BNSF Railway Exhibit C-1 and shall execute BNSF Railway Exhibits C and C-1 at the time the project contracts are signed.

The contractor shall be responsible for coordinating with the railway in order to provide flagging and coordination of track time and blockagages for the project. All related costs for flagging, inspections by the railway of the work, and coordination with the railway shall be the contractors responsibility and should be included in the line items "BNSF Flagmen" and "Misc RR Fees."

The Contractor is responsible for the development and submittal of any and all submittals which may be necessary to gain the necessary permits or clearances from the BNSF Railway including, but not limited to, Demolition Plans, Erection Plans, Temporary Shoring Plans.

The following documents are included and are part of the contract documents:

- BNSF Railway Guidelines for Temporary Shoring.
- BNSF Railway Guidelines for Preparation of Bridge Demolition and Removal Plan over BNSF Railway.
- Updated BNSF Railway Exhibit C.
- Updated BNSF Railway Exhibit C-1.
- Union Pacific Railroad - BNSF Railway - Guidelines for Railroad Grade Separation Projects - Section 4.4

Measurement – BNSF Flagmen - Work days which requires a flagger and results in a flagging charge will be measured per day. BNSF Flagmen Days which have not been used at the conclusion of the project will be removed from the contract by change order.

There will be no direct measurement for applications, permits, fees, clearances, etc. required to work on BNSF property.

Payment – Payment will be made for each day the Contractor is billed by BNSF for providing flagging for the project up to the contract quantity. This is payable under the item "BNSF Flagman". The contractor shall provide a copy of all Railway Charges to Howe Company before any payment for "BNSF Flagman" will be authorized.

Payment for all other expenses and fees required to work on the BNSF Railway are payable at the lump sum price for "Misc. RR Fees".

The cost associated with preparation of an engineered demolition and removal plan shall be included in the item "Removal of Bridge".

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GUIDELINES FOR TEMPORARY SHORING

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EMERGENCIES
1-800-832-5452

Contents

1. INTRODUCTION

1.1 PURPOSE

a. The purpose of these guidelines is to inform public agencies, design engineers, contractors and inspectors of current Railroad standards and requirements concerning design and construction of temporary shoring.

1.2 SCOPE

a. This guideline governs on the Railroad Right-of-Way. This includes the limits of property owned, controlled and/or operated upon by the Railroad.

b. All requirements addressed within this document shall constitute minimum requirements for all projects or works on the Railroad Right-of-Way. The applicability of each requirement for any given project will be subjected to the Railroad's discretion.

c. Where laws or orders of authority prescribe a higher degree of protection or restriction than specified herein, the higher degree so prescribed shall control.

d. These guidelines supplement the current American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. For items covered within these guidelines and AREMA, the more restrictive shall control.

   i. **It is the requirement for the Contractor and designer developing Railroad shoring systems to have a copy of the AREMA Manual. Visit www.arema.org to obtain the Manual for Railway Engineering.**

e. These guidelines supersede all previous Railroad guidelines for temporary shoring and are subject to revision without notice.

f. In addition to this guideline, all excavations shall also be governed by each individual Railroad requirements, Federal, State and Local laws, rules and regulations concerning construction safety.

g. These guidelines are provided as a reference and cannot be taken as authority to construct without prior review and written approval of the Railroad. See Section 2.9 for review process.

2. GENERAL CRITERIA

2.1 SAFETY & RAILROAD OPERATIONS

a. Projects shall be designed such that construction activities and phasing will not compromise safety nor impact Railroad operations.

b. Emergency Railroad phone numbers are to be obtained from a Railroad representative prior to the start of any work and shall be posted at the job site.

2.2 SHORING REMOVAL

a. The Contractor is responsible for planning and executing all procedures necessary to construct, maintain and remove the temporary shoring system in a safe and controlled manner.

2.3 RAILROAD FLAGGING

a. A flagman is required when any work is performed within 25 feet of track centerline. If the Railroad provides flagging or other services, the Contractor shall not be relieved of any responsibilities or liabilities as set forth in any document authorizing the work. No work is allowed within 50 feet of track centerline when a train passes the work site, and all personnel must clear the area within 25 feet of track centerline and secure all equipment when trains are present.

2.4 CALL BEFORE YOU DIG & EXISTING UTILITIES

a. Call Before You Dig: Appropriate measures for the installation and protection of fiber optic, or other cables, shall be addressed in the plans and contract documents. For specific Railroad requirements and additional information refer to:

   BNSF: www.bnsf.com or call 1-800-533-2891.

   UPRR: www.up.com/cbud

b. Relocation of utilities or communication lines not owned by the Railroad shall be coordinated with the respective utility owners. Utility relocation plans must then be submitted to the Railroad utility representative(s) for review and prior approval must be secured before work can proceed. The Railroad will not be responsible for costs associated with any utility, signal, or communication line relocation or adjustments.

c. Abandonment of utilities must follow the UPRR Guidelines For Abandonment of Subsurface Utility Structures or the BNSF Utility Accommodation Policy.

2.5 APPLICANT & CONTRACTOR RESPONSIBILITIES

a. The Applicant and Contractor must verify with the Railroad's Local Representative their receipt of the latest version of these guidelines prior to developing Construction Documents.

b. Construction shall NOT impact Railroad operations, functions and facilities:

   i. The Applicant and Contractor shall develop design plans, including, without limitation, all procedures necessary to construct and maintain the proposed shoring project, which cause no interruption to Railroad operations during and after construction.

   ii. Work shall also not impede drainage or other functions of the Railroad.

   iii. Any rail traffic outages or curfews thought to be required for the installation or removal of any portions of a shoring system must be requested by submittal to the Railroad for prior consideration long in advance of mobilization and construction. Such requests may not be granted.

   iv. Unapproved and unscheduled interruptions to Railroad operations may result in your removal from Railroad Right-of-Way, and your authorization to re-enter revoked.

c. Railroad approved design and construction plans:

   i. The Contractor shall install the temporary shoring system per the plans approved by the Railroad.

   ii. Any deviation from the Railroad approved plans requires resubmittal and prior approval by the Railroad prior to proceeding with said deviation. Approval from the Railroad may not be granted.

d. The Contractor must monitor the track, ground and shoring for movement. See Section 2.6 for monitoring.

e. The Applicant and Contractor shall be jointly responsible for the design, construction and performance of the temporary structure.

f. The Contractor must review the temporary shoring plans to ensure that the proposed method of construction is compatible with the existing site and soil conditions. Removal of the shoring system must also be addressed.

g. The Contractor must obtain a valid right of entry permit from the Railroad and comply with all Railroad requirements when working on Railroad property.

h. The Contractor is responsible to protect the Railroad ballast and subballast from contamination.

i. The Contractor shall comply with all State and Federal Laws, county or municipal ordinances and regulations which in any manner affect the work.

j. All removed soils will become the responsibility of the Contractor and shall be disposed of outside the Railroad Right-of-Way according to the applicable Federal, State and Local regulations.

k. The project engineer and the Contractor shall evaluate the quality of materials furnished and work performed.

l. The Applicant, at its expense, shall be solely responsible for all costs, design, construction, future replacement, maintenance, and serviceability of the proposed shoring project, except as noted otherwise in the Construction & Maintenance (C & M) Agreement with the Railroad.

m. The Applicant shall be responsible for obtaining all Federal, State, Local and other permits for construction of the shoring project.

   i. The Engineer-of-Record shall be registered in the state of the project location. The Engineer-of-Record may be Applicant's in-house staff or a consultant retained by the Applicant. The Contractor shall not employ the Engineer-of-Record as the Contractor's Engineer-of-Record or as a specialty engineer, with the exception of design build projects.

n. The Applicant and/or the Engineer-of-Record have the ultimate responsibility and liability for the Construction Documents and liability for damages to Railroad property during and after construction of the shoring.

o. The Contractor is responsible to comply with the construction documents prepared by the Applicant. The Contractor shall comply with Railroad requirements stated in the C & M Agreement prior to the commencement of any construction. The Contractor shall develop work plans that ensure the track(s) remain open to train traffic per Railroad requirements as stated in the C & M Agreement and meet the requirements of the Railroad Right-of-Entry Agreement (if applicable).

p. The Applicant and Contractor is responsible for the security and safety of all people including the general public and trespassers, and the protection of Railroad infrastructure within the limits of the proposed shoring project. Any damage to Railroad property such as track, signal equipment or structure could result in a train derailment. All damages must be reported immediately to the Railroad Local Representative and to the local Railroad Track Maintenance Representative.

q. The Applicant and Contractor are required to meet all safety standards as defined by the Railroad, Federal Railroad Administration (FRA), Division of Occupational Safety and Health Administration (OSHA), Local, State and Federal Governments and the State Railroad Regulatory Body.

2.6 TRACK, GROUND & SHORING MONITORING:

The Contractor must monitor the track, ground and shoring for movement to ensure proper performance of the shoring system and the safe operation of trains. Record top of rail elevations and track alignment for the duration of the project. After the project is complete additional track and ground monitoring may be required as deemed necessary by the Railroad.

a. Track & Ground Monitoring requirements: In addition to Table 2:
   - For UPRR, see the Union Pacific Railroad Guidelines for Track & Ground Monitoring.
   - For BNSF, subject to direction of the BNSF project engineer for the project

   ii. Deflection Limits (Table 2), Section 3.8k, for both track and shoring deflection limits.
   - Displacements exceeding the limits defined in Table 2 must be immediately reported to the Railroad. All work on the project must stop and the Railroad may take any action necessary to ensure safe passage of trains. The Contractor must immediately submit a corrective action plan to the Railroad for review and approval. The Railroad must review and approve the proposed repair procedure. The repair must be inspected by the Railroad before any work on the project can proceed.

b. Any damage to Railroad property such as track, signal equipment or structure could result in a train derailment. All damage must be reported immediately to the Railroad representative in charge of the project and to the Railroad Track Maintenance Representative.

2.7 RAILROAD RIGHT-OF-WAY

a. The Railroad Right-of-Way accommodates existing tracks, drainage systems, multiple utilities, access roads, Railroad support facilities and space for future track(s).

b. The proposed project shall not limit existing or future Railroad operating capacity and utility accommodations within the Railroad Right-of-Way.

c. Limits of Railroad Right-of-Way are to be located by the Applicant and identified on the plans.

2.8 CONSTRUCTION AND MAINTENANCE AGREEMENT

a. Prior to construction on Railroad Right-of-Way, Applicants must have an executed a C & M Agreement with the Railroad.

b. The C & M agreement shall, at a minimum, include a funding source, cost estimate, insurance and indemnification requirements, method of payment, responsibility for design, construction, ownership, maintenance and future replacement.

c. The Applicant shall own, maintain and replace the proposed project at no cost to the Railroad and with no interruption to Railroad operations during construction, maintenance and future replacement of the structure.

d. The Railroad shall, at its own expense, be responsible for ownership and maintenance of ballast and track components only.

e. The Applicant shall provide, at no cost to the Railroad, traffic control and/or detours to allow occupation of the roadway by the Railroad or its contractor(s) to perform periodic inspections as required.

f. The Applicant is responsible for performing the work in accordance with the terms specified in the C & M Agreement.

2.9 RAILROAD REVIEW PROCESS

a. <u>How to Communicate with the Railroad</u>

   i. All design and construction submittals shall be sent to the Railroad Representative who will pass them along for Railroad review.

b. <u>Railroad Compensation Agreement</u>:

   i. Prior to any review, the Railroad Local Representative shall receive written notice from the Applicant agreeing to pay all costs associated with the Railroad's (or its consultant's) review of the design plans, construction documents and construction monitoring phase. This is often referred to as the Preliminary Engineering Agreement (PE Agreement).

   ii. The estimated costs of such PE Agreement shall not be the upper limit of the costs but will provide a guideline for budgeting purposes. Regardless, all actual costs incurred by the Railroad (or its consultants) during the review of design plans, construction documents, and construction monitoring submittals shall be fully recoverable from the Applicant.

c. <u>Railroad Review Duration</u>

   i. Review of design submittals and resubmittals by the Railroad (or its consultants) will require a minimum of 4 weeks each individual submission to the Railroad.

   ii. To expedite the review process of the temporary shoring plans, drawings submitted to the Railroad shall be in accordance with these Guidelines. Otherwise, longer review times shall be expected.

   iii. To avoid impacting the construction schedule, the Contractor should schedule submittals at least 4 to 6 months in advance.

   iv. Partial, incomplete or inadequate designs will be rejected, thus delaying the approval.

   v. Revised submittals will follow the same procedure as the initial submittal until all issues are resolved.

d. Applicant and Engineer of Record Review

i. Before providing submittals for the Railroad to review, the applicant and or Engineer of Record must first review and approve the submittal for compliance with the project specifications, AREMA Manual, these Guidelines and structural capacity. Exceptions or proposed alternatives, if any, must be clearly communicated and identified for all submittals involved.

ii. Drawings and calculations must be signed and stamped by a licensed professional engineer familiar with railway loadings and is licensed in the state where the shoring system is intended for use.

e. Construction May Commence Only When:

i. The Contractor must not begin construction of any component of the shoring system affecting the Railroad Right-of-Way until written Railroad approval has been received.

2.10 APPROVAL EXPIRATION

a. Written approval of Final Plans will be valid for two years from the date of approval by the Railroad unless otherwise provided in the C&M Agreement. If construction of the approved structure has not begun within this period, the Railroad shall have the right to perform a design review, at the cost of the Applicant, to confirm compliance with the Railroad's then-current Guidelines before a Railroad Right-of–Entry Agreement is issued to begin construction.

3. DESIGN

3.1 GENERAL DESIGN REQUIREMENTS

a. Shoring Zones (see Figure 1 below):

i. All dimensions are measured perpendicular to the centerline of track.

ii. For ALL excavations within Zone A, shoring plans shall be accompanied by design calculations.

iii. All shoring within the limits of Zone A must be placed prior to the start of excavation.

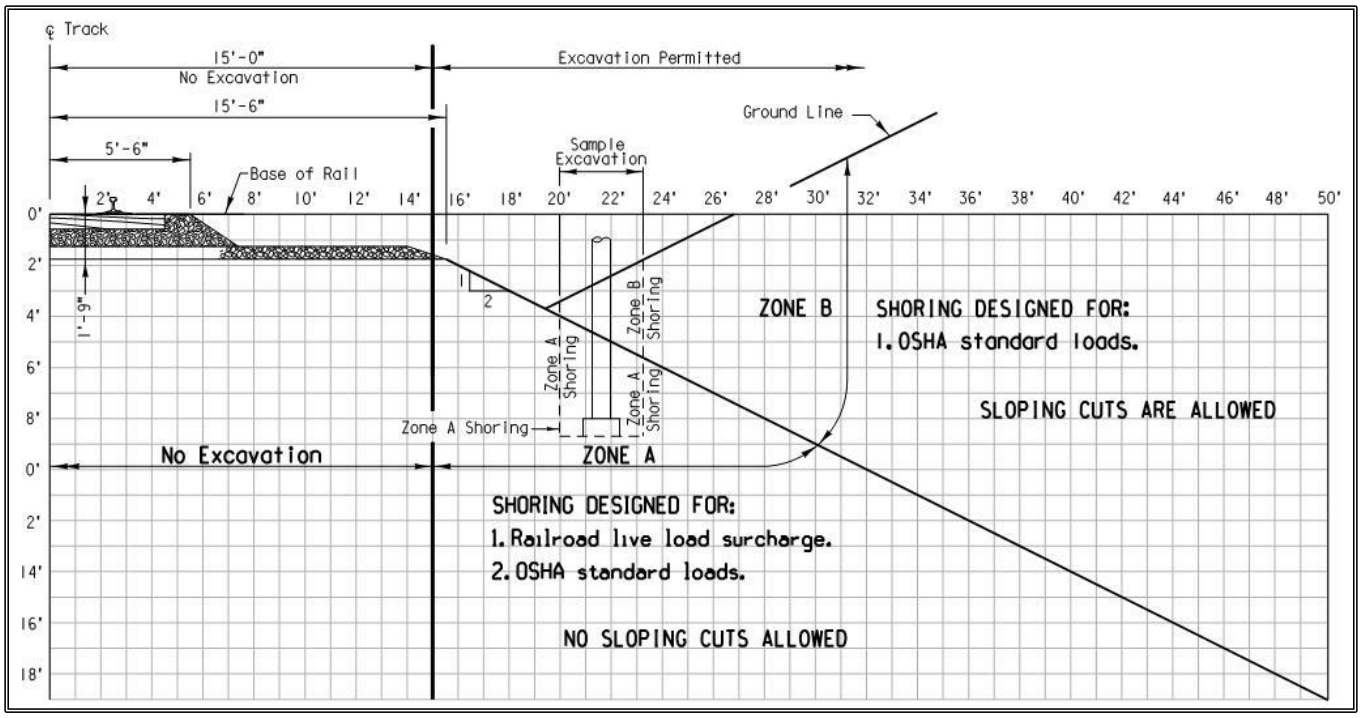


FIGURE 1

b. Excavation Limits: No excavation shall be permitted closer than 15'-0" measured at a right angle from the centerline of track to the trackside of shoring system.

c. Evaluate slope and stability conditions to ensure the Railroad embankment will not be adversely affected. Local and global stability conditions must also be evaluated.

d. Lateral clearances must provide sufficient space for construction of the required Railroad ditches parallel to the standard Railroad roadbed section. The size of ditches will vary depending upon the flow and terrain and should be designed accordingly.

e. Protect Open Excavations:

   i. Any excavation, holes or trenches on the Railroad property shall be covered, guarded and/or protected. Handrails, fence, or other barrier methods must meet OSHA and FRA requirements. Temporary lighting may also be required by the Railroad to identify tripping hazards to train crewmen and other Railroad personnel.

f. The most stringent project specifications shall be used of the Public Utilities Commission Orders, Department of Industrial Safety, OSHA, FRA, AREMA, BNSF, UPRR or other governmental agencies.

g. Secondhand material is not acceptable unless the Engineer of Record submits a full inspection report which verifies the material properties and condition of the secondhand material. The report must be signed and sealed by the Engineer of Record.

h. Shoring Removal:

   i. All components of the shoring system are to be removed when the shoring is no longer needed to the extent that there is no impact to Railroad operations. All voids must be filled and compacted properly, and drainage facilities restored. See compaction requirements in Section 3.5c.

   ii. If the shoring cannot be completely removed, it shall be removed at least 3.0 feet below the final finished grade or at least 3.0 feet below the base of rail, whichever is lower, unless otherwise specified by the Railroad and only if approved by the Railroad.

   iii. No traffic during unsupported excavations resulting from shoring removal.

i. Soldier piles may be installed in predrilled holes if the requirements of AREMA, Vol. 2, Ch. 8, Article 28.5.4.3 and the following are met:

   i. Slurry and drilling fluid type materials are not acceptable as backfill for soldier piles in drilled holes.

   ii. Concrete and flowable backfill may be used but might prevent removal of the embedded piles. If width of the drilled hole will be relied on for passive resistance, the concrete backfill shall have a minimum compressive strength of 3,000 psi, and a minimum coverage of at least 3.0 inches between the edge of the pile and drilled hole.

   iii. Compacted pea gravel material is allowed as backfill if the groundwater level is below the bottom of the drilled hole, the diameter of the hole is at least 12 inches greater than the diagonal width of the pile, and the pea gravel is placed in successive lifts of 8 inches or less in thickness and either consolidated by vibrating the pile or being dry rodded between each lift. The design passive resistance shall be based on the lessor of that derived from either the surrounding subsurface soils or the pea gravel. The pea gravel shall be assumed to have a friction angle no greater than 34 degrees.

   iv. Temporary or permanent casing is used to support the sides of the drilled hole for holes drilled within 25 feet from centerline of track, or 2 times the hole diameter plus 15 feet from centerline of track, whichever is greater. The thickness and strength of the steel casing shall be sufficient to support the loads described in Section 3.7, and shall be specified on the plans.

j. Tieback & Soil Nail Anchor Rods

   i. Soil Nails are defined as drilled-in ground anchors that require ground and wall movement to occur before fully utilized, and Tiebacks are defined as tie rods and drilled-in ground anchors that are prestressed after installation.

ii. Tiebacks & Soil Nails are not approved to permanently retain Railroad embankment supporting tracks.

iii. Tiebacks & Soil Nails installed below active tracks shall be cased during anchor installation.

iv. Tiebacks & Soil Nails shall be installed a minimum of 6 feet below base of rail, unless comprised of fiberglass or fully removed after the shoring is no longer needed. Additionally, the upper surface of the grouted tieback or soil nail shall be no less than 3.5 feet below base of rail.

v. Tiebacks & Soil Nails shall be designed for gravity placement of grout unless pressure grouting can be proven to not cause an unacceptable risk of track heave.

vi. For shoring that will extend above existing grade, which will result in the shoring being backfilled with compacted fill, settlement of the backfill, and associated impacts to shoring and adjacent structures, shall be evaluated. If tieback tie rods will be installed within the compacted backfill, the tie rods shall be placed in the bottom of pipe sleeves that have sufficient diameter to prevent vertical loading on the tie rods from backfill settlement. The pipe sleeves shall also have sufficient strength to support overburden backfill and surcharge loads.

vii. The contractor is responsible for providing an approved test method to verify the capacity of anchored or tieback systems. The manufacturers recommendations for testing must be satisfied. Systems which support the Railroad embankment will be considered high risk in determining the percentage of elements to be proof tested.

viii. Cement-grouted anchors tiebacks shall be installed, tested and stressed in accordance with the project specifications, AREMA requirements, FHWA-IF-99-015, Geotechnical Engineering Circular 4, Ground Anchors and Anchored Systems.

k. The proximity of existing structures shall be evaluated when determining shoring installation methods. Installation of shoring by vibratory or impact hammers has the potential to cause dynamically induced subsidence of existing structures and track. The Railroad may dictate shoring installation methods as required on a case by case basis.

3.2 INFORMATION REQUIRED

a. Plans and calculations shall be submitted, signed and stamped by a Licensed Professional Engineer familiar with Railroad loadings and who is licensed in the state where the shoring system is intended for use. See Section 3.9 for requirements on plan submittals. In addition to plans and calculations, the following information is also required.

b. Field Survey

i. The field survey shall be referenced to the centerline of track(s) and top of rail elevations. Existing grades and alignment of tracks and roads shall be surveyed. The location of existing utilities shall also be determined.

c. Drainage

i. The drainage pattern of the site before and after construction should be analyzed and adequate drainage provisions should be incorporated into the plans and specifications. Consideration should be given to groundwater seepage as well as surface drainage.

ii. Drainage provisions for backfill should be compatible with the assumed water conditions in design.

d. Geotechnical Report – See Section 3.5, Subsurface Characterization.

e. Assumed Loading – See Section 3.7, Applied Loads and Calculations.

f. Structural Design Calculations – See Section 3.8, Structural Design Calculations.

3.3 DESIGN PROCEDURE

a. Shoring design should generally adhere to the following procedure:

Step 1) Determine proposed excavation location and depth.

Step 2) Establish subsurface and surface conditions at proposed shoring location. See Section 3.5 for requirements.

Step 3) Select shoring type (see Section 3.6)

Step 4) Determine Applied Loads

- Lateral Driving Pressures on back side of shoring, which would consist of the following:
  - Earth pressure (Active, At-Rest, Apparent) (see Sections 3.7c.i, 3.7c.ii, and 3.7c.iii)
  - Surcharge pressures (see Section 3.7c.iv)
  - Hydrostatic pressure (see Section 3.7c.v)
- Lateral Resisting Pressures on the front side of shoring, which would consist of the following:
  - Passive earth pressure (see Section 3.7d.i).
  - Passive earth pressure reductions (e.g., seepage uplift) (see Section 3.7d.ii)
  - Resisting loads from braces and tiebacks

Step 5) Perform Structural Design Calculations

- Perform stability analysis to establish the minimum embedment depth of shoring and anchor/brace loads (see Section 3.8j).
  - For complex shoring designs, perform global and basal heave stability analyses (see Section 3.8j).
- Verify deflection is within that allowable (see Section 3.8k).
- Verify strength of structural elements are not exceeded (see Section 3.8i)

3.4 (Step 1) EXCAVATION LOCATION

a. See Figure 1, Section 3.1b for excavation limits.

b. Shoring systems should be located as far from the Railroad track and structures as possible.

3.5 (Step 2) SUBSURFACE CHARACTERIZATION

a. Subsurface exploration.

i. Sufficient borings shall be made along the length of the structure to determine, with a reasonable degree of certainty, the subsurface conditions. Irregularities found during the initial soil boring program may dictate that additional borings be performed.

ii. In general, borings should be performed within 50 feet of the planned location of shoring, or closer as necessary. If the planned shoring is longer than 250 feet in length, additional borings shall be performed along the length of the shoring on an average spacing of 250 feet.

iii. Borings shall be performed to a depth sufficient to fully characterize the soils adjacent to and below the proposed shoring.

iv. Unless otherwise stated in these guidelines, subsurface investigation shall also be made in accordance with the provisions of AREMA, Vol. 2, Ch. 8, Part 22, Geotechnical Subsurface Investigation.

b. Type of backfill and backfill properties.

i. Backfill is defined as material behind the wall, whether undisturbed ground or compacted fill, that contributes to the pressure against the wall.

ii. The compacted fill may be classified with reference to the soil types described in AREMA Vol. 2, Ch. 8, Articles 5.2.5 and 5.3.2. However, the unit weight used in design shall be representative of the actual unit weight of the material as measured by laboratory testing.

c. Backfill placement and compaction.
   i. The compacted fill shall meet the latest version requirements of Section 31 23 26 of the UPRR General Conditions and Specifications (UPRR) or BNSF Standard Construction Specifications (BNSF).
   ii. No dumping of backfill material shall be permitted in such a way that the successive layers slope downward toward the wall. The layers shall be horizontal or shall slope downward away from the wall.
   iii. If the wall is not free to rotate (i.e., is anchored or braced) and achieve an active condition during compaction of the backfill, the induced earth pressure due to compaction shall be evaluated. The assumed earth pressure shall be no less than the at-rest earth pressure (see Section 3.7c.ii).

d. Stress states and corresponding soil strength properties.
   i. Saturated cohesive soils (clays and some silts) can reside in two different stress states while shoring is in service:
      - Undrained / Total Stress: A short-term condition where the undrained shear strength (S_u) of the soil should be used for analysis.
      - Drained / Effective Stress: A long-term condition where drained effective friction angle (ϕ') and effective cohesion (c') of the soil should be used for analysis.
   ii. It is impossible to accurately predict how long saturated cohesive soils will remain in an undrained / total stress state before pore pressures dissipate and the soil achieves a drained / effective stress state. For this reason, the Undrained Cohesive soil state shall only control for design when it results in a higher factor of safety for the shoring design than that estimated for the Drained Cohesive soil state. This will generally only be the case when the cohesive soils are relatively soft.
   iii. It is noted that cohesive soils can also reside in an "unsaturated" state, where the soil can be characterized by an unsaturated shear strength. The unsaturated shear strength of a cohesive soil can vary drastically as it's moisture content increases or decreases. Given the impossibility of predicting moisture content changes for soils exposed to weather and groundwater fluctuations, the unsaturated shear strength of the soil shall not be used for design.
   iv. Saturated and unsaturated cohesionless soils (some silts, sands, and gravels) should be assumed to always reside in a drained / effective stress state.

e. A Geotechnical Report summarizing the existing and proposed subsurface conditions shall be provided by a Licensed Professional Engineer. The Geotechnical Report shall include:
   i. Boring location plan showing the location of each boring in relation to tracks and the proposed shoring.
   ii. Boring logs that indicate the elevation and depth of each layer of soil encountered, USCS classification of each layer of soil, an indication of whether the soil is fill or natural soil, the depth/elevation of groundwater, results of in-situ testing, index properties of the soil layers as determined by laboratory testing (e.g., moisture, density, sand content, plasticity, unconfined strength, etc.)
   iii. Results of all laboratory testing. Laboratory testing shall include at a minimum: moisture content, density, unconfined compression tests on clay/rock, and direct shear or triaxial compression testing on soils to determine the effective cohesion and internal angle of friction.

iv. Recommended soil properties for the design of shoring for each layer of soil as follows:
    - Top/bottom elevation of soil layer
    - Moist (γ) and effective (γ') unit weight
    - Undrained shear strength (S_u) of cohesive soils
    - Effective cohesion (c') and friction angle (ϕ')
    - Active and passive earth pressure coefficients
    - Parameters for p-y curve generation, if necessary.

v. If required, allowable bearing capacity for spread footings.

vi. Compaction recommendations for backfill, optimum moisture content and maximum density of fill material, and design parameters for the compacted fill. See Sections 3.5b and 3.5c.

vii. Water table elevation to be assumed on both sides of the shoring system.

viii. Dewatering recommendations, as needed, and proposed flownets or zones of groundwater influence.

3.6 (Step 3) SHORING TYPES

a. Shoring/Trench Box is a prefabricated shoring system which is installed as the excavation progresses. This system is allowed in special applications only, typically where Railroad live load surcharge is not present unless it can be shown that the over excavation outside the box will be filled and compacted before the presence of Railroad live load.

b. Anchored systems with tiebacks are discouraged, as the tiebacks will be an obstruction to future utility installations and may also damage existing utilities. If used, see Section 3.1.j for design requirements for tiebacks and soil nails.

c. Sheet Pile Wall (Anchored) is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil in which the sheet pile is embedded and the tensile resistance of tiebacks.

d. Sheet Pile Wall (Cantilevered) is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil in which the sheet pile is embedded. Cantilever sheet pile walls shall be used only in granular soils or stiff clays. The maximum height of wall above the excavation line shall be 10 feet in Zone A (see Figure 1) and 12 feet in Zone B.

e. Soldier Pile with Lagging Wall (Anchored) is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil/rock in which the soldier beam is embedded and from the tensile resistance of tiebacks. Soldier beams include steel H-piles, wide flange sections or other fabricated sections that are driven or set in drilled holes. Lagging refers to the members spanning between soldier beams.

f. Soldier Pile with Lagging Wall (Cantilever) is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil/rock in which the soldier beam is embedded. The maximum height of the wall above the excavation line shall be 8 feet for Zone A (see Figure 1) and 12 feet for Zone B.

g. Braced Excavation is a structure designed to provide lateral support for a soil mass and derives stability from passive resistance of the soil in which the vertical members are embedded and from the structural capacity of the bracing members. For purposes of these guidelines, the vertical members of the braced excavation system include steel sheet piling or soldier beams comprised of steel H-piles, wide flange sections, or other fabricated sections that are driven or installed in drilled holes. Wales are horizontal structural members designed to transfer lateral loads from the vertical members to struts or rakers. Struts and rakers are structural compression members that support the lateral loads from the wales and transfer the load to either another side of a shored excavation (struts) or to a reaction pile/thrust block (raker).

h. Cofferdam is an enclosed temporary structure used to keep water and soil out of an excavation for a permanent structure such as a bridge pier or abutment or similar structure. Cofferdams may be

constructed of timber, steel, concrete or a combination of these. These guidelines consider cofferdams primarily constructed with steel sheet piles.

3.7 (Step 4) APPLIED LOADS AND CALCULATIONS

a. For shoring design submittal, all design criteria, temporary and permanent loading must be clearly stated in the design calculations and on the contract and record plans.

b. Applied loading will consist of driving pressures/forces on the back of the shoring and resisting pressures/forces on the front of the shoring.

- Driving pressure will generally consist of:
  - Active, At-Rest & Apparent pressures. (Sections 3.7c.i, 3.7c.ii, 3.7c.iii)
  - Surcharge (Section 3.7c.iv)
  - Hydrostatic pressures (Section 3.7c.v).
- Resisting pressure will generally consist of:
  - Passive earth pressure (3.7d.i) and brace/tieback loading.

c. **Driving Pressures/Loads**:

i. **Active Earth Pressure**

- Use for cantilever walls and flexible walls with only one row of tiebacks/braces (i.e., flexible anchored bulkheads), if the minimum deflection criteria per AREMA Vol. 2, Ch. 8, Article 20.1.2.d is met. If the minimum deflection criteria for flexible anchored bulkheads is not met, use Apparent Earth Pressure for top-down shoring construction (Section 3.7c.iii), and At-Rest Earth Pressure for walls that are backfilled (Section 3.7c.ii).
- The active earth pressure may be computed by the Rankine, Coulomb or Log-Spiral theories. The active earth pressure may also be based on general soil type per AREMA Vol. 2, Ch. 8, Part 20, Table 8-20-3 as provided in the Appendix.
- For interface friction angles used for Coulomb and Log-Spiral theories, the interface friction angle shall not be greater than one-half of the effective friction angle of the soil, or that consistent with published values for specific types of soil in contact with either steel or concrete (e.g., **NAVFAC DM7.02, Chapter 3, Table 1**).
- The backslope of the retained soil shall be considered when calculating the active earth pressure.
- See Section 3.5b. Subsurface Characterization, for further requirements for computing earth pressure from compacted backfill.

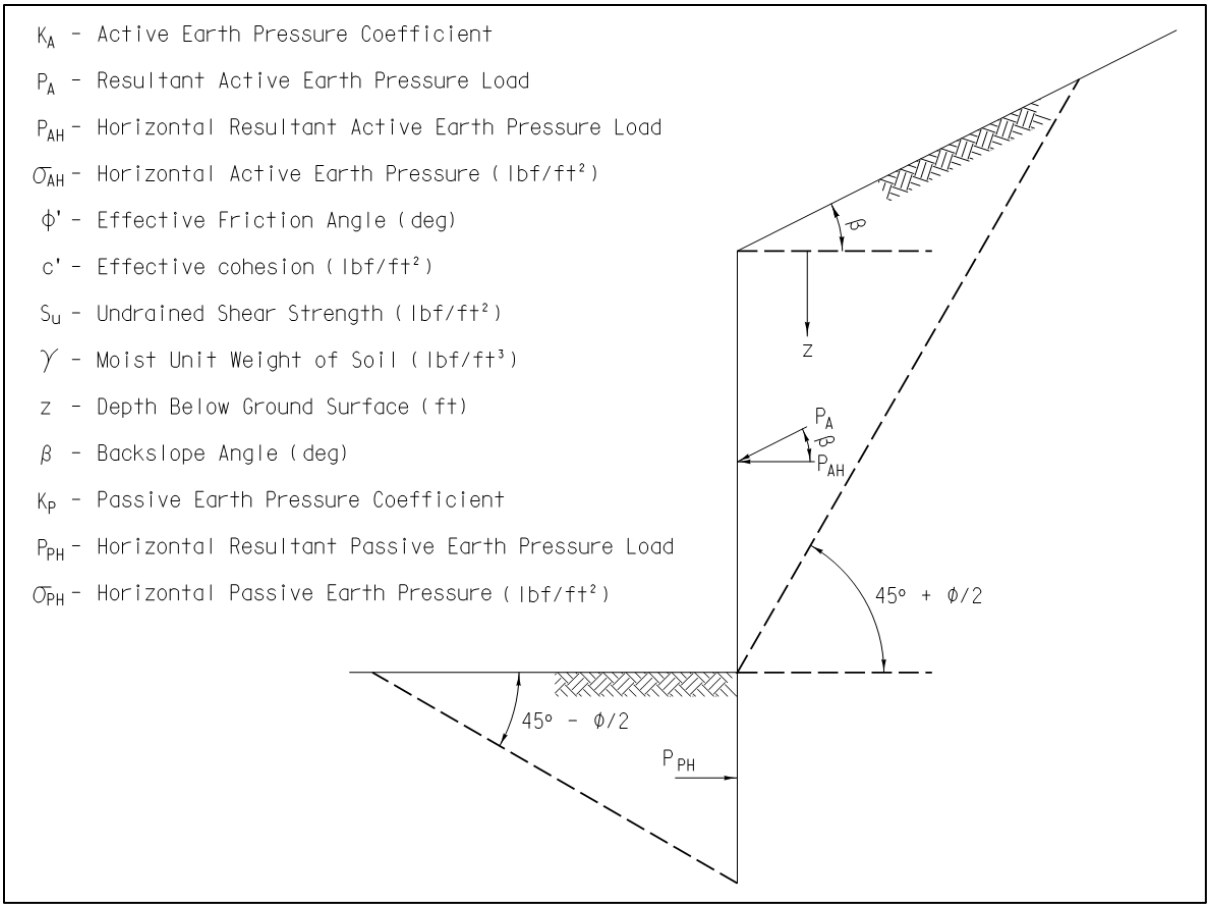


FIGURE 2

- NON-COHESIVE SOILS

  Level Backslope (Rankine)

$$\sigma_{AH} = K_A \gamma z \ \ , where \ \ K_A = tan^2\left(45 - \frac{\phi'}{2}\right)$$

  Sloping Backslope (Rankine)

$$\sigma_{AH} = K_A \gamma z \cos\beta \ \ , where \ \ K_A = \cos\beta\left(\frac{cos\beta - \sqrt{cos^2\beta - cos^2\phi'}}{cos\beta + \sqrt{cos^2\beta - cos^2\phi'}}\right)$$

- COHESIVE SOILS & FRACTURED ROCK

  Drained Cohesive & Fractured Rock - Level & Sloping Backslope (Rankine/Bell)

  - Use these drained equations unless the undrained equations below result in greater earth pressures in the shoring design.

$$\sigma_{AH} = K_A \gamma z - 2c'\sqrt{K_A}$$

$$K_A = tan^2\left(45 - \frac{\phi'}{2}\right), For\ Level\ Backslope$$

$$K_A = \cos\beta\left(\frac{cos\beta - \sqrt{cos^2\beta - cos^2\phi'}}{cos\beta + \sqrt{cos^2\beta - cos^2\phi'}}\right), For\ Sloping\ Backslope$$

- Effective Cohesion Note: Effective cohesion shall be assumed to be zero, unless local experience by a Licensed Geotechnical Engineer indicates the fully softened strength of the clay will have an effective cohesion greater than zero.
- Fractured Rock Note: The active earth pressure for fractured rock and intermediate geomaterials (e.g., weak shales, sandstone, etc.) shall be based on either the rock mass effective cohesion and friction angle, or mass shear strength. The mass strength parameters shall be determine using a methodology that accounts for rock type, intact strength, spacing and conditions of joints, rock quality designation (RQD), geological strength index (GSI), and/or rock mass rating (RMR).

Undrained Cohesive – Level Ground (Rankine/Bell)

- Only use undrained when it results in a higher earth pressure in the shoring design. Otherwise use the Drained equations above.
- Assumes ϕ=0 and c'=S_u

$$\sigma_{AH} = \gamma z - 2S_u$$

or

$$\sigma_{AH} = K_A \gamma z \quad ,where \quad K_A = 1 - \frac{2S_u}{\gamma z}$$

Very Soft to Medium Clays/Silts

- Where the Stability Number $N_s = \gamma * H/S_{ub}$ is greater than 4, active earth pressure shall be estimated as the greater of that determined using the equations above for drained (effective) and undrained (total stress) conditions, or the equations directly below. The factor of safety against basal heave shall also be analyzed per Section 3.8j.ii3.8. For N_s > 6, the global stability of the shoring shall also be evaluated by a limit-equilibrium method of slices per Section 3.8j.ii.

  - For 4 < N_s < 5.14, $K_A = 0.22$
  - For N_s > 5.14 (Henkel, 1971), $K_A = 1 - \frac{4S_u}{\gamma H} + 2\sqrt{2}\frac{d}{H}\left(1 - \frac{5.14S_{ub}}{\gamma H}\right) \geq 0.22$

  Where:

  S_u = Undrained strength of retained soil (lbf/ft^2)
  S_{ub} = Undrained strength of soil below excavation base (lbf/ft^2)
  γ = Total unit weight of retained soil (lbf/ft^3)
  H = Total excavation depth (ft)
  d = Depth of potential base failure surface below base of excavation (ft)
  (The lessor of either the thickness of soft to medium stiff clay below the bottom of excavation, or the width of the excavation divided by the square root of 2. See Figure 3 below.)

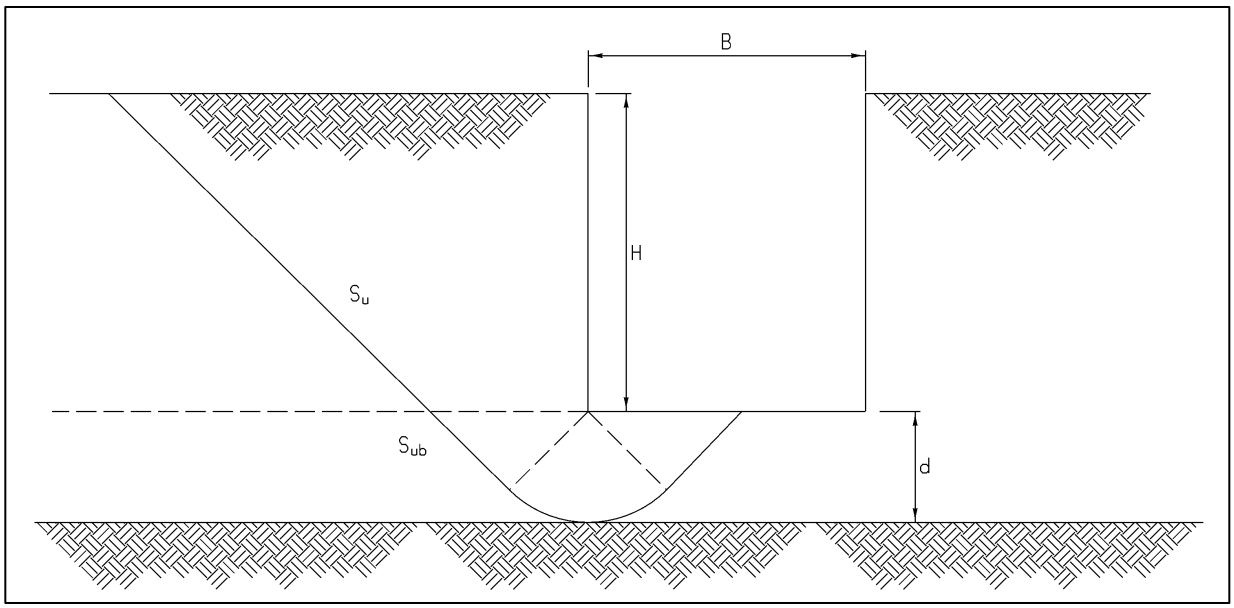


FIGURE 3

ii. **At-Rest Earth Pressure.**

- Used for rigid walls (e.g., reinforced concrete walls) that deflect less than that indicated in Table 1.

Table 1 - When to Use At-Rest Earth Pressure

Type of Backfill	Wall Deflection / Wall Height
Dense sand	0.001
Medium dense sand	0.002
Loose sand	0.004
Compacted Silt	0.002
Compacted lean clay	0.010
Compacted fat clay	0.010

(Clough & Duncan, 1991)

- At-Rest earth pressure shall also be used for walls that are restrained above the dredge line by braces/tiebacks and are backfilled with compacted fill. See also Section 3.8j.ii.
- At-Rest earth pressure shall be calculated as follows:

Level Ground

$$\sigma_{0H} = K_0 \gamma z \ , \ where \ \ K_0 = (1 - sin\phi')OCR^{(sin\phi')}$$

Sloping Backslope

$$\sigma_{0H} = K_0 \gamma z (1 + sin \beta)$$

Where:

σ_{0H} – Horizontal At-Rest Earth Pressure (lbf/ft^2)
K_0 – At-Rest Earth Pressure Coefficient
ϕ' – Effective Friction Angle (deg)
OCR – Over-Consolidation Ratio
β – Backslope Angle (deg)

iii. **Apparent Earth Pressure**

- Use for braced excavations with single or multiple levels of braces/tiebacks.
- Use equations determined per AREMA Vol. 2, Ch. 8, Article 28.5.4.1 or **FHWA-IF-99-015, Sections 5.2.4** (sands), **5.2.5** (stiff to hard clays) and **5.2.6** (soft to medium clays).
- For braced excavations that bottom out in very soft to medium stiff clays/silts, where the Stability Number $N_s = \gamma * H/S_{ub}$ is greater than 4, the requirements of Section 3.7c.i for very soft to medium clays shall also apply if they control for design.

iv. **Surcharge Loads**

- Loads include but are not limited to: Railroad vertical and centrifugal loading, railroad service vehicles (HS-20 truck), roadway loading, fills placed above the top of shoring, construction equipment, crane pads, future grading and paving, structures, material storage piles, and snow.
- Dead load assumptions to be used for design:
  - Spoil pile: must be included assuming a minimum height of two feet of soil adjacent to the excavation.
  - Track: use 200 lbs/linear-ft for rails, inside guardrails and fasteners.
  - Roadbed: ballast, including track ties, use 120 lbs per cubic foot.
- For specific applications of the Cooper E80 live load, refer to in Appendix 5.1, which illustrates Live Load Pressure Due to Cooper E80.
- Additional analysis for centrifugal force calculations as described in AREMA Vol. 2, Ch. 15, Article 1.3.6. Centrifugal Loads are required where shoring is located along the outer side of curved track and track curvature exceeds three degrees.
- Lateral pressure from to infinite and uniform surcharge load.
  - The surcharge can effectively be treated as another soil layer, whereby the vertical surcharge pressure is multiplied by the active or at-rest earth pressure coefficient as shown below:

$$\sigma_{UA} = K_A q \quad or \quad \sigma_{U0} = K_0 q$$

Where:

σ_{UA} – Uniform lateral surcharge pressure for active condition (lbf/ft^2)

σ_{U0} – Uniform lateral surcharge pressure for at-rest condition (lbf/ft^2)

K_A - Active earth pressure coefficient

K_0 – At-rest earth pressure coefficient

q - Uniform surcharge load (lbf/ft^2)

- Lateral pressure from to point, line, uniform strip, and rectangular-area surcharge loads.
  - Equations shall be based on Boussinesq theory (i.e., elastic theory) and a rigid wall condition.
  - For point loads, see **AREMA, Vol. 2 , Ch. 8, Article 20.3.2.4**.
  - For line loads, see **AREMA, Vol. 2 , Ch. 8, Article 20.3.2.3**.
  - For rectangular loads, see **NAVFAC DM7.02, Figure 11**.
  - For uniform strip loads, see Case I (Cooper E80 loading parallel to walls) in Appendix 5.1, or **AREMA, Vol. 2 , Ch. 8, Article 20.3.2.2.**
- Trial Wedge method per AREMA, Vol. 2 , Ch. 8, Article C5.3.2.II may also be used.

v. **Hydrostatic Pressure Due to Unbalanced Groundwater Levels.**

- Hydrostatic pressure shall be assumed on secant/tangent pile and sheet pile shoring if the base of the excavation extends below the water table and no drainage system is installed behind the shoring.
- Weep holes are not considered an effective drainage system, unless the soil behind the shoring above the dredge line is uniformly free-draining granular material.

d. **Resisting Pressures/Loads:**

i. Passive earth pressure

- The passive earth pressure, P_p, below the excavation line may be computed by Rankine or Log-Spiral theories, but not the Coulomb theory.
- For Log-Spiral theory, the interface friction angle shall not be greater than one-half of the effective friction angle of the soil, or that consistent with published values for specific types of soil in contact with either steel or concrete.
- The passive earth pressure for cohesionless soils (sands, gravels and some silts), uncontrolled fill, and mixed layers of cohesive and cohesionless soil shall be calculated based on the effective friction angle of the soil.
- The passive earth pressure for cohesive (clay and some silts) soils and controlled backfill shall be calculated for the effective stress condition (see Section 3.5d.i for definition), unless the resulting earth pressure for the total stress condition (i.e., S_u) is less.
- For conditions where the slope in front of the shoring slopes down and away from the wall, the slope in front of the wall shall be considered when calculating passive pressure. If the ground in front of the shoring slopes upwards away from the wall, the ground level shall be assumed to be level for analysis.
- For reference, Rankine equations are provided below:

K_P – Passive Earth Pressure Coefficient

σ_{PH} – Horizontal Passive Earth Pressure (lbf/ft^2)

ϕ' – Effective Friction Angle (deg)

c' – Effective cohesion (lbf/ft^2)

S_u – Undrained Shear Strength (lbf/ft^2)

γ – Moist Unit Weight of Soil (lbf/ft^3)

z – Depth Below Ground Surface (ft)

β – Front Slope Angle (deg)

NON-COHESIVE SOILS

Level Frontslope (Rankine)

$$\sigma_{PH} = K_P \gamma z \quad , where \quad K_P = tan^2\left(45 + \frac{\phi'}{2}\right)$$

Sloping Frontslope (Rankine)

- Use only if ground is sloping down and away from shoring (i.e., β is negative)

$$\sigma_{PH} = K_P \gamma z \cos\beta \quad , where \quad K_P = \cos\beta\left(\frac{cos\beta + \sqrt{cos^2\beta - cos^2\phi'}}{cos\beta - \sqrt{cos^2\beta - cos^2\phi'}}\right)$$

COHESIVE SOILS & FRACTURED ROCK

Drained Cohesive & Fractured Rock - Level & Sloping Backslope (Bell's)

$$\sigma_{PH} = K_P \gamma z + 2c'\sqrt{K_P}$$

$$K_P = tan^2\left(45 + \frac{\phi'}{2}\right), For\ Level\ Frontslope$$

$$K_P = \cos\beta\left(\frac{cos\beta + \sqrt{cos^2\beta - cos^2\phi'}}{cos\beta - \sqrt{cos^2\beta - cos^2\phi'}}\right), For\ Sloping\ Frontslope$$

- Effective cohesion shall be assumed to be zero unless local experience by a Licensed Geotechnical Engineer indicates the fully softened strength of the clay will have an effective cohesion greater than zero.
- The passive resistance for fractured rock and intermediate geomaterials (e.g., weak shales, sandstone, etc.) shall be based on either the rock mass effective cohesion and friction angle, or mass shear strength. The mass strength parameters shall be determine using a methodology that accounts for rock type, intact strength, spacing and conditions of joints, rock quality designation (RQD), geological strength index (GSI), and/or rock mass rating (RMR).

Undrained Cohesive – Level Ground (Rankine/Bell)

- Only use undrained when it results in a lower earth pressure in the shoring design. Otherwise use Drained equations above.
- Assumes ϕ=0 and c'=S_u

$$\sigma_{PH} = \gamma z + 2S_u$$

or

$$\sigma_{PH} = K_P \gamma z \quad where \quad K_P = 1 + \frac{2S_u}{\gamma z}$$

- For soldier pile walls, the upper 1.5 pile/shaft diameters of passive resistance in soil below the excavation line shall be ignored per AREMA, Vol. 2, Ch. 8, Article 28.5.3.2.a.
- Allowable arching factors for soldier pile walls shall comply with AREMA, Vol. 2, Ch. 8, Article 28.5.3.2.a.
- As noted in Section 3.1i.ii above, the width of the drilled hole for a soldier pile shall not be assumed to provide passive resistance unless the concrete backfill has a minimum compressive strength of 3,000 psi, and a minimum coverage of at least 3.0 inches between the edge of the pile and drilled hole.
- P-y curve methods shall use a P-multiplier less than 1 to account for group effects on sheet and soldier pile walls when piles are spaced less than 3.5D apart on center, and for slopes in front of the wall.

ii. Seepage pressures on bulkheads and cofferdams.

- Where the imbalance of water levels results in water seeping under the bottom of shoring and upward into the excavation, the seepage pressures on the wall and base of excavation shall be based on flownet or equivalent analyses, and the passive resistance reduced accordingly. See AREMA, Vol. 2, Ch. 8, Article 20.3.5 or FHWA-IF-99-015 Section 5.2.9 for further detail.

3.8 (Step 5) STRUCTURAL DESIGN CALCULATIONS

a. Temporary shoring is defined by AREMA, Vol. 2, Ch. 8, Article 28.1.1, and is anticipated to be in service for not more than an 18-month period. Earth retention structures that are anticipated to be in service for more than 18 months shall be designed per AREMA as permanent structures.

b. Calculations shall be performed for each stage of construction, when one or more rows of braces/tiebacks are being implemented. The calculations shall be performed for each stage of excavation before the braces/tiebacks are installed for that stage.

c. Calculations shall be performed by one of two methods:

   1. Classical Method: A sum of forces and moments analysis whereby driving and resisting pressures are balanced. Driving pressures are applied from the top to the bottom of the back side of the shoring. For braced excavations, Apparent earth pressure will be applied from the top down to the excavation line, and below the excavation line, Active earth pressure will be applied down to the bottom of the shoring on the back side of the shoring. Resisting pressures/forces are applied from the excavation line to the bottom of the front side of the shoring. To achieve an acceptable factor of safety for embedment, the passive resistance will be reduced as required in Section 3.8j.i. It is noted that all AREMA requirements are based on an assumption that the Classical Method will be used for design.
   2. P-y Method: A force-deflection analysis (i.e., Winkler beam analysis) whereby the soil below the excavation line on both sides of the shoring is characterized as springs. Driving earth pressures are generally only applied above the excavation line. However, surcharge loads are generally applied to the bottom of the shoring elements. Minimum embedment is based on the base of the shoring reaching fixity as required in Section 3.8j.i.

d. Calculations shall be in English units. If Metric units are used, all controlling dimensions, elevations, design criteria assumptions, and material stresses shall be expressed in dual units, with English units to be in parentheses.

e. List all assumptions used to design the temporary shoring system, and provide references for equations, tables, figures, and design criteria obtained from design manuals and guidelines.

f. Computerized calculations and programs must clearly indicate the input and output data. List all equations used in determining the output.

g. Example calculations with values must be provided to support computerized output and match the calculated computer result.

h. Provide a simple free body diagram showing all controlling dimensions and applied loads on the temporary shoring system.

i. Documents and manufacturer's recommendations which support the design assumptions must be included with the calculations.

j. **Embedment depth and stability.**

   i. The minimum depth of embedment is that required to balance driving and resisting pressures/loads.

      - The minimum factor of safety for balancing active and passive pressures shall be 1.5 (See AREMA, Vol. 2, Ch. 8, Article 20.5.1.a). The factor of safety is achieved by reducing the passive earth pressure resistance by a factor of 0.67. A calculated factor of safety based on shallow penetration into strong soil layer is not acceptable.
      - Note, some commercially available software packages add ~ 30% length to the embedment computed for moment equilibrium in order to achieve force equilibrium. This additional length added by the software is not the required factor of safety noted above. Additional embedment, beyond the 30% added by the software package, is required to achieve the specified factor of safety.

- The minimum embedment for p-y methods shall be based on both the shoring meeting the deflection limit criteria in Table 2 over the full height of the shoring, and a moment reversal (i.e., moment diagram passes through zero twice) being achieve below the excavation line.

ii. In special circumstances, as indicated in these guidelines, minimum embedment might also be controlled by basal heave or global stability.

- The minimum factor of safety against basal heave shall be 1.5 for temporary structures. See FHWA-IF-99-015, Section 5.8.2 for further details on methodology.
- The minimum factor of safety for global stability shall be 1.3 when using a limit-equilibrium method of slices. (See AREMA, Vol. 2, Ch. 8, Article 20.4.1.c). The global stability analyses shall consider failure surfaces that pass both below and through non-continuous shoring (e.g., soldier piles) located below the dredge line, as well as both through and behind wall anchors. See FHWA IF-99-015, Section 5.7.3 for further details on methodology.
- Global stability shall also be analyzed for slopes steeper than 2(H):1(V) that are above, adjacent or below shoring.

iii. Multiple tiers of shoring should not be used if the active wedge of the lower wall overlies the passive wedge of the upper wall.

- If there is active/passive overlap between tiers of shoring, or the shoring will be supporting an existing retaining wall, the effect of loading of the upper wall/shoring on the lower wall shall be evaluated. This will require estimating the bearing, sliding and/or passive resistance demand of the upper wall, and applying those demands in part or fully to the lower wall. In addition, any loading in front of or behind the upper wall that is not fully supported by the wall, would also need to be applied to the shoring. Lastly, a global stability analysis per Section 3.8j.ii shall be performed to determine the external stability of the multi-tiered wall/shoring system.

k. **Deflection limits**.

i. Calculated total deflections of any part of the temporary shoring system and top of rail elevation shall not exceed the criteria outlined in Table 2 Deflection Criteria. Include the accumulated elastic deflection of all of the wall elements (piles, anchors, lagging, walers, strut/raker restraints, etc.), as well as the deflection due to the passive deflection of the resisting soil mass.

Table 2 - Deflection Criteria

Horizontal distance from shoring to track C/L measured at a right angle from track	Maximum horizontal movement of shoring system	Maximum acceptable horizontal or vertical movement of rail
15’ < S < 18’	3/8”	1/4”
18’ < S < 25’	1/2”	1/4”
S > 25’	1% of shoring height above excavation line	-

ii. Braced excavations should be designed for conditions in which the ground surface on all sides is relatively uniform in elevation. If the ground surface elevation varies significantly from one side of the excavation to the other, the deflection of the higher braced shoring towards the side with lower braced shoring shall be evaluated. This analysis would approximate that required for shoring supported by rakers, where the lower shoring acts as the raker thrust block, such that the passive deflection of the lower shoring is added to the higher shoring deflection and the resulting sum is verified to not exceed the deflection criteria in Table 2.

l. **Strength design.**

i. Shall be performed using the Service Load Design method. Allowable Stresses based on AREMA requirements are as follows:

- Structural Steel Allowable Stress: See AREMA, Vol. 2, Ch. 15, Section 1.4, Table 15-1-11 For common shoring components, generally 0.55 of the yield strength of the steel.
- Sheet Pile Sections: 2/3 of yield strength for steel. (AREMA, Vol. 2, Ch. 8, Article 20.5.7)
- Concrete: 1/3 of Compressive strength. (AREMA, Vol. 2, Ch. 8, Article 20.5.7)
- Anchor Rods: 1/2 of yield strength for steel. (AREMA, Vol. 2, Ch. 8, Article 20.5.7)

ii. AISC allowances for increasing allowable stress due to temporary loading conditions are not acceptable.

iii. Structures and structural members shall be designed to have design strengths at all sections at least equal to the required strengths calculated for the loads and forces in such combinations as stipulated in AREMA, Vol. 2, Ch. 8, Article 2.2.4b, which represents various combinations of loads and forces to which a structure may be subjected. Each part of the structure shall be proportioned for the group loads that are applicable, and the maximum design required shall be used.

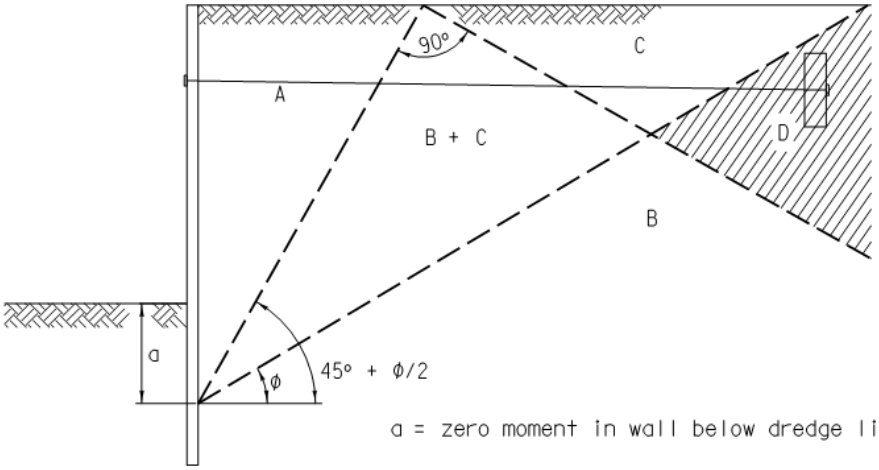
iv. In braced excavations, the connections between struts and wales shall be designed to resist both axial demands as well as the vertical demands from the self-weight of the members and any incidental vertical loads applied during construction.

v. Stiffeners shall be provided at points of bearing concentrated load. (See AREMA Vol. 2, Ch.15, Article 1.7.7).

m. Gravity type temporary shoring systems must also be analyzed for settlement, overturning, sliding, bearing capacity per AREMA, Vol. 2, Ch. 8, Part 5**,** and global stability per the requirements in Section 3.8j.ii.

n. Anchor blocks and deadman for tiebacks shall be designed for a safety factor of 2.0, where safety factor is derived as the ratio of the net passive resistance (passive earth pressure minus active earth pressure) on the anchor block to the load on tie rod. To utilize the full allowable anchor capacity, the minimum length of the tie rod shall be as shown in Figure 4. If site constraints prevent the minimum length of tie rods from being implemented, the anchor capacity shall be reduced as Indicated in Figure 4. For deriving anchor block capacity where minimum tie rod length is achieved, NAVFAC DM7.02 or CalTrans 2011 may be referenced.

i. For sheet and soldier pile deadman, p-y methods may be used. The sum of the estimated deflection of the deadman pile and shoring shall be less than that indicated in Section 3.8k.

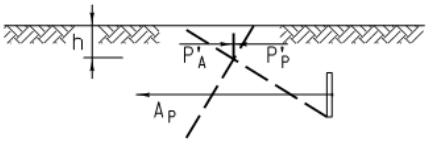


Cohesionless Soil

For Cohesionless soils, anchor resistance in each zone is as follows:

A - No Anchor resistance available

B - Anchor block resistance is reduced by $P'_P - P'_A$



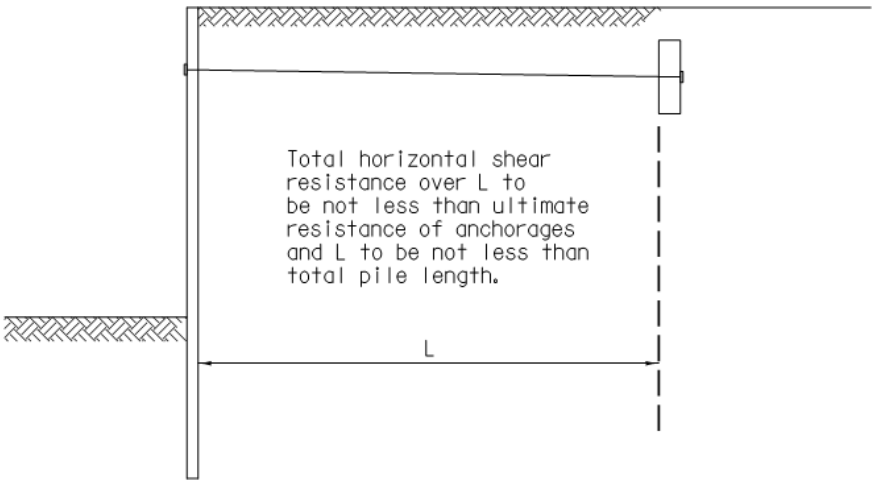
$$P'_P = \frac{1}{2} h^2 \gamma \tan^2\left(45° + \frac{\Phi}{2}\right)$$

$$P'_A = \frac{1}{2} h^2 \gamma \tan^2\left(45° - \frac{\Phi}{2}\right)$$

C - Anchor block achieves full resistance but pressure is increased on the wall by ΔP_P.
(See ΔP_P force diagram in Theoretical Soil Mechanics, pgs. 232-233 or NAVFAC DM7.02, Figure 20)

B + C - Anchor block resistance is reduced by $P'_P - P'_A$ and pressure is increased on the wall by ΔP_P.

D - Anchor block achieves full resistance without adding additional load to the wall



Cohesive Soil or Stratum of Cohesive Extending Below Anchor to Wall (Dismuke, 1991)

FIGURE 4

3.9 DESIGN PLAN REQUIREMENTS

a. Shoring design plans shall be in English units. If Metric units are used, all controlling dimensions, elevations, design criteria assumptions, and material stresses shall be expressed in dual units, with English units to be in parentheses. The shoring plans must completely identify the site constraints and the shoring system, and must be signed and stamped by a Licensed Professional Engineer, registered in the state where the work will be performed. Use the design templates provided in the appendix as an example to show the required information, specifications and drawings. The specific requirements of the plan submittals are as follows:

i. **General plan view should show:**

- Railroad Right-of-Way and North arrow.
- Position of all railroad tracks and identify each track as mainline, siding, spur, etc.
- Spacing between all existing tracks.
- Location of all access roadways, drainage ditches and direction of flow.
- Contours of existing grade elevations.
- Footprint of proposed structure, proposed shoring system and any existing structures if applicable.
- Proposed horizontal construction clearances. The minimum allowable is 15 feet measured at a right angle from centerline of track. In curved track the temporary horizontal construction clearances shall increase either 6 inches total or 1.5 inches for every degree of curve, whichever is greater, per Section 4.4.1.2 of the BNSF-UPRR Guidelines for Railroad Grade Separation Projects.
- Location of existing and proposed utilities.
- Location of soil borings used for design.
- Specifications for all elements of the proposed shoring.
- Detailed view of shoring along with controlling elevations and dimensions.

ii. **Typical sections and elevations perpendicular to adjacent track alignment should show:**

- Top of rail and/or top of tie elevations for all tracks.
- Offset from the outside face of shoring system to the centerline of all tracks at all changes in horizontal alignment.
- All structural components, controlling elevations and dimensions of shoring system.
- All drainage ditches and controlling dimensions.
- All slopes, existing structures and other facilities which may surcharge the shoring system.
- Location of all existing and proposed utilities.
- Total depth of shoring system.
- For shoring with tiebacks/bracing, elevations for each temporary stage of shoring construction.
- The assumed groundwater elevation.
- The extent of the Zone A envelope as it overlies the proposed shoring.

iii. **General notes**

- Design loads to be based on the AREMA manual and Cooper E80 loading.
- Pressure due to embankment surcharges.
- ASTM designation and yield strength for each material.
- Maximum allowable bending stress for structural steel is 0.55Fy.
- Temporary overstress allowances are not acceptable.
- All timber members shall be Douglas Fir grade 2 or better.
- In-situ soil classification.
- Backfill soil classification.
- Soil properties used for design.
- Active and passive soil coefficients.
- Fill and backfill compaction criteria.
- Slopes without shoring shall not be steeper than 2 horizontal to 1 vertical.
- Dredge line elevation.
- Shoring deflection to be calculated and meet Railroad requirements.
- Rail, ground and shoring movement monitoring requirements.

iv. **Miscellaneous:**

- Project name, location, GPS coordinates, track owner, railroad line segment, milepost and subdivision in the title block.
- A detailed construction sequence outlining the installation and removal of the temporary shoring system.
- A description of the tieback installation including

drilling, casing, grouting, stressing information and testing procedures, anchor capacity, type of tendon, anchorage hardware, minimum unbonded lengths, minimum anchor lengths, angle of installation, tieback locations, spacing, and distance below bottom of tie.

- All details for construction of drainage facilities associated with the shoring system shall be clearly indicated.
- Details and descriptions of all shoring system members and connection details.
- Handrail and protective fence details along the excavation.
- Railroad and other “CALL BEFORE YOU DIG” numbers and web sites
- Construction clearance diagram.

4. DEFINITIONS

Access Road:

A road used and controlled by the Railroad for maintenance, inspection and repair.

Applicant:

Any party proposing a temporary retaining structure project on Railroad Right-of-Way or other Railroad operating location, regardless of track being active or out of service. Includes all agents working on behalf of the Applicant.

AREMA:

The current edition of the American Railway Engineering and Maintenance-of-Way Association Manual for Railway Engineering.

AASHTO:

The current edition of the American Association of State Highway and Transportation Officials Standard Specifications for Highway Bridges.

BNSF:

Burlington Northern Sante Fe Railway

C & M Agreement:

A Construction and Maintenance Agreement that has been negotiated between the Railroad and the Applicant that addresses all the duties and responsibilities of each party regarding the construction of the proposed grade separation and the maintenance requirements after construction of the said structure.

Construction Documents:

Design plans and calculations, project and/or standard specifications, geotechnical report and drainage report.

Construction Window:

A timeframe in which construction or maintenance can be performed by the Contractor with the required presence of a Flagman.

Contractor:

The individual, partnership, corporation or joint venture and all principals and representatives (including Applicant’s subcontractors) with whom the contract is made by the Applicant for the construction of the Grade Separation Project.

Crossover:

A track connection which allows trains and on-track equipment to cross from one track to another.

Engineer-of-Record:

The licensed Professional Engineer that develops the criteria and concept for the project and is responsible for the preparation of the Plans and Specifications.

Final Plans:

100% plans signed & stamped by the Engineer-of-Record.

Flagman:

A qualified employee of the Railroad providing protection to and from Railroad operations per Railroad requirements.

Guidelines:

Information contained in this document or referenced in AREMA or AASHTO.

Grade Separation Project:

A project that includes an Overhead or Underpass Structure that crosses the Railroad Right-of-Way or other Railroad operating location regardless of track status being active or out of service.

Main Track:

A principle track, designated by Timetable or special instructions, upon which train movements are generally authorized and controlled by the train dispatcher. Main Track must not be occupied without proper authority.

Multiple Main Tracks:

Two or more parallel or adjacent Main Tracks.

Overhead Structure:

A Roadway and/or Trail Structure over the Railroad Right-of-Way.

Railroad Local Representative / Railroad Representative:

The individual designated by the Railroad as the primary point of contact for the project.

Railroad:

Refers to BNSF Railway and/or Union Pacific Railroad.

Railroad Track Maintenance Representative (UPRR=MTM, BNSF=RDM):

Railroad representative responsible for maintenance of the track and supporting subgrade.

Railroad Right-of-Entry Agreement:

An agreement between the Railroad and an Applicant or a Contractor allowing access to Railroad property.

Railroad Right-of-Way:

The limits of property owned, controlled and/or operated upon by the Railroad.

Shoofly:

A temporary track built to bypass an obstruction or construction site.

Siding:

A track connected to the Main Track used for storing or passing trains.

Timetable:

A Railroad publication with instructions on train, engine or equipment movement. It also contains other essential Railroad information.

Trail:

A pathway impacting Railroad Right-of-Way or other Railroad operating locations regardless of track status being active or out of service. This includes pedestrian, bicycle, approved motorized recreational equipment and equestrian uses.

Underpass Structure:

Railroad Structure over a Roadway and/or Trail.

UPRR:

Union Pacific Railroad

Yard:

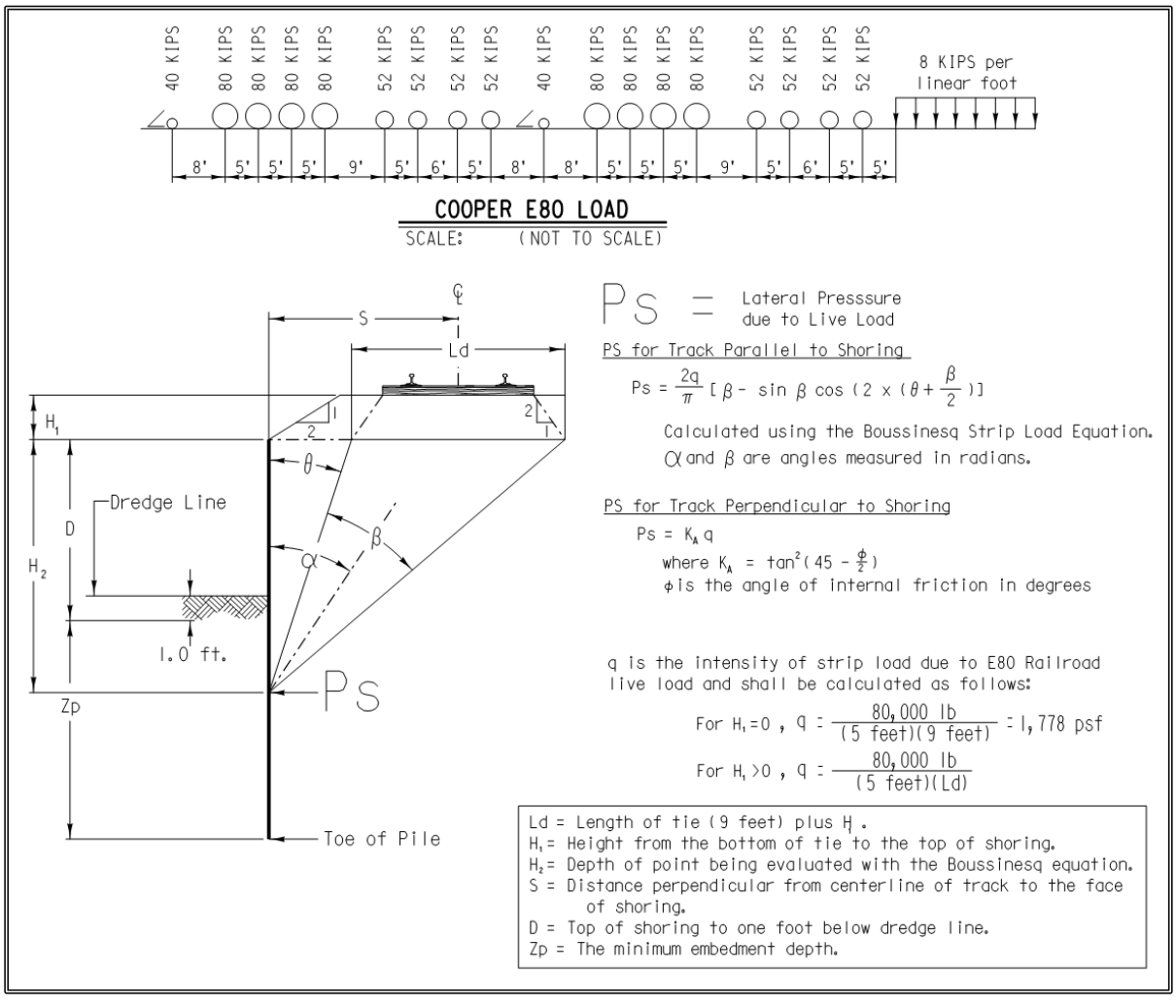
A system of tracks of defined limits, other than main tracks and sidings, for storing and sorting cars and other purposes.

Yard Limits:

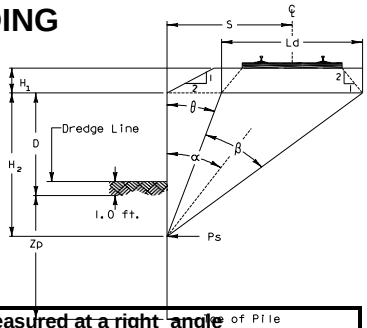
A portion of main track designated by “yard limit” signs and included in the timetable special instructions or a track bulletin.

5. APPENDIX

5.1 LIVE LOAD PRESSURE DUE TO COOPER E80 LOADING



5.2 CHART – LIVE LOAD PRESSURE DUE TO E80 LOADING



This chart identifies the active pressure and resulting forces due to E80 liveload.

1. Select distance S from track centerline to face of shoring.
2. Select depth H_2 below base of tie.
3. Read Ps, M, R and $\bar{Z}$ from the table.
4. Use the procedure outlined in the sample problem to determine values at non-tabulated points.

$$Ps = \frac{2q}{\pi}[\beta - \sin\beta\cos(2\alpha)] \quad \textbf{where q = 1778 psf}$$

Boussinesq surcharge pressure E80 live load for H_1=0

Depth below top of shoring H_2 (ft)	Variables		Horizontal distance (S) from shoring to track CL measured at a right angle									
			12	14	16	18	20	22	24	26	28	30
2	**Ps**	(psf)	**305**	**220**	**166**	**130**	**105**	**86**	**72**	**61**	**53**	**46**
	α	(radians)	1.38	1.41	1.44	1.45	1.47	1.48	1.48	1.49	1.50	1.50
	β	(radians)	0.14	0.10	0.07	0.06	0.05	0.04	0.03	0.03	0.02	0.02
	z	(ft)	1.32	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
	M	(ft-lbs/ft)	215	152	114	89	71	58	49	41	36	31
	R	(lbs/ft)	317	226	170	132	106	87	73	62	53	46
4	**Ps**	(psf)	**496**	**381**	**299**	**240**	**197**	**164**	**138**	**118**	**102**	**89**
	α	(radians)	1.21	1.27	1.31	1.34	1.36	1.38	1.40	1.41	1.43	1.44
	β	(radians)	0.25	0.19	0.14	0.11	0.09	0.07	0.06	0.05	0.05	0.04
	z	(ft)	2.59	2.61	2.63	2.64	2.64	2.65	2.65	2.65	2.65	2.66
	M	(ft-lbs/ft)	1,609	1,165	882	692	557	459	384	327	281	244
	R	(lbs/ft)	1,141	840	643	508	411	339	285	242	209	182
6	**Ps**	(psf)	**558**	**461**	**381**	**317**	**266**	**225**	**193**	**167**	**146**	**128**
	α	(radians)	1.06	1.13	1.19	1.23	1.27	1.29	1.32	1.34	1.35	1.37
	β	(radians)	0.33	0.25	0.20	0.16	0.13	0.11	0.09	0.08	0.07	0.06
	z	(ft)	3.77	3.83	3.88	3.90	3.92	3.94	3.95	3.96	3.96	3.97
	M	(ft-lbs/ft)	4,944	3,674	2,830	2,244	1,822	1,508	1,269	1,082	933	813
	R	(lbs/ft)	2,214	1,696	1,332	1,070	877	731	618	529	458	400
8	**Ps**	(psf)	**535**	**476**	**414**	**358**	**309**	**268**	**234**	**205**	**181**	**160**
	α	(radians)	0.94	1.02	1.08	1.13	1.17	1.21	1.24	1.26	1.29	1.30
	β	(radians)	0.37	0.29	0.24	0.19	0.16	0.14	0.12	0.10	0.09	0.08
	z	(ft)	4.84	4.97	5.06	5.11	5.16	5.19	5.21	5.23	5.24	5.26
	M	(ft-lbs/ft)	10,481	8,006	6,286	5,051	4,141	3,452	2,920	2,501	2,165	1,892
	R	(lbs/ft)	3,316	2,641	2,134	1,751	1,456	1,228	1,047	903	786	689
10	**Ps**	(psf)	**474**	**449**	**411**	**370**	**329**	**293**	**260**	**232**	**207**	**186**
	α	(radians)	0.83	0.92	0.99	1.04	1.09	1.13	1.17	1.19	1.22	1.24
	β	(radians)	0.38	0.32	0.26	0.22	0.19	0.16	0.14	0.12	0.10	0.09
	z	(ft)	5.81	6.02	6.16	6.26	6.34	6.39	6.44	6.47	6.50	6.52
	M	(ft-lbs/ft)	18,145	14,227	11,385	9,280	7,689	6,463	5,502	4,736	4,117	3,610
	R	(lbs/ft)	4,328	3,571	2,964	2,482	2,099	1,792	1,544	1,341	1,175	1,037
12	**Ps**	(psf)	**404**	**403**	**386**	**360**	**331**	**302**	**274**	**248**	**225**	**204**
	α	(radians)	0.75	0.83	0.90	0.96	1.01	1.06	1.10	1.13	1.16	1.18
	β	(radians)	0.38	0.33	0.28	0.24	0.20	0.18	0.15	0.13	0.12	0.11
	z	(ft)	6.68	6.97	7.18	7.34	7.46	7.55	7.61	7.67	7.71	7.75
	M	(ft-lbs/ft)	27,703	22,237	18,121	14,980	12,550	10,641	9,121	7,895	6,894	6,068
	R	(lbs/ft)	5,207	4,424	3,763	3,214	2,762	2,389	2,080	1,823	1,608	1,427
14	**Ps**	(psf)	**338**	**351**	**349**	**337**	**319**	**298**	**276**	**255**	**234**	**215**
	α	(radians)	0.68	0.76	0.83	0.89	0.94	0.99	1.03	1.07	1.10	1.13
	β	(radians)	0.38	0.33	0.28	0.25	0.22	0.19	0.17	0.15	0.13	0.12
	z	(ft)	7.46	7.85	8.13	8.35	8.51	8.64	8.74	8.82	8.89	8.94
	M	(ft-lbs/ft)	38,880	31,856	26,395	22,116	18,729	16,021	13,831	12,043	10,568	9,339
	R	(lbs/ft)	5,948	5,178	4,499	3,913	3,414	2,990	2,631	2,327	2,068	1,847
16	**Ps**	(psf)	**280**	**301**	**310**	**308**	**300**	**286**	**271**	**254**	**237**	**220**
	α	(radians)	0.62	0.70	0.77	0.83	0.88	0.93	0.97	1.01	1.04	1.07
	β	(radians)	0.36	0.32	0.28	0.25	0.22	0.20	0.18	0.16	0.14	0.13
	z	(ft)	8.17	8.64	9.01	9.29	9.51	9.68	9.82	9.93	10.03	10.10
	M	(ft-lbs/ft)	51,411	42,880	36,066	30,598	26,183	22,590	19,644	17,207	15,175	13,468
	R	(lbs/ft)	6,563	5,829	5,158	4,560	4,034	3,576	3,179	2,837	2,540	2,284

Continued

Depth below top of shoring H_2 (ft)	Variables		Horizontal distance (S) from shoring to track CL measured at a right angle									
			12	14	16	18	20	22	24	26	28	30
18	**Ps**	(psf)	**231**	**256**	**271**	**277**	**276**	**269**	**259**	**247**	**234**	**220**
	α	(radians)	0.57	0.64	0.71	0.77	0.82	0.87	0.92	0.96	0.99	1.02
	β	(radians)	0.35	0.31	0.28	0.25	0.23	0.20	0.18	0.16	0.15	0.13
	z	(ft)	8.80	9.37	9.81	10.16	10.44	10.67	10.85	11.00	11.12	11.22
	M	(ft-lbs/ft)	65,062	55,110	46,976	40,313	34,834	30,304	26,536	23,384	20,728	18,477
	R	(lbs/ft)	7,072	6,386	5,739	5,145	4,609	4,132	3,710	3,338	3,012	2,725
20	**Ps**	(psf)	**191**	**217**	**236**	**246**	**250**	**249**	**244**	**237**	**227**	**217**
	α	(radians)	0.52	0.59	0.66	0.72	0.77	0.82	0.87	0.91	0.94	0.98
	β	(radians)	0.33	0.30	0.28	0.25	0.23	0.21	0.19	0.17	0.15	0.14
	z	(ft)	9.37	10.03	10.56	10.98	11.32	11.59	11.82	12.01	12.16	12.30
	M	(ft-lbs/ft)	79,641	68,368	58,973	51,137	44,586	39,093	34,465	30,548	27,216	24,367
	R	(lbs/ft)	7,493	6,859	6,245	5,668	5,135	4,651	4,214	3,822	3,474	3,163
22	**Ps**	(psf)	**159**	**184**	**204**	**217**	**225**	**228**	**227**	**223**	**217**	**210**
	α	(radians)	0.49	0.55	0.62	0.67	0.73	0.77	0.82	0.86	0.90	0.93
	β	(radians)	0.31	0.29	0.27	0.25	0.23	0.21	0.19	0.17	0.16	0.14
	z	(ft)	9.89	10.64	11.24	11.73	12.14	12.47	12.74	12.97	13.17	13.33
	M	(ft-lbs/ft)	94,986	82,497	71,913	62,945	55,341	48,878	43,370	38,658	34,611	31,122
	R	(lbs/ft)	7,842	7,260	6,684	6,131	5,611	5,128	4,685	4,283	3,918	3,590
24	**Ps**	(psf)	**133**	**157**	**176**	**191**	**202**	**207**	**210**	**209**	**206**	**201**
	α	(radians)	0.45	0.52	0.58	0.63	0.68	0.73	0.78	0.82	0.85	0.89
	β	(radians)	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15
	z	(ft)	10.35	11.19	11.87	12.44	12.90	13.29	13.62	13.89	14.13	14.32
	M	(ft-lbs/ft)	110,969	97,366	85,670	75,625	66,997	59,577	53,183	47,661	42,875	38,716
	R	(lbs/ft)	8,132	7,600	7,064	6,540	6,037	5,564	5,122	4,715	4,342	4,001
26	**Ps**	(psf)	**112**	**134**	**153**	**168**	**180**	**188**	**192**	**194**	**193**	**191**
	α	(radians)	0.42	0.48	0.54	0.60	0.65	0.69	0.74	0.78	0.82	0.85
	β	(radians)	0.28	0.27	0.25	0.23	0.22	0.20	0.19	0.17	0.16	0.15
	z	(ft)	10.78	11.69	12.45	13.09	13.62	14.07	14.44	14.77	15.04	15.28
	M	(ft-lbs/ft)	127,485	112,863	100,135	89,071	79,460	71,105	63,836	57,499	51,963	47,113
	R	(lbs/ft)	8,376	7,890	7,393	6,899	6,418	5,959	5,524	5,118	4,741	4,393
28	**Ps**	(psf)	**94**	**114**	**132**	**148**	**160**	**169**	**175**	**179**	**180**	**180**
	α	(radians)	0.40	0.46	0.51	0.56	0.61	0.66	0.70	0.74	0.78	0.81
	β	(radians)	0.27	0.26	0.24	0.23	0.21	0.20	0.19	0.17	0.16	0.15
	z	(ft)	11.17	12.16	12.99	13.70	14.29	14.80	15.23	15.60	15.91	16.19
	M	(ft-lbs/ft)	144,448	128,896	115,211	103,191	92,642	83,385	75,258	68,113	61,823	56,274
	R	(lbs/ft)	8,581	8,137	7,677	7,214	6,758	6,315	5,892	5,491	5,115	4,764
30	**Ps**	(psf)	**80**	**98**	**115**	**130**	**142**	**152**	**160**	**165**	**167**	**168**
	α	(radians)	0.37	0.43	0.48	0.53	0.58	0.63	0.67	0.71	0.74	0.78
	β	(radians)	0.26	0.25	0.23	0.22	0.21	0.20	0.18	0.17	0.16	0.15
	z	(ft)	11.52	12.59	13.49	14.26	14.92	15.48	15.97	16.38	16.75	17.06
	M	(ft-lbs/ft)	161,789	145,388	130,819	117,903	106,466	96,343	87,381	79,443	72,404	66,153
	R	(lbs/ft)	8,755	8,349	7,925	7,492	7,060	6,636	6,227	5,834	5,462	5,112
32	**Ps**	(psf)	**69**	**85**	**101**	**115**	**127**	**137**	**145**	**151**	**155**	**157**
	α	(radians)	0.35	0.41	0.46	0.51	0.55	0.60	0.64	0.68	0.71	0.75
	β	(radians)	0.25	0.24	0.22	0.21	0.20	0.19	0.18	0.17	0.16	0.15
	z	(ft)	11.85	12.98	13.95	14.79	15.51	16.13	16.67	17.13	17.54	17.89
	M	(ft-lbs/ft)	179,452	162,274	146,888	133,136	120,859	109,909	100,144	91,432	83,655	76,706
	R	(lbs/ft)	8,904	8,532	8,140	7,736	7,329	6,925	6,531	6,150	5,785	5,438

5.3 TABLES FOR SOIL SPECIFICATIONS

Table 8-20-1. Granular Soils

Descriptive Term for Relative Density	Standard Penetration Test Blows per Foot "N"
Very Loose	0 – 4
Loose	4 – 10
Medium	10 – 30
Dense	30 – 50
Very Dense	Over 50

Table 8-20-2. Silt and Clay Soils

Descriptive Term for Consistency	Unconfined Compressive Strength Tons per Square Foot
Very Soft	Less than 0.25
Soft	0.25 – 0.50
Medium	0.50 – 1.00
Stiff	1.00 – 2.00
Very Stiff	2.00 – 4.00
Hard	Over 4.00

Table 8-20-3. Unit Weights of Soils, and Coefficients of Earth Pressure

Type of Soil	Unit Weight of Moist Soil, γ (Note 1)		Unit Weight of Submerged Soil, γ' (Note 1)		Coefficient of Active Earth Pressure, K_a				Coefficient of Passive Earth Pressure, K_p		
					For Backfill	For Soils in Place	Friction Angles (Note 2)		For Soils in Place	Friction Angles (Note 2)	
	Minimum	Maximum	Minimum	Maximum			ϕ	δ		ϕ	δ
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Clean Sand:											
Dense	110	140	65	78		0.20	38	20	9.0	38	25
Medium	110	130	60	68		0.25	34	17	7.0	34	23
Loose	90	125	56	63	0.35	0.30	30	15	5.0	30	20
Silty Sand:											
Dense	110	150	70	88		0.25			7.0		
Medium	95	130	60	68		0.30			5.0		
Loose	80	125	50	63	0.50	0.35			3.0		
Silt and Clay (Note 3)	$\frac{165(1+w)}{1+2.65w}$		$\frac{103}{1+2.65w}$		1.00	$1-\frac{q_u}{\bar{p}+\gamma z}$			$1+\frac{q_u}{\bar{p}+\gamma z}$		

Note 1: In pounds per cubic foot.

Note 2: These angles, expressed in degrees, are ϕ, the angle of internal friction, and δ, the angle of wall friction, and are used in estimating the coefficients under which they are listed.

Note 3: The symbol γ represents γ or γ', whichever is applicable; $\bar{p}$ is the effective unit pressure on the top surface of the stratum; q_u is the unconfined compressive strength; w is the natural water content, in percentage of dry weight; and z is the depth below the top surface of the stratum.

6. REFERENCES

a. The following list of references used in these guidelines are placed here in alphabetical order for your convenience.

i. AREMA Manual for Railway Engineering, 2019, American Railway Engineering and Maintenance-of-Way Association.

ii. Clough and Duncan, 1991, “Earth Pressures,” Foundation Engineering Handbook, 2nd Edition, Fang, Chapter 6.

iii. CalTrans Trenching and Shoring Manual, 2011, Revision 1, State of California Department of Transportation, Office of Structures Construction.

iv. Dismuke, T.D., 1991, “Retaining Structures and Excavations,” Foundation Engineering Handbook, 2nd Edition, Fang, Chapter 12.

v. FHWA-IF-99-015, Geotechnical Engineering Circular 4, Ground Anchors and Anchored Systems, June 1999, Federal Highway Administration, Office of Bridge Technology.

vi. Henkel, D. J., 1971, "The Calculation of Earth Pressures in Open Cuts in Soft Clays.” The Arup Journal, Vol. 6, No. 4, pp. 14-15.

vii. NAVFAC DM7.02, Foundations and Earth Structures, September 1986, Department of the Navy, Naval Facilities Engineering Command.

viii. Terzaghi, K., 1943, Theoretical Soil Mechanics, John Wiley & Sons, Inc., New York, NY.

BNSF RAILWAY COMPANY

GUIDELINES FOR PREPARATION OF

BRIDGE DEMOLITION & REMOVAL PLAN

OVER THE BNSF RAILWAY

OFFICE OF DIRECTOR BRIDGE ENGINEERING
KANSAS CITY, KANSAS
August 21, 2008

INDEX

I. GENERAL

A. The Contractor's work shall in no way impede the train operations.

1. The words "demolition" and "removal" will be used interchangeably in this Guideline.

2. The term "Railroad" refers to the Railroad's Engineers or designated representative.

B. Safety takes precedence over productivity. The Contractor shall be responsible for planning and executing all procedures necessary to remove the structure in a safe, predictable manner.

1. All employees of the Contractor and Subcontractors must be Safety Trained. Refer to http://www.railroadsafetytraining.com

C. The Contractor shall develop a demolition plan ONLY AFTER CONSULTING WITH THE RAILROAD TO GET AN ESTIMATE OF THE RANGE OF TRACK WINDOWS THAT MIGHT NORMALLY BE AVAILABLE FOR THE JOB SITE.

1. A Track Window is the elapsed time between approaching trains.

2. An estimate of the availability of Track Windows can be used by the Contractor to design a demolition plan. The estimated Track Window is a guideline and not to be considered as a guarantee for available working time.

3. A Track Window is highly variable, depending on the location. Low speed - low train density tracks have predictable Track Windows. The opposite is true for high density- high speed main tracks. The Railroad can furnish a range of Track Windows that might be expected at a specific location under normal train traffic conditions.

4. Plan the demolition procedures based upon the smallest ESTIMATED Track Window. Do not assume the longest Track Window will be available on any given day. Do not assume the same Track Windows will be available from one day to the next.

D. The Railroad's tracks and property shall be protected at all times.

1. Removal procedures shall take into account SEVER WEATHER CONDITIONS, including high winds, heavy rains and snowfall accumulation.

2. The contractor shall ensure that all areas adjacent to active tracks shall remain free from hazards.
   a) Trainmen must have an unobstructed walkway available parallel to all active tracks.
   b) All open excavations shall be protected with fencing.
   c) Do not store materials or equipment within 25 feet of the centerline of an active track.

3. Protect the project area from vandalism.
   a) Do not leave debris where vandals could place it on the tracks to drop it onto the tracks from an overhead structure.

b) Secure all heavy equipment from potential movement by vandals.
c) Do not store flammable materials on railroad right of way. Remove combustible waste materials daily. Do not store fuel or other flammable liquids on railroad right of way.

E. All demolition materials and scrap shall be disposed of outside the Railroad right-of-way at no expense to the railroad. At the conclusion of the project, the area must be left in a clean and graded condition to the exclusive satisfaction of the Railroad.

F. No work is allowed within 25 feet of the nearest track unless protected by a Railroad Flagman. When trains approach the work site, all demolition activity within 50 feet of the track shall stop until the entire length of the train has passed the work site.

G. The staged demolition of any portion of a structure over or adjacent to operational tracks will not jeopardize the stability of other parts of the structure awaiting demolition.

1. Where multiple tracks are involved, the demolition plan should be engineered as much as practical such that no more than one track is rendered impassable at any given moment.

H. No blasting will be permitted on Railroad's right-of-way.

II. BRIDGE REMOVAL PLAN

A. The Contractor shall submit a detailed Bridge Removal Plan to the Railroad. The Bridge Removal Plan shall encompass the following:

1) Provide a scale drawing showing the plan view, elevation and location of the structure and locations of any access roads needed on railroad right of way to access the job site. The as-built drawings may be used for the submittal provided the removal steps are clearly marked and legible.

2) Indicate the position of all railroad tracks below the bridge. Identify each track as mainline, siding, spur, etc. Identify locations where temporary crossings will be installed to cross equipment over each track.

3) List in sequential order, all procedures necessary to remove the bridge in a safe and controlled manner. Include step by step details of each sequence and the elapsed time required to execute the sequence. The removal plan must specify which, if any, sequences will render a track impassable to trains during execution of the sequence. If more than one track is adjacent to the work area, specify which tracks will be impassable during execution of each sequence.

4) Include text, drawings or photos to communicate the types of equipment that will be utilized. Include diagrams showing the position of the equipment in relation to the tracks. Where cranes are to be used, furnish the lifting capacities of the crane at the anticipated radius and the weights of components to be removed.

5) For every sequence, specify the minimum horizontal clearance from centerline of track and the minimum vertical clearance above top of rail for equipment, falsework, rubble shields and temporary supports. If a crane is to be utilized, include clearances for the backswing radius of the crane counterweight and the position of the outriggers. (Refer to the attached frame protection diagram for the minimum allowable vertical and horizontal clearances.)

6) If the removal plan includes concrete demolition, include the details of rubble control such as maximum anticipated size of rubble, drop distance, shield size and shield position.

7) The Bridge Removal Plan will indicate locations and types of temporary supports, shoring, cables or bracing required. Refer to current standard drawing 106613 “General Shoring Requirements” “Guidelines for Design and Construction of Falsework for Structures” and “Guidelines for Design and Construction of Shoring Adjacent to Active Railroad Tracks”, and the appropriate Federal, State and local regulations and building codes.

8) If any temporary supports interfere with the natural drainage along the Railroad right-of-way, a temporary drainage diversion plan shall be included in the Bridge Removal Plan. The drainage plan shall route all surface water away from the railroad tracks.

a) Do not block drainage in side ditches with debris.
b) Do not place footing blocks in drainage ditches.
c) Surface runoff must be diverted away from the footing block excavations to avoid saturation of the underlying supporting soils.

9) The Demolition Plan shall include details, limits, and locations of protective shields or other measures designed to protect the rails, ties and ballast from falling debris. Include details of catchment apparatus necessary to protect the tracks from rolling debris that may fall onto side slopes. Include the design load for the shields for both the maximum static load and the maximum anticipated impact loads from falling debris. Specify the type of equipment that will be utilized to remove the debris and shields from operational tracks.

10) Protection of the track ballast section must be provided to avoid contamination of the rock with fine dust and mud produced during demolition activities. Filter fabric or some other effective means of prevent ballast contamination should be incorporated into the Demolition Plan.

11) All overhead and underground utilities in the area affected by removal of the bridge shall be located on the drawings, including any fiber optic, railroad signal, and communication lines.

11) Indicate the limits of demolition of substructures, including depths and dimensions of excavations that might be necessary to demolish buried footings.

12) The Demolition Plan should include details of planned on-site fire suppression.

B. The Contractor shall submit to the Railroad: three (3) complete sets of the Bridge Removal Plan for review and comments.

1. The Plan shall be sealed by a Civil or Structural Engineer registered in the state where the proposed demolition will take place.

2. A minimum of four (4) weeks shall be expected for the Railroad's review after the complete submittal is received.
3. No removal operations will be permitted over the Railroad right of way until the submitted material has been reviewed and approved.

C. Approval and/or comments furnished by the Railroad in the course of review of the Contractor's Removal Plan will not relieve the Contractor of the ultimate responsibility for the safe and secure demolition of the structure.

III. PROCEDURE

A. The Bridge Removal Plan must be executed such that stability is continuously maintained for the standing portions of the structure over all tracks.

1) All members of the structure being demolished must be continuously supported to resist high winds, including wind buffets and suction forces generated by high speed trains.

B. Prior to proceeding with bridge removal, the sealing Civil or Structural Engineer, or his authorized representative, shall inspect all components of the temporary support shoring, including temporary bracing and protective coverings, insuring conformity with the working drawings.

1) The sealing Engineer shall certify in writing to the Railroad that the work is in conformance with the drawings and that the materials and workmanship are satisfactory.

2) A copy of this certification shall be available at the job site at all times.

C. Well in advance of planned work, coordinate the removal schedule with the Railroad.

1) No work is allowed within 25 feet of the nearest active track unless protected by a Railroad Flagman.

2) All the removal work within 25 feet of the nearest active track shall be performed during the Track Windows granted by the Railroad Flagman.

3) When trains pass the work site, all demolition activity within 50 feet of the track shall stop until the entire length of the train has passed the work site.

D. All substructures shall be removed to at least 3 feet below the final finished grade or at least 3 feet below base of rail whichever is lower, unless otherwise specified by the Railroad.

E. All debris and refuse shall be removed from the railroad right of way by the Contractor. The premises shall be left in a neat and presentable condition to the exclusive satisfaction of the Railroad. Soils contaminated by fuel spills, hydraulic oil leaks, etc. will be removed from railroad right of way and replaced to the exclusive satisfaction of the Railroad.

F. The work progress shall be reviewed and logged by the Contractor's Engineer Should an unplanned event occur, the Contractor shall inform the Railroad and submit a procedure to correct or remedy the occurrence.

G. Beam removal and all other demolition procedures shall take place as much as practicable with equipment positioned above the track. In the rare case that beams require removal from below the structure, the following steps shall be taken before beams are allowed to straddle the tracks:

1) Certain territories with high density train traffic, especially where multiple main tracks are affected, may not grant Track Windows on all tracks simultaneously. Beam removal from the underside of structures may not be possible unless the procedure can be accomplished in very short Track Windows or be engineered such that only one track is affected.

2) The work shall be scheduled well in advance with the Railroad's Service Unit Superintendent subject to the Railroad's operational requirements for continuous train operations. The beam removal plan must be engineered to minimize the Track Window time.

3) The rails, ties and ballast shall be protected. No equipment will be crossed over or placed on the tracks unless pre-approved by the Railroad.

4) The beams shall be blocked to prevent the beams from coming into contact with the rails. Blocking shall not be placed on the rails or ties.

5) Upon approach of a train, the beams and all personnel and equipment will be moved a position to provide a minimum of 15 feet horizontal clearance and 21 ft. vertical clearance from the nearest rail. Care must be exercised to insure that crane booms are rotated to a position parallel with the track.

IV. TRACK PROTECTION

A. The track protective cover shall be constructed before beginning bridge removal work and may be supported by falsework or members of the existing structure. See the attached "Track Shield Detail and Frame Protection Detail" for additional requirements. The following are examples of protective covers that may be acceptable:

1) A decking supported by the bridge or a suspended cover from the bridge above the track clearance envelope.

2) A track shield cover over the tracks per the attached detail.

3) A framed cover outside the track clearance envelope.

4) A catcher box or loader bucket under decking and parapets overhanging the exterior girders.

5) Protection of the track ballast section must be provided to avoid contamination of the rock with fine dust and mud produced during demolition activities. Filter fabric or some other effective means of prevent ballast contamination should be incorporated into the Demolition Plan.

B. Construction equipment shall not be crossed over or placed on the tracks unless the rails, ties and ballast are protected against damage.

1) Track protection is required for all equipment including rubber tired equipment.

2) A list of equipment to be crossed over or positioned on the tracks along with the intended method of protection shall be submitted to the railroad for approval prior to use at the job site.

C. Temporary haul road crossings shall be either Timbers or Precast Concrete Panels. The type of crossing shall be determined by the Railroad.

1) Solid timbers or ballast with timber headers shall be used between multiple tracks.

2) If the job site is accessible to the public, all temporary haul road crossings shall be protected with barricades or locked gates when the Contractor is not actively working at the site.

3) Installation and removal of temporary track crossings for equipment shall be scheduled well in advance with the Railroad.

V. CRANES

A. When cranes are operated over or adjacent to the tracks the following is required:

1) The Contractor shall verify that the foundations and soil conditions under the crane and crane outriggers can support the loads induced by the crane under an assumed maximum capacity lift. The size and material type of crane mats shall be rigid and of sufficient capacity to safely distribute the crane loads.

2) Front end loaders and backhoes cannot be used in place of a crane to lift materials over the tracks. These types of equipment do not have the necessary safety features built into the machines to circumvent overloading and tipping. Only cranes with the rated capacity to handle the loads may be used.

3) Additional track protection may be required for a crane when crossing over the track. The protection methods shall be submitted to the Railroad for review and comment well in advance of intended use.

6) Cranes and other equipment utilizing outriggers shall not place outriggers on the tracks or ballast.

7) Cranes or crane booms shall not be positioned within the track clearance envelope without Railroad Flagman protection. Cranes operating from a position farther than 25 ft. from the nearest track will need a Railroad Flagman present if the boom length is such that it could fall onto a track.

8) During passage of a train, the Crane Operator must stop all movements. Crane Operators shall remain in the cab with motor at idle with the load lines, boom, rotation and travel controls locked and stationary until the full length of the train has passed the job site.

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VI. CUTTING TORCHES

A. When a cutting torch or welding equipment is used in the demolition process, the following steps shall be taken:

1) Fire suppression equipment is required on-site.

2) Do not use a torch over, between, or adjacent to the tracks unless a steel plate protective cover is used to shield against sparks and slag coming into contact with timber ties. Care shall be taken to make certain the use of a steel plate does not come in contact with the rails. See “Track Shield Details” for other requirements. Details of the shield shall be submitted to the Railroad for approval.

3) Wet the ties below the steel plate and wet other timbers and flammable demolition debris located near cutting areas.

4) Monitor the work site for at least three hours after cutting has ceased to detect a smoldering fire.

B. Extensive overhead cutting may require more robust fire suppression equipment and precautions than what would normally be required for routine cuts.

1) On days when extensive torch cutting is planned, the Contractor shall have a larger water supply on hand or take other measures as needed to effectively suppress fires.

2) Overhead torch cutting and welding must cease upon approach and passage of a train.

3) Extensive torch cutting shall not take place during high winds.

4) Contractor will clear vegetation and other combustible debris from the surrounding work areas prior to engaging in extensive torch cutting.

VII. UTILITIES

A. The demolition operations shall be planned such that the utility lines are operating safely at all times. The utility lines shall be protected if affected by demolition operations. All the work associated with utility lines should be coordinated by the contractor with the respective utility companies.

VIII. HAZARDOUS MATERIALS

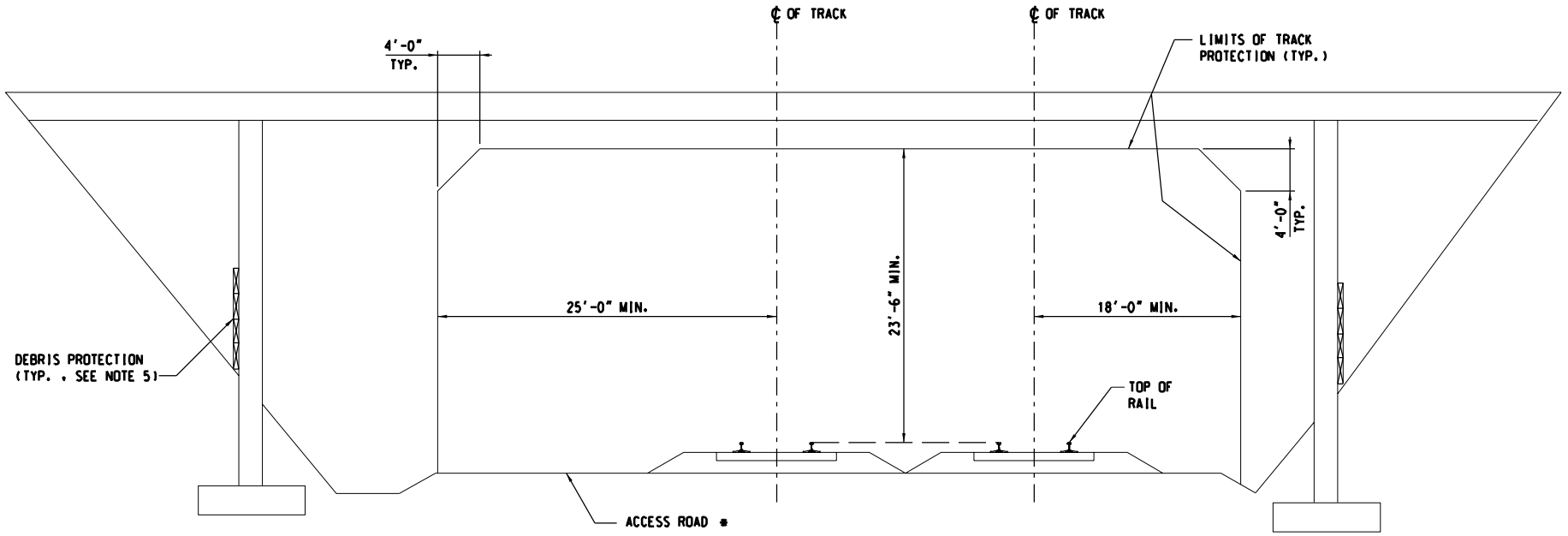
A. If any hazardous materials are discovered, provide material protection as specified in local hazardous material codes and immediately contact the Railroad.

1) If pipelines are attached to the structure, pipes must be purged of flammable or hazardous materials prior to beginning demolition.

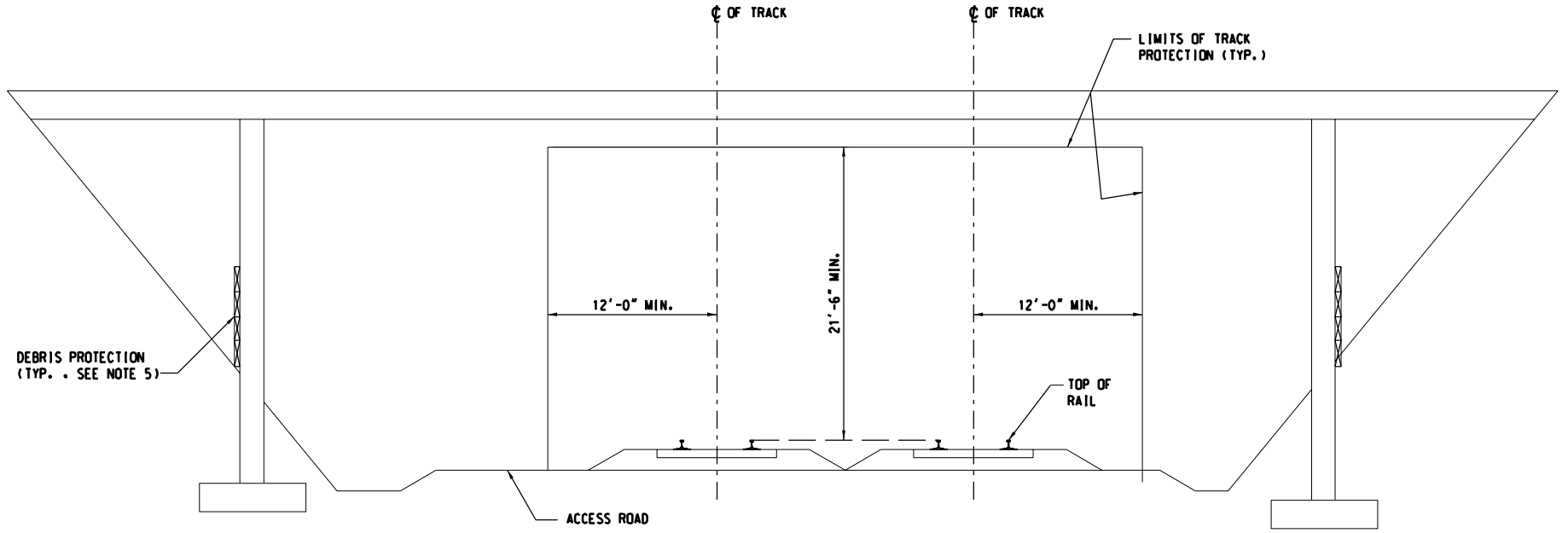
2) Fuel spills, hydraulic fluid releases, equipment oil leaks or any other release of contaminants must be reported to the Railroad. Contaminated soils must be removed and replaced to the satisfaction of the Railroad.

APPENDIX – BNSF-UP Demolition Drawings

- Demolition Frame Protection Details (Sheets 1 of 3 & 2 of 3)
- Demolition Track Shield Details (Sheet 3 of 3)



BRIDGE ELEVATIONS
STANDARD LIMITS OF PROTECTION FOR FRAME PROTECTION



BRIDGE ELEVATION
MINIMUM LIMITS OF PROTECTION FOR FRAME PROTECTION
(SPECIAL PERMISSION REQUIRED, SEE NOTE 1)

1. THE STANDARD LIMITS OF PROTECTION NOTED ARE THE MIN. CLEARANCES ALLOWED WITHOUT SPECIAL PERMISSION FROM THE RAILROAD. THE REDUCED CLEARANCES NOTED MAY BE ALLOWED BY THE RAILROAD. SPECIAL PERMISSION FOR THE REDUCED CLEARANCES IS REQUIRED FROM THE RAILROAD AND PUBLIC AGENCY.

2. THE PROTECTION FRAME SHALL AS A MINIMUM MATCH THE DEMOLITION LIMITS SHOWN AND EXTEND PAST THE BRIDGE WIDTH AS SHOWN ON THE ATTACHED DEMOLITION PLAN SHEET.

3. FOR ADDITIONAL CLEARANCE AND PROTECTION INFORMATION REFER TO CONTRACT EXHIBITS.

4. THE PROTECTION FRAME SHALL PREVENT DEMOLITION DEBRIS, DUST AND FINE MATERIAL FROM FALLING INTO THE RAILROAD TRACKS, ACCESS ROAD OR TRAINS. THE FRAME SHALL BE DESIGNED BY THE CONTRACTOR TO SUPPORT THE ANTICIPATED DEMOLITION LOADS, AND IN ACCORDANCE WITH CALTRANS FALSEWORK MANUAL FOR STRUCTURES OVER THE RAILROAD.

5. DEBRIS PROTECTION IS REQUIRED NEAR THE BASE OF THE SIDE SLOPES AND ADJACENT TO ROADS USED BY DEMOLITION EQUIPMENT TO PREVENT DEBRIS FROM ROLLING ONTO TRACK, ACCESS ROAD OR DITCH. USE TIMBERS AS REQUIRED TO STOP LARGE PIECES OF ROLLING DEBRIS.

6. ANY ACTIVITY WITHIN 25 FEET OF THE NEAREST RAIL OF A TRACK REQUIRES A FLAGMAN.

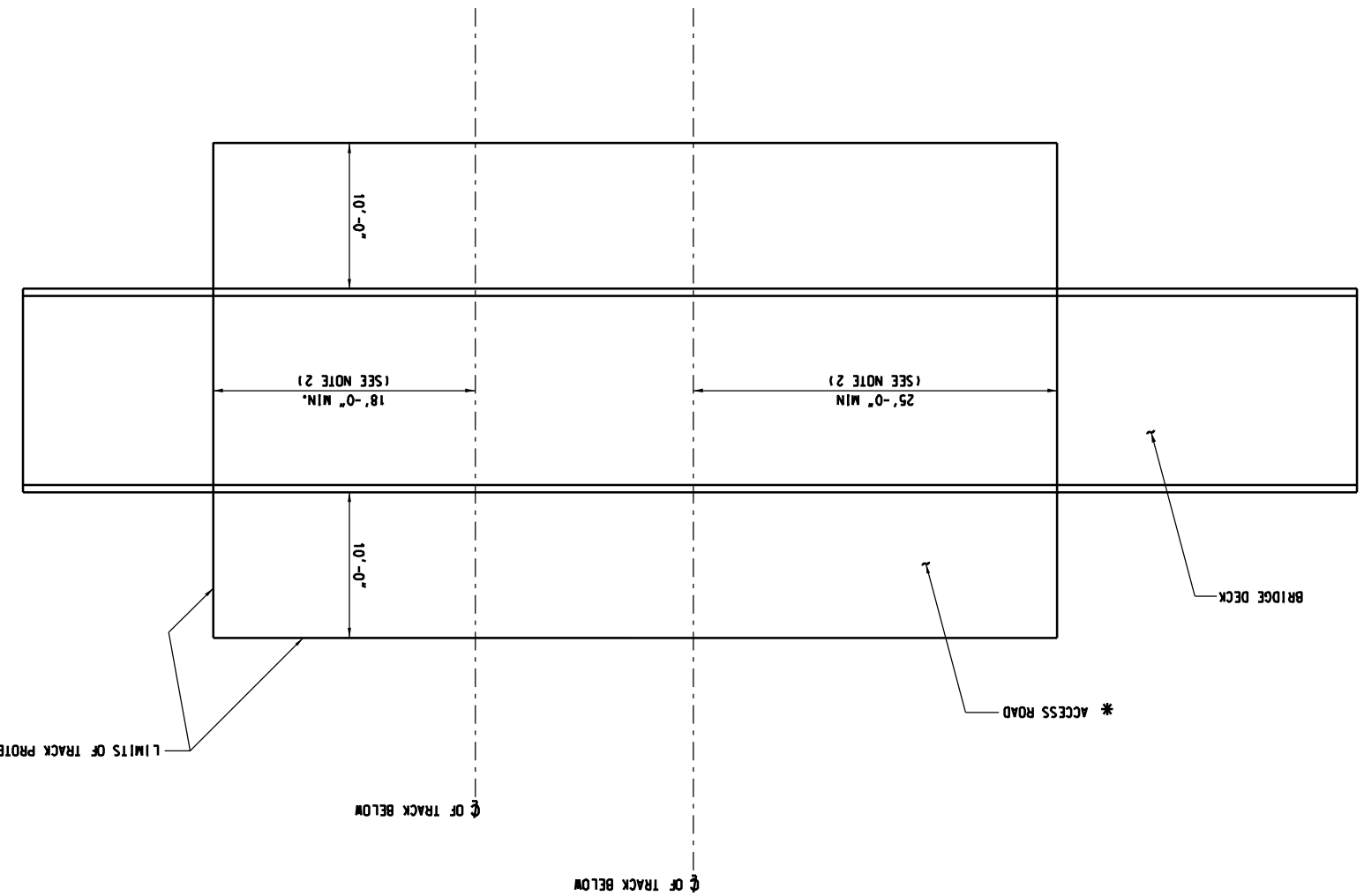
* IF NO ACCESS ROAD USE MIN. DIMENSION FROM OTHER SIDE OF DETAIL

BNSF RAILWAY

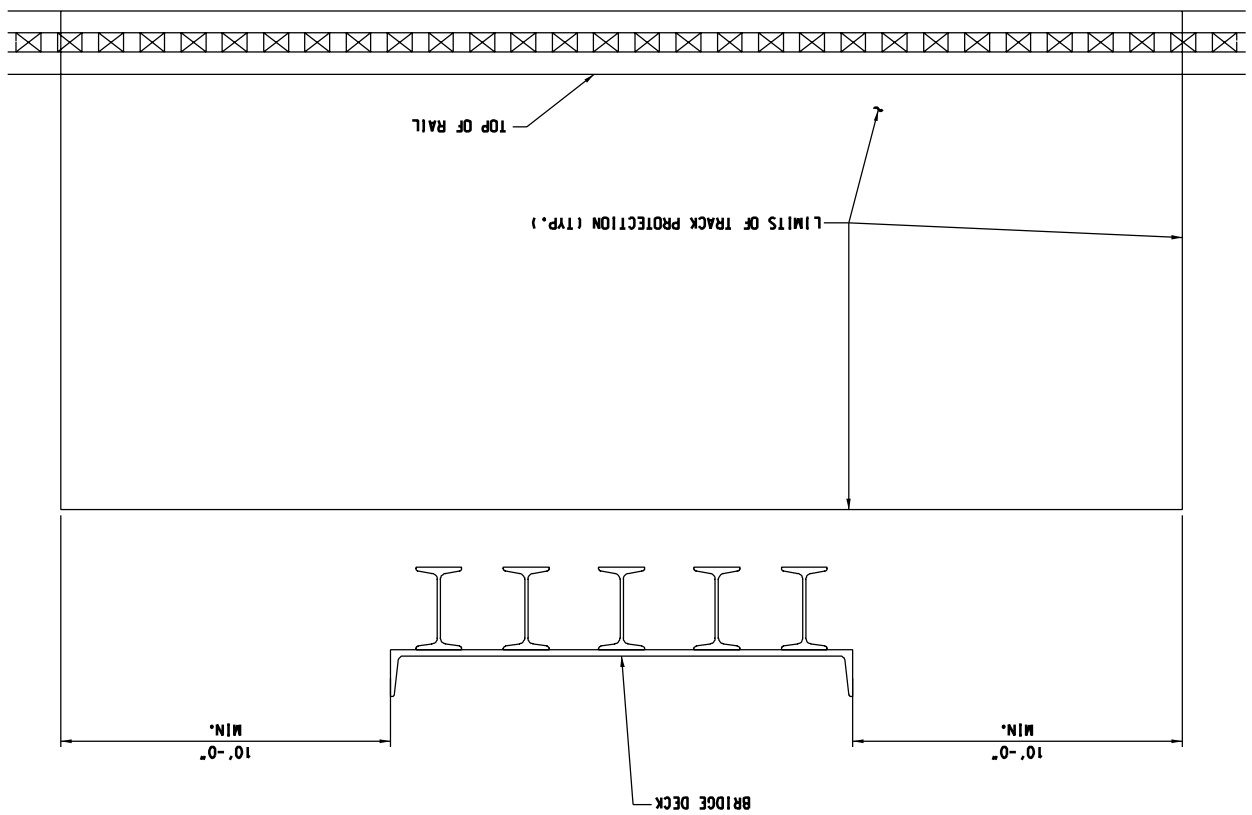
DEMOLITION FRAME PROTECTION DETAILS

DATE: OCTOBER 17, 2007 SHEET: 1 OF 3

BRIDGE PLAN
STANDARD LIMITS OF PROTECTION FOR FRAME PROTECTION



BRIDGE DECK CROSS SECTION
STANDARD LIMITS OF PROTECTION



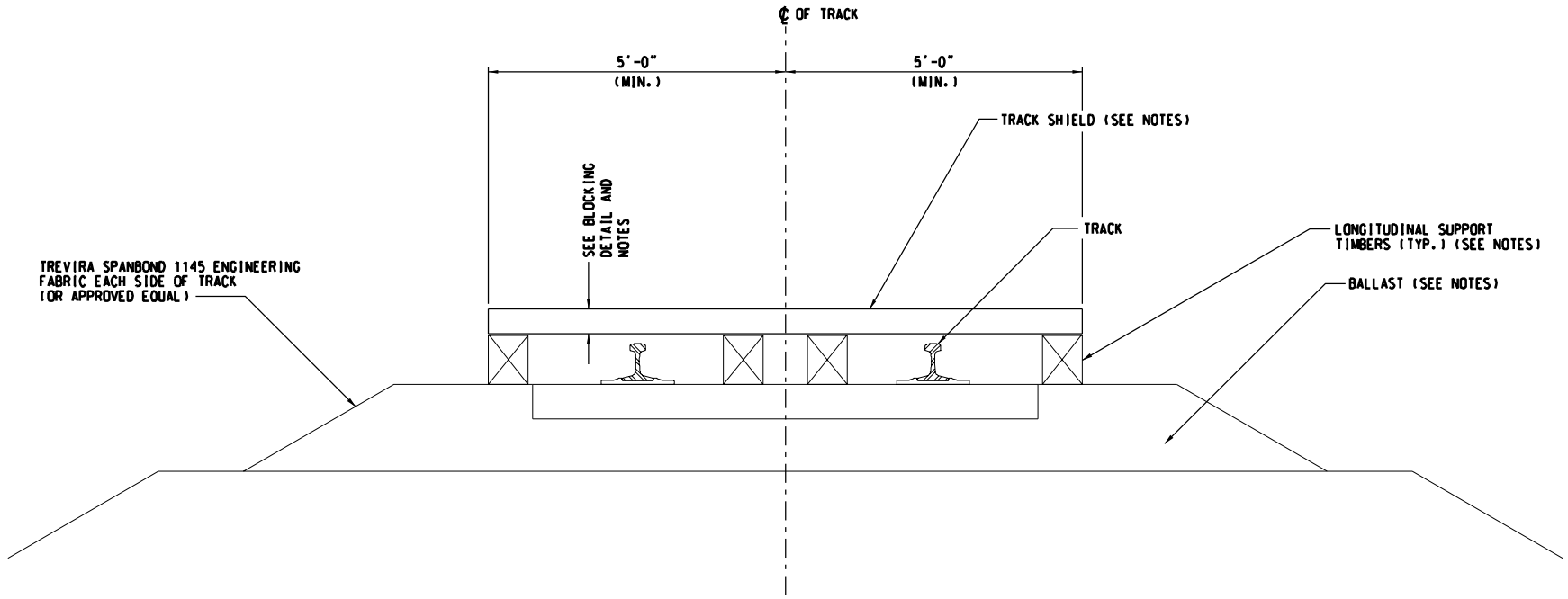
NOTES:

1. SEE GENERAL NOTES ON BRIDGE ELEVATION SHEET.
2. STANDARD LIMITS OF PROTECTION ARE SHOWN. FOR MIN. LIMITS OF PROTECTION DIMENSIONS, SEE BRIDGE ELEVATION. MINIMUM LIMITS OF PROTECTION.

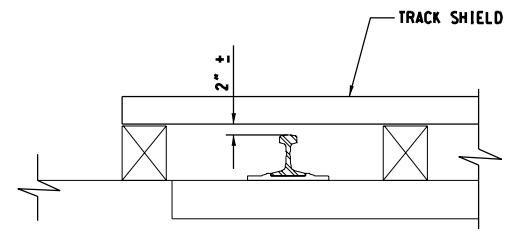
* IF NO ACCESS ROAD, USE MIN. DIMENSION FROM OTHER SIDE

DEMOLITION FRAME
PROTECTION DETAILS

DATE: OCTOBER 17, 2007 SHEET: 2 OF 3



TRACK SHIELD DETAIL
FOR DEBRIS FALLING FROM BRIDGE DECK REMOVAL
(WHEN TRACK TIME WINDOW IS AVAILABLE)



BLOCKING DETAIL

NOTES:

1. A FLAG MAN IS REQUIRED AT ALL TIMES DURING THE USE OF A TRACK SHIELD.
2. THE TRACK SHIELD SHALL BE DESIGNED BY THE CONTRACTOR AND SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT THE ANTICIPATED LOADS. INCLUDING IMPACT AND PUNCTURE. THE SHIELD SHALL PREVENT MATERIALS AND EQUIPMENT OR DEBRIS FROM FALLING ONTO THE RAILROAD TRACK. ADDITIONAL LAYERS OF MATERIALS SHALL BE FURNISHED AS NECESSARY TO PREVENT FINE MATERIALS OR DEBRIS FROM SIFTING DOWN UPON THE TRACK.
3. THE SHIED SHALL BE PREFABRICATED AND FURNISHED WITH LIFTING HOOKS TO SIMPLIFY REMOVAL.
4. THE SHIELD SHALL BE OF SUFFICIENT STRENGTH TO SPAN BETWEEN IT'S SUPPORTS WITHOUT BEARING UPON THE RAILS AND TO WITHSTAND DROPPING RUBBLE.
5. BEFORE REMOVAL THE SHIELD SHALL BE CLEANED OF ALL DEBRIS AND FINE MATERIAL. GEOFABRIC SHALL LINE THE BALLAST SECTION TO PREVENT CONTAMINATION.
6. THE TRACK SHIELD SHALL EXTEND AT LEAST 20 FEET BEYOND THE LIMITS OF DEMOLITION TRANSVERSE TO THE EDGE OF THE BRIDGE.
7. LONGITUDINAL SUPPORT TIMBERS FOR THE SHIELD SHALL NOT EXTEND ABOVE THE TOP OF RAIL WHEN THE SHIELD IS REMOVED. BLOCKING FROM THE TOP OF RAIL TO THE BOTTOM OF THE SHIELD MAY BE ATTACHED TO THE SHIELD. REMAINING TIMBERS SHALL BE ANCHORED.
8. FOR TRAIN PASSAGE, THE RUBBLE SHALL BE REMOVED TO A MINIMUM OF 8'-6" FROM THE NEAREST RAIL AND TO AN ELEVATION NO HIGHER THAN THE TOP OF RAIL.
9. AT THE END OF THE DAY, THE RUBBLE SHALL BE REMOVED COMPLETELY TO A MINIMUM OF 10'-0" FROM THE NEAREST RAIL AND DOWN TO ORIGINAL GRADE. GEOFABRIC BARRIER SHALL BE USED TO PREVENT BALLAST CONTAMINATION BY FINE MATERIALS.
10. CARE SHALL BE TAKEN TO NOT PLACE METAL ACROSS THE TRACK RAILS. RAILROAD COMMUNICATION ARE SENT THROUGH THE RAILS AND WILL BE DISRUPTED BY A SHORT BETWEEN RAILS.
11. DETAILS SHOWN APPLY FOR TIMBER TIES. SPECIAL DETAILS ARE REQUIRED FOR CONCRETE TIES.

BNSF RAILWAY

DEMOLITION TRACK SHIELD DETAIL

DATE: OCTOBER 17, 2007

EXHIBIT "C"

CONTRACTOR REQUIREMENTS

1.01 General:

- **1.01.01** The Contractor must cooperate with **BNSF RAILWAY COMPANY**, hereinafter referred to as "**Railway**" where work is over or under on or adjacent to Railway property and/or right-of-way, hereafter referred to as "Railway Property", during the construction of _____ _____ _____.

- **1.01.02** The Contractor must execute and deliver to the Railway duplicate copies of the Exhibit "C-1" Agreement, in the form attached hereto, obligating the Contractor to provide and maintain in full force and effect the insurance called for under Section 3 of said Exhibit "C-1". Questions regarding procurement of the Railroad Protective Liability Insurance should be directed to Rosa Martinez at Marsh, USA, 214-303-8519.

- **1.01.03** The Contractor must plan, schedule and conduct all work activities so as not to interfere with the movement of any trains on Railway Property.

- **1.01.04** The Contractor's right to enter Railway's Property is subject to the absolute right of Railway to cause the Contractor's work on Railway's Property to cease if, in the opinion of Railway, Contractor's activities create a hazard to Railway's Property, employees, and/or operations. Railway will have the right to stop construction work on the Project if any of the following events take place: (i) Contractor (or any of its subcontractors) performs the Project work in a manner contrary to the plans and specifications approved by Railway; (ii) Contractor (or any of its subcontractors), in Railway's opinion, prosecutes the Project work in a manner which is hazardous to Railway property, facilities or the safe and expeditious movement of railroad traffic; (iii) the insurance described in the attached Exhibit C-1 is canceled during the course of the Project; or (iv) Contractor fails to pay Railway for the Temporary Construction License or the Easement. The work stoppage will continue until all necessary actions are taken by Contractor or its subcontractor to rectify the situation to the satisfaction of Railway's Division Engineer or until additional insurance has been delivered to and accepted by Railway. In the event of a breach of (i) this Agreement, (ii) the Temporary Construction License, or (iii) the Easement, Railway may immediately terminate the Temporary Construction License or the Easement. Any such work stoppage under this provision will not give rise to

any liability on the part of Railway. Railway's right to stop the work is in addition to any other rights Railway may have including, but not limited to, actions or suits for damages or lost profits. In the event that Railway desires to stop construction work on the Project, Railway agrees to immediately notify the following individual in writing:

_____
_____
_____
_____

- **1.01.05** The Contractor is responsible for determining and complying with all Federal, State and Local Governmental laws and regulations, including, but not limited to environmental laws and regulations (including but not limited to the Resource Conservation and Recovery Act, as amended; the Clean Water Act, the Oil Pollution Act, the Hazardous Materials Transportation Act, CERCLA), and health and safety laws and regulations. The Contractor hereby indemnifies, defends and holds harmless Railway for, from and against all fines or penalties imposed or assessed by Federal, State and Local Governmental Agencies against the Railway which arise out of Contractor's work under this Agreement.

- **1.01.06** The Contractor must notify **(Agency)** at _____and Railway's Manager Public Projects, telephone number (__)_____at least thirty (30) calendar days before commencing any work on Railway Property. Contractor's notification to Railway must refer to Railway's file _____.

- **1.01.07** For any bridge demolition and/or falsework above any tracks or any excavations located with any part of the excavations located within, whichever is greater, twenty-five (25) feet of the nearest track or intersecting a slope from the plane of the top of rail on a 2 horizontal to 1 vertical slope beginning at eleven (11) feet from centerline of the nearest track, both measured perpendicular to center line of track, the Contractor must furnish the Railway five sets of working drawings showing details of construction affecting Railway Property and tracks. The working drawing must include the proposed method of installation and removal of falsework, shoring or cribbing, not included in the contract plans and two sets of structural calculations of any falsework, shoring or cribbing. For all excavation and shoring submittal plans, the current "BNSF-UPRR Guidelines for Temporary Shoring" must be used for determining the design loading conditions to be used in shoring design, and all calculations and submittals must be in accordance with the current "BNSF-UPRR Guidelines for Temporary Shoring". All submittal drawings and calculations must be stamped by a registered professional engineer licensed to practice in the state the project is located. All calculations must take into consideration railway surcharge loading and must be designed to meet American Railway Engineering

and Maintenance-of-Way Association (previously known as American Railway Engineering Association) Coopers E-80 live loading standard. All drawings and calculations must be stamped by a registered professional engineer licensed to practice in the state the project is located. The Contractor must not begin work until notified by the Railway that plans have been approved. The Contractor will be required to use lifting devices such as, cranes and/or winches to place or to remove any falsework over Railway's tracks. In no case will the Contractor be relieved of responsibility for results obtained by the implementation of said approved plans.

- **1.01.08** Subject to the movement of Railway's trains, Railway will cooperate with the Contractor such that the work may be handled and performed in an efficient manner. The Contractor will have no claim whatsoever for any type of damages or for extra or additional compensation in the event his work is delayed by the Railway.

1.02 Contractor Safety Orientation

- **1.02.01 No employee of the Contractor, its subcontractors, agents or invitees may enter Railway Property without first having completed Railway's Engineering Contractor Safety Orientation, found on the web site www.bnsfcontractor.com. The Contractor must ensure that each of its employees, subcontractors, agents or invitees completes Railway's Engineering Contractor Safety Orientation through internet sessions before any work is performed on the Project. Additionally, the Contractor must ensure that each and every one of its employees, subcontractors, agents or invitees possesses a card certifying completion of the Railway Contractor Safety Orientation before entering Railway Property. The Contractor is responsible for the cost of the Railway Contractor Safety Orientation. The Contractor must renew the Railway Contractor Safety Orientation annually. Further clarification can be found on the web site or from the Railway's Representative.**

1.03 Railway Requirements

- **1.03.01** The Contractor must take protective measures as are necessary to keep railway facilities, including track ballast, free of sand, debris, and other foreign objects and materials resulting from his operations. Any damage to railway facilities resulting from Contractor's operations will be repaired or replaced by Railway and the cost of such repairs or replacement must be paid for by the Agency.

- **1.03.02** The Contractor must notify the Railway's Division Engineer _____ at (_____)_____ and provide blasting

plans to the Railway for review seven (7) calendar days prior to conducting any blasting operations adjacent to or on Railway's Property.

- **1.03.03** The Contractor must abide by the following temporary clearances during construction:

    - 15’-0” Horizontally from centerline of nearest track
    - 21’-6” Vertically above top of rail
    - 27'-0" Vertically above top of rail for electric wires carrying less than 750 volts
    - 28'-0" Vertically above top of rail for electric wires carrying 750 volts to 15,000 volts
    - 30'-0" Vertically above top of rail for electric wires carrying 15,000 volts to 20,000 volts
    - 34'-0" Vertically above top of rail for electric wires carrying more than 20,000 volts

- **1.03.04** Upon completion of construction, the following clearances shall be maintained:
    - 25’ Horizontally from centerline of nearest track
    - 23’ 6” Vertically above top of rail

- **1.03.05** Any infringement within State statutory clearances due to the Contractor's operations must be submitted to the Railway and to the **(Agency)** and must not be undertaken until approved in writing by the Railway, and until the **(Agency)** has obtained any necessary authorization from the State Regulatory Authority for the infringement. No extra compensation will be allowed in the event the Contractor's work is delayed pending Railway approval, and/or the State Regulatory Authority's approval.

- **1.03.06** In the case of impaired vertical clearance above top of rail, Railway will have the option of installing tell-tales or other protective devices Railway deems necessary for protection of Railway operations. The cost of tell-tales or protective devices will be borne by the Agency.

- **1.03.07** The details of construction affecting the Railway's Property and tracks not included in the contract plans must be submitted to the Railway by **(Agency)** for approval before work is undertaken and this work must not be undertaken until approved by the Railway.

- **1.03.08** At other than public road crossings, the Contractor must not move any equipment or materials across Railway's tracks until permission has been obtained from the Railway. The Contractor must obtain a "Temporary Construction Crossing Agreement" from the Railway prior to moving his equipment or materials across the

Railways tracks. The temporary crossing must be gated and locked at all times when not required for use by the Contractor. The temporary crossing for use of the Contractor will be constructed and, at the completion of the project, removed at the expense of the Contractor.

- **1.03.09** Discharge, release or spill on the Railway Property of any hazardous substances, oil, petroleum, constituents, pollutants, contaminants, or any hazardous waste is prohibited and Contractor must immediately notify the Railway's Resource Operations Center at 1(800) 832-5452, of any discharge, release or spills in excess of a reportable quantity. Contractor must not allow Railway Property to become a treatment, storage or transfer facility as those terms are defined in the Resource Conservation and Recovery Act or any state analogue.

- **1.03.10** The Contractor upon completion of the work covered by this contract, must promptly remove from the Railway's Property all of Contractor's tools, equipment, implements and other materials, whether brought upon said property by said Contractor or any Subcontractor, employee or agent of Contractor or of any Subcontractor, and must cause Railway's Property to be left in a condition acceptable to the Railway's representative.

1.04 Contractor Roadway Worker on Track Safety Program and Safety Action Plan:

- **1.04.01** Each Contractor that will perform work within 25 feet of the centerline of a track must develop and implement a Roadway Worker Protection/On Track Safety Program and work with Railway Project Representative to develop an on track safety strategy as described in the guidelines listed in the on track safety portion of the Safety Orientation. This Program must provide Roadway Worker protection/on track training for all employees of the Contractor, its subcontractors, agents or invitees. This training is reinforced at the job site through job safety briefings. Additionally, each Contractor must develop and implement the Safety Action Plan, as provided for on the web site **www.bnsfcontractor.com**, which will be made available to Railway prior to commencement of any work on Railway Property. During the performance of work, the Contractor must audit its work activities. The Contractor must designate an on-site Project Supervisor who will serve as the contact person for the Railway and who will maintain a copy of the Safety Action Plan, safety audits, and Material Safety Datasheets (MSDS), at the job site.

- **1.04.02** Contractor shall have a background investigation performed on all of its employees, subcontractors and agents who will be performing any services for Railroad under this Agreement which are determined by Railroad in its sole discretion **a)** to be on Railroad's property, or **b)** that require access to Railroad Critical Infrastructure, Railroad Critical Information Systems, Railroad's Employees,

Hazardous Materials on Railroad's property or is being transported by or otherwise in the custody of Railroad, or Freight in Transit involving Railroad.

The required background screening shall at a minimum meet the rail industry background screening criteria defined by the e-RAILSAFE Program as outlined at http://www.eVerifile.com, in addition to any other applicable regulatory requirements.

Contractor shall obtain written consent from all its employees, subcontractors or agents screened in compliance with the e-RAILSAFE Program to participate in the Program on their behalf and to release completed background information to Railroad's designee. Contractor shall be subject to periodic audit to ensure compliance.

Contractor subject to the e-RAILSAFE Program hereunder shall not permit any of its employees, subcontractors or agents to perform services hereunder who are not first approved under e-RAILSAFE Program standards. Railroad shall have the right to deny entry onto its premises or access as described in this section above to any of Contractor's employees, subcontractors or agents who do not display the authorized identification badge issued by a background screening service meeting the standards set forth in the e-RAILSAFE Program, or who in Railroad's opinion, which may not be unreasonable, may pose a threat to the safety or security of Railroad's operations, assets or personnel.

Contractors shall be responsible for ensuring that its employees, subcontractors and agents are United States citizens or legally working in the United States under a lawful and appropriate work VISA or other work authorization.

1.05 Railway Flagger Services:

- **1.05.01** The Contractor must give Railway's **Roadmaster (telephone _____)** a minimum of thirty (30) calendar days advance notice when flagging services will be required so that the Roadmaster can make appropriate arrangements (i.e., bulletin the flagger's position). If flagging services are scheduled in advance by the Contractor and it is subsequently determined by the parties hereto that such services are no longer necessary, the Contractor must give the Roadmaster five (5) working days advance notice so that appropriate arrangements can be made to abolish the position pursuant to union requirements.

- **1.05.02** Unless determined otherwise by Railway's Project Representative, Railway flagger will be required and furnished when Contractor's work activities are located over, under and/or within twenty-five (25) feet measured horizontally from centerline of the nearest track and when cranes or similar equipment positioned

beyond 25-feet from the track centerline could foul the track in the event of tip over or other catastrophic occurrence, but not limited thereto for the following conditions:

- **1.05.02a** When, upon inspection by Railway's Representative, other conditions warrant.

- **1.05.02b** When any excavation is performed below the bottom of tie elevation, if, in the opinion of Railway's representative, track or other Railway facilities may be subject to movement or settlement.

- **1.05.02c** When work in any way interferes with the safe operation of trains at timetable speeds.

- **1.05.02d** When any hazard is presented to Railway track, communications, signal, electrical, or other facilities either due to persons, material, equipment or blasting in the vicinity.

- **1.05.02e** Special permission must be obtained from the Railway before moving heavy or cumbersome objects or equipment which might result in making the track impassable.

- **1.05.03** Flagging services will be performed by qualified Railway flaggers.

  - **1.05.03a** Flagging crew generally consists of one employee. However, additional personnel may be required to protect Railway Property and operations, if deemed necessary by the Railways Representative.

  - **1.05.03b** Each time a flagger is called, the minimum period for billing will be the eight (8) hour basic day.

  - **1.05.03c** The cost of flagger services provided by the Railway will be borne by **(Agency)**. The estimated cost for one (1) flagger is approximately between $800.00-$1,600.00 for an eight (8) hour basic day with time and one-half or double time for overtime, rest days and holidays. The estimated cost for each flagger includes vacation allowance, paid holidays, Railway and unemployment insurance, public liability and property damage insurance, health and welfare benefits, vehicle, transportation, meals, lodging, radio, equipment, supervision and other costs incidental to performing flagging services. Negotiations for Railway labor or collective bargaining agreements and rate changes authorized by appropriate Federal authorities may increase actual or estimated flagging rates. **THE FLAGGING RATE IN EFFECT AT THE TIME OF PERFORMANCE BY THE CONTRACTOR HEREUNDER WILL BE USED TO CALCULATE THE ACTUAL COSTS OF**

FLAGGING PURSUANT TO THIS PARAGRAPH.

- **1.05.03d** The average train traffic on this route is _____ freight trains per 24-hour period at a timetable speed _____ MPH and _____ passenger trains at a timetable speed of _____ MPH.

1.06 Contractor General Safety Requirements

- **1.06.01** Work in the proximity of railway track(s) is potentially hazardous where movement of trains and equipment can occur at any time and in any direction. All work performed by contractors within 25 feet of any track must be in compliance with FRA Roadway Worker Protection Regulations.

- **1.06.02** Before beginning any task on Railway Property, a thorough job safety briefing must be conducted with all personnel involved with the task and repeated when the personnel or task changes. If the task is within 25 feet of any track, the job briefing must include the Railway's flagger, as applicable, and include the procedures the Contractor will use to protect its employees, subcontractors, agents or invitees from moving any equipment adjacent to or across any Railway track(s).

- **1.06.03** Workers must not work within 25 feet of the centerline of any track without an on track safety strategy approved by the Railway's Project Representative. When authority is provided, every contractor employee must know: (1) who the Railway flagger is, and how to contact the flagger, (2) limits of the authority, (3) the method of communication to stop and resume work, and (4) location of the designated places of safety. Persons or equipment entering flag/work limits that were not previously job briefed, must notify the flagger immediately, and be given a job briefing when working within 25 feet of the center line of track.

- **1.06.04** When Contractor employees are required to work on the Railway Property after normal working hours or on weekends, the Railway's representative in charge of the project must be notified. A minimum of two employees must be present at all times.

- **1.06.05** Any employees, agents or invitees of Contractor or its subcontractors under suspicion of being under the influence of drugs or alcohol, or in the possession of same, will be removed from the Railway's Property and subsequently released to the custody of a representative of Contractor management. Future access to the Railway's Property by that employee will be denied.

- **1.06.06** Any damage to Railway Property, or any hazard noticed on passing trains must be reported immediately to the Railway's representative in charge of the project. Any vehicle or machine which may come in contact with track, signal

equipment, or structure (bridge) and could result in a train derailment must be reported immediately to the Railway representative in charge of the project and to the Railway's Resource Operations Center at 1(800) 832-5452. Local emergency numbers are to be obtained from the Railway representative in charge of the project prior to the start of any work and must be posted at the job site.

- **1.06.07** For safety reasons, all persons are prohibited from having pocket knives, firearms or other deadly weapons in their possession while working on Railway's Property.

- **1.06.08** All personnel protective equipment (PPE) used on Railway Property must meet applicable OSHA and ANSI specifications. Current Railway personnel protective equipment requirements are listed on the web site, **www.bnsfcontractor.com,** however, a partial list of the requirements include: a) safety glasses with permanently affixed side shields (no yellow lenses); b) hard hats; c) safety shoe with: hardened toes, above-the-ankle lace-up and a defined heel; and d) high visibility retro-reflective work wear. The Railway's representative in charge of the project is to be contacted regarding local specifications for meeting requirements relating to hi-visibility work wear. Hearing protection, fall protection, gloves, and respirators must be worn as required by State and Federal regulations. **(NOTE – Should there be a discrepancy between the information contained on the web site and the information in this paragraph, the web site will govern.)**

- **1.06.09 THE CONTRACTOR MUST NOT PILE OR STORE ANY MATERIALS, MACHINERY OR EQUIPMENT CLOSER THAN 25'-0" TO THE CENTER LINE OF THE NEAREST RAILWAY TRACK. MATERIALS, MACHINERY OR EQUIPMENT MUST NOT BE STORED OR LEFT WITHIN 250 FEET OF ANY HIGHWAY/RAIL AT-GRADE CROSSINGS OR TEMPORARY CONSTRUCTION CROSSING, WHERE STORAGE OF THE SAME WILL OBSTRUCT THE VIEW OF A TRAIN APPROACHING THE CROSSING. PRIOR TO BEGINNING WORK, THE CONTRACTOR MUST ESTABLISH A STORAGE AREA WITH CONCURRENCE OF THE RAILWAY'S REPRESENTATIVE.**

- **1.06.10** Machines or vehicles must not be left unattended with the engine running. Parked machines or equipment must be in gear with brakes set and if equipped with blade, pan or bucket, they must be lowered to the ground. All machinery and equipment left unattended on Railway's Property must be left inoperable and secured against movement. (See internet Engineering Contractor Safety Orientation program for more detailed specifications)

- **1.06.11** Workers must not create and leave any conditions at the work site that would interfere with water drainage. Any work performed over water must meet all Federal, State and Local regulations.

- **1.06.12** All power line wires must be considered dangerous and of high voltage unless informed to the contrary by proper authority. For all power lines the minimum clearance between the lines and any part of the equipment or load must be; 200 KV or below - 15 feet; 200 to 350 KV - 20 feet; 350 to 500 KV - 25 feet; 500 to 750 KV - 35 feet; and 750 to 1000 KV - 45 feet. If capacity of the line is not known, a minimum clearance of 45 feet must be maintained. A person must be designated to observe clearance of the equipment and give a timely warning for all operations where it is difficult for an operator to maintain the desired clearance by visual means.

1.07 Excavation:

- **1.07.01** Before excavating, the Contractor must determine whether any underground pipe lines, electric wires, or cables, including fiber optic cable systems are present and located within the Project work area. The Contractor must determine whether excavation on Railway's Property could cause damage to buried cables resulting in delay to Railway traffic and disruption of service to users. Delays and disruptions to service may cause business interruptions involving loss of revenue and profits. Before commencing excavation, the Contractor must contact **BNSF's Field Engineering Representative (_____).** All underground and overhead wires will be considered HIGH VOLTAGE and dangerous until verified with the company having ownership of the line. **It is the Contractor's responsibility to notify any other companies that have underground utilities in the area and arrange for the location of all underground utilities before excavating.**

- **1.07.02** The Contractor must cease all work and notify the Railway immediately before continuing excavation in the area if obstructions are encountered which do not appear on drawings. If the obstruction is a utility and the owner of the utility can be identified, then the Contractor must also notify the owner immediately. If there is any doubt about the location of underground cables or lines of any kind, no work must be performed until the exact location has been determined. There will be no exceptions to these instructions.

- **1.07.03** All excavations must be conducted in compliance with applicable OSHA regulations and, regardless of depth, must be shored where there is any danger to tracks, structures or personnel.

- **1.07.04** Any excavations, holes or trenches on the Railway's Property must be covered, guarded and*/*or protected when not being worked on. When leaving work site areas at night and over weekends, the areas must be secured and left in a condition that will ensure that Railway employees and other personnel who may be working or passing through the area are protected from all hazards. All excavations must be back filled as soon as possible.

1.08 Hazardous Waste, Substances and Material Reporting:

- **1.08.01** If Contractor discovers any hazardous waste, hazardous substance, petroleum or other deleterious material, including but not limited to any non-containerized commodity or material, on or adjacent to Railway's Property, in or near any surface water, swamp, wetlands or waterways, while performing any work under this Agreement, Contractor must immediately: (a) notify the Railway's Resource Operations Center at 1(800) 832-5452, of such discovery: (b) take safeguards necessary to protect its employees, subcontractors, agents and/or third parties: and (c) exercise due care with respect to the release, including the taking of any appropriate measure to minimize the impact of such release.

1.09 Personal Injury Reporting

- **1.09.01** The Railway is required to report certain injuries as a part of compliance with Federal Railroad Administration (FRA) reporting requirements. Any personal injury sustained by an employee of the Contractor, subcontractor or Contractor's invitees while on the Railway's Property must be reported immediately (by phone mail if unable to contact in person) to the Railway's representative in charge of the project. The Non-Employee Personal Injury Data Collection Form contained herein is to be completed and sent by Fax to the Railway at 1(817) 352-7595 and to the Railway’s Project Representative no later than the close of shift on the date of the injury.

NON-EMPLOYEE PERSONAL INJURY DATA COLLECTION

(If injuries are in connection with rail equipment accident/incident, highway rail grade crossing accident or automobile accident, ensure that appropriate information is obtained, forms completed and that data entry personnel are aware that injuries relate to that specific event.)

Injured Person Type:

- ☐ Passenger on train (C)
- ☐ Non-employee (N)
  (i.e., emp of another railroad, or, non-BNSF emp involved in vehicle accident, including company vehicles)
- ☐ Contractor/safety sensitive (F)
- ☐ Contractor/non-safety sensitive (G)
- ☐ Volunteer/safety sensitive (H)
- ☐ Volunteer/other non-safety sensitive (I)
- ☐ Non-trespasser (D) - to include highway users involved in highway rail grade crossing accidents who did not go around or through gates
- ☐ Trespasser (E) - to include highway users involved in highway rail grade crossing accidents who went around or through gates
- ☐ Non-trespasser (J) - Off railroad property

If train involved, Train ID: _____

Transmit attached information to Accident/Incident Reporting Center by:
Fax 1-817-352-7595 or by Phone 1-800-697-6736 **or email to:** Accident-Reporting.Center@BNSF.com

Officer Providing Information:

_____ _____ _____
(Name) (Employee No.) (Phone #)

REPORT PREPARED TO COMPLY WITH FEDERAL ACCIDENT REPORTING REQUIREMENTS AND PROTECTED FROM DISCLOSURE PURSUANT TO 49 U.S.C. 20903 AND 83 U.S.C. 490

BNSF RAILWAY

NON-EMPLOYEE PERSONAL INJURY DATA COLLECTION

INFORMATION REQUIRED TO BE COLLECTED PURSUANT TO FEDERAL REGULATION. IT SHOULD BE USED FOR COMPLIANCE WITH FEDERAL REGULATIONS ONLY AND IT IS NOT INTENDED TO PRESUME ACCEPTANCE OF RESPONSIBILITY OR LIABILITY.

1. Accident City/St: _____ 2. Date: _____ Time: _____

County: _____ 3. Temperature: _____ 4. Weather: _____
(if non BNSF location)

Mile Post / Line Segment: _____

5. Driver's License No (and state) or other ID: _____ **SSN (required)**: _____

6. Name (last, first, mi): _____

7. Address: _____ City: _____ St: _____ Zip: _____

8. Date of Birth: _____ and/or Age: _____ Gender: _____
(if available)

Phone Number: _____ Employer: _____

9. Injury: _____ 10. Body Part: _____
(i.e., Laceration, etc.) (i.e., Hand, etc.)

11. Description of Accident (To include location, action, result, etc.): _____

_____

_____

_____

12. Treatment:

- ☐ First Aid Only _____
- ☐ Required Medical Treatment _____
- ☐ Other Medical Treatment _____

13. Dr. Name: _____ Date: _____

14. Dr. Address:

Street: _____ City: _____ St: _____ Zip: _____

15. Hospital Name: _____

16. Hospital Address:

Street: _____ City: _____ St: _____ Zip: _____

17. Diagnosis: _____

REPORT PREPARED TO COMPLY WITH FEDERAL ACCIDENT REPORTING REQUIREMENTS AND PROTECTED FROM DISCLOSURE PURSUANT TO 49 U.S.C. 20903 AND 83 U.S.C. 490

EXHIBIT "C-1"

Agreement Between
BNSF RAILWAY COMPANY
and the
CONTRACTOR

Railway File: _____

Agency Project: _____

Contractor's Name (hereinafter called "Contractor"), has entered into an agreement (hereinafter called "Agreement") dated _____, 201_, with **Agency's Name** for the performance of certain work in connection with the following project:_____ Performance of such work will necessarily require Contractor to enter **BNSF RAILWAY COMPANY** (hereinafter called "Railway") right of way and property (hereinafter called "Railway Property"). The Agreement provides that no work will be commenced within Railway Property until the Contractor employed in connection with said work for **Agency's Name** (i) executes and delivers to Railway an Agreement in the form hereof, and (ii) provides insurance of the coverage and limits specified in such Agreement and Section 3 herein. If this Agreement is executed by a party who is not the Owner, General Partner, President or Vice President of Contractor, Contractor must furnish evidence to Railway certifying that the signatory is empowered to execute this Agreement on behalf of Contractor.

Accordingly, in consideration of Railway granting permission to Contractor to enter upon Railway Property and as an inducement for such entry, Contractor, effective on the date of the Agreement, has agreed and does hereby agree with Railway as follows:

1) RELEASE OF LIABILITY AND INDEMNITY

Contractor hereby waives, releases, indemnifies, defends and holds harmless Railway for all judgments, awards, claims, demands, and expenses (including attorneys' fees), for injury or death to all persons, including Railway's and Contractor's officers and employees, and for loss and damage to property belonging to any person, arising in any manner from Contractor's or any of Contractor's subcontractors' acts or omissions or any work performed on or about Railway's property or right-of-way. **THE LIABILITY ASSUMED BY CONTRACTOR WILL NOT BE AFFECTED BY THE FACT, IF IT IS A FACT, THAT THE DESTRUCTION, DAMAGE, DEATH, OR INJURY WAS OCCASIONED BY OR CONTRIBUTED TO BY THE NEGLIGENCE OF RAILWAY, ITS AGENTS, SERVANTS, EMPLOYEES OR OTHERWISE, EXCEPT TO THE EXTENT THAT SUCH CLAIMS ARE PROXIMATELY CAUSED BY THE INTENSIONAL MISCONDUCT OR GROSS NEGLIGENCE OF RAILWAY.**

THE INDEMNIFICATION OBLIGATION ASSUMED BY CONTRACTOR INCLUDES ANY CLAIMS, SUITS OR JUDGMENTS BROUGHT AGAINST RAILWAY UNDER THE FEDERAL EMPLOYEE'S LIABILITY ACT, INCLUDING CLAIMS FOR STRICT LIABILITY UNDER THE SAFETY APPLIANCE ACT OR THE LOCOMOTIVE INSPECTION ACT, WHENEVER SO CLAIMED.

Contractor further agrees, at its expense, in the name and on behalf of Railway, that it will adjust and settle all claims made against Railway, and will, at Railway's discretion, appear and defend any suits or actions of law or in equity brought against Railway on any claim or cause of action arising or growing out of or in any manner connected with any liability assumed by Contractor under this Agreement for which Railway is liable or is alleged to be liable. Railway will give notice to Contractor, in writing, of the receipt or dependency of such claims and thereupon Contractor must proceed to adjust and handle to a conclusion such claims, and in the event of a suit being brought against Railway, Railway may forward summons and complaint or other process in connection therewith to Contractor, and Contractor, at Railway's discretion, must defend, adjust, or settle such suits and protect, indemnify, and save harmless Railway from and against all damages, judgments, decrees, attorney's fees, costs, and expenses growing out of or resulting from or incident to any such claims or suits.

In addition to any other provision of this Agreement, in the event that all or any portion of this Article shall be deemed to be inapplicable for any reason, including without limitation as a result of a decision of an applicable court, legislative enactment or regulatory order, the parties agree that this Article shall be interpreted as requiring Contractor to indemnify Railway to the fullest extent permitted by applicable law. **THROUGH THIS AGREEMENT THE PARTIES EXPRESSLY INTEND FOR CONTRACTOR TO INDEMNIFY RAILWAY FOR RAILWAY'S ACTS OF NEGLIGENCE.**

It is mutually understood and agreed that the assumption of liabilities and indemnification provided for in this Agreement survive any termination of this Agreement.

2) TERM

This Agreement is effective from the date of the Agreement until (i) the completion of the project set forth herein, and (ii) full and complete payment to Railway of any and all sums or other amounts owing and due hereunder.

3) INSURANCE

Contractor shall, at its sole cost and expense, procure and maintain during the life of this Agreement the following insurance coverage:

A. Commercial General Liability insurance. This insurance shall contain broad form contractual liability with a combined single limit of a minimum of $2,000,000 each

occurrence and an aggregate limit of at least $4,000,000 but in no event less than the amount otherwise carried by the Contractor. Coverage must be purchased on a post 2004 ISO occurrence form or equivalent and include coverage for, but not limit to the following:

- Bodily Injury and Property Damage
- Personal Injury and Advertising Injury
- Fire legal liability
- Products and completed operations

This policy shall also contain the following endorsements, which shall be indicated on the certificate of insurance:

- The definition of insured contract shall be amended to remove any exclusion or other limitation for any work being done within 50 feet of railroad property.
- Waver of subrogation in favor of and acceptable to Railway.
- Additional insured endorsement in favor of and acceptable to Railway.
- Separation of insureds.
- The policy shall be primary and non-contributing with respect to any insurance carried by Railway.

It is agreed that the workers' compensation and employers' liability related exclusions in the Commercial General Liability insurance policy(s) required herein are intended to apply to employees of the policy holder and shall not apply to ***Railway*** employees.

No other endorsements limiting coverage as respects obligations under this Agreement may be included on the policy with regard to the work being performed under this agreement.

B. Business Automobile Insurance. This insurance shall contain a combined single limit of at least $1,000,000 per occurrence, and include coverage for, but not limited to the following:

- Bodily injury and property damage
- Any and all vehicles owned, used or hired

The policy shall also contain the following endorsements or language, which shall be indicated on the certificate of insurance:

- Waiver of subrogation in favor of and acceptable to Railway.
- Additional insured endorsement in favor of and acceptable to Railway.
- Separation of insureds.
- The policy shall be primary and non-contributing with respect to any insurance carried by Railway.

C. Workers Compensation and Employers Liability insurance including coverage for, but not limited to:

- Contractor's statutory liability under the worker's compensation laws of the state(s) in which the work is to be performed. If optional under State law, the insurance must cover all employees anyway.
- Employers' Liability (Part B) with limits of at least $500,000 each accident, $500,000 by disease policy limit, $500,000 by disease each employee.

This policy shall also contain the following endorsements or language, which shall be indicated on the certificate of insurance:

- Waiver of subrogation in favor of and acceptable to Railway.

D. Railroad Protective Liability insurance naming only the ***Railway*** as the Insured with coverage of at least $2,000,000 per occurrence and $6,000,000 in the aggregate. The policy Must be issued on a standard ISO form CG 00 35 12 04 and include the following:

- Endorsed to include the Pollution Exclusion Amendment
- Endorsed to include the Limited Seepage and Pollution Endorsement.
- Endorsed to remove any exclusion for punitive damages.
- No other endorsements restricting coverage may be added.
- The original policy must be provided to the ***Railway*** prior to performing any work or services under this Agreement
- Definition of "Physical Damage to Property" shall be endorsed to read: "means direct and accidental loss of or damage to all property owned by any named insured and all property in any named insured' care, custody, and control arising out of the acts or omissions of the contractor named on the Declarations.

In lieu of providing a Railroad Protective Liability Policy, Licensee may participate (if available) in Railway's Blanket Railroad Protective Liability Insurance Policy.

Other Requirements:

Where allowable by law, all policies (applying to coverage listed above) shall contain no exclusion for punitive damages.

Contractor agrees to waive its right of recovery against ***Railway*** for all claims and suits against ***Railway***. In addition, its insurers, through the terms of the policy or policy endorsement, waive their right of subrogation against ***Railway*** for all claims and suits. Contractor further waives its right of recovery, and its insurers also waive their right of subrogation against ***Railway*** for loss of its owned or leased property or property under Contractor's care, custody or control.

Allocated Loss Expense shall be in addition to all policy limits for coverages referenced above.

Contractor is not allowed to self-insure without the prior written consent of ***Railway.*** If granted by ***Railway***, any self-insured retention or other financial responsibility for claims shall be covered directly by Contractor in lieu of insurance. Any and all ***Railway*** liabilities that would otherwise, in accordance with the provisions of this Agreement, be covered by Contractor's insurance will be covered as if Contractor elected not to include a deductible, self-insured retention or other financial responsibility for claims.

Prior to commencing services, Contractor shall furnish to ***Railway*** an acceptable certificate(s) of insurance from an authorized representative evidencing the required coverage(s), endorsements, and amendments. The certificate should be directed to the following address:

BNSF Railway Company
c/o CertFocus
P.O. Box 140528
Kansas City, MO 64114
Toll Free: 877-576-2378
Fax number: 817-840-7487
Email: BNSF@certfocus.com
www.certfocus.com

Contractor shall notify ***Railway*** in writing at least 30 days prior to any cancellation, non-renewal, substitution or material alteration.

Any insurance policy shall be written by a reputable insurance company acceptable to ***Railway*** or with a current Best's Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the service is to be provided.

If coverage is purchased on a "claims made" basis, Contractor hereby agrees to maintain coverage in force for a minimum of three years after expiration, cancellation or termination of this Agreement. Annually Contractor agrees to provide evidence of such coverage as required hereunder.

Contractor represents that this Agreement has been thoroughly reviewed by Contractor's insurance agent(s)/broker(s), who have been instructed by Contractor to procure the insurance coverage required by this Agreement.

Not more frequently than once every five years, ***Railway*** may reasonably modify the required insurance coverage to reflect then-current risk management practices in the railroad industry and underwriting practices in the insurance industry.

If any portion of the operation is to be subcontracted by Contractor, Contractor shall require that the subcontractor shall provide and maintain insurance coverage(s) as set forth herein,

naming ***Railway*** as an additional insured, and shall require that the subcontractor shall release, defend and indemnify ***Railway*** to the same extent and under the same terms and conditions as Contractor is required to release, defend and indemnify ***Railway*** herein.

Failure to provide evidence as required by this section shall entitle, but not require, ***Railway*** to terminate this Agreement immediately. Acceptance of a certificate that does not comply with this section shall not operate as a waiver of Contractor's obligations hereunder.

The fact that insurance (including, without limitation, self-insurance) is obtained by Contractor shall not be deemed to release or diminish the liability of Contractor including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by ***Railway*** shall not be limited by the amount of the required insurance coverage.

In the event of a claim or lawsuit involving ***Railway*** arising out of this agreement, Contractor will make available any required policy covering such claim or lawsuit.

These insurance provisions are intended to be a separate and distinct obligation on the part of the Contractor. Therefore, these provisions shall be enforceable and Contractor shall be bound thereby regardless of whether or not indemnity provisions are determined to be enforceable in the jurisdiction in which the work covered hereunder is performed.

For purposes of this section, ***Railway*** shall mean “Burlington Northern Santa Fe LLC”, “BNSF Railway Company” and the subsidiaries, successors, assigns and affiliates of each.

4) SALES AND OTHER TAXES

In the event applicable sales taxes of a state or political subdivision of a state of the United States are levied or assessed in connection with and directly related to any amounts invoiced by Contractor to Railway (“Sales Taxes”), Railway shall be responsible for paying only the Sales Taxes that Contractor separately states on the invoice or other billing documents provided to Railway; *provided, however,* that (i) nothing herein shall preclude Railway from claiming whatever Sales Tax exemptions are applicable to amounts Contractor bills Railway, (ii) Contractor shall be responsible for all sales, use, excise, consumption, services and other taxes which may accrue on all services, materials, equipment, supplies or fixtures that Contractor and its subcontractors use or consume in the performance of this Agreement, (iii) Contractor shall be responsible for Sales Taxes (together with any penalties, fines or interest thereon) that Contractor fails to separately state on the invoice or other billing documents provided to Railway or fails to collect at the time of payment by Railway of invoiced amounts (except where Railway claims a Sales Tax exemption), and (iv) Contractor shall be responsible for Sales Taxes (together with any penalties, fines or interest thereon) if Contractor fails to issue separate invoices for each state in which Contractor delivers goods, provides services or, if applicable, transfers intangible rights to Railway.

Upon request, Contractor shall provide Railway satisfactory evidence that all taxes (together with any penalties, fines or interest thereon) that Contractor is responsible to pay under this

Agreement have been paid. If a written claim is made against Contractor for Sales Taxes with respect to which Railway may be liable for under this Agreement, Contractor shall promptly notify Railway of such claim and provide Railway copies of all correspondence received from the taxing authority. Railway shall have the right to contest, protest, or claim a refund, in Railway's own name, any Sales Taxes paid by Railway to Contractor or for which Railway might otherwise be responsible for under this Agreement; provided, however, that if Railway is not permitted by law to contest any such Sales Tax in its own name, Contractor shall, if requested by Railway at Railway's sole cost and expense, contest in Contractor's own name the validity, applicability or amount of such Sales Tax and allow Railway to control and conduct such contest.

Railway retains the right to withhold from payments made under this Agreement amounts required to be withheld under tax laws of any jurisdiction. If Contractor is claiming a withholding exemption or a reduction in the withholding rate of any jurisdiction on any payments under this Agreement, before any payments are made (and in each succeeding period or year as required by law), Contractor agrees to furnish to Railway a properly completed exemption form prescribed by such jurisdiction. Contractor shall be responsible for any taxes, interest or penalties assessed against Railway with respect to withholding taxes that Railway does not withhold from payments to Contractor.

5) EXHIBIT "C" CONTRACTOR REQUIREMENTS

The Contractor must observe and comply with all provisions, obligations, requirements and limitations contained in the Agreement, and the Contractor Requirements set forth on Exhibit "C" attached to the Agreement and this Agreement, including, but not be limited to, payment of all costs incurred for any damages to Railway roadbed, tracks, and/or appurtenances thereto, resulting from use, occupancy, or presence of its employees, representatives, or agents or subcontractors on or about the construction site. Contractor shall execute a Temporary Construction Crossing Agreement or Private Crossing Agreement (http://www.bnsf.com/communities/faqs/permits-real-estate/), for any temporary crossing requested to aid in the construction of this Project, if approved by BNSF.

6) TRAIN DELAY

Contractor is responsible for and hereby indemnifies and holds harmless Railway (including its affiliated railway companies, and its tenants) for, from and against all damages arising from any unscheduled delay to a freight or passenger train which affects Railway's ability to fully utilize its equipment and to meet customer service and contract obligations. Contractor will be billed, as further provided below, for the economic losses arising from loss of use of equipment, contractual loss of incentive pay and bonuses and contractual penalties resulting from train delays, whether caused by Contractor, or subcontractors, or by the Railway performing work under this Agreement. Railway agrees that it will not perform any act to unnecessarily cause train delay.

For loss of use of equipment, Contractor will be billed the current freight train hour rate per train as determined from Railway's records. Any disruption to train traffic may cause delays to multiple trains at the same time for the same period.

Additionally, the parties acknowledge that passenger, U.S. mail trains and certain other grain, intermodal, coal and freight trains operate under incentive/penalty contracts between Railway and its customer(s). Under these arrangements, if Railway does not meet its contract service commitments, Railway may suffer loss of performance or incentive pay and/or be subject to penalty payments. Contractor is responsible for any train performance and incentive penalties or other contractual economic losses actually incurred by Railway which are attributable to a train delay caused by Contractor or its subcontractors.

The contractual relationship between Railway and its customers is proprietary and confidential. In the event of a train delay covered by this Agreement, Railway will share information relevant to any train delay to the extent consistent with Railway confidentiality obligations. The rate then in effect at the time of performance by the Contractor hereunder will be used to calculate the actual costs of train delay pursuant to this agreement.

Contractor and its subcontractors must give Railway's representative (_____) _____ (__) weeks advance notice of the times and dates for proposed work windows. Railway and Contractor will establish mutually agreeable work windows for the project. Railway has the right at any time to revise or change the work windows due to train operations or service obligations. Railway will not be responsible for any additional costs or expenses resulting from a change in work windows. Additional costs or expenses resulting from a change in work windows shall be accounted for in Contractor's expenses for the project.

Contractor and subcontractors must plan, schedule, coordinate and conduct all Contractor's work so as to not cause any delays to any trains.

IN WITNESS WHEREOF, each of the parties hereto has caused this Agreement to be executed by its duly authorized officer the day and year first above written.

Contractor's Name

By:_____

Printed Name:_____

Title: _____

BNSF Railway Company

By: _____

Name: _____
Manager Public Projects

Accepted and effective this _____day of 20__.

Contact Person: _____

Address: _____

City:_____

State: _____ Zip: _____

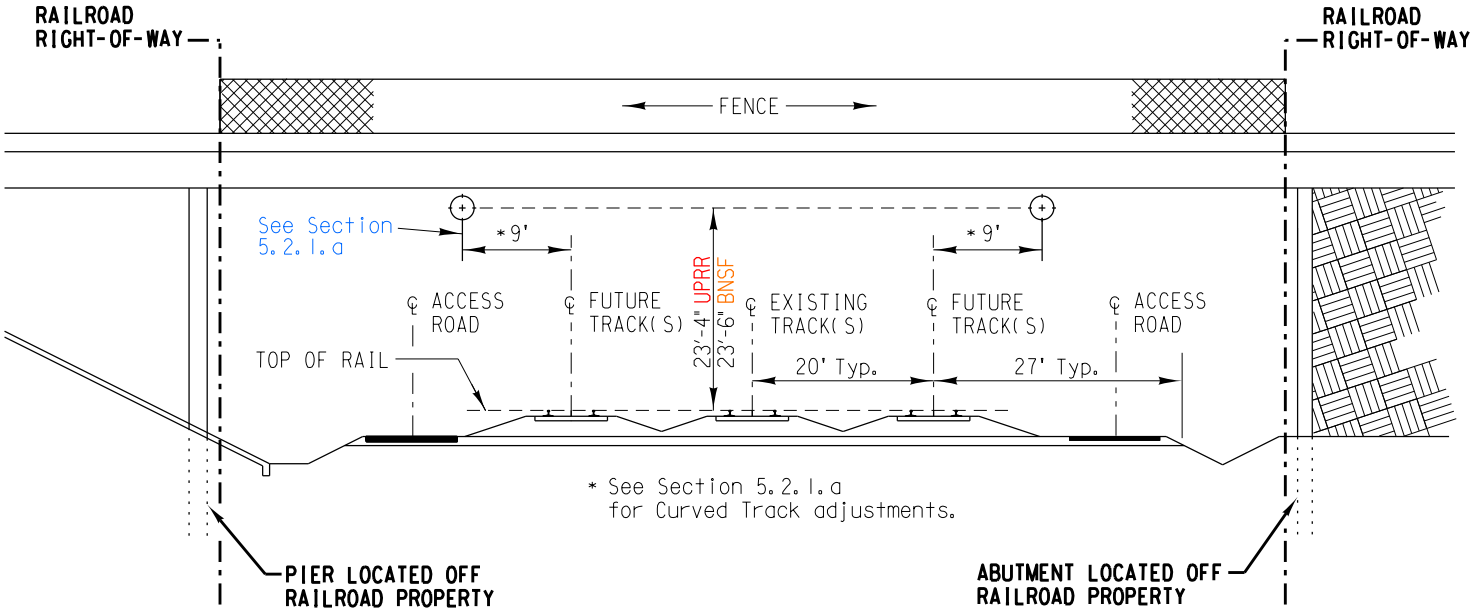
Fax:_____

Phone: _____

E-mail:_____

UNION PACIFIC RAILROAD - BNSF RAILWAY

GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECTS



The above depiction is for example purposes only. The individual dimensions are the minimum required. Project specific design plans require the review and prior approval by the Railroad.

It is the intent of the Railroad to maintain the right-of-way free of permanent obstructions such as overhead bridge piers, earth fills and drainage facilities which do not support Railroad infrastructure. Permanent obstructions restrict the Railroad's ability to perform maintenance and expand service to existing and future customers. Keeping the right-of-way unobstructed is not a betterment for the Railroad, it is a necessity.

BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

COVER PAGE

FILE OWNER: UPRR	DATE: 1/05/16
AUTHORED BY: R. FRIESEN	CHECKED BY: A. HURST

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APPENDIX

1. INTRODUCTION

1.1 Purpose

The purpose of these Guidelines is to inform Applicants, Contractors and other parties concerned with Railroad policies of the requirements and standards for the design and construction of Grade Separation Projects. Compliance with these Guidelines is required to expedite the review and approval of design and construction submittals by the Railroad.

Railroad review is limited exclusively to potential impacts on existing and future Railroad operations. The Railroad accepts no responsibility for errors or omissions in the design of grade separation projects by others.

1.2 Definitions

Access Road:
A road used and controlled by the Railroad for maintenance, inspection and repair.

Applicant:
Any party proposing a grade separation project on Railroad right-of-way or other Railroad operating location, regardless of track being active or out of service.

AREMA:
The current edition of the American Railway Engineering and Maintenance-of-Way Association Manual for Railway Engineering.

AASHTO:
The current edition of the American Association of State Highway and Transportation Officials Standard Specifications for Highway Bridges.

BNSF:
Burlington Northern Sante Fe Railway

C & M Agreement:
A Construction and Maintenance Agreement that has been negotiated between the Railroad and the Applicant that addresses all the duties and responsibilities of each party regarding the construction of the proposed grade separation and the maintenance requirements after construction of the said structure.

Construction Documents:
Design plans and calculations, project and/or standard specifications, geotechnical report and drainage report.

Construction Window:
A timeframe in which construction or maintenance can be performed by the Contractor with the required presence of a Flagman.

Contractor:
The individual, partnership, corporation or joint venture and all principals and representatives (including Applicant's subcontractors) with whom the contract is made by the Applicant for the construction of the Grade Separation Project.

Crossover:
A track connection which allows trains and on-track equipment to cross from one track to another.

Engineer-of-Record:
The Professional Engineer that develops the criteria and concept for the project and is responsible for the preparation of the Plans and Specifications.

Final Plans:
100% plans signed & stamped by the Engineer-of-Record.

Flagman:
A qualified employee of the Railroad providing protection to and from Railroad operations per Railroad requirements.

Guidelines:
Information contained in this document or referenced in AREMA or AASHTO.

Grade Separation Project:
A project that includes an Overhead or Underpass Structure that crosses the Railroad right-of-way or other Railroad operating location regardless of track status being active or out of service.

Main Track:

A principle track, designated by Timetable or special instructions, upon which train movements are generally authorized and controlled by the train dispatcher. Main Track must not be occupied without proper authority.

Multiple Main Tracks:

Two or more parallel or adjacent Main Tracks.

Overhead Structure:

A Roadway and/or Trail Structure over the Railroad right-of-way.

Railroad Local Representative:

The individual designated by the Railroad as the primary point of contact for the project.

Railroad:

Refers to BNSF Railway and/or Union Pacific Railroad.

Railroad Manager of Track Maintenance (MTM):

Railroad representative responsible for maintenance of the track and supporting subgrade.

Railroad Right-of-Entry Agreement:

An agreement between the Railroad and an Applicant or a Contractor allowing access to Railroad property.

Railroad Right-of-Way:

The private property limits owned by the Railroad.

Shoofly:

A temporary track built to bypass an obstruction or construction site.

Siding:

A track connected to the Main Track used for storing or passing trains.

Timetable:

A Railroad publication with instructions on train, engine or equipment movement. It also contains other essential Railroad information.

Trail:

A pathway impacting Railroad right-of-way or other Railroad operating locations regardless of track status being active or out of service. This includes pedestrian, bicycle, approved motorized recreational equipment and equestrian uses.

Underpass Structure:

Railroad Structure over a Roadway and/or Trail.

UPRR:

Union Pacific Railroad

Yard:

A system of tracks of defined limits, other than main tracks and sidings, for storing and sorting cars and other purposes.

Yard Limits:

A portion of main track designated by “yard limit” signs and included in the timetable special instructions or a track bulletin.

1.3 Guidelines and References

These Guidelines are provided for reference only and are subject to revision without notice. These Guidelines cannot be taken as authority to construct. Railroad approval of construction documents, execution of a C & M Agreement and Railroad Right-of-Entry Agreement (if applicable) are required prior to beginning construction.

These Guidelines supplement the current (AREMA) Manual for Railway Engineering, AASHTO and State Railroad Regulatory Body requirements.

The AREMA Manual is available from:
American Railway Engineering and Maintenance-of-Way Association
4501 Forbes Boulevard, Suite 130
Lanham, MD 20706
Phone: (301) 459-3200
FAX: (301) 459-8077
www.arema.org

The specific Railroad requirements for a Grade Separation Project, as addressed in this document, shall be followed at all locations where the Railroad operates, regardless of track ownership or track status, either active or out of service.

Any items affecting Railroad property not covered in these Guidelines shall be subject to the Railroad's prior review and approval.

All new or modified Overhead Structures or Underpass Structures shall be designed in accordance with the most current policies, requirements and standards of the Railroad. These guidelines do not apply to existing structures which are not impinged upon by the proposed project.

2. AGREEMENTS

2.1 Applicant and Contractor Responsibility

a. The Applicant, at its expense, shall be solely responsible for all costs, design, construction, future replacement, maintenance and serviceability of the proposed Grade Separation Project, except as noted otherwise in the C & M Agreement with the Railroad. The Applicant shall develop design plans, including, without limitation, all procedures necessary to construct and maintain the proposed Grade Separation Project, which cause no interruption to Railroad operations during and after construction. The Applicant must verify with the Railroad Local Representative their receipt of the latest version of these guidelines prior to developing Construction Documents.
b. The Applicant shall be responsible for obtaining all Federal, State, Local and other permits for construction of the Grade Separation Project.
    1. The Engineer-of-Record shall be registered in the state of the project location. The Engineer-of-Record may be Applicant's in-house staff or a consultant retained by the Applicant. The Contractor shall not employ the Engineer-of-Record as the Contractor's Engineer-of-Record or as a specialty engineer, with the exception of design build projects.
c. The Applicant and/or the Engineer-of-Record have the ultimate responsibility and liability for the Construction Documents and liability for damages to Railroad property during and after construction of the project.
d. The Contractor is responsible to comply with the construction documents prepared by the Applicant. The Contractor shall comply with Railroad requirements stated in the C & M Agreement prior to the commencement of any construction. The Contractor shall develop work plans that ensure the track(s) remain open to train traffic per Railroad requirements as stated in the C & M Agreement and meet the requirements of the Railroad Right-of-Entry Agreement (if applicable).
e. The Applicant is responsible for the security and safety of all people including the general public and trespassers, and the protection of Railroad infrastructure within the limits of the proposed Grade Separation

Project. Any damage to Railroad property such as track, signal equipment or structure could result in a train derailment. All damages must be reported immediately to the Railroad Local Representative and to the local Railroad Manager of Track Maintenance (MTM).

f. The Applicant and Contractor are required to meet all safety standards as defined by the Railroad, Federal Railroad Administration (FRA), Division of Occupational Safety and Health Administration (OSHA), Local, State and Federal Governments and the State Railroad Regulatory Body.

2.2 Railroad Right-of-Way

a. The Railroad right-of-way accommodates existing tracks, drainage systems, multiple utilities, Access Roads, Railroad support facilities and space for future track(s).
b. The proposed Grade Separation Project shall not limit existing or future Railroad operating capacity and utility accommodations within the Railroad right-of-way.
c. Limits of Railroad right-of-way are to be located by the Applicant and identified on the plans.

2.3 Railroad Right-of-Entry Agreement

The Applicant, Contractor or their representatives must sign the Railroad's Contractor's Right-of-Entry Agreement (if applicable) and/or obtain a valid Right-of-Entry permit from the Railroad and comply with all Railroad requirements when working within the Railroad right-of-way limits.

2.4 Construction and Maintenance Agreement

a. Any Overhead Structure or Underpass Structure impacting the Railroad will require the Applicant to execute a C & M Agreement prior to any construction on Railroad right-of-way.
b. The C & M agreement shall include a funding source, cost estimate, insurance and indemnification requirements, method of payment, responsibility for design, construction, ownership, maintenance and future replacement.
c. The Applicant shall own, maintain and replace the proposed Overhead Structure or Underpass Structure at no cost to the Railroad and with no interruption to Railroad operations during construction, maintenance and future replacement of the Structure.
d. The Railroad shall, at its own expense, be responsible for ownership and maintenance of ballast and track components only.
e. The Applicant shall provide, at no cost to the Railroad, traffic control and/or detours to allow occupation of the roadway by the Railroad or its Contractor to perform periodic inspections as required.
f. The Applicant is responsible for performing the work in accordance with the terms specified in the C & M Agreement. This responsibility includes, without limitation, compliance with all Railroad requirements, Federal, State and Local Laws and applicable county or municipal ordinances and regulations.

2.5 Railroad Review of Submittals and Construction Observation

a. Prior to any review, the Railroad Local Representative shall receive written notice from the Applicant agreeing to pay all costs associated with the Railroad's, or its consultant's, review of the design plans, construction documents and construction monitoring phase.
b. The estimated costs shall not be the upper limit of the costs but will provide a guideline for budgeting purposes. Regardless, all actual costs incurred by the Railroad, or its consultants, during the review of design plans, construction documents, and construction monitoring phase shall be fully recoverable from the Applicant.

2.6 Approval Expiration

Written approval of Final Plans will be valid for two years from the date of approval by the Railroad unless otherwise provided in the C&M Agreement. If construction of the approved structure has not begun within this period, the Railroad shall have the right to perform a design review, at the cost of the Applicant, to confirm compliance with the Railroad's then-current Guidelines before a Railroad Right-of–Entry Agreement is issued to begin construction.

3. SUBMITTALS

3.1 Railroad Review Process

All design and construction submittals shall be transmitted to the Railroad Local Representative. The submittal will then be forwarded to the Railroad's engineering department. The engineering department shall have the option of reviewing the project documents in-house or by using an outside consultant. During the review process, the Railroad Local Representative shall be the point of contact for resolving outstanding issues.

It should be noted that the Railroad's review and approval of construction documents does not relieve the Applicant and/or Engineer-of-Record from the ultimate responsibility and liability for damages to Railroad property during and after construction of the proposed Grade Separation Project, nor does it relieve the Applicant and the Contractor from their responsibilities, obligations and/or liabilities under the C & M agreement and the Contractor's Right-of-Entry Agreement (if applicable). Railroad's approval of construction documents will be given with the understanding that the Railroad makes no representations or warranty as to the validity, accuracy, legal compliance or completeness of such documents and that any reliance by the Applicant, Engineer-of-Record or Contractor on such documents is at the risk of Applicant, Engineer-of-Record and Contractor.

3.2 Requests for Exception

a. Requests for exception to Railroad requirements shall be submitted to the Railroad for review. The Railroad may approve or reject any request for exception. Approval from the Railroad is required prior to proceeding with an exception.
b. Provide written engineering justification for proposed requests for exception
c. The request should succinctly describe the geometric, structural and other constraints which justify the request. Cost alone should not be the determining factor.

3.3 Contractor Review

The Contractor must review all construction submittals to ensure that the materials and proposed method of construction are compatible with the existing site conditions. The Contractor's work plan must be developed to allow Railroad traffic to remain in service per Railroad requirements and the C&M agreement.

3.4 Applicant and/or Engineer-of-Record Review

The Applicant and/or Engineer-of-Record must review and approve each construction submittal for compliance with the construction documents, AREMA and/or AASHTO, and these Guidelines before forwarding the submittal to the Railroad for review and approval.

3.5 Design Calculations

Design calculations shall be provided for all structures except Overhead Structures. Design Calculations shall be clear, legible and easy to follow. Computer program generated output or data sheet calculations shall be accompanied by input data information and sample calculations to verify the accuracy of the computer output.

3.6 Geotechnical Report

A geotechnical report shall be provided addressing all bridges and retaining walls. The preliminary geotechnical report shall include enough information to support foundation design calculations and backfill design requirements. The final geotechnical report shall have recommendations consistent with those used in the final structural design.

3.7 Drainage Report

A hydraulic and hydrologic report is required if the Grade Separation Project changes existing drainage patterns and/or drainage flow on Railroad right-of-way or at the request of the Railroad. See Section 4.5 for hydraulic criteria to be used.

3.8 Units

All controlling dimensions, elevations, design criteria, assumptions and material stresses shall be expressed in English units. Dual units with English units in parenthesis are acceptable for projects that require the use of Metric units per Federal, State and/or Local government requirements.

3.9 Submittal Schedule

a. The Applicant shall schedule submittals per Tables 3-1 or 3-2 to ensure adequate time for review.
b. Submittals which do not follow the schedules as outlined in these tables may require greater review time than that shown in the table by the Railroad. Partial, incomplete or inadequate submittals will be rejected, thus delaying the approval.
c. The Applicant shall not expect a lesser time for review than indicated in the tables nor shall the Railroad be responsible for delayed design and construction.
d. Revised submittals will follow the same procedure as the initial submittal until all issues are resolved. At the Final Plan submittal, prior to submission to the Railroad, all design plans and calculations, project specifications/Special Provisions, the geotechnical report and the drainage report must be signed and stamped by a registered Professional Engineer familiar with the Railroad requirements and licensed in the State where the project is located.

3.10 Design and Construction Submittals

Following their own internal review and approval the Applicant or their representative shall submit, at a minimum, all applicable submittals defined in Tables 3-1 or 3-2 to the Railroad Local Representative for review and approval. The Engineer-of-Record's review comments must be submitted to the Railroad along with the submittal.

Table 3-1, Overhead Structures

Phase		Type of Submittal	Format	Railroad Review Time
Design	**A**	Concept (Plans and Site Pictures)	PDF only*	4 weeks**
	B	30% (Applicant response, Design Plans, Project Specifications, Drainage Report & Plan, Shoofly Design, Construction Phasing Plans)	PDF only*	4 weeks**
	C	Final Plans (Applicant response, Design Plans, Project Specifications, Drainage Report & Plan, Shoofly Design, Construction Phasing Plans)	PDF only*	4 weeks**
Construction		(Including but not limited to the following) Shoring Falsework Demolition Erection Erosion Control Construction Phasing Plans	PDF only *	4 weeks**

* Submittal Format (The following submittal formats are all required.)
PDF – The pdf shall be formatted to reproduce legibly on 11" x 17" sheets.

** Submittals which do not follow the schedules as outlined in these tables, are partial, incomplete or inadequate may require greater review time.

(cont'd)

A. The Concept submittal shall, at a minimum, include the following:

1. Plan, Elevation and Typical Section of proposed grade separation. See pg 37, Plan No. 711100, sheet 1.
2. Preliminary phasing plan.
3. Photo log with pictures of the proposed project location. Site pictures shall be in all controlling directions including but not limited to, North, East, South and West. The plan view should show a reference location and direction for each picture.

B. The 30% submittal shall, at a minimum, include the following:

1. Applicant response to Railroad review comments on the concept submittal. The 30% submittal shall reflect concept review comments.
2. Design Plans showing a Plan View, Elevation View, Typical Section, Construction Notes and Railroad Profile Grade Diagram. See pg 37 & 38, Plan No. 711100, sheet 1 & 2. Plans shall also indicate structure design criteria and construction methods.
3. Project Specifications and/or Special Provisions, including Railroad coordination requirements.
4. Drainage Report, as required. (See Section 3.7).
5. Shoofly Design. Bridge general plan shall show the location of the shoofly and indicate the footprint of the structure in relation to centerline of shoofly and existing track(s). See Section 4.2.1.
6. Construction Phasing Plans. Construction phasing plans must show all required phasing, construction procedures, temporary shoring layout, controlling dimensions and elevations.

C. The Final Plans submittal shall, at a minimum, include the following:

1. Applicant response to Railroad review comments on the 30% submittal. The Final Plans submittal shall reflect all previous review comments.
2. Design Plans showing a Plan View, Elevation View, Typical Section, Construction Notes and Railroad Profile Grade Diagram. See pg 37 & 38, Plan No. 711100, sheet 1 & 2. Plans shall also indicate structure design criteria and construction methods.
3. Project Specifications and/or Special Provisions, including Railroad coordination requirements.
4. Drainage Report, as required. (See Section 3.7).
5. Shoofly Design. Bridge general plan shall show the location of the shoofly and indicate the footprint of the structure in relation to centerline of shoofly and existing track(s). See Section 4.2.1.
6. Construction Phasing Plans. Construction phasing plans must show all required phasing, construction procedures, temporary shoring layout, controlling dimensions and elevations.

Following review of the Final Plans and resolution of any outstanding issues the Railroad Local Representative may issue a letter of project acceptance.

Table 3-2, Underpass Structures

Phase		Type of Submittals	Format	Railroad Review Time
Design	A	**Concept** (Plans and Site Pictures)	PDF *	4 weeks***
	B	**30%** (Applicant response, Type Selection Report, Design Plan, Shoofly, Construction phasing)	PDF *	
	C	**60%** (Applicant response, Design Plans and Calculations, Geotechnical Report, Project Specifications and/or Special Provisions, Drainage Report and Plan, Shoofly Design, Construction phasing)	PDF *	6 weeks***
	D	**Final Plans** (Applicant response, Design Plans and Calculations, Geotechnical Report, Project Specifications and/or Special Provisions, Drainage Report and Plan, Shoofly Design, Construction phasing)	PDF & 1 hard copy **	4 weeks***
Construction		(Including but not limited to the following) Construction Phasing Plan Shoring Falsework Demolition Erection Erosion Control Construction Material Certifications Concrete Mix Design Structural Steel, Rebar and Strand Certifications 28 day Cylinder Test of Concrete Strength Waterproofing Material Certification Test reports for fracture critical members Foundation Construction Reports (eg.: pile driving records, caisson drilling and/or crosshole sonic log testing for drilled shafts.) Other project specific information as requested by the Railroad	PDF *	4 weeks***
Project Closing	E	**As Built** (Final Plans, Construction Documents, Shop Plans, Pile Driving Records.)	PDF *	N/A

* Submittal Format (The following submittal formats are all required.)
PDF – The pdf shall be formatted to reproduce legibly on 11” x 17” sheets.

** Submittal Format (The following submittal formats are all required.)
PDF – The pdf shall be formatted to reproduce legibly on 11” x 17” sheets.
Hard copy – One legible hard copy on 11” x 17” sheets.

*** Submittals which do not follow the schedules as outlined in these tables, are partial, incomplete or inadequate may require greater review time.

A. The Concept submittal shall, at a minimum, include the following:

1. Plan, Elevation and Typical Section of proposed grade separation.
2. Preliminary phasing plan.
3. Photo log with pictures of the proposed project location. Site pictures shall be in all controlling directions including but not limited to, North, East, South and West. The plan view should show a reference location and direction for each picture.

B. The 30% submittal shall, at a minimum, include the following:

1. Applicant response to Railroad review comments on the concept submittal. The 30% submittal shall reflect concept review comments.
2. Structure Type Selection Report.
3. Design Plans showing a Plan View, Elevation View, Typical Section and Railroad Profile Grade Diagram. See pg 41, Plan No. 711200, sheet 1 for additional details. Plans to include general notes to indicate structure design criteria, construction methods and material compliance specifications.
4. Shoofly Design. Bridge general plan shall show the location of the shoofly and indicate the footprint of the structure in relation to centerline of shoofly. See Section 4.2.1.
5. Construction Phasing Plans. Must show all required phasing, construction procedures, temporary shoring layout, controlling dimensions and elevations.

C. The 60% submittal shall, at a minimum, include the following:

1. Applicant response to Railroad review comments on the 30% submittal. The 60% submittal shall reflect 30% review comments.
2. Design Plans and calculations including superstructure and substructure details, bearing details, deck and waterproofing details, miscellaneous bridge details, and a complete set of structural calculations (See Section 3.5).
3. Geotechnical Reports/recommendations (See Section 3.6).
4. Project Specifications and/or Special Provisions, including Railroad coordination requirements.
5. Drainage Report, as required. (See Section 3.7).
6. Shoofly Design plans and alignment data.
7. Construction Phasing Plans. Must show all required phasing, construction procedures, temporary shoring layout, controlling dimensions and elevations.

D. The Final Plans submittal shall, at a minimum, include the following:

1. Applicant response to Railroad review comments on the 60% submittal.
2. Revisions to plans and calculations as dictated by review of the 60% submittal.
3. Geotechnical Reports (See Section 3.6).
4. Project Specifications and/or Special Provisions, including Railroad coordination requirements.
5. Drainage Report, as required. (See Section 3.7).
6. Shoofly Design plans and alignment data.
7. Construction Phasing Plans. Must show all required phasing, construction procedures, temporary shoring layout, controlling dimensions and elevations.

E. The As-Built submittal shall, at a minimum include the following:

1. As-Built plans.
2. Construction Documents.
3. Shop Plans.
4. Pile Driving Records.

The Applicant or their representative shall submit As-Built documents for all Underpass Structures to the Railroad Local Representative after completion of the bridge structure and prior to closing the project.

4. GENERAL REQUIREMENTS FOR GRADE SEPARATION PROJECTS

The recommendations provided within this Section are intended for all Grade Separation Projects impacting the Railroad. All Grade Separation Projects shall be designed in accordance with the requirements in this section and the specific requirements of all applicable sections within these Guidelines.

4.1 Grade Separation Structure Type

a. The most effective method for reducing interference to Railroad operations for construction of Grade Separation Projects is to use an Overhead Structure and avoid an Underpass Structure.
b. The Railroad discourages Underpass Structures due to safety concerns, possible interruption to Railroad operations, cost, and limitation of future replacement and maintenance.
    1. The Railroad recommends the use of an Overhead Structure which can be designed and constructed without interruption to Railroad operations.
c. If an Underpass Structure is required the project must temporarily reroute train traffic around the construction site by utilizing a Shoofly track subject to local operating review and approval. Shoofly track(s) shall be designed per Section 4.2.1.
d. The analysis of Cost-Benefit ratio shall be fully considered before the structure type is finalized. Cost-Benefit ratio must include all costs associated with interruption to Railroad operations during construction of the proposed structure and/or future replacement structure in addition to future maintenance and other applicable costs. However, economy alone shall not be the governing factor in determining structure type.

4.2 Railroad Operational Requirements

a. The proposed design plans shall allow the Contractor to execute a work plan that enables the track(s) to remain in service and shall cause no interruption to the Railroad's operation during construction.
b. The Applicant shall contact the Railroad Local Representative in the concept design stages to determine the Railroad operation requirements.
c. Construction activities that impact Railroad operations must be coordinated with the Railroad. The proposed staging and phasing must be reviewed and approved by the Railroad at the concept stage and subsequent stages. Special Provisions must include Railroad coordination to improve Contractor understanding of Railroad requirements prior to letting of the proposed Grade Separation project.

4.2.1 Shoofly Track(s)

a. Shoofly track shall be designed for maximum authorized timetable speed, for freight and/or passenger trains, per Railroad track standards and operating requirements.
b. The proposed shoofly must be designed to account for track settlement.
c. Construction staging shall be designed to keep the Railroad tracks fully operational at all times except for pre-approved construction windows during cut over operations.
d. The Applicant must schedule track related submittals per Table 3-1 or 3-2 for Railroad review and approval.
e. Temporary railroad bridges used for a shoofly must be designed in accordance with AREMA and these Guidelines. Temporary open deck bridges with walkways may be used if a protective cover over the roadway and sidewalks is provided or if the roadway is closed to traffic during construction.
f. Applicant must contact the Railroad's Local Representative for additional specific restrictions which may apply to the individual Railroad.

4.2.2 Future Track(s)

It is required to investigate the need for future tracks during the conceptual design phase of grade separation structures. Future tracks shall be shown on the plans. See Section 4.2.3 for future freight and commuter track spacing. Space is to be provided for one or more future tracks as required for long range planning or other operating requirements.

4.2.3 Track Spacing and Shifting

a. The Railroad may require additional clearance to allow shifting of existing tracks according to current track spacing standards, business requirements, operating needs and safety standards. Future track shifting and

direction of shifting must be verified at the preliminary stage of the feasibility study for the proposed Grade Separation Project.

b. Future freight track centerline shall be located a minimum of 20 feet from the centerline of the nearest existing track.
c. Future commuter track centerline shall be located a minimum of 25 feet from the centerline of nearest existing or future freight track.
d. Required spacing for yard or industrial tracks must be verified at the conceptual design stage.

4.2.4 Access Road

a. It is required to investigate the need for access roads during the conceptual design phase of grade separation structures.
b. The outside edge of the Access Road shall be located a minimum of 27 feet from the centerline of the nearest existing or future track.
c. Grade Separation design should include adequate access to existing Railroad facilities along and/or within its right-of-way.
d. Where provisions are made for more than two tracks, space is to be provided for an Access Road on both sides of the tracks.
e. The minimum vertical clearance over the outside of access road(s) shall be 18 feet.
f. For Underpass Structures, access may consist of a:
    1. Road on the bridge.
    If the bridge maintenance Access Road is part of the main railway structure, the structure shall be designed for Cooper E-80 live load to accommodate any future track needs or modifications. A removable barrier shall be provided to separate the nearest track from the Access Road by retaining the ballast.
    2. Road on a separated bridge.
    If the bridge maintenance access is a completely separate structure it shall be designed for applicable AASHTO live load. The Access Road width shall be 13 feet to accommodate one lane with curbs and railing.
    3. Road with turnarounds.
    If a bridge maintenance structure is not provided, an Access Road with a turnaround shall be designed and constructed in conjunction with the grade separation bridge structure. The turnaround pad shall start no further than 30 feet from the end of the bridge structure with the embankment shoulder a minimum of 60 feet from centerline of track. The radius for the turnaround shall be a minimum of 50 feet. Roadway grade shall not exceed 10% and shall terminate at the sub-ballast elevation. The roadway shall have sufficient width to provide for one 13 foot wide road, drainage ditch and shoulder. The turnaround pad and roadway shall be sloped to drain away from the track and carry the water to a drainage system or existing Railroad right-of-way ditches.

4.3 Structure Separation

a. Vertical and horizontal structure separations shall be subject to the Railroad's existing, proposed or future structure type, size, location and other site constraints.
    1. Non Railroad Structures
    All non Railroad structures, with the exception of Access Road structures running adjacent to existing or proposed Railroad structures, shall be outside the Railroad right-of-way limits or as far away as practical.
        i. Clear horizontal separation between parallel structures shall never be less than 25 feet, measured perpendicular from proposed structure(s) to existing or future Railroad structure(s).
        ii. Clear horizontal separation between structures perpendicular to Railroad structures shall never be less than 200 feet from the nearest Railroad structure abutment. Replacement of existing structures on existing roadway alignment may be granted exception, as approved by the Railroad.
    2. Railroad Structures
    Horizontal separation between Railroad structures, including Railroad Access Road structures, shall be a minimum of 5 feet clear.

4.4 Construction

a. Railroad's review and approval of construction submittals defined in Table 3-1 or 3-2 are required.
b. It is essential that the construction proceed with no interference to Railroad operations. Continuity of safe rail operation will be required for the duration of the project.
    1. The most effective method for maintaining Railroad traffic is to temporarily reroute Railroad traffic around the construction site using a Shoofly. Shoofly's shall be designed per Section 4.2.1.
c. The Applicant and it's Contractor are responsible to comply with construction documents approved by the Railroad.
d. The Engineer-of-Record and the Applicant shall evaluate the quality of materials furnished and work performed by the Contractor. All field inspection reports, quality control reports and final As-Built plans shall be submitted to the Railroad.
e. The project site shall be inspected by the Railroad, at the Applicant's expense during construction and toward the end of construction, for final acceptance before the Contractor demobilizes.
f. The review of construction submittals and observation of the construction site shall neither relieve the Applicant, Engineer-of-Record nor the Contractor from the ultimate responsibility and liability for the construction on or damages to Railroad property during and after construction of the project.

4.4.1 Temporary Construction Clearances

a. Temporary horizontal and vertical construction clearances shall be shown on the plans for all Grade Separation Projects. Every effort must be made to design for greater clearances. See pg 36, Plan No. 711000, Sheet 1.
b. Greater clearances may be required for special cases to satisfy local operating conditions such as required sight distance for signals.
c. Reduced temporary construction clearances, which are less than construction clearances defined in Section 4.4.1.1 and 4.4.1.2, will require special review and prior approval by the Railroad.

4.4.1.1 Vertical Construction Clearances

a. A minimum temporary vertical construction clearance of 21'- 6" measured above top of high rail for all tracks shall be provided. The required minimum temporary vertical clearance shall not be violated due to deflection of formwork.

4.4.1.2 Horizontal Construction Clearances

a. A minimum temporary horizontal construction clearance of 15'- 0", measured perpendicular from the centerline of the nearest track, to all physical obstructions including but not limited to: formwork, stockpiled materials, parked equipment, bracing or other construction supports, shall be provided.
b. In curved track the temporary horizontal construction clearances shall increase either 6 inches total or 1.5 inches for every degree of curve, whichever is greater.
c. Temporary horizontal construction clearance shall provide sufficient space for drainage ditches parallel to the standard roadbed section or provide an alternative system that maintains positive drainage.

4.4.2 Shoring

All temporary shoring systems that impact Railroad operations and/or support the Railroad embankment shall be designed and constructed per the Railroad Guidelines for Temporary Shoring.

4.4.3 Demolition

All demolition within the Railroad right-of-way, or which may impact Railroad tracks or operations, shall comply with Railroad demolition requirements.

4.4.4 Erection

a. Erection over the Railroad right-of-way shall be designed to cause no interruption to Railroad operations. Erection plans shall be developed such that they enable the track(s) to remain open to train traffic per Railroad requirements.
b. Prior to the release of Railroad traffic, components erected over Railroad tracks must be supported by falsework or permanent substructure, must be secured and stable and must not be supported by cranes or other construction equipment.

4.4.5 Falsework

Falsework clearance shall comply with minimum temporary construction clearances per Section 4.4.1. The design of all structural members for falsework shall comply with AREMA as well as Railroad requirements.

4.4.6 Vegetation

Vegetation to be planted on or immediately adjacent to Railroad right-of-way shall not become a fire hazard to track-carrying structures and/or an obstruction to inspection and maintenance of the structures.

4.5 Drainage

a. Maintaining Existing Drainage System
    1. The proposed construction shall safely pass high flows and not inhibit low flows, alter the path of the existing drainage system nor increase the drainage on to the Railroad right-of-way. Railroad corridors are constructed with a drainage system designed to keep runoff away from the tracks and ballast. This drainage system includes the parallel ditches along the embankments as well as the bridges, culverts, siphons and other structures that convey runoff beneath the tracks or serve as water-equalizing structures.
b. Changes to Existing Drainage System
    1. When changes in the drainage system are contemplated by new or replacement construction, or because of drainage problems, the system shall be modified as required to accommodate current-condition runoff including any changes that have occurred in the drainage pattern. The size of the proposed drainage system must conform to the Railroad Hydraulic Criteria described in Section 4.5.1 and 4.5.2.
    2. A complete hydrologic and hydraulic study is required whenever new or additional drainage is added to the Railroad right-of-way, or when a drainage structure is scheduled to be added, removed, modified or replaced. The Drainage Report must be in compliance with the requirements described in these Guidelines.

4.5.1 (UPRR only) Hydraulic Criteria for Bridge and Culvert Openings

a. New and replacement structures as well as project effects to existing structures shall meet the following requirements.
    1. Structures shall be sized to not exceed two high water elevations designated “low chord” and “subgrade.” See Table 4-1.
        i. Low Chord – The water surface elevation for a given flood, per Table 4-1, will not rise above the crown of a culvert or low chord of a bridge.
        ii. Subgrade – The energy grade line for a given flood, per Table 4-1, will not rise above the bottom of the adjacent subgrade elevation. The bottom of subgrade is defined as 2’- 3” below base of rail elevation.
    2. Provide the energy grade line, water surface elevation and velocity flow for both the existing and proposed hydraulic opening.
    3. In sizing culverts, to the extent practicable, the maximum headwater-to-diameter ratio must be limited to 1.5.
    4. Both the Railroad criteria and local flood flow criteria shall be evaluated and the more conservative of the two shall be adopted in sizing the replacement.

(cont’d)

Table 4-1, High Water Criteria

	Low Chord (Water Surface Elevation limit)	**Subgrade** (Energy Grade Line limit)
Main Track	50-year flood	100-yr flood
*** Secondary or Industry Track**	25-year flood	50-year flood
Any Track in FEMA Floodplain	50-year flood (UPRR) 100-year flood (BNSF)	100-year flood

* If the proposed structure is immediately adjacent to a main line bridge(s), or will impact mainline track, the low chord criteria and subgrade criteria shall be as required for Main Track.

4.5.2 (UPRR only) Hydraulic Criteria for Drainage Systems Parallel to Railroad Tracks

a. The Subgrade criterion per Section 4.5.1.a.1.ii is to be applied for parallel ditches, open channels and other drainage systems parallel to Railroad tracks.
b. For open ditches conveying Railroad drainage, refer to the following design standards:
    1. UPRR Standard Drawings 0001, 0002 & 0003 (Web Link to Standards).
c. Sufficient lateral and vertical clearance must be provided to accommodate construction of the standard flat-bottom railroad ditch or another ditch section based upon the 100 year event; whichever produces the larger ditch. Anything less than this standard is an exception and must be supported by a hydrology and hydraulics report which requires the prior review and approval of the Railroad.
d. In cases where Railroad's standard hydraulic criteria is not applicable due to topography of the track bed and surrounding ground, the Railroad standard flat-bottom drainage ditch (trapezoidal, 10 ft bottom width, a minimum of 2:1 side slopes, with flowline elevation a minimum of 3 ft below the subgrade elevation) must be incorporated.
e. Where acquisition of adequate right-of-way is a limiting factor or site characteristics justify smaller drainage systems, a request for variance with sufficient supporting documents must be submitted to the Railroad for consideration.
f. The applicant must provide hydraulic data (energy grade line, water surface elevation and velocity) for both existing and proposed conditions.
g. Consideration shall be given to the effects of localized and contraction scour and mitigation, if deemed necessary, and shall be shown on the design plans.

4.5.3 (BNSF only) Hydrologic and Hydraulic Design Criteria

a. The BNSF Hydrologic and Hydraulic Design Criteria is available upon request.
b. Systems parallel to Railroad tracks shall be sized according to the BNSF Hydrologic and Hydraulic Design Criteria or the most recent BNSF Standard Roadbed Sections which are available upon request.

4.6 Erosion and Sediment Control

a. General plans for construction within the Railroad right-of-way shall indicate the proposed methods of erosion and sediment control. They must specifically provide means to prevent sediment accumulation in the ditches and culverts, to prevent fouling the track ballast and sub-ballast and to allow free flow of runoff in the drainage systems during and after construction.
b. Corrective and/or mitigative construction due to the fouling of Railroad ballast, sub-ballast, ditches, culverts or drainage systems will be at the Applicant's expense. It is the Applicant's responsibility to document the condition of the site before and after construction.
c. Existing track ditches shall be maintained open at all times throughout the construction period. After the construction is complete, all erosion and sediment control devices must be removed, all sediment deposits removed and the entire project area restored to the pre-construction condition.
d. The Applicant and/or Contractor are responsible for securing the required permits from Local, State and Federal entities. The Applicant and/or Contractor shall furnish the Railroad all copies of the Storm Water Pollution

Prevention Plan (SWPPP) and approved permits, if required. Further, these documents shall be available on-site during all construction activities. Approval of the erosion and sediment control plan does not relieve the Contractor, Applicant and/or Engineer-of-Record of the ultimate responsibility and liability for compliance with erosion and sediment control requirements.

4.7 Fencing

a. Where laws or orders of public authority prescribe a higher degree of protection than specified in this section, the higher degree of protection so prescribed shall be deemed a part of this section.
b. Fence Types
    1. Chain Link – Openings shall not exceed 2 inches.
    2. Wrought Iron Picket Fence – Openings shall not exceed 3 inches and may be used in locations where trespassers may cut a chain link fence.
    3. All Architectural Fencing – Shall require prior review and approval by the Railroad. Architectural fencing shall not allow an opening of more than 2 inches and shall be designed to prevent climbing.
    4. High Security – Locations with trespasser issues, or for reasons deemed applicable by the Railroad, require high security fence design as approved by the Railroad.
c. Right-of-way fencing
    1. Fencing shall be provided to safeguard the general public and prevent trespassers from entering the Railroad right-of-way and accessing the track or other Railroad structures. Each project will be evaluated on a case by case basis.
        i. Location – Where possible, fencing shall be located outside the limits of the Railroad right-of-way. Fence may be required on top of abutments, wingwalls, retaining walls, and/or along the Railroad right-of-way.
        ii. Height – The fencing shall be a minimum height of 8 feet.
        iii. Length
            1. For projects crossing Railroad Tracks - Fencing shall extend 500 feet, or as site constraints permit, in each direction along the Railroad right-of-way, outside the Railroad right-of-way, at locations as deemed necessary by the Railroad to prevent trespassing.
            2. For projects parallel to Railroad Tracks - Fencing shall extend the entire length of the parallel encroachment on Railroad right-of-way at locations as deemed necessary by the Railroad to prevent trespassing.
d. Overhead grade separation structure fencing, see Section 5.4.c.

4.8 Retaining Walls

a. Retaining walls shall be designed to withstand lateral earth and water pressures, any live load and dead load surcharge, the self-weight of the wall, temperature and shrinkage effects, earthquake load and any other applicable loads.
b. Retained embankment within 50 feet of the centerline of Railroad tracks, supporting Railroad infrastructure and/or within the Railroad right-of-way, shall be of a type approved by the Railroad.
c. Walls Supporting Railroad Embankment - Shall be of a type approved by the Railroad and shall be designed in accordance with Railroad requirements and the general design principles specified in AREMA.
d. Walls Not Supporting Railroad Embankment - Shall be designed in accordance per the appropriate codes and specifications and shall be located outside the Railroad right-of-way limits.
e. Mechanically Stabilized Earth (MSE)
    1. MSE walls are not acceptable for support of railroad embankment.
    2. MSE walls supporting roadways above track level are not acceptable within the Railroad right-of-way or within 50 feet of the centerline of existing or future tracks.
        i. Use of MSE walls on the Railroad right-of-way, not supporting railroad embankment, require written justification and request for variance for the proposed design. Requests for variance may be rejected.
        ii. Abutment Protection - Design of approved requests for MSE walls on the Railroad right-of-way, or within 50 feet of the centerline of existing or future track, shall meet the following requirements. The MSE wall shall be at least 2.5 feet thick for a height of at least 12 feet above the top of rail of

nearest existing or future track. Additionally, the bridge abutments shall be supported by deep foundations.

1. Abutments designed without the additional protection as described above should, at a minimum, be designed to:
   i. Support the future additional weight of the abutment protection as required by Section 4.8.e.ii.
   ii. Account for any additional width of the abutment protection which would reduce the clearance from the centerline of track to the near face of the abutment.
2. Should the applicant require the future pier protection to be designed beyond the requirements of Section 4.8.e.2.ii, such designs shall be incorporated per Section 4.8.e.2.ii.1.
   i. Design requirements greater than required by Section 4.8.e.2.ii shall not be the current nor future responsibility of the Railroad to identify, incorporate and/or design should any pier be deemed necessary of pier protection.

f. Barrier rail and fencing needs for retaining walls are subject to the retaining wall location and Railroad operating requirements. Barrier rail and fencing shall be placed in a manner to safeguard the general public while securing the Railroad right-of-way. Barrier rail and fencing shall be designed per Section 5.4.

4.9 Embankment Surcharge

For all tracks located near a proposed embankment causing the track bed to be surcharged, the contractor must monitor and record top-of-rail elevations and track alignment. The movement shall be within the limits defined by local Railroad Manager of Track Maintenance (MTM). Displacements exceeding the limits defined by the MTM must be immediately reported to the Railroad. The track shall be adjusted as needed at the expense of the Applicant.

4.10 Utilities

a. All new or relocated utilities within the Railroad right-of-way will require Railroads prior review and approval.
b. The Applicant shall be responsible for the identification, location, protection and relocation of all existing overhead and underground utilities. The design plans for the proposed Grade Separation Project shall include complete information on existing and/or proposed relocation of said utilities.
c. A Railroad Right-of-Entry Agreement (if applicable), per Section 2.3, is required to survey or abandon existing utilities within the Railroad corridor. The Railroad has no obligation to provide property for relocated utilities that do not comply with Railroad's standard specifications and requirements including, without limitation, AREMA and these Guidelines.
d. No utility attachments will be permitted on Underpass Structures. Existing or future fiber optic lines shall be placed underground and away from the bridge structure.
e. Appropriate measures for the installation, protection and relocation of fiber optic cables as well as Railroad signal and communication lines shall be addressed in the plans and contract documents. For Railroad requirements and additional information refer to:

UPRR: www.uprr.com
For UPRR Fiber Optic Engineering, "Call Before You Dig", call 1-800-336-9193
For UPRR Grade Crossing/Signal Hotline, call 1-800-848-8715
Please refer to UPRR web site for utility review and approval process and Application.
BNSF: www.bnsf.com
For BNSF Signal/Telecommunications Engineering, "Call Before You Dig", call 1-800-533-2891
For BNSF Grade Crossings, call 1-800-832-5452
Please refer to BNSF web site for utility review and approval process and Application.

4.11 Construction Management Team

For construction of grade separated structures an experienced Construction Management Team will be required during the construction of the bridge structure. Public agencies with qualified bridge structure staff placed on-site during construction will be acceptable; otherwise an outside team must be obtained. Railroad participation during construction is required as indicated in Section 4.11.

The following are minimum requirements for the Construction Management Team:

a. The Applicant is to submit names and qualifications of person(s) to be used in the project and their assigned duties.
b. Provide for a qualified quality control inspector to be present during fabrication of steel spans and any major prestressed concrete items.
c. Provide a list of past projects that each person has actively worked on, including bridge structures (highway or rail), underground facilities and drainage structures.
d. Provide a verifiable list of employment including a current resume for each person in the Construction Management Team.
e. Minimum personnel for the Construction Management Team for a typical grade separation structure will consist of:
    1. Project Manager – Primary point of contact, with experience in managing construction projects, for the Construction Management Team.
    2. Resident Engineer – The resident Engineer for the project shall be a registered Civil Engineer with minimum 5 years experience in the field of bridge construction work.
    3. Construction Engineer – A Construction Engineer performs complex professional engineering work in the management of major construction projects from design through completion.
    4. Construction Inspector – Construction Inspector shall perform continuous inspection of construction projects for compliance with plans, specifications and contract documents. The inspector shall be familiar with concrete and steel bridge construction and have current certifications in the fields of inspection involved.
f. Railroad review and approval of duties, responsibilities, education and experience for each of the above listed members of the Construction Management Team will be required.
g. All field members of the Construction Management Team are required to have passed and comply with the FRA and Railroad requirements regarding Railroad track safety, bridge fall protection and/or contractor orientation training.

4.12 Railroad Site Observation During Construction

In addition to the office review of submittals, site observation will be performed by the Railroad at significant points during construction, including but not limited to the following, if applicable:

a. Underpass Structure
    1. Pre-construction meeting.
    2. Shoring systems that impact the Railroad's operation and/or support the Railroads embankment.
    3. Demolition.
    4. Falsework.
    5. Erection.
    6. Acceptance observation of any shoofly before placing it in service.
    7. Foundation installation.
    8. Reinforcement and concrete placement for main bridge substructure and/or superstructure.
    9. Shop observation of fabricated steel spans and/or any major pre-stressed concrete items either by the Railroad or its designated representative.
    10. Erection of steel or precast concrete bridge superstructure.
    11. Deck installation.
    12. Acceptance of waterproofing (prior to placing ballast).
    13. Final observation and acceptance of the bridge structure.

b. Overhead Structure
    1. Shoring systems that impact the Railroad's operation and/or support the Railroads embankment.
    2. Demolition within the Railroad's right-of-way.
    3. Falsework.
    4. Erection over the Railroad's right-of-way.
    5. Final observation and acceptance of the Overhead Structure.

Site observations are not limited to the milestone events listed above; rather, site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

A construction schedule shall be provided to the Railroad Local Representative for their handling with the engineering department. Inform the Railroad's Local Representative of the anticipated dates when the listed events will occur. This schedule shall be updated as necessary, but at least monthly, so that site visits may be scheduled. Final observation and acceptance of the bridge by the Railroad is required before the contractor leaves the job site.

4.12.1 Full Time Inspector

At the Railroad's discretion, provision for a full-time Inspector to verify compliance with Railroad requirements during construction shall be included in the C&M agreement. The inspector may be a Railroad employee or outside party selected by the Railroad. The cost of this inspection shall be included in the total project cost.

5. OVERHEAD STRUCTURES

(Roadway Structures Over Railroad)

5.1 General Design

a. The Overhead Structure shall be designed according to Sections 1, 2, 3, 4 and 5 of these Guidelines, AREMA and any applicable codes and specifications. Compliance with these Guidelines will expedite the review and approval process of submittals for the Grade Separation Project. Every effort shall be made to utilize a structure type that will not require interruption to Railroad operation during construction.
b. See Section 4 for General Requirements for Grade Separation Projects.
c. The preferred Overhead Structure is one that will span the entire Railroad right-of-way. Designs which do not clear span the Railroad right-of-way and/or do not meet vertical clearance requirements should not progress beyond 30% without the Railroad's written approval. Else, the design will be considered 30% complete by the Railroad regardless of the Applicant's percent of completion.

5.2 Permanent Clearances

a. Permanent clearances shall accommodate future tracks, future track raises, Access Roads and drainage ditch improvements as determined by the Railroad.
b. Proposed permanent vertical and horizontal clearances shall be adjusted so that the sight distance to any Railroad signal is not reduced unless signal(s) are to be relocated as part of the proposed Grade Separation Project.

5.2.1 Permanent Vertical Clearance (under the structure)

a. The minimum permanent vertical clearance shall be 23' - 4" (UPRR) or 23' - 6" (BNSF) measured from the top of the highest rail to the lowest obstruction under the structure.
    1. The extent of the permanent vertical clearance shall be a minimum of 9 feet to the field side of the outer most existing or future tracks, measured perpendicular to the centerline of said tracks. See pg 37, Plan No. 711100, sheet 1.
        i. **In curved track** the above minimum extent of 9 feet shall be increased either 6 inches total or 1.5 inches for every degree of curve, whichever is greater.
    2. The permanent vertical clearance shall extend to cover all existing and future tracks, including the space between.
b. Additional vertical clearance may be required for adjustment of sag in vertical curve, future track raise, flood considerations, construction and maintenance purposes.
c. The profile of the existing top-of-rail, measured 1000 feet each side of proposed Overhead Structure, shall be shown on the plans. If the profile indicates a sag at the proposed bridge location, the vertical clearance from the top of the highest rail to the bridge shall be increased sufficiently to permit raising the track to remove the sag. A note should be added to the profile stating, "The elevation of the existing top-of-rail profile shall be verified before beginning construction." All discrepancies shall be brought to the attention of the Railroad prior to the commencement of construction.

5.2.2 Permanent Horizontal Clearance (under the structure)

a. The need and location for future track per Section 4.2.3 and Access Road per Section 4.2.4, of these Guidelines must be verified with the Railroad in advance of establishing horizontal clearances.
b. The Railroad requires all piers and abutments to be located outside the Railroad right-of-way limits and to comply with Section 4.2.3 and 4.2.4 of these Guidelines.
    1. Where it is impracticable to clear span the Railroad right-of-way, provide written justification and request for variance for the proposed design. The request should succinctly describe geometric, structural and other constraints which make a clear-span alternative unfeasible and shall show that all options have been exhausted. Cost alone should not be the determining factor. See Section 5.6.1 & 5.6.2 for abutment and pier requirements within the Railroad right-of-way.

5.3 Temporary Construction Clearances

The proposed Overhead Structure shall be designed to satisfy temporary construction clearance requirements per Section 4.4.1 and shown on the plans in accordance with pg 36, Plan No. 711000, Sheet 1.

5.4 Barrier Rail and Fence

a. General Requirements
   1. Barrier rail and fence, designed per this section, shall extend to the limits of the Railroad right-of-way or a minimum of 25 feet beyond the centerline of the outermost existing track, future track or Access Road, whichever is greater.
   2. The minimum combined height of a barrier rail with curved fence shall be 8 feet or with a straight fence shall be 10 feet. The barrier rail and fence shall be detailed in accordance with pg 39, Plan No. 711100, sheet 3.

b. Barrier Rail
   1. Cast-in-place concrete barrier rail without openings shall be provided on both sides of the superstructure to retain and redirect errant vehicles. The barrier rail shall keep the deck's storm runoff from being deposited onto Railroad right-of-way.
   2. Barrier rail for Overhead Structures shall be a minimum of 42 inches in height for structures in areas which may be subject to snow removal, and a minimum of 30 inches in height elsewhere.

c. Fence
   1. Fence shall be provided on both sides of all Overhead Structures crossing Railroad right-of-way. It shall be designed to prevent climbing and provide positive means of protecting the Railroad facility and the safety of Railroad employees below from objects being thrown or falling off the structure.
   2. Allowable fence types per Section 4.7.
   3. All parallel Overhead Structures that have a gap of 2 feet or more shall be protected with fencing. Structures with a gap of less than 2 feet shall either have the gap covered or be fenced on both sides.

5.5 Superstructures

a. Deck drains, future utility installation and expansion or hinge joints for the Overhead Structure over Railroad tracks or inside Railroad right-of-way are not permitted.
b. The Railroad discourages the use of cast-in-place superstructures and every effort shall be made to utilize a structure type that will not require interruption to Railroad operation during construction.
c. The use of cast-in-place beams is not permitted. The use of stay in place deck forms for falsework between precast concrete beams or steel girders is encouraged.

5.6 Substructures

a. Footings for all substructures shall be located and designed to account for temporary clearances per Section 5.3 in order to facilitate shoring and footing construction. Temporary shoring shall be designed per Section 4.4.2.
b. Drilled shafts within the influence of track surcharge shall be designed and constructed with a permanent casing to protect the track against cave-in, subsidence and/or displacement of the surrounding ground. The casing shall be designed for live loads due to the Railroad surcharge in addition to all other applicable loads.

5.6.1 Abutments

a. All abutment structures, including toe of abutment slopes, shall be located outside Railroad right-of-way.
b. See Section 4.8.e for MSE wall design. Use of MSE walls to retain abutment fill require that the abutment be supported by deep foundations.
c. Slope layout shall provide for the minimum drainage ditch(es) or culverts required by hydraulic studies in the area; see pg 37, Plan No. 711100, sheet 1 details. The toe of the slope shall terminate at the bottom of drainage ditch and must have a cut-off wall as required to protect the slope from erosion. In all cases, the toe of slope shall be below the finished track or roadway subgrade.

d. Top of paved slopes shall extend a minimum of 2 feet past the abutment wall face, and terminate with either a curb or gutter to divert runoff. Paving shall have a prepared sub-base and filter fabric. Reinforced concrete or grouted rip-rap, with a minimum thickness of 4 inches, shall be placed on prepared sub-base and filter fabric.

5.6.2 Piers

a. Abutments and piers shall be located more than 25 feet (UPRR), 27 feet (BNSF) measured perpendicular from centerline of nearest existing or future track. Piers within Railroad right-of-way, or within 25 feet measured perpendicular from centerline of existing or future track, shall be protected per Section 5.6.3 of these guidelines.
b. A Pier footing within 25 feet of the nearest existing or future track shall be a minimum of 6 feet below the base of rail. This will allow the Railroad to modify its longitudinal drainage system in the future and/or provide an unobstructed area for placing signal, fiber optic or other utilities.
c. For piers with greater than 25 feet of clearance from centerline of nearest existing or future track and located within the Railroad right-of-way, the Railroad requires language in the proposed Agreement mandating the Applicant to fund the construction of pier protection walls on the bridge piers should they ever be required due to additional trackage being constructed by the Railroad or for any other legitimate reason. The Applicant shall also be responsible for future modification to the pier protection wall if the Railroad deems necessary.
    1. Piers designed without pier protection should, at a minimum, be designed to:
        i. Support the future additional weight of the pier protection as required by Section 5.6.3.
        ii. Account for any additional width of the pier protection which would reduce the clearance from the centerline of track to the near face of the pier and/or pier protection.
    2. Should the applicant require the future pier protection to be designed beyond the requirements of Section 5.6.3, such designs shall be incorporated per Section 5.6.2.c.1.
        i. Design requirements greater than required by Section 5.6.3 shall not be the current nor future responsibility of the Railroad to identify, incorporate and/or design should any pier be deemed necessary of pier protection.
d. Inside guardrail may be required, between rails, for all piers located within 18 feet from the nearest existing or future track.

5.6.3 Pier Protection

All replacement or modified structures shall comply with AREMA requirements for pier protection walls.

a. The pier protection wall shall be designed to resist the impact and redirect equipment in case of derailment. Piers shall be protected, by pier protection wall or heavy construction, where existing or future tracks are within 25 feet from the near face of piers.
    1. Pier Protection Wall – The pier protection wall design shall be in accordance with pg 40, Plan No. 711100, sheet 4.
    2. Heavy Construction – Piers with cross-sectional area equal to or greater than that required for the pier protection wall (30 sq. ft.) with the larger of its dimensions parallel to the track.
b. If seismic criteria are considered, pier design may require column isolation from the pier protection wall. The pier protection wall may also be required to be supported on an independent footing.
c. In locations where pier columns and protection walls interfere with drainage, an alternative drainage facility shall be provided to collect and carry water to a drainage system.

5.7 Lighting

a. All new or modified Overhead Structures which cover 80 linear feet of track or more shall provide a lighting system to illuminate the track area. However, at the discretion of the Railroad, lighting shall be provided for all structures covering less than 80 linear feet of track in areas where switching is performed or where high vandalism and/or trespassing have been experienced. Care shall be taken in lighting placement such that trains will not mistake the lights for train signals nor shall they interfere with the train engineer's sight distance for existing signal aspects. All lights shall be directed downward.
b. Provide temporary lighting for all falsework and shoring areas.
c. The minimum lighting design criteria shall be an average of one (1) foot-candle per square foot of structure at the Railroad tracks. Two (2) foot-candle or greater may be required at the discretion of the Railroad. The illuminated area shall extend to the limits of the overhead structure width and the width of the Railroad right-of-

way under the said structure. Fixtures shall be installed on the column walls or caps of the Overhead Structure without reducing the minimum horizontal and vertical clearances.

d. Maintenance of lights shall be the responsibility of the Applicant. Access to perform any maintenance for lights shall be coordinated with the local Railroad operating unit.
e. Structures with separation over ten (10) feet from each other shall be considered as independent structures for the purposes of lighting.

5.8 Drainage and Erosion

a. Drainage from Overhead Structures shall be diverted away from the Railroad right-of-way at all times. Scuppers from the deck shall not be permitted to discharge runoff onto the track or Access Road areas at any time. If drainage of the deck uses downspouts they shall be connected to the storm drain system or allowed to drain into drainage ditches. Concrete splash blocks or aggregate ditch lining will be required at the discharge area of downspouts. Downspouts should be located opposite the track side on piers.
b. If the layout of abutments, piers or columns with protection walls interferes with the drainage ditches, the designer shall provide an alternative method of handling the longitudinal drainage based on a hydraulic study. This may consist of pipe culverts.
c. Track drainage ditch limits shall be shown to scale on the project plans and show the distance from the centerline of nearest track. A typical cross section detail shall be shown on the plans.
d. If the proposed bridge structure will not change the quantity and characteristics of the flow in Railroad ditches and drainage structures, the plans shall include a general note stating so.
e. Lateral clearances must provide sufficient space for construction of the required standard ditches, parallel to the standard roadbed section. Should the proposed construction change the quantity and/or characteristics of flow in the existing ditches, the ditches shall be modified as required to handle the increased runoff. The size of ditches will vary depending upon the flow and terrain and should be designed accordingly.
f. All drainage systems shall be in compliance with Section 4.5. Erosion and Sediment Controls shall be in compliance with Section 4.6.

6 UNDERPASS STRUCTURES

(Railroad Structures Over Roadway)

6.1 General Design

a. The Underpass Structure shall be designed according to Sections 1, 2, 3, 4 and 6 of these Guidelines, the current edition of AREMA and any applicable sections of AASHTO. Compliance with these Guidelines will expedite the review and approval process of submittals for the Grade Separation Project.
b. See Section 4 for General Requirements for Grade Separation Projects.
c. Acceptable superstructure types are shown in Section 6.9.1. The use of Railroad standard spans where possible is encouraged.
d. Only simple spans with ballast decks are allowed. Cast-in-place concrete superstructures are unacceptable.
e. Designs which do not meet the requirements as prescribed by this document should not progress beyond 30% without the Railroad's written approval. Else, the design will be considered 30% complete by the Railroad regardless of the Applicant's percent of completion.

6.1.1 Design Loads

The proposed Underpass Structure shall be designed for the following loads:

a. Live load and Impact as specified in AREMA. For multiple track structures, live load shall be calculated based on the assumption that the track(s) can be located anywhere on the bridge with the horizontal clearance to the handrail defined in Section 6.7.2, and a maximum track spacing of 13 feet. For actual track spacing refer to Sections 4.2.3.
b. Dead load shall include up to 30 inches of ballast from top of deck to the top of tie and all other applicable dead load.
c. Seismic design shall comply with the criteria of the current edition of AREMA, Chapter 9 - Seismic Design for Railway Structures.
d. Additional loads shall be applied as specified in Chapters 8, 9, and 15 of AREMA, as applicable.

6.1.2 Construction Material Requirements

Refer to the BNSF or UPRR Standard Construction Specifications for material requirements. Items not addressed specifically in the Railroad Construction Specifications, and this document, shall be in accordance with the applicable sections of the current edition of AREMA.

6.2 Concrete Requirements

All concrete material, placement and workmanship shall be in accordance with Chapter 8 of the current edition of AREMA and the following:

a. Minimum Compressive Strength – 4000 lb. per square inch at 28 days.
b. Exposed surfaces shall be formed in a manner that will produce a smooth and uniform appearance without rubbing or plastering. Exposed edges of 90 degrees or less are to be chamfered 3/4" x 3/4". Top surface to have a smooth finish, free of all float or trowel marks with the exception that a broom finish be used on all walkway surfaces.
c. Concrete shall be proportioned such that the water-cementitious material ratio (by weight) does not exceed the values in AREMA Table 8-1-9. Precast concrete must contain a minimum of 610 pounds of cementitious material per cubic yard of concrete. Cast-in-place concrete must contain a minimum of 565 pounds of cementitious material per cubic yard of concrete. If fly ash is used with cement it shall be limited to 15% of cementitious material.
d. Cement shall be Type I, II or III Portland Cement per ASTM C150.
e. Course aggregate shall be size no. 67.
f. Fine aggregate shall be natural sand.
g. Admixtures, other than air entrainment, shall not be used without approval by the Railroad.
h. Membrane curing compound shall conform to ASTM C309 Type 2.
i. Apply ThoRoc Epoxy Adhesive 24LPL or approved alternate before placing new concrete against hardened surfaces.

j. For precast elements, the fabricator shall stencil the fabricator's name, date of fabrication, the bridge number, lifting weight and piece mark on each component.
k. The production facility must be pre-certified. Production procedures for the manufacture of precast members shall be in accordance with AREMA and the current edition of the Precast Concrete Institute's Manual MNL 116 for Quality Control.
l. Dimensional tolerances governing the manufacture of precast members shall conform to Division VI, Section 6.4.6 of the Precast Concrete Institute's Manual MNL 116 for Quality Control. Tolerance for location of lifting devices shall be ± ½".
m. The area around all lifting loops shall be recessed so that the loops can be removed to a depth of ¾" and grouted. Properly designed lift anchors are acceptable in lieu of lifting loops.
n. The fabricator will be responsible for the loading and properly securing the precast concrete members for shipment. All concrete components shall be made available, at the Railroad's discretion, for inspection by the Engineer-of-Record and the Railroad at the fabricator's plant prior to shipment.
o. Foam used to create internal voids in a precast concrete member, such as in box beams, shall be securely tied down to prevent displacement during concrete placement.

6.2.1 Reinforcing Steel Requirements

a. Reinforcing Steel shall be deformed, new billet bars per current ASTM A615 Specifications and meet Grade 60 requirements.
b. Reinforcing Steel requiring field welding or bending shall conform to ASTM A706 Specifications, Grade 60.
c. Fabrication of reinforcing steel shall be per Chapter 7 of the CRSI Manual of Standard Practice. Dimensions of bending details shall be out to out of bars.
d. Reinforcing steel is to be blocked to proper location and securely wired against displacement. Tack welding of reinforcing is prohibited. Minimum concrete cover not otherwise noted shall meet current AREMA requirements.

6.2.2 Prestressing Strand Requirements

a. Prestressing strand shall be seven wire, uncoated and low relaxation which is in accordance with the requirements specified in ASTM A416, ACI 318 and AREMA Chapter 8.
b. The strand shall have an ultimate tensile strength of 270 ksi.

6.2.3 Tie Rods

Transverse tie rods shall be provided for all concrete spans utilizing single cell box beams. Wherever possible, transverse tie rods in end and interior diaphragms shall be placed perpendicular to the centerline of webs to facilitate application of transverse post-tensioning.

a. Transverse tie rods shall be used at span ends and intermediately spaced at maximum intervals of 25 feet.
b. The minimum size of tie rod shall be 1-1/4 inches in diameter.
c. Tie rods shall be threaded steel bars with a minimum f_y = 36 ksi.
d. Tie rods shall be tensioned as necessary to ensure that all beam sides are in contact without causing any vertical displacement of the beams from the bearings.
e. The tie rod shall be protected as follows:
    1. Rod, plates and nuts shall be hot dip galvanized per ASTM A123 and A153 specifications
    2. Void between rod and hole shall be pressure grouted.
    3. The tie rod anchor assembly shall be recessed into the concrete and shall have 1 inch minimum grout cover.

6.3 Structural Steel Requirements

a. All major elements subjected to railroad live load shall conform to the following minimum specifications, except as otherwise noted:
    1. Painted structures: ASTM A709 Grade 50.
    2. Unpainted structures: ASTM A709 Grade 50W.
b. All bolted connections shall be made with high strength bolts.
c. Material over 4 inches in thickness that is subject to railroad live load shall conform to the following specifications:

1. Painted structures: ASTM A572 or ASTM A588.
2. Unpainted structures: ASTM A588.

d. Elements not subjected to direct railroad live load (intermediate stiffeners, lateral bracing, diaphragms, ballast curbs, etc.) shall conform to the following specifications:
   1. Painted structures: ASTM A572 Grade 50, ASTM A36 or ASTM A992.
   2. Unpainted structures: ASTM A588.
e. Steel bridge deck shall conform to A709 specifications, Grade 36, non-weathering steel.
f. Deck cover plates and closure plates may be per ASTM A36 specifications.
g. Anchor rods/bolts shall conform to ASTM F1554 specifications.
h. End welded studs shall be C1015, C1017 or C1020 cold drawn steel, which conforms to ASTM A108 specifications.
i. Cover plate, closure plates and anchor rods/bolts shall be galvanized after fabrication in accordance with ASTM A123, thickness Grade 100.
j. Anchor rod washers shall be zinc coated in accordance with ASTM A153 specifications.

6.4 Access Road

a. See Section 4.2.4.

6.5 Skewed Structure

a. On skewed abutments an approach slab is required.
b. The preferred angle of intersection between centerline of track and the centerline of bridge supports, transverse to the track, is 90 degrees.
c. The minimum angle that will be allowed between the centerline of the track and the centerline of bridge supports, transverse to the track, is 75 degrees for a Concrete Superstructure and 60 degrees for a Steel Superstructure.
d. Where conditions preclude compliance with these skew requirements, the skew proposal will require special structural consideration and proof of adequacy.
e. Align bridge piers and abutments as required to comply with the above maximum skew limitations.

6.6 Approach Slab

a. The approach slab shall be a minimum of 12 feet wide or greater as deemed necessary by the Railroad and extend parallel to the track a minimum of 3 feet beyond the back edge of the abutment.
b. The approach slab shall be doweled into the abutment.
c. For skewed bridge abutments, the approach slab shall also be skewed to match the abutment while the other end of the approach slab is perpendicular to the centerline of track.

6.7 Clearances

Permanent clearances shall be correlated with the methods of construction to ensure compliance with the temporary clearances specified in Section 4.4.1.

6.7.1 Permanent Vertical Clearance (under the structure)

a. Underpass Structures shall be designed to ensure that the structure will be protected underneath from oversized or unauthorized loads by providing sufficient vertical clearance and protective devices unless otherwise specified by the Railroad.
b. Provide a minimum vertical clearance over the entire roadway width for all new or reconstructed structures as follows:
   1. 16’-6” for steel superstructure with 5 or more beams or 4 or more deck plate girders per track.
   2. 17’-6” for concrete superstructure or steel through plate girders with bolted bottom flanges.
   3. 20’-0” for steel through plate girders without bolted bottom flanges.
c. The vertical clearance must not be violated due to the deflection of the superstructure, use of a sacrificial impact protection device or any other reason. Additional vertical clearance may be required by the Railroad.
d. Variance from vertical clearances defined above shall require prior review by the Railroad. The variance request shall provide exhaustive justification. Cost shall not be the determining factor.

e. If resurfacing or any other activity is to be performed below the Underpass Structure, the owner of the roadway must submit a request for approval from the Railroad. This request must provide the existing measured and posted clearances of the structure and the proposed configuration after work is completed.

6.7.2 Permanent Horizontal & Vertical Clearances (on the structure)

a. Permanent Horizontal and Vertical Clearances on an Underpass Structure shall conform to the requirements of AREMA, Chapter 15, Part 1 and Section 6.9.5.
   1. **In curved track** the horizontal clearances shall be increased either 6 inches total or 1.5 inches for every degree of curve, whichever is greater.

b. Proposed structures that accommodate multiple tracks, both future and existing tracks, with spacing less than 20 feet shall be designed for a minimum of 20 foot spacing measured centerline to centerline.

6.8 Sacrificial Impact Protection Devices

a. All structures with vertical clearances less than defined in Section 6.7.1 shall be protected with a sacrificial device on each side of the structure.
b. Protection may be in the form of a redundant steel or concrete fascia beam.
c. Diaphragms connecting the redundant beam to the adjacent beams shall be designed to limit their impact and damage, if struck, to the adjacent beams.
d. Concrete fascia beams used as walkways shall be installed adjacent to the proposed structure and may also serve as a sacrificial beam.
   1. If a concrete fascia beam is used as a sacrificial beam it shall have a 6” x 6” x 1” embedded steel angle and shall be adequately anchored to the bridge seats.

6.9 Superstructure

The size of the superstructure must accommodate future track(s) per Section 4.2.3 and Access Road per Section 4.2.4. For typical cross sections of select superstructures see pg 42, 43 & 44, Plan No. 711200, sheets 2, 3 & 4.

6.9.1 Acceptable Superstructure Types

a. The following is a list of Underpass Structure types that are acceptable to the Railroad and listed in the order of preference. The Railroad’s preferred superstructure type is the highest listed feasible alternative unless a detailed type selection report provides justifications that a lower listed alternative is more beneficial to the Railroad and to the project.
   1. Rolled Beams with Steel Plate Deck. There shall be at least five beams per track.
   2. Steel Plate Girders with Steel Plate Deck. There shall be at least four girders per track.
   3. Rolled Beams with Concrete Deck. There shall be at least five beams per track.
   4. Steel Plate Girders with Concrete Deck. There shall be at least four girders per track.
   5. Railroad Standard Prestressed Precast Concrete Double Cell Box Beams.
   6. Prestressed Precast Concrete Box Beams, single or double cell for span of 50 feet or less.
   7. Prestressed Precast Concrete AASHTO Type Beams, (or similar) with Concrete Deck for spans of 100 feet or less.
   8. Steel Through Plate Girders with Steel Plate Deck will be considered by the Railroad when conditions preclude any other structure type.

b. Underpass Structures of deck truss or through truss design are discouraged. However, in unusual circumstances, they will be considered by the Railroad if conditions preclude the use of any other type of structure.
c. Where possible, use of Railroad standard spans are encouraged.

6.9.2 Deck Requirements

a. Deck Type – In all cases when using a steel superstructure the use of a steel deck, per Section 6.3.e, is preferred. The deck must be designed to prevent ballast or other material from falling through.
b. Deck Width – The deck width shall be a function of future track, Access Road, existing track(s), minimum horizontal clearance per Section 6.7.2 and a minimum of 20 foot spacing between centerlines of tracks.

c. Ballast Depth – The minimum required depth of ballast shall be 12 inches measured from the top of deck to the bottom of tie, as required by the Railroad. The Railroad may require 13 inches of ballast depth below timber ties allowing for increased depth of future concrete ties.

d. Ties
   1. (UPRR) Concrete ties on ballast deck structures and approach slabs require a bottom rubber pad meeting UPRR requirements.
   2. (BNSF) Concrete ties on ballast deck structures and approach slabs require BNSF approval and must meet BNSF requirements.

e. Inside Guardrail – Inside guard rails are required across the following bridge span types. Contact the Railroad to receive the guard rail standards.
   1. Thru truss, pony truss, deck trusses on towers, deck plate girders on towers, thru plate girders (for span lengths over 100 feet), movable spans and others structures as designated by the Railroad.

6.9.3 Composite Deck

Steel superstructure design may utilize composite action with the deck according to the following:

a. Steel superstructure with composite concrete deck.
   1. Shall be designed as composite for E80 live load and impact.
   2. Shall be checked as non-composite for E65 live load and impact.
   3. Shall satisfy the AREMA deflection requirements for E80 live load and impact as composite.
   4. Shall have shear transfer devices designed per AREMA.

b. Steel superstructure with composite steel deck.
   1. Shall be designed as non-composite for E80 live load and impact.
   2. Shall satisfy the AREMA deflection requirements for E80 live load and impact as composite.
   3. Shall have shear transfer connections designed per AREMA.

6.9.4 Ballast Retainers, Fences and Handrails

a. Ballast retainers must be designed to prevent ballast from falling on the roadway.
b. Handrails shall be provided on both sides of the deck and shall meet FRA and OSHA requirements.
c. Fencing may be included where required by the Applicant or the Railroad. Handrails and fences shall be simple designs that require minimum maintenance and shall meet clearance requirements of Section 6.7.2.

6.9.5 Walkway

a. Walkway ballast section or walkway structure shall be provided on both sides of Underpass Structures.
   1. Walkway Ballast – The ballast section may be used as walkway at the discretion of the Railroad provided that the clear distance from centerline of track to the ballast retainer is a minimum of 8’-0”.
   2. Walkway Structure – If a non-ballast walkway surface is required, it shall be a minimum of 2’-6” wide.

b. On bridges over roadways, or other locations, and where spillage of ballast or lading is possible, the walkways shall be constructed of solid material and a curb or toe board shall be provided at a height of 4 inches from top of walkway.
c. To prevent cracking under live loads, 1/4 inch control joints shall be provided in concrete curbs, concrete walkways and concrete ballast retainers and shall be spaced at 10 feet or less for the length of the structure.
d. When walkway structures are used, provide a detail showing the walkway transition from bridge to roadbed at bridge ends. Where there is a vertical distance from the roadbed walking surface to the bridge walkway, adjust the roadbed walkway profile to eliminate the vertical separation or provide other means to provide a safe transition. The design shall not restrict drainage at the abutments and shall be submitted to the Railroad for review.

6.9.6 Drainage

a. General
   1. A minimum longitudinal grade of 0.2% on the superstructure shall be provided to ensure adequate drainage.
   2. The designer may provide drainage toward one end of the structure, or when the structure’s length is excessive, provide adequate deck grades to drain the structure to both ends.

3. If the top-of-rail grade is less than 0.2% over the length of the structure then the depth of ballast may be varied along the structure.
4. If an approach grade descends toward the bridge, drainage from the approach shall be intercepted by an appropriate system so that it will not drain onto the bridge.
5. Inadequate drainage facilities can severely limit the life span of the superstructure. When designing drainage facilities for a structure, two important criteria to keep in mind are:
    i. Drains should be constructed of corrosion resistant material and the use of PVC shall not be permitted.
    ii. Drains should not discharge on other bridge elements or traffic passing underneath the structure.

b. Concrete decks
    1. The top of the concrete deck shall be sloped a minimum of 0.5% transversely.
    2. For concrete decks, a longitudinal collection system shall be provided on top of the waterproofing along the face of parapet or curb to drain water. Longitudinal drains shall be connected to the storm drain system or properly discharged at the toe of embankment slopes. See pg 45, Plan No. 711200, sheet 5.
    3. The drip groove located on the bottom of the deck slab or fascia beam shall end 3 feet before the face of the abutment.

6.9.7 Waterproofing

a. Waterproofing and protective panels shall comply with the recommendations of Chapter 8, Part 29 of AREMA and shall be the following type, as approved by the Railroad:
    1. Cold liquid spray on waterproofing meeting AREMA requirements, as approved by the Railroad.
        i. Shall be protected with either a single 1/2 inch layer of asphalt panels or an additional spray on protection board layer, as approved by the Railroad.

b. Six (6) inches of ballast shall be placed over waterproofing immediately upon acceptance by the Railroad. Construction traffic is not allowed on waterproofing until the ballast covering is in place.

c. Waterproofing installation shall be observed and approved by the manufacturer's representative.

6.9.8 Steel Superstructure

The steel superstructure shall be designed per AREMA Volume 2, Chapter 15, unless otherwise required by the Railroad or herein.

a. Fracture critical member material, fabrication, welding, inspection and testing shall be in accordance with AREMA, Volume 2, Chapter 15.

b. The minimum diameter of high strength bolts shall be 7/8 inch diameter.

c. Bolted joints shall be designed as slip critical using the allowable stresses for a slip coefficient of 0.33.

d. The railroad may require critical structural elements to be designed with additional sacrificial thickness for future corrosion.

e. Diaphragms or cross frames shall be provided for all steel spans.

f. Jacking stiffeners or jacking beams are required for all steel structures.

g. Girders shall have mechanically-connected bottom flanges and intermediate stiffeners when:
    1. The girder span is over a roadway and the use of two girders per span or track cannot be avoided (such as a through plate girder) and
    2. Twenty (20) feet of vertical clearance cannot be provided.

h. Cover plates, flange elements and intermediate stiffeners shall comply with the following requirements:
    1. Cover Plates
        i. Cover plates of girders with bolted flanges shall be equal in thickness or shall diminish outwardly in thickness.
        ii. No plate shall be thicker than the flange angles.
        iii. The gross area of cover plates in any flange shall not exceed 70% of the total flange.
        iv. The total flange consists of cover plates, flange angles directly connected to the cover plates and side plates.
        v. The area of any flange element (flange angle, cover plate or side plate) shall not exceed 50% of the total flange.
    2. Flange Elements

i. Flange elements that are spliced shall be covered by extra material equal in section to the element spliced.
ii. There shall be enough bolts on each side of the splice to transmit to the splice material the stress value of the part cut.
iii. Flange angles may be spliced with angles or with a full penetration weld.
iv. No two elements shall be spliced at the same cross section or within the development length of another spliced element.
v. Welded splices will not be allowed in plate elements of bolted flanges.

3. All intermediate stiffeners shall have a bolted connection to the web.

6.9.9 Painting of Steel Structures

a. Painting of steel structures shall comply with the current requirements of AREMA, AASHTO specifications and recommendations of the Steel Structures Painting Council (SSPC).
b. Painting of existing Railroad structures is discouraged. Painting may be considered if the structure is free of existing defects, cracks, damage or otherwise which requires inspection.
c. Paint shall be applied in accordance with the Manufacturer's recommendations or as recommended by the SSPC, whichever is most restrictive.
d. The painting system, including primer and top coats, shall be submitted by the Applicant for review and approval by the Railroad and must be maintained by the Applicant.

6.9.10 Concrete Superstructure

a. Live load distribution for precast prestressed concrete single or double cell box beams shall be in accordance with Chapter 8, Part 2, Reinforced Concrete Design, Article 2.2.3.c of AREMA. This means that it shall not be assumed that the live load is necessarily equally distributed to the number of boxes supporting the tracks.
b. Box shaped (Single or Double void) or AASHTO type precast prestressed concrete beams for all spans shall be designed with end and interior diaphragms. Interior diaphragms shall be spaced equally across the span length.
c. Ends of strands are to be cut flush with the end of the product and painted with an approved coating.
d. For AASHTO type beams, the designer shall provide a minimum of eighteen (18) inches clear between the bottom flanges to accommodate inspection and repair.

6.10 Substructure

a. Pier and or abutment dimensions must accommodate future track(s) and Access Road per Section 4.2.3 and 4.2.4.
b. Footings for all substructures shall be located and designed to allow a minimum of 12 feet measured perpendicular from centerline of nearest active track to face of shoring to facilitate footing construction. Temporary shoring shall be designed per Section 4.4.2.
c. Cross-hole Sonic Log (CSL) Testing is required for every drilled shaft to evaluate the integrity of drilled shafts/caissons. The Plans and Specifications shall include provisions for this testing. Use steel pipes and not PVC for testing holes.
    1. Other testing methods may necessary, as required by the Railroad.
d. Drilled shafts within the influence of track surcharge shall be designed with permanent or temporary casing for protection against cave-in, subsidence and or displacement of surrounding ground. Casing shall be designed for live load due to the Railroad surcharge in addition to all other applicable loads. Drilled shafts shall be designed to allow the drilling operation to proceed without impacting the Railroad operation.

6.10.1 Piers

a. Columns shall be at least 0.2H in thickness at the base.
b. Slope the top of bridge seat to drain. If weathering steel is used for the superstructure, detail the bridge seat to minimize water staining concrete surfaces.
c. Provide a minimum of 6 inches from edge of masonry plate or bearing to edge of concrete.
d. Provide a minimum of 18 inches beyond the outside edge of outermost masonry plate or bearing to end of the pier.

e. Single column piers shall not be considered for Underpass Structures. Piers with a minimum of two columns shall be provided. A solid pier wall with minimum of 4 feet thickness is preferable.
f. Bridge piers adjacent to roadways shall be protected from vehicular traffic as required per AASHTO and State Department of Transportation standards.

6.10.2 Abutments

a. Slope the top of bridge seat to drain. If weathering steel is used for the superstructure, detail the bridge seat to minimize water staining concrete surfaces.
b. The abutments shall be wide enough to satisfy the Railroad standard roadbed. For multiple track bridges, the abutment width shall be sufficient to provide for the standard shoulder, plus 20 feet for each existing or future track.
c. Provide a minimum of 6 inches from edge of masonry plate or bearing to edge of concrete.
d. Sloping embankments in front of abutments shall be paved or have grouted rip-rap on top of filter fabric.
e. The year of construction shall be shown at the face of abutment backwall. Numbers shall be embedded into the concrete and be 6 inches size and located where visible.
f. Wing walls shall be designed to support 2:1 embankment slopes and provide positive ballast containment.

6.10.3 Signage and Miscellaneous

a. The Railroad's standard "No Trespassing" and bridge number signs shall be furnished and installed as required by Railroad standards.
b. Clearance signs, advance signs and other roadway signage shall be the responsibility of the roadway agency. Signs may not be attached to the bridge.
c. The Applicant shall be responsible for graffiti removal from the structure, regardless of other provisions for division of maintenance responsibility.

7 TRAILS

(Non-Vehicular Crossing over or under the Railroad)

All Trails impacting the Railroad shall be designed in accordance with Section 1, 2, 3, 4 & 7 of these Guidelines, the Manual of Uniform Traffic Control Devices (MUTCD), AASHTO code and any applicable sections of AREMA.

7.1 At Grade Crossing

a. The Railroad does not allow at grade Trail crossings. Alternative plans should be considered to avoid crossing Railroad tracks at grade.
b. At grade crossings immediately adjacent to an existing public roadway crossing with existing Highway Railroad warning devices may be considered. However, all costs associated with the installation of the new crossing surface and crossing warning device changes or relocation will be borne by the Applicant.
c. Scope of proposed crossing work will be determined at a joint diagnostic meeting between the Railroad and Applicant.
d. The Trail must conform to Railroad and MUTCD requirements.

7.2 Trail Parallel to Track

a. The Railroad does not allow Trails parallel to the track on Railroad right-of-way and does not permit the use of Railroad Access Roads for trail use.
b. Railroad structures cannot be used to serve Trail traffic or support a structure serving Trail traffic.
c. Fences or barriers such as vegetation, ditches, and/or berms shall separate Trails that are outside the Railroad right-of-way and running parallel to the track to stop trespassers from entering the Railroad right-of-way.

7.3 Grade Separated Crossing

Consider the use of existing structures to cross the Railroad tracks. In accordance with Homeland Security requirements some Railroad sites and structures are off limits for Trail use and crossing.

7.3.1 Overhead Crossing (Trail over Railroad)

New and existing Overhead Structures must be designed or modified with a protective curved fence. See pg 39, Plan No. 711100, sheet 3. New Overhead Structures shall be designed per Section 5 of these Guidelines.

7.3.2 Underpass Crossing (Railroad Structure over Trail)

The Railroad discourages the construction of new Underpass Structures. If an Underpass Structure is the only feasible structure type for the proposed site, a detailed type selection report must be submitted to justify its use. Underpass trail crossings which also serve to convey water are not permitted.

7.3.2.1 New Underpass Crossing

New Underpass Structures shall be designed per Section 6 of these Guidelines.

All pipe and concrete box culverts shall be designed per Railroad requirements and any applicable sections of AREMA. Confined structures are discouraged. To improve safety and sight distance all structures shall be tangent without curvature. The clear width and height of pedestrian structures shall be subject to the project site and structure length. The line of sight, historical security data and lighting shall be used for determining the required size of opening. Vertical Clearance shall not be less than 8 feet.

7.3.2.2 Crossing Under Existing Structures

a. The Railroad may reject, at its discretion, the use of any existing Underpass Structure for Trail use.
b. Existing culvert pipe, box or arch structures, designed to convey water, are not permitted for trail crossing use.
c. An open deck structure shall be modified to a ballast deck or solid deck structure to maintain a safe crossing under a Railroad structure. If modifying an existing open deck structure is not practical, provide a protective cover over the Trail.

d. Protection from falling debris is required for the crossing of pedestrians safely under active rail bridges. The overhead protection shall extend a minimum of 30 feet out on each side of the Railroad structure, or further as designated by the Railroad's engineering department. However, the protective cover shall not reduce the existing hydraulic opening, shall not function as a debris catcher and shall not impact proper inspection of the structure by Railroad personnel.
e. Measuring from bottom of the Railroad structure to the top of the protective cover shall not be less than 3 feet to allow for inspection and shall not be attached to the structure. If the Applicant can not meet these requirements then the Applicant shall provide a removable hatch to allow Railroad personnel to inspect the bridge structure.
f. The protective cover shall be removable and can be removed, at the Applicant's expense, without advanced notice if deemed necessary by the Railroad.
g. A protective cover shall be required, meeting the above criteria, for ballast deck bridges unless the superstructure meets the requirements of Section 6.9.4 and retains the ballast to a sufficient degree as approved by the Railroad.

7.4 Drainage

The drainage pattern of the site before and after construction shall be analyzed. Adequate drainage provisions shall be incorporated into the plans and specifications. Detailed Hydraulic Report may be required subject to site condition. The Hydraulic report must meet the Railroad Hydraulic Criteria per Section 4.5.

7.5 Fence

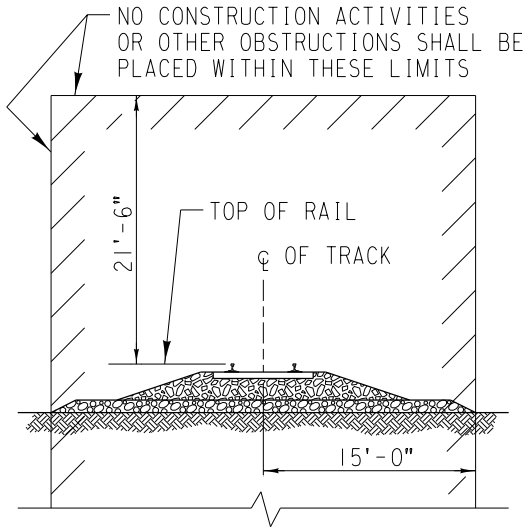
a. The Applicant shall specify the appropriate fencing to contain the Trail traffic within the Trail, crossing the Railroad right-of-way. Fence limits are subject to each project site and must be determined on a case by case basis. Refer to Section 4.7 for fence requirements.
b. Fencing shall be located where it will not impede Railroad's access to the bridge for inspection and shall be removed and replaced at the Applicant's expense when necessary for access by the Railroad.
c. All Railroad right-of-way fencing, for Trails adjacent to the Railroad right-of-way, must be provided, installed outside Railroad right-of -way and maintained by the Applicant.

7.6 Signs

a. All access to Trails crossing railroad track shall be protected with bollard posts and signs prohibiting non-authorized vehicular access.
b. All advisory and regulatory signs shall be in compliance with MUTCD and AASHTO. "No Trespassing" signs shall be posted every 500 feet.

7.7 Lighting

Adequate lighting shall be provided per AASHTO Roadway Lighting Design Guide requirements. Dark, confined, and isolated Trail crossings hidden from public view may attract illegal activities. Line of sight is extremely important when visibility is a matter of safety and security. The lighting design shall account for the impact on train operations. Lighting shall provide visibility for the Trail without directing light toward the train traffic.



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)

DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen

UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M Hurst

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

BRIDGE STANDARDS

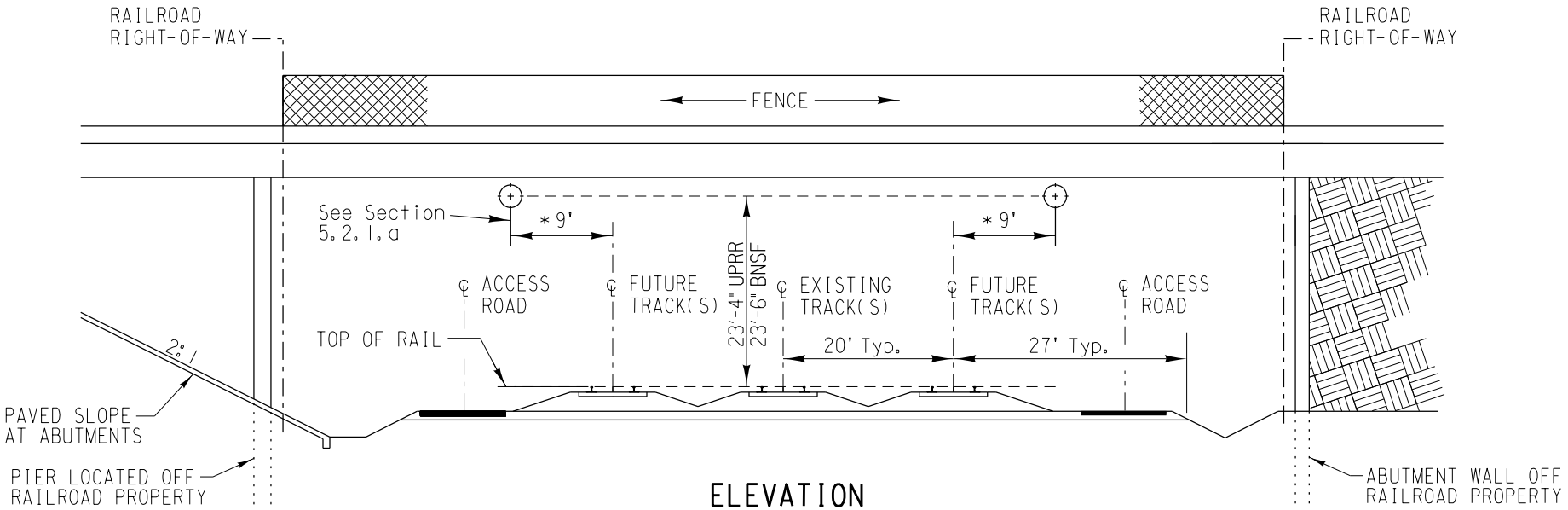
GRADE SEPARATION GUIDELINES

TEMPORARY CLEARANCE ENVELOPE

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711000	SHEET: 1

PLOTTED: 5/12/2016 9:14:09 AM

Overhead bridges shall be designed to completely span the Railroad Right-Of-Way.
Piers shall be located outside Railroad Right-of-Way.



ELEVATION
(NORMAL TO RAILROAD)

CONSTRUCTION NOTES:

1. Any shoring system that impact the Railroad operations and/or supports Railroad embankment shall be designed and constructed per the Railroad temporary Shoring requirements.
2. All demolition within the Railroad right-of-way and/or demolition that may impact the Railroad tracks or operations shall comply with the Railroad demolition requirements.
3. Erection over the Railroad right-of-way shall be designed to cause no interruption to all Railroad operations.
4. The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.
5. The proposed grade separation project shall not change the quantity and/or characteristics of the flow in the Railroad ditches and/or drainage structures.
6. The contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.
7. For Railroad coordination please refer to the Railroad's Coordination Requirements as part of the Specifications or Special Provisions of the project.
8. Temporary Construction Clearances, including falsework clearances, shall comply with Figure 1.
9. All permanent clearances shall be verified before project closeout.

* See Section 5.2.1.a for Curved Track adjustments.

DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen
UPRR - SENIOR MANAGER STRUCTURES DESIGN

Augustin M Hurst
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

GENERAL OVERHEAD STRUCTURE DRAWING

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711100	SHEET: 1

PLOTTED: 5/12/2016 9:14:06 AM

PLAN

1. North Arrow
2. Centerline of bridge and/or centerline of project.
3. Track layout and limits of Railroad right-of-way with respect to centerline of main lines.
4. Footprint of proposed superstructure and substructure including existing structure if applicable.
5. Future tracks, access roadways and existing tracks as main line, siding, spur, etc.
6. Vertical & Horizontal Clearances from Railroad Track:
   a. Point of minumum vertical clearance and distance, measured perpendicular, from the centerline of nearest track.
   b. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of obstruction such as substructure above grade.
   c. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of nearest foundation below grade.
   d. Horizontal spacing at right angle between centerlines of existing and/or future tracks.
7. Limits of shoring and minimum distance at right angle from centerline of nearest track.
8. Locate and show all existing facilities and utilities and their proposed relocation, if required.
9. Toe of slope and/or limits of retaining wall.
10. Limits of grading with existing and proposed contours.
11. Limits of barrier rail and fence.
12. Minimum structure separation for adjacent structures.
13. Railroad Milepost and direction of increasing Milepost.
14. Direction of flow for all drainage systems within project limits.
15. Timetable direction arrows, nearest Railroad station and end station of Railroad Subdivision.

ELEVATION

1. Individual span length and total bridge length.
2. Limits of barrier rail and fence with respect to centerline of track.
3. Depth of foundation below bottom of tie.
4. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of obstruction such as substructure above grade.
5. Indicate horizontal spacing at right angle between centerlines of existing and/or future tracks.
6. Minimum horizontal clearance at right angle from centerline of nearest existing or future track to the face of foundation below grade.
7. Indicate top and bottom of pier protection wall elevation relative to top of rail elevation.
8. Controlling dimensions of drainage ditches and/or drainage structures.
9. Top of rail elevations for all tracks.
10. Minimum permanent vertical clearance above top of high rail to the lowest point under the bridge.
11. Existing and proposed goundline & roadway profile.
12. Show elevation of existing or relocated utilities.
13. Show slope and specify type of slope paving. Toe of slope shall be shown relative to drainage ditch and top of subgrade.
14. Show and label future tracks, access roads and existing tracks as main line, siding spur, etc.
15. Show location of deck joints.
16. Location of deck drains.

TYPICAL SECTION

1. Total width of superstructure.
2. Width of shoulder and/or sidewalk.
3. Height and type of barrier rail and fence.
4. Depth of superstructure.

TITLE BLOCK

1. The name & logo of engineering firm or project owner.
2. Drawing title.
3. Railroad milepost number and subdivision.
4. City, county and state.
5. Project name and location.
6. Date.
7. Latitude and longitude.

RAILROAD PROFILE GRADE DIAGRAM

1. Show existing and proposed track profile at the bridge location and a minimum of 1,000 feet past each edge of the bridge.

Note: The Railroad Milepost is calculated at the intersection of centerlines of the Overhead Structure and Existing Track. All separate Overhead Structures shall have individual Milepost designations.

DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen

UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M Hurst

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

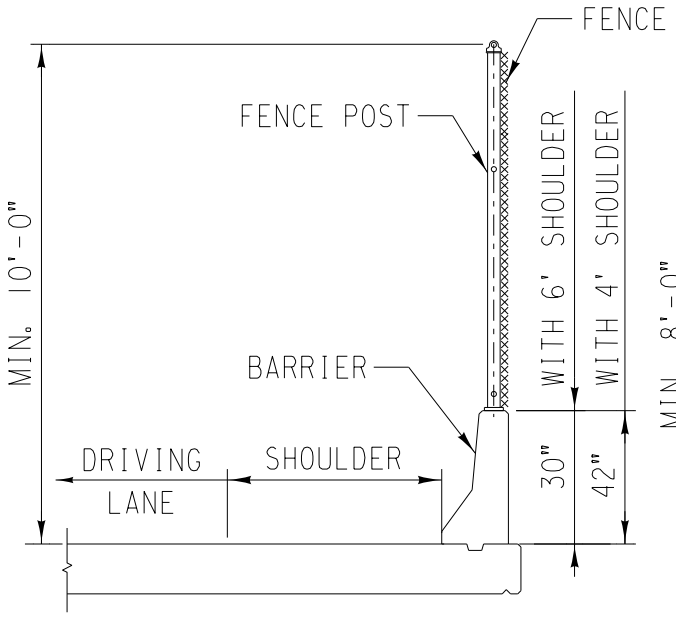
BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

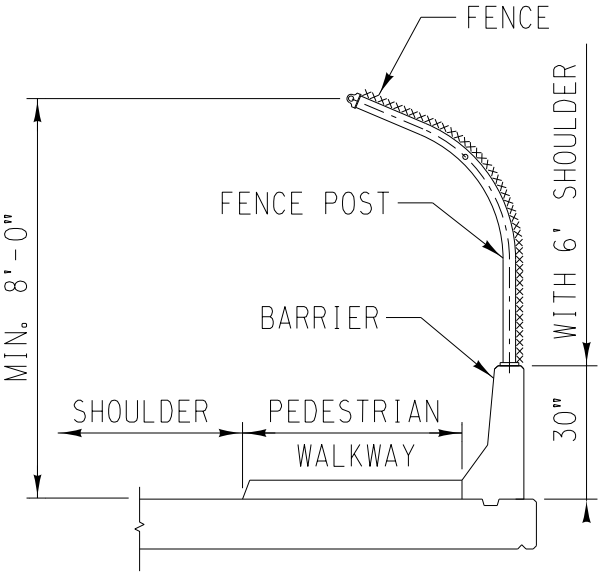
MINIMUM LAYOUT REQUIREMENTS FOR OVERHEAD STRUCTURES

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711100	SHEET: 2

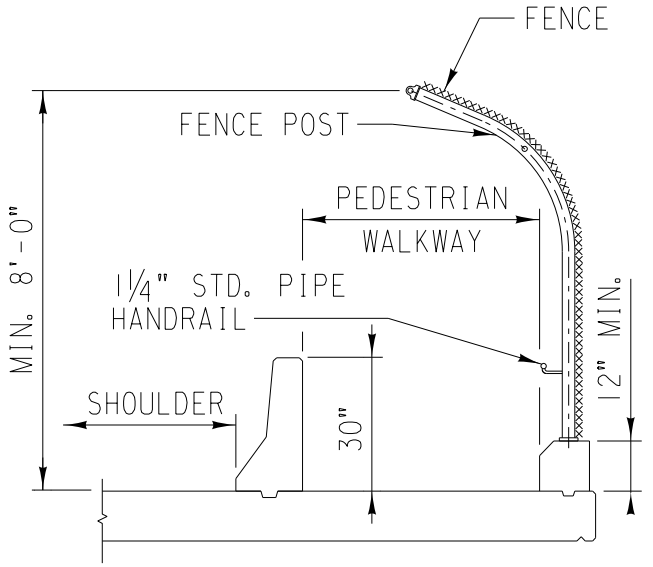
PLOTTED: 5/12/2016 9:14:06 AM



FENCE ON BARRIER



WALKWAY FENCE ON BARRIER



WALKWAY FENCE ON CURB WITH BARRIER

DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen
UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M. Hurst
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

BRIDGE STANDARDS

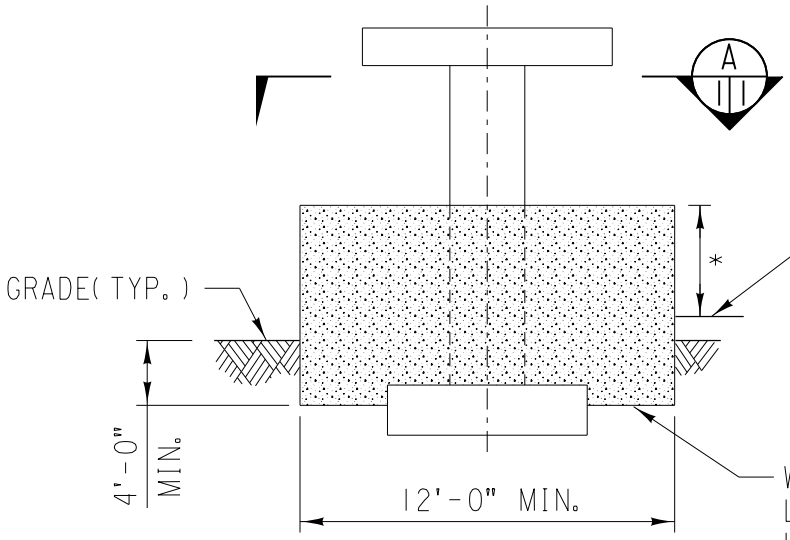
GRADE SEPARATION GUIDELINES

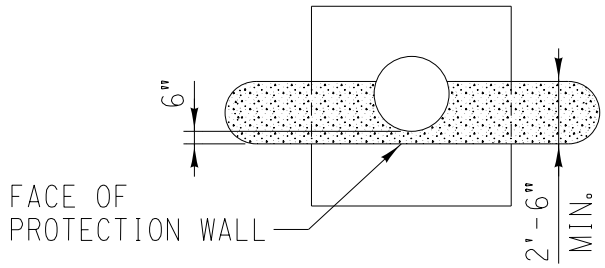
OVERHEAD STRUCTURE BARRIERS AND FENCES

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711100	SHEET: 3

PLOTTED: 5/12/2016 9:14:06 AM

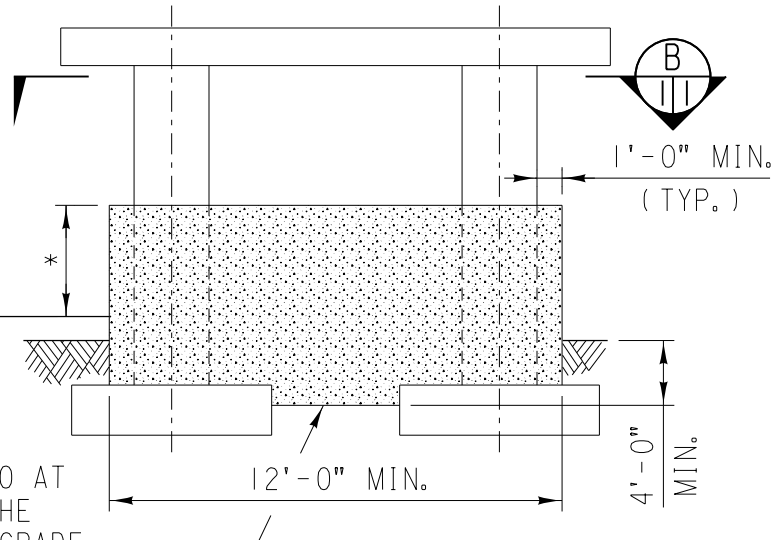
SINGLE COLUMN DESIGN

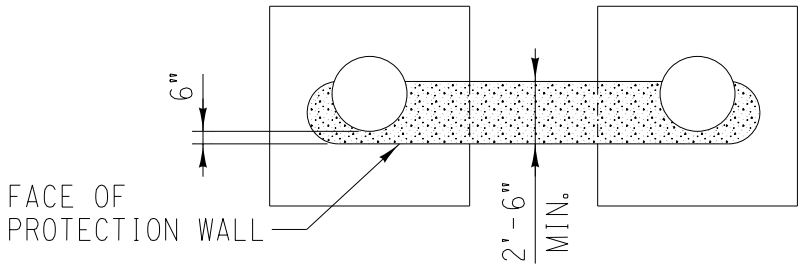




SECTION A
SCALE: 1/8"=1'-0"

MULTI-COLUMN DESIGN





SECTION B
SCALE: 1/8"=1'-0"

* 6'-0" MINIMUM FOR PIERS FROM 12 FT。 TO 25 FT。 CLEAR FROM THE CENTERLINE OF EXISTING OR FUTURE TRACK。

12'-0" MINIMUM FOR PIERS LESS THAN 12 FT。 CLEAR FROM THE CENTERLINE OF EXISTING OR FUTURE TRACK。

DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen
UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M Hurst
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

STANDARDS FOR PIER PROTECTION WALLS

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711100	SHEET: 4

PLOTTED: 5/12/2016 9:14:07 AM

PLAN

1. North Arrow.
2. Alignment of centerline of bridge and/or horizontal control line of project, centerline of existing track(s), centerline or future track(s), centerline of shoofly, centerline of roadway. Identify tracks as main, siding, etc.
3. Angle between centerline of roadway and centerline of bridge. Skew angle of substructure.
4. Horizontal distance between centerlines of main track(s) and adjacent existing and/or future tracks.
5. Individual span length(s) and total bridge length from face to face of backwalls.
6. Limits of Railroad right-of-way with respect to centerline of main track. Limits of Right-of-Way fencing.
7. Footprint of proposed superstructure and substructure including approach slabs and existing structure, if applicable.
8. Footprint of roadway, sidewalks, retaining walls, etc.
9. Location of access roadway(s) and turnarounds.
10. Timetable direction arrows, nearest railroad station and end station of railroad subdivision.
11. Railroad Milepost measured at the inside face of backwall, at the low milepost bridge end.
12. Point of minimum vertical clearance.
13. All existing facilities and utilities and their proposed relocation, if required.
14. Limits of shoring including minimum distance at right angle from centerline of nearest track.
15. Limits of grading with existing and proposed contours.
16. Minimum structure separation for adjacent structures.
17. Direction of flow for all drainage systems within project limits.
18. Location of geotechnical borings.

ELEVATION

1. Individual span length(s) and total bridge length from inside face to face of backwalls.
2. Distance from nearest Railroad Milemarker to inside face of backwall at the low milepost bridge end.
3. Profile grade of bridge.
4. Profile grade and top of rail elevations for main track.
5. Roadway section.
6. Minimum vertical clearance from roadway to bridge.
7. Limits of handrail/fence on bridge.
8. Location of fixed and expansion bearings.
9. Location and type of substructure with elevations.
10. Numbering of spans, abutments and piers.
11. Existing and proposed groundline, including slope paving.
12. Existing and proposed utilities.
13. Depth of foundation below roadway.

TYPICAL SECTION

1. Centerline of bridge and/or horizontal control line of project, centerline of existing track(s), centerline of future track(s). Identify tracks as main, siding, etc.
2. AREMA clearance envelope.
3. Horizontal distance between centerline of tracks, distance from centerline of track to face of ballast retainer and handrail/fence.
4. Total width of superstructure.
5. Width of walkway.
6. Height and type of ballast retainer, handrail/fence.
7. Depth of superstructure.
8. Rail, tie and ballast system with vertical distance from top of rail to top of deck and minimum depth of ballast under the tie (12").
9. Cross slope of deck, if applicable, and waterproofing system.
10. Girder spacing.
11. Diaphragms: Steel - end and intermediate
    Concrete - tie rods.

TITLE BLOCK

1. The name & logo of engineering firm or project owner.
2. Drawing title.
3. RR Milepost number and subdivision.
4. City, county and state.
5. Project name and location.
6. Date.
7. Latitude and Longitude.

RAILROAD PROFILE GRADE DIAGRAM

1. Show existing and proposed track profile at the bridge location and a minimum of 1,000 feet past each end of the bridge.

DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen

UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M Hurst

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

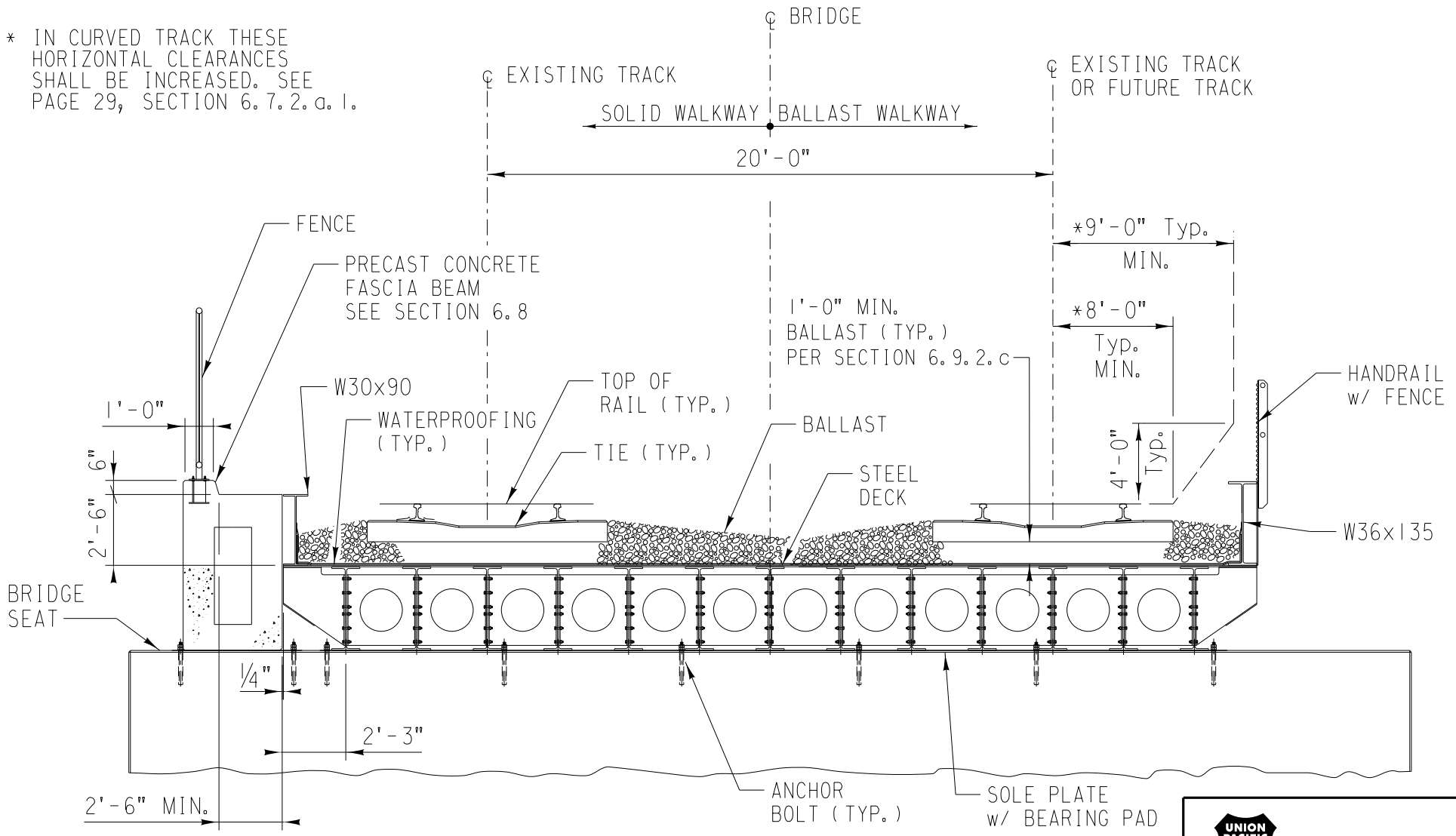
BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

MINIMUM LAYOUT REQUIREMENTS FOR UNDERPASS STRUCTURES

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711200	SHEET: 1

PLOTTED: 5/12/2016 9:14:07 AM



DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen
UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M Hurst
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

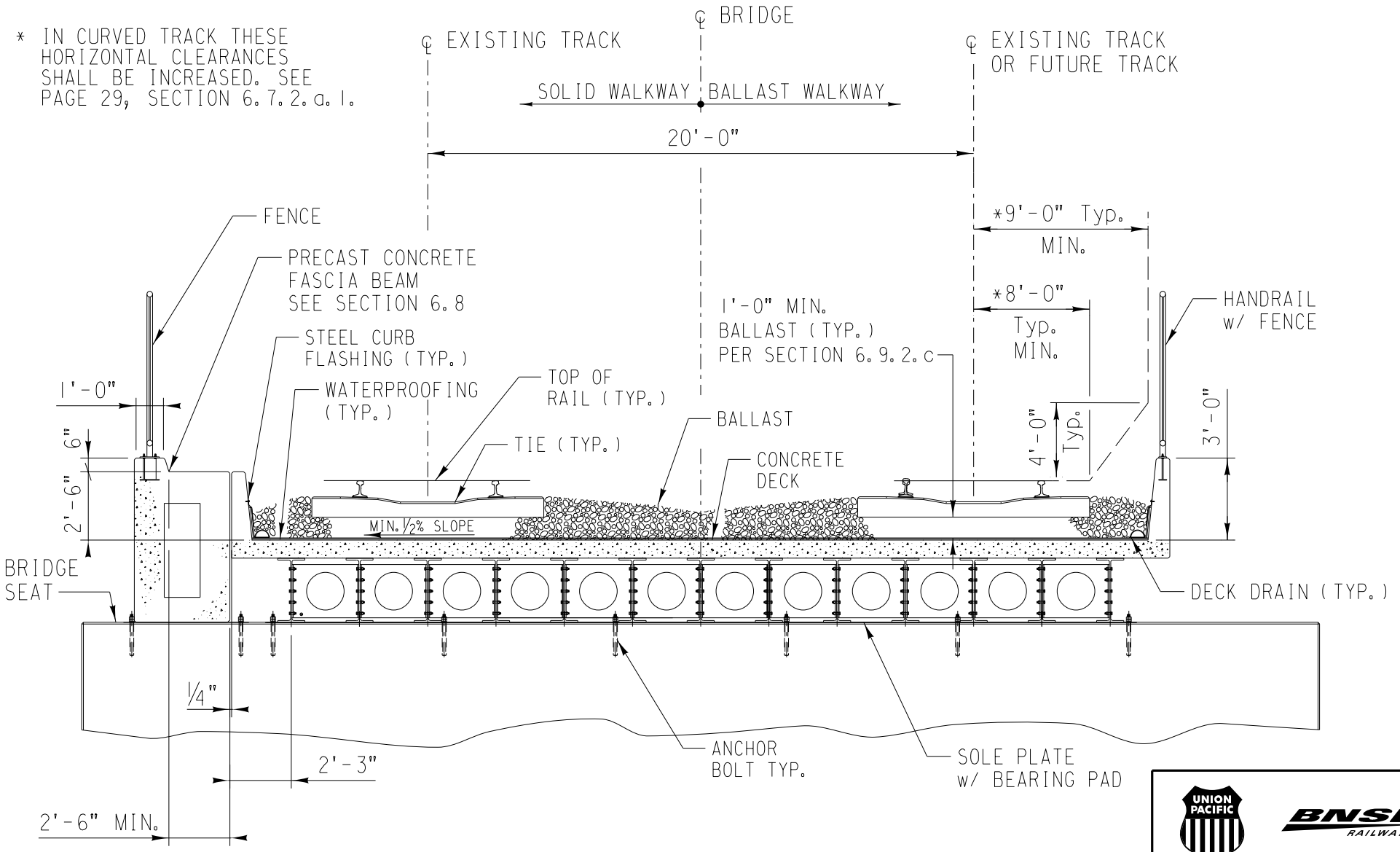
BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

ROLLED BEAMS w/ STEEL PLATE DECK

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711200	SHEET: 2

PLOTTED: 5/12/2016 9:14:08 AM



DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen
UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M Hurst
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

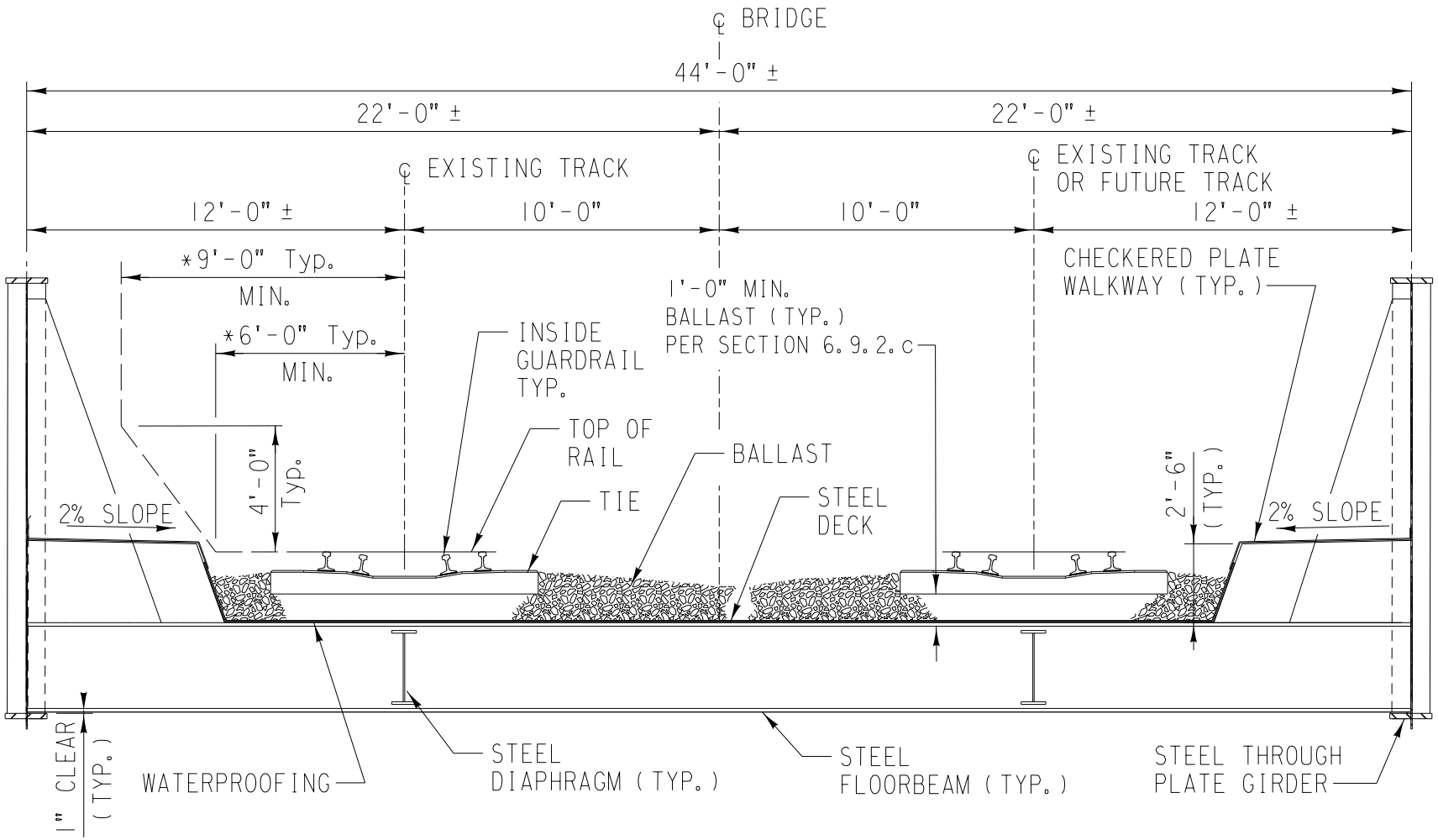
BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

ROLLED BEAMS w/ CONCRETE DECK

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711200	SHEET: 3

PLOTTED: 5/12/2016 9:14:08 AM



* IN CURVED TRACK THESE HORIZONTAL CLEARANCES SHALL BE INCREASED. SEE PAGE 29, SECTION 6.7.2.a.1.

DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen

UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M Hurst

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

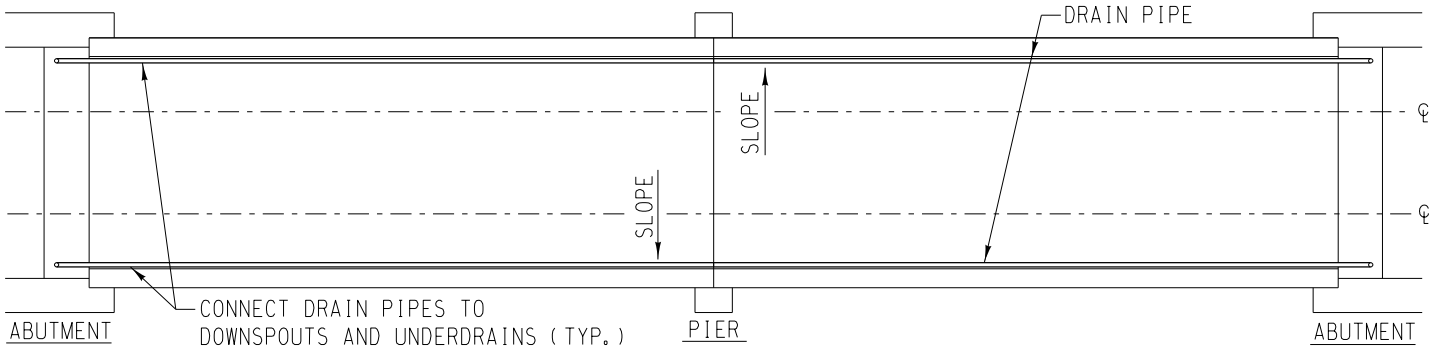
BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

STEEL THROUGH PLATE GIRDERS w/ STEEL PLATE DECK

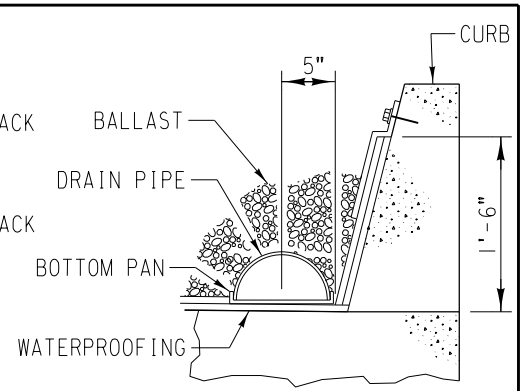
FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711200	SHEET: 4

PLOTTED: 5/12/2016 9:14:08 AM



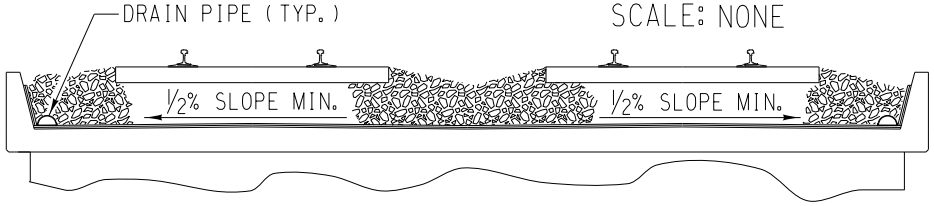
DECK PLAN

SCALE: NONE



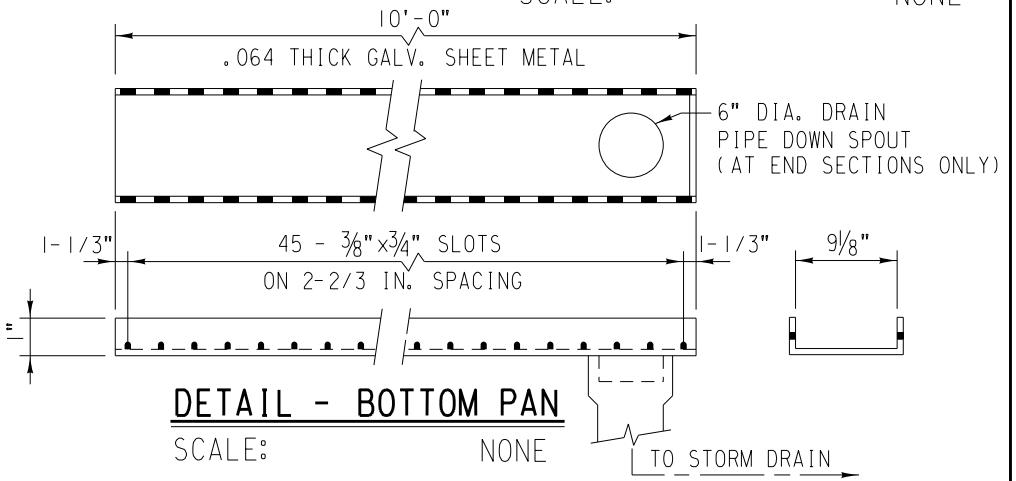
LOCATION OF DRAIN PIPE

SCALE: NONE



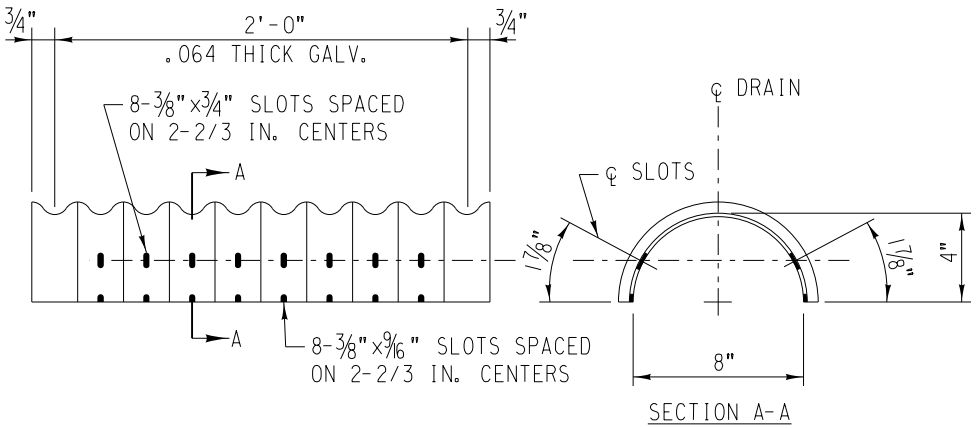
TYPICAL DECK SECTION

SCALE: NONE



DETAIL - BOTTOM PAN

SCALE: NONE



DETAIL - DRAIN PIPE

SCALE: NONE

NOTE: LAP DRAIN PIPE ONE CORRUGATION AT EACH END.

DESIGN BY: RAF	CHECKED BY: AMH

APPROVED:

Rick Friesen

UPRR - SENIOR MANAGER STRUCTURES DESIGN

Austin M Hurst

BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN

UNION PACIFIC

BNSF RAILWAY

BRIDGE STANDARDS

GRADE SEPARATION GUIDELINES

CAST-IN-PLACE CONCRETE DECK DRAIN DETAILS

FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711200	SHEET: 5

PLOTTED: 5/12/2016 9:14:08 AM

U. BRIDGE DEMOLITION PLANS

The existing bridge is located over two active BNSF railway lines. Per the construction requirements of BNSF Railways, the contractor shall follow the requirements of the JSP section "Railroad Coordination" including developing and submitting a plan for the removal of the existing bridge, signed and sealed by a Missouri registered professional engineer.

Measurement – No direct measurement will be made. The item will be considered completed once the demolition plan has been accepted by BNSF Railways.

Payment Payment will be a lump sum at the agreed contract price.

<Remainder of Page Intentionally Left Blank>

V. SHORING PLAN

General –The proposed bridge is located near two active BNSF railway lines. The south most intermediate pier is expected to require temporary shoring.

Per the construction requirements of BNSF Railways, the contractor shall follow the requirements of the JSP section "Railroad Coordination" including developing and submitting, to the engineer and BNSF Railways, a shoring plan to facilitate the installation of the intermediate pier.

The shoring plan shall be signed and sealed by a Missouri registered professional engineer.

Construction Rrequirements – See "Guidelines For Temporary Shoring" in the "Railways Coordination JSP"

The location of all soil borings are provided on the plan & profile sheets of the plans. No soil borings were performed at the location of the footing excavations. Subsurface materials encountered may differ from those shown in the geotechnical report. No additional payment will be made for excavating in differing materials with the exception of encountering solid rock and or debris that cannot be removed without compromising the stability of the railway.

The contractor is encouraged to make a site visit and perform any additional exploratory investigation they deem necessary prior to bidding in order to supplement the provided geotechnical report.

Measurement – No direct measurement will be made. The item will be considered completed once the shoring plan has been accepted by BNSF Railways.

Payment Payment will be a lump sum at the agreed contract price.

<Remainder of Page Intentionally Left Blank>

W. ERECTION PLAN

General – The existing bridge is located over two active BNSF railway lines. Per the construction requirements of BNSF Railways, the contractor shall follow the requirements of the JSP section "Railroad Coordination" including developing and submitting a plan for the erection of the proposed superstrue over the active tracks.

The erection plan shall be signed and sealed by a Missouri registered professional engineer.

Measurement – No direct measurement will be made. The item will be considered completed once the demolition plan has been accepted by BNSF Railways.

Payment Payment will be a lump sum at the agreed contract price.

<Remainder of Page Intentionally Left Blank>

X. RELOCATION & RECONNECTION OF ELECTRIC LINES

General – BNSF Railways has a railway signal located within the project limits. Electric for the signal is supplied to the area by overhead electric, then by ungerground electric to the signal.

Sinclair Transportation Company has a post mounted rectifier within the grading limits of the project that is part of a cathodic protection system for their pipelines.

As part of the project, the existing overhead electric line will need to be relocated by Lewis County Rural Electric Cooperative. Lewis County Rural Electric Cooperative will set a new pole with two meters.

Sinclair Transportation Company will relocated their rectifier and any underground connections to their pipelines.
The contractor shall be responsible for installing two new power poles, runing a new overhead electric service, and connect to the existing railroad signal service with an above ground junction.

The contractor shall run a new underground service line from the meters at sta 4+00 to the rectifier (relocated by sinclair).

Construction Rrequirements –

All electrical work shall be completed according to the latest National Electric Code.

All wire used shall meet or exceed gauge and rating of the existing connections.

Measurement – No direct measurement will be made. The item will be considered completed once all facilities are relocated and powered.

Payment Payment will be a lump sum at the agreed contract price.

<Remainder of Page Intentionally Left Blank>

Y. EXPECTATIONS FOR FINAL INSPECTIONS

The contractor shall build this project to the plans and specifications and deliver a project that exhibits pride of work, good craftsmanship and attention to detail. The contractor shall make every effort to have this project "ready to sell" at the time the final inspection is scheduled. This includes, but is not limited to the following:

1.) Bridge numbers shall be painted on the bridge at the correct locations.

2.) Bridge deck shall be broom swept clean, so the deck finish can be seen clearly by all.

3.) All guard rail splices shall be in the right direction and all bolts shall be tight.

4.) All permanent signs (Type 3 object markers) shall be in place, installed correctly.

5.) Seed, fertilizer, mulch shall cover all non-graveled, non- pavement areas which have been disturbed. Mulch overspray shall be evident.

6.) All brush piles shall be gone or paperwork shall be in hand documenting permission for them to stay in place.

7.) All fence shall be tight, fastened at each post. All posts shall be tight.

8.) All water gate steel that is not galvanized shall be painted. This includes the posts and gate frames.

9.) The gravel driving surface shall be smooth and uniform depth.

10.) All silt fence shall be dug in or trenched in per plan.

11.) All ditch checks shall be dug in per plan.

12.) All turf reinforcement mat shall be pre-seeded, installed with lots of fasteners per manufacturer and the edges dug in.

13.) Remove all your trash.

Z. FINAL PAYMENT DOCUMENTS

1.0 Description. Near the end of the project, the larger of $10,000, or 3%, will be withheld as retainage until the contractor furnishes all final documents. Documents should be completed, submitted, and ready for final payment in accordance with Sec 109.8, within 50 calendar days of final acceptance of the project. Final payment documentation shall include but not be limited to the following:

(a) An affidavit, on the form prescribed by the Contracting Authority, to the effect that all payments have been made and all claims have been released for all material, labor and other items covered by the contract bond.

(b) A Certification, on the form prescribed by the Contracting Authority, showing the actual final DBE participation on the project including name of DBE, type of work and amount paid to each DBE firm.

(c) Documentation that DBE subcontractors were paid in full for the work identified in the DBE certification.

(d) An affidavit, on the form prescribed by the Contracting Authority, to the effect that all workers have been paid in compliance with prevailing wage requirements within the contract.

(e) Certifications for all pay items identified with an (*) in the quantities table of the project plans including Certified Mill Test Reports to verify Buy America Requirements for all steel materials.

<Remainder of Page Intentionally Left Blank>

AA. SUBCONTRACTS

The following documents must be provided for all subcontractors used to perform work on the project.

- Request For Approval of Subcontract (Fig. 136.11.4 - Attached)
- Subcontract Item List (Fig. 136.11.5 - Attached)
- Subcontractor Certification Regarding Affirmative Action (Fig. 136.11.6 - Attached)
- Notification Letter of Sub's EEO Officer on their company letterhead (Example Attached)
- Signed Sub-agreement between prime contractor & subcontractor (Must have FHWA-1273 physically inserted into it)
- FHWA-1273 – Revised May 1, 2012 (Fig. 136.9.7 - Attached)

Electronic copies of the documents listed above may be found on MoDOT's online Engineering Policy Guide:

http://epg.modot.org/index.php?title=LPA:136.12_Figures,_Glossary_and_Other_Useful_Links&redirect=no

<Remainder of Page Intentionally Left Blank>

REQUEST FOR APPROVAL OF SUBCONTRACT

Federal Project Number: _____
Route _____
County/City _____
TO: _____
(County/City Representative)

We request County/City approval to sublet the items of work listed on the back of this form to:

Subcontractor: _____
Address: _____
_____
Telephone: _____

The Subcontractor is classified:
___ Non-DBE
___ DBE

By signing below, I certify that the subcontract agreement with the proposed subcontractor includes provisions to comply with all requirements of the contract identified above, and for Federal-aid projects, Form FHWA-1273 has been physically inserted into the subcontract agreement. This request must include a completed DBE Subcontractor Worksheet (Fig 136.11.5), Subcontractor Certification Regarding Affirmative Action form (Fig 136.11.6) and the name, address, and telephone number of the subcontractor's EEO Officer on the subcontractor's letterhead.

Respectfully submitted,

_____
(Contractor)

By _____
Date

This portion to be completed by County/City

PREVIOUSLY APPROVED SUBCONTRACTORS	TYPE OF WORK
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	

COUNTY/CITY APPROVAL

_____
Approval - County/City Representative Date

Distribution after approval:
Contractor, County/City Rep.

Subcontractor Number: _____

Fig. 136.11.4

CONTRACTOR'S INSTRUCTIONS FOR FILLING OUT 'REQUEST FOR APPROVAL OF SUBCONTRACT' FORM

FRONT OF FORM

Fill in Federal Project Number, Route, County/City, County/City Representative's Name, Subcontractor's Name, Address and Telephone, Subcontractor Classification, Contractor Signature Block and Date.

Do not write below the double line.

DBE Subcontract Worksheet (Fig. 136.11.5)

List items in the same order as they appear in the contract.

Quantities on the request may be different than in the contract. Partial quantities are acceptable with an explanation. (Put an * by Quantity and an * with explanation listed below item descriptions.)

The Unit Price on a request may be less than the unit price stated in the contract. (Put an * by unit price and an * with explanation listed below item descriptions.)

Use the following table to determine in what column to place the subcontracted amounts:

	Sublet Amount	DBE Allowance
Without DBE Requirements in Project:		
Non-DBE sub doing work:	Yes	No
DBE sub doing work:	Yes	No
With DBE Requirements in Project:		
Non-DBE sub doing work:	Yes	No
DBE sub doing work:	No	Yes

Fill in the column Totals, then STOP. Do not write below the double line.

For subcontractors in excess of $10,000.00, submit the proposed subcontractors completed Certification Regarding Equal Opportunity and Affirmative Action (Fig 136.11.6) in Subcontracting with this request.

Does the proposed subcontractor have the proper insurance submitted? If not, the request cannot be approved.

Ensure that Form FHWA-1273 is physically inserted into every subcontract agreement.

Item No.	Description	Quantity	Unit Price	Amount Sublet	Amount DBE-Allowance
			Totals	a.	

This portion to be completed by County/City

Original Contract Amount = X=$ _____ Previous Total

Contract DBE Goal = Y= _____% Total to Date b. c.

Minimum DBE Allowance = d = X * Y = d.

Percent Sublet this Request = a/X * 100 = _____%

Total sublet to Date = (b + c)/X * 100 = _____%

Fig. 136.11.5

Sub-agreement Between Prime Contractor and Subcontractor

The sub-agreement **must** have the Form FHWA-1273 physically inserted into it.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

> "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding (29 CFR 5.5)

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records (29 CFR 5.5)

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or

subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees (29 CFR 5.5)

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the

corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility (29 CFR 5.5)

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1 of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 of this section. 29 CFR 5.5.

* $27 as of January 23, 2019 (See 84 FR 213-01, 218) as may be adjusted annually by the Department of Labor; pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990).

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this section. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section. 29 CFR 5.5.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance

with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.326.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.326.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant

who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is

submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(b) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(c) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier

subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

SUBCONTRACTOR CERTIFICATION REGARDING AFFIRMATIVE ACTION

Project: _____

Job No.: _____

Route: _____

County: _____

Certification Regarding Affirmative Action and Equal Opportunity: The bidder (prospective prime contractor) or proposed subcontractor certifies:

1. Affirmative Action Programs: That it has developed and has on file at each of its establishments affirmative action programs pursuant to 41 CFR part 60-2.

2. Equal Opportunity Clause: That it has participated in a previous contract or subcontract subject to the equal opportunity clause set forth in 41 CFR 60-1.4 and executive order no. 11246.

3. Compliance Reports: That it has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs or his designate, or the Equal Employment Opportunity Commission, all reports due under the applicable filing requirements contained in 41 CFR Part 60-1.

If the text of the certification above is incorrect, the bidder or subcontractor making the certification shall correct it below:

_____

_____

_____

NOTE: This certification applies to and must be executed by each bidder (prospective prime contractor) or proposed subcontractor if its proposed contract or subcontract on this project will equal or exceed $10,000.00 or that contractor or subcontractor has contracts or subcontracts on federally-assisted projects in any 12-month period which have, or can reasonably be expected to have, an aggregate total value exceeding $10,000.00 41 CFR 60-1.5(a)(1). It is a duty and contract obligation of the prime contractor to insure that each of its subcontractors which meets this criteria executes and submits to the commission this certification also.

_____
Company

By: _____

Date: _____

_____
Title

Current Date

Name
Address
City, State Zip

Dear_____;

This is to advise you that in addition to other company duties, you have been appointed EEO Officer for this company. You will be expected to enforce the company's policies and to receive any complaints regarding EEO matters.

<Company> gives you the authority to implement the EEO Policy and to take affirmative action as needed.

Sincerely,

Company Official

Notification to EEO Officer

FEDERAL AID PROVISIONS

December 1980

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidders attention is called to the "Equal Opportunity Clause" and the Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth therein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

3. Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their covered construction work, such contractors are required to comply with the following goals:

Goals for Female participation for each trade

AREA COVERED

Goals for women apply nationwide

GOALS AND TIMETABLES

Goals

Timetable	(Percent)
From April 1, 1978 until March 31, 1979	3.1
From April 1, 1979 until March 31, 1980	5.1
From April 1, 1980 until March 31, 1981	6.9

Goals for Minority Participation for Each Trade

County	Goal (Percent)	County	Goal (Percent)
Adair	4	Linn	4
Andrew	3.2	Livingston	10
Atchison	10	McDonald	2.3
Audrain	4	Macon	4
Barry	2.3	Madison	11.4
Barton	2.3	Maries	11.4
Bates	10	Marion	3.1
Benton	10	Mercer	10
Bollinger	11.4	Miller	4
Boone	6.3	Mississippi	11.4
Buchanan	3.2	Moniteau	4
Butler	11.4	Monroe	4
Caldwell	10	Montgomery	11.4
Callaway	4	Morgan	4
Camden	4	New Madrid	26.5
Cape Girardeau	11.4	Newton	2.3
Carroll	10	Nodaway	10

Carter	11.4	Oregon	2.3
Cass	12.7	Osage	4
Cedar	2.3	Ozark	2.3
Chariton	4	Pemiscot	26.5
Christian	2	Perry	11.4
Clark	3.4	Pettis	10
Clay	12.7	Phelps	11.4
Clinton	10	Pike	3.1
Cole	4	Platte	12.7
Cooper	4	Polk	2.3
Crawford	11.4	Pulaski	2.3
Dade	2.3	Putnam	4
Dallas	2.3	Ralls	3.1
Daviess	10	Randolph	4
Adair	10	Ray	12.7
Dent	11.4	Reynolds	11.4
Douglas	2.3	Ripley	11.4
Dunklin	26.5	St. Charles	14.7
Franklin	14.7	St. Clair	2.3
Gasconade	11.4	St. Francois	11.4
Gentry	10	Ste. Genevieve	11.4
Greene	2	St. Louis City	14.7
Grundy	10	St. Louis County	14.7
Harrison	10	Saline	10
Henry	10	Schuyler	4
Hickory	2.3	Scotland	4
Holt	10	Scott	11.4
Howard	4	Shannon	2.3
Howell	2.3	Shelby	4
Iron	11.4	Stoddard	11.4
Jackson	12.7	Stone	2.3
Jasper	2.3	Sullivan	4
Jefferson	14.7	Taney	2.3
Johnson	10	Texas	2.3
Knox	4	Vernon	2.3
Laclede	2.3	Warren	11.4
Lafayette	10	Washington	11.4
Lawrence	2.3	Wayne	11.4
Lewis	3.1	Webster	2.3
Lincoln	11.4	Worth	10
		Wright	2.3

These goals are applicable to all of the contractor's construction work (whether or not is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on Its Implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its effort to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority, or female employees or trainees from Contractor to Contractor or from project to project

for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

4. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

5. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" of the county, route and limits described in the proposal for the work.

July 1986

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation which this contract resulted.

   b. "Director" mean Director, Office of Federal Contract Compliance Programs, United States Department of labor, or any person to who the Director delegates authority;

   c. "Employer Identification Number" means the Federal Social Security number used on the Employer's quarterly Federal Tax Return, U.S. Treasury Department Form 941;

   d. "Minority" includes;

      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin):
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      (iii) Asian and pacific islander (all persons having origins in any of the original peoples of the Far East, southeast Asia, the Indian Subcontinent, or the Pacific Islands; and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintain identifiable affiliations through membership and participation or community identifications.

2. Whenever the Contractor, or any Subcontractor at any tier, subcontractors a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contract is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through the association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with the Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligation under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith

performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractors' failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contact resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with who the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours or apprentices and trainees to be counted in meeting the goal, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be used its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and all facilities at which the Contractor's employees are assigned to work. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

    c. Maintain a current file or the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

    d. Provide immediate written notification to the Director when the union or unions with which the Contractor has as collective bargaining agreement has not referred to the contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and

trainee programs relevant of the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources complied under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement by publicizing it in the company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees at least one a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as superintendents, General foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, person attending, subject matter discussed, and the disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media and providing written notification to and discussing the contractor's EEO policy with other Contractors and Subcontractors with who the Contractor does or anticipates doing business.

i. Direct is a recruitment effort, both oral and written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance or applicants for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and test to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer vacations employment to minority and female youth both on the site and in other areas or contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc. such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligation under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations or offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor union, contractor community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling anyone or more of its obligations under 7a through 7p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the executive order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contract pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Direct shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status, (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rat of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be constructed as a limitation upon the application of other laws which establish different standard of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Action of 1977 and the Community Development Block Grant Program.

OPERATING POLICY STATEMENT

The contractor shall accept as his operating policy the following statement, or one of equal coverage, which is designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program.

"It is the policy of this company to assure that applicants are employed, and that employees are treated during employment without regard to their race, religion, sex, color, or national origin. Such action shall include: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

SUPPLEMENTAL REPORTING REQUIREMENTS

A. The Contractor will keep such records as are necessary to determine compliance with the contractor's equal employment opportunity obligations. The records kept by the contractor will be designed to indicate the number of minority and non-minority group members and women employed in each work classification on the project.

B. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the State Highway Agency and the Federal Highway Administration.

C. The contractor and each covered subcontractor will submit to the State Highway Agency, for the month of July, for the duration of the project, a report (Form PR-1391) "Federal-Aid Highway Construction Contractors Annual EEO Report", indicating the number of minority, women and non-minority group employees currently engaged in each work classification required by the contract work.

NONDISCRIMINATION IN EMPLOYMENT

July 1990

The following provisions are added by the State to the Required Contract Provisions of Federal-Aid Contracts.

The contractor is advised that the exemptions referred to in the Required Contract Provisions, Federal-Aid contracts under Section II, Nondiscrimination, Paragraph 3g, with respect to contracts and subcontracts, are substantial and are to be found in Chapter 60, Office of Federal Contract Compliance, Equal Employment Opportunity, Department of Labor (33 Federal Register 7804-7812, May 28, 1968, effective July 1, 1968, Chapter 60, Title 41, Code of Federal Regulations), by which contracts and subcontracts of $10,000 or less and certain contracts and subcontracts for indefinite quantities are exempt.

The two pertinent exemption clauses are as follows:

60-1.5 Exemptions

(a) General – (1) Transactions of $10,000 or under. Contracts and Subcontractors not exceeding $10,000, other than Government bills of lading, and other than contract and subcontracts with depositories of Federal funds in any amount and with financial institutions which are issuing and paying agents for U.S. savings bonds and savings notes, are exempt from the requirements of the equal opportunity clause. In determining the applicability of this exemption to any federally assisted construction contract, or subcontract thereunder, the amount of such contract or subcontract rather than the amount of the Federal financial assistance shall govern. No agency, contractor, or subcontractor shall procure supplies or services in a manner so as to avoid applicability of the equal opportunity clause: Provided, that where a contractor has contracts or subcontracts with the Government in any 12-month period which have an

aggregate total value (or can reasonably be expected to have an aggregate total value) exceeding $10,000, the $10,000 or under exemption does not apply, and the contracts are subject to the order and the regulation issued pursuant thereto regardless of whether any single contracts exceeds $10,000.

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Clark County Bridge 11000371 RRP-000S(582)

Clark County, Missouri

CONTRACTOR'S AFFIDAVIT REGARDING COMPLIANCE WITH FEDERAL AID PROVISIONS

_____ , 20___

To the Clark County Commission

Gentlemen:
This is to certify that _____ has complied with the Federal Aid Provisions that apply to this project including but not limited to those listed in the project manual as below;

- Equal Employment Opportunity Law
- Davis-Bacon Act
- Copeland Anti-Kickback Act
- Contract Work Hours and Safety Standards Act
- Clean Air Act and the Federal Water Pollution Control Act
- Debarment and Suspension Law
- Byrd Anti-Lobbying Amendment
- Appendix A, 44 C.F.R. Part 18 – Certification Regarding Lobbying
    - Also submit form from the Project Manual
- Procurement of Recovered Materials
- Access to Records
- Compliance with Federal Law, Regulations and Executive Orders
- Program Fraud and False or Fraudulent Statements or Related Acts

_____
Contractor

By _____
(Signature)

_____
(Title)

State of _____

County of_____ss.

Subscribed and sworn to before me this_____day of

_____ , 20_____, at _____

_____
Notary Public

(SEAL)

My Commission expires_____, 20 _____

Missouri
Division of Labor Standards
WAGE AND HOUR SECTION

MICHAEL L. PARSON, Governor

Annual Wage Order No. 29

Section 023
CLARK COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by
Todd Smith, Director
Division of Labor Standards

Filed With Secretary of State: **March 10, 2022**

Last Date Objections May Be Filed: **April 11, 2022**

Prepared by Missouri Department of Labor and Industrial Relations

Building Construction Rates for
CLARK County

Section 023

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	$18.17*
Boilermaker	$18.17*
Bricklayer	$18.17*
Carpenter	$18.17*
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	$18.17*
Plasterer	
Communications Technician	$18.17*
Electrician (Inside Wireman)	$18.17*
Electrician Outside Lineman	$18.17*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	$18.17*
Glazier	$18.17*
Ironworker	$18.17*
Laborer	$18.17*
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	$18.17*
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	$18.17*
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	$18.17*
Plumber	$18.17*
Pipe Fitter	
Roofer	$18.17*
Sheet Metal Worker	$18.17*
Sprinkler Fitter	$18.17*
Truck Driver	$18.17*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.
**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in Section 290.210 RSMo.

Heavy Construction Rates for
CLARK County

Section 023

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	$18.17*
Millwright	
Pile Driver	
Electrician (Outside Lineman)	$18.17*
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	$18.17*
General Laborer	
Skilled Laborer	
Operating Engineer	$18.17*
Group I	
Group II	
Group III	
Group IV	
Truck Driver	$18.17*
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in Section 290.210 RSMo.

OVERTIME
and
HOLIDAYS

OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, **"overtime work"** shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January first;
The last Monday in May;
July fourth;
The first Monday in September;
November eleventh;
The fourth Thursday in November; and
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.

"General Decision Number: MO20230001 04/14/2023

Superseded General Decision Number: MO20220001

State: Missouri

Construction Types: Heavy and Highway

Counties: Missouri Statewide.

HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2023
1	01/27/2023
2	03/03/2023

3	03/17/2023
4	03/24/2023
5	04/14/2023

CARP0002-002 05/01/2022

ST. LOUIS COUNTY AND CITY

	Rates	Fringes
Carpenters	$ 39.94	19.50

CARP0005-006 05/01/2021

CASS (Richards-Gebauer AFB ONLY), CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Carpenters:		
CARPENTERS & LATHERS	$ 41.37	18.90
MILLWRIGHTS & PILEDRIVERS	$ 41.37	18.90

CARP0011-001 05/01/2022

	Rates	Fringes
Carpenter and Piledriver		
ADAIR, AUDRAIN (West of Hwy 19), BOONE, CALLAWAY, CHARITON, COLE, COOPER, HOWARD, KNOX,LINN, MACON, MILLER, MONITEAU,MONROE, OSAGE, PUTNAM, RANDOLPH, SCHUYLER, SHELBY AND SULLIVAN COUNTIES	$ 34.06	19.20
ATCHISON, ANDREW, BATES, CALDWELL, CARROLL,DAVIESS, DEKALB,GENTRY, GRUNDY, HARRISON, HENRY, HOLT, LIVINGSTON, MERCER, NODAWAY,ST. CLAIR, SALINE AND WORTH COUNTIES	$ 32.43	19.20
AUDRAIN (East of Hwy.19), RALLS, MARION, LEWIS, CLARK AND SCOTLAND COUNTIES	$ 34.07	19.20
BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY,JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, STONE, TANEY, VERNON, WEBSTER AND WRIGHT COUNTIES	$ 32.00	19.20
BENTON, MORGAN AND PETTIS	$ 32.48	19.20
BOLLINGER, BUTLER, CAPE GIRARDEAU, DUNKLIN, MISSISSIPPI, NEW MADRID, PEMISCOT, PERRY, STE. GENEVIEVE, SCOTT, STODDARD AND WAYNE COUNTIES	$ 33.90	19.20
BUCHANAN, CLINTON, JOHNSON AND LAFAYETTE COUNTIES	$ 33.20	19.20
CARTER, HOWELL, OREGON AND		

RIPLEY COUNTIES	$ 32.77	19.20
CRAWFORD, DENT, GASCONADE, IRON, MADISON, MARIES, MONTGOMERY, PHELPS, PULASKI, REYNOLDS, SHANNON AND TEXAS COUNTIES	$ 33.89	19.20
FRANKLIN COUNTY	$ 37.59	19.20
JEFFERSON AND ST. CHARLES COUNTIES	$ 39.94	19.50
LINCOLN COUNTY	$ 35.91	19.20
PIKE, ST. FRANCOIS AND WASHINGTON COUNTIES	$ 34.74	19.20
WARREN COUNTY	$ 36.38	19.20

ELEC0001-002 07/17/2022

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, FRANKLIN, IRON, JEFFERSON, LINCOLN, MADISON, MISSISSIPPI, NEW MADRID, PEMISCOT, PERRY,REYNOLDS, RIPLEY, ST. CHARLES, ST. FRANCOIS, ST. LOUIS (City and County), STE. GENEVIEVE, SCOTT, STODDARD, WARREN, WASHINGTON AND WAYNE COUNTIES

	Rates	Fringes
Electricians	$ 43.56	29.10

ELEC0002-001 09/04/2022

ADAIR, AUDRAIN, BOONE, CALLAWAY, CAMDEN, CARTER, CHARITON, CLARK, COLE, COOPER, CRAWFORD, DENT, FRANKLIN, GASCONADE, HOWARD, HOWELL, IRON, JEFFERSON, KNOX, LEWIS, LINCON, LINN, MACON, MARIES, MARION, MILLER, MONITEAU, MONROE, MONTGOMERY, MORGAN, OREGON, OSAGE, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. CHARLES, ST. FRANCOIS, ST. LOUIS (City and County), STE. GENEVIEVE, SCHUYLER, SCOTLAND, SHANNON, SHELBY, SULLIVAN, TEXAS, WARREN AND WASHINGTON COUNTIES

	Rates	Fringes
Line Construction:		
Equipment Operator	$ 44.16	23.14
Groundman & Truck Driver	$ 33.74	19.34
Lineman & Cable Splicer	$ 51.45	25.81

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* ELEC0053-004 01/01/2023

	Rates	Fringes
Line Construction: (ANDREW, ATCHINSON, BARRY, BARTON, BUCHANAN, CALDWELL, CEDAR, CHRISTIAN, CLINTON, DADE, DALLAS, DAVIES,, DEKALB, DOUGLAS, GENTRY, GREENE, GRUNDY, HARRISON, HICKORY, HOLT, JASPER, LACLEDE, LAWRENCE, LIVINGSTON, MCDONALD, MERCER, NEWTON, NODAWAY, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, WORTH AND WRIGHT COUNTIES)		

Groundman Powderman	$ 34.25	18.81
Groundman	$ 31.96	18.03
Lineman Operator	$ 46.74	23.09
Lineman	$ 51.82	24.89

Line Construction; (BATES, BENTON, CARROLL, CASS, CLAY, HENRY, JACKSON, JOHNSON, LAFAYETTE, PETTIS, PLATTE, RAY AND SALINE COUNTIES)

Groundman Powderman	$ 33.58	18.34
Groundman	$ 31.33	17.60
Lineman Operator	$ 45.60	22.48
Lineman	$ 50.31	24.11

ELEC0095-001 06/01/2020

BARRY, BARTON, CEDAR, DADE, JASPER, LAWRENCE, MCDONALD, NEWTON, ST CLAIR, AND VERNON COUNTIES

	Rates	Fringes
Electricians:		
Cable Splicers	$ 25.40	12.19
Electricians	$ 27.43	17.44

ELEC0124-007 09/28/2021

BATES, BENTON, CARROLL, CASS, CLAY, COOPER, HENRY, JACKSON, JOHNSON, LAFAYETTE, MORGAN, PETTIS, PLATTE, RAY AND SALINE COUNTIES:

	Rates	Fringes
Electricians	$ 41.79	23.67

ELEC0257-003 03/01/2023

AUDRAIN (Except Cuivre Township), BOONE, CALLAWAY, CAMDEN, CHARITON, COLE, CRAWFORD, DENT, GASCONADE, HOWARD, MARIES, MILLER, MONITEAU, OSAGE, PHELPS AND RANDOLPH COUNTIES

	Rates	Fringes
Electricians:		
Cable Splicers	$ 30.42	16.085
Electricians	$ 37.00	20.88

ELEC0350-002 12/01/2022

ADAIR, AUDRAIN (East of Highway 19), CLARK, KNOX, LEWIS, LINN, MACON, MARION, MONROE, MONTGOMERY, PIKE, PUTNAM, RALLS, SCHUYLER, SCOTLAND, SHELBY AND SULLIVAN COUNTIES

	Rates	Fringes
Electricians	$ 35.50	19.94

ELEC0453-001 09/01/2022

	Rates	Fringes

Electricians:
CHRISITAN, DALLAS,
DOUGLAS, GREENE, HICKORY,
HOWELL, LACLEDE, OREGON,
OZARK, POLK, SHANNON,
WEBSTER and WRIGHT COUNTIES.$ 30.00 17.26
PULASKI and TEXAS COUNTIES..$ 35.29 26.40
STONE and TANEY COUNTIES....$ 25.88 16.45

ELEC0545-003 06/01/2022

ANDREW, BUCHANAN, CLINTON, DEKALB, ATCHISON, HOLT, MERCER, GENTRY, HARRISON, DAVIESS, GRUNDY, WORTH, LIVINGSTON, NODAWAY, AND CALDWELL COUNTIES

	Rates	Fringes
Electricians:	$ 36.00	16.39

ELEC0702-004 01/02/2023

BOLLINGER, BUTLER, CAPE GIRARDEAU, DUNKLIN, MADISON, MISSISSIPPI, NEW MADRID, PEMISCOT, SCOTT, STODDARD AND WAYNE COUNTIES

	Rates	Fringes
Line Construction:		
Groundman - Class A	$ 33.63	29%+8.35
Groundman-Equipment Operator Class II (all other equipment)	$ 42.65	29%+8.35
Heavy-Equipment Operator Class I (all crawler type equipment D-4 and larger)	$ 48.67	29%+8.35
Lineman	$ 59.34	29%+8.35

ENGI0101-001 05/01/2020

ANDREW, ATCHISON, BATES, BENTON, BUCHANAN, CALDWELL, CARROLL, CHARITON, CLINTON, COOPER, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HENRY, HOLT, HOWARD, JOHNSON, LAFAYETTE, LINN, LIVINGSTON, MERCER, NODAWAY, PETTIS, SALINE, SULLIVAN AND WORTH COUNITES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 34.73	18.20
GROUP 2	$ 34.33	18.20
GROUP 3	$ 32.33	18.20

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt roller operator, finish; asphalt paver and spreader; asphalt plant operator; auto grader or trimmer or sub-grader; backhoe; blade operator (all types); boilers - 2; booster pump on dredge; bulldozer operator; boring machine (truck or crane mounted); clamshell operator; concrete mixer paver; concrete plant operator; concrete pump operator; crane operator; derrick or derrick trucks; ditching machine; dragline operator; dredge engineman;

dredge operator; drill cat with compressor mounted (self-contained) or similar type self- propelled rotary drill (not air tract); drilling or boring machine (rotary-self-propelled); finishing machine operator; greaser; high loader-fork lift-skid loader (all types); hoisting engineer (2 active drums); locomotive operator (standard guage); mechanics and welders (field and plants); mucking machine operator; pile drive operator; pitman crane or boom truck (all types); push cat; quad track; scraper operators (all types); shovel operator; sideboom cats; side discharge spreader; skimmer scoop operators; slip form paver operator (CMI, Rex, Gomeco or equal); la tourneau rooter (all tiller types); tow boat operator; truck crane; wood and log chippers (all types).

GROUP 2: A-frame truck operator; articulated dump truck; back filler operator; boilers (1); chip spreader; churn drill operator; compressor; concrete mixer operator, skip loader; concrete saws (self-propelled); conveyor operator; crusher operator; distributor operator; elevating grader operator; farm tractor (all attachments); fireman rig; float operator; form grade operator; hoisting engine (one drum); maintenance operator; multiple compactor; pavement breaker, self-propelled hydra-hammer (or similar type); paymill operator; power shield; pumps; roller operator (with or without blades); screening and washing plant; self-propelled street broom or sweeper; siphons and jets; straw blower; stump cutting machine; siphons and jets; tank car heater operator (combination boiler and booster); welding machine; vibrating machine operator (not hand held); welding machine.

GROUP 3: (a) Oiler;
(b) Oiiler driver
(c) Mechanic.

HOURLY PREMIUMS:
THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .25) ABOVE GROUP 1 RATE: Dragline operator - 3 yds. & over; shovel 3 yds. & over; clamshell 3 yds. & over; Crane, rigs or piledrivers, 100' of boom or over (incl. jib.), hoist - each additional active drum over 2 drums

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .50) ABOVE GROUP 1 RATE: Tandem scoop operator; crane, rigs or piledrivers 150' to 200' of boom (incl. jib.)

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .75) ABOVE GROUP 1 RATE: Crane rigs, or piledrivers 200 ft. of boom or over (including jib.)

ENGI0101-005 04/01/2022

CASS, CLAY, JACKSON,PLATTE AND RAY COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 38.42	20.44
GROUP 2	$ 37.38	20.44
GROUP 3	$ 32.91	20.44
GROUP 4	$ 36.26	20.44

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt roller operator, finish; asphalt paver and spreader; asphalt plant operator; auto grader or trimmer or sub-grader; backhoe; blade operator (all types); boilers-2; booster pump on dredge; boring machine (truck or crane mounted); bulldozer operator; clamshell operator; concrete cleaning decontamination machine operator; concrete mixer paver; concrete plant operator; concrete pump operator; crane operator; derrick or derrick trucks; ditching machine; dragline operator; dredge engineman; dredge operator; drillcat with compressor mounted (self-contained) or similar type self propelled rotary drill (not air tract); drilling or boring machine (rotary - self-propelled); finishing machine operator; greaser; heavy equipment robotics operator/mechanic; horizontal directional drill operator; horizontal directional drill locator; loader-forklift - skid loader (all types); hoisting engineer (2 active drums); locomotive operator (standard guage); master environmental maintenance mechanic; mechanics and welders (field and plants); mucking machine operator; piledrive operator; pitman crane or boom truck (all types); push cat; quad-track; scraper operators (all types); shovel operator; side discharge spreader; sideboom cats; skimmer scoop operator; slip-form paver (CMI, REX, Gomaco or equal); la tourneau rooter (all tiller types); tow boat operator; truck crane; ultra high perssure waterjet cutting tool system operator/mechanic; vacuum blasting machine operator/mechanic; wood and log chippers (all types)

GROUP 2: ""A"" Frame truck operator; back filler operator; boilers (1); chip spreader;churn drill operator; concrete mixer operator, skip loader; concrete saws (self-propelled); conveyor operator; crusher operator; distributor operator; elevating grader operator; farm tractor (all attachments); fireman rig; float operator; form grader operator; hoisting engine (1 drum); maintenance operator; multiple compactor; pavement breaker, self-propelled hydra- hammer (or similar type); power shield; paymill operator; pumps; siphons and jets; stump cutting machine; tank car heater operator (combination boiler and booster); compressor; roller operator (with or without blades); screening and washing plant; self-propelled street broom or sweeper; straw blower; tank car heater operator (combination boiler and booster); vibrating machine operator (not hand held)

GROUP 3: Oilers

GROUP 4: Oiler Driver (All Types)

FOOTNOTE:
HOURLY PREMIUMS FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($1.00) ABOVE GROUP 1 RATE:
Clamshells - 3 yd. capacity or over; Cranes or rigs, 80 ft. of boom or over (including jib); Draglines, 3 yd. capacity or over;
Piledrivers 80 ft. of boom or over (including jib);
Shovels & backhoes, 3 yd. capacity or over.

ENGI0101-022 05/01/2019

BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON,

OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER AND WRIGHT COUNTIES and CITY OF SPRINGFIELD

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 31.72	14.88
GROUP 2	$ 31.37	14.88
GROUP 3	$ 31.17	14.88
GROUP 4	$ 29.12	14.88

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt finishing machine & trench widening spreader; asphalt plant console operator; autograder; automatic slipform paver; backhoe; blade operator - all types; boat operator - tow; boilers-2; central mix concrete plant operator; clamshell operator; concrete mixer paver; crane operator; derrick or derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader; hoisting engine - 2 active drums; launch hammer wheel; locomotive operator; - standard guage; mechanic and welders; mucking machine; off-road trucks; piledriver operator; pitman crane operator; push cat operator; quad trac; scoop operator - all types; shovel operator; sideboom cats; skimmer scoop operators; trenching machine operator; truck crane.

GROUP 2: A-frame; asphalt hot-mix silo; asphalt plant fireman (drum or boiler); asphalt plant man; asphalt plant man; asphalt plant mixer operator; asphalt roller operator; backfiller operator; barber-greene loader; boat operator (bridges and dams); chip spreader; concrete mixer operator - skip loader; concrete plant operator; concrete pump operator; crusher operator; dredge oiler; elevating grader operator; fork lift; greaser-fleet; hoisting engine - 1; locomotive operator - narrow gauge; multiple compactor; pavement breaker; powerbroom - self-propelled; power shield; rooter; side discharge concrete spreader; slip form finishing machine; stumpcutter machine; throttle man; tractor operator (over 50 h.p.); winch truck.

GROUP 3: Boilers - 1; chip spreader (front man); churn drill operator; clef plane operator; concrete saw operator (self-propelled); curb finishing machine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; roller operator, other than high type asphalt; screening & washing plant operator; siphons & jets; sub-grading machine operator; spreader box operator, self-propelled (not asphalt); tank car heater operator (combination boiler & booster); tractor operator (50 h.p. or less); Ulmac, Ulric or similar spreader; vibrating machine operator, not hand;

GROUP 4: Grade checker; Oiler; Oiler-Driver

HOURLY PREMIUMS:

The following classifications shall receive $ .25 above GROUP 1 rate:
Clamshells - 3 yds. or over; Cranes - Rigs or Piledrivers, 100 ft. of boom or over (including jib);

Draglines - 3 yds. or over; Hoists - each additional active drum over 2 drums; Shovels - 3 yds. or over;

The following classifications shall receive $ .50 above GROUP 1 rate:
Tandem scoop operator; Cranes - Rigs or Piledrivers, 150 ft. to 200 ft. of boom (including jib); Tandem scoop.

The following classifications shall receive $ .75 above GROUP 1 rate:
Cranes - Rigs or Piledrivers, 200 ft. of boom or over (including jib.).

ENGI0513-004 05/05/2022

FRANKLIN, JEFFERSON, LINCOLN, ST CHARLES, AND WARREN COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 38.36	28.93
GROUP 2	$ 38.36	28.93
GROUP 3	$ 37.06	28.93
GROUP 4	$ 36.61	28.93

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Backhoe, Cable; Backhoe, Hydraulic (2 cu yds bucket and under regardless of attachment, one oiler for 2 or 3, two oilers for 4 through 6); Backhoe, Hydraulic over 2 cu yds; Cableway; Crane, Crawler or Truck; Crane, Hydraulic - Truck or Cruiser mounted, 16 tons and over; Crane, Locomotive; crane with boom including jib over 100 ft from pin to pin; Crane using rock socket tool; Derrick, Steam; Derrick Car and Derrick Boat; Dragline, 7 cu yds and over; Dredge; Gradall, Crawler or tire mounted; Locomotive, Gas, Steam & other powers; Pile Driver, Land or Floating; Scoop, Skimmer; Shovel, Power (Electric, Gas, Steam or other powers); Shovel, Power (7 cu yds and over); Switch Boat; Whirley; Air Tugger with air compressor; Anchor Placing Barge; Asphalt Spreaker; Athey Force Feeder Loader, self-propelled; Backfilling Machine; Boat Operator - Push Boat or Tow Boat (job site); Boiler, High Pressure Breaking in Period; Boom Truck, Placing or Erecting; Boring Machine, Footing Foundation; Bullfloat; Cherry Picker; Combination Concrete Hoist and Mixer (such as Mixermobile); Compressor, Two 125 CFM and under; Compressor, Two through Four over 125 CFM; Compressor when operator runs throttle; Concrete Breaker (Truck or Tractor mounted); Concrete Pump (such as Pumpcrete machine); Concrete Saw (self-propelled); Concrete Spreader; Conveyor, Large (not selfpropelled) hoisting or moving brick and concrete into, or into and on floor level, one or both; Crane, Cimbing (such as Linden); Crane, Hydraulic - Rough Terrain, self-propelled; Crane, Hydraulic - Truck or Cruiser mounted - under 16 tons; Drilling machine - Self-powered, used for earth or rock drilling or boring (wagon drills and any hand drills obtaining power from other souces including concrete breakers, jackhammers and Barco equipmnet no engineer required); Elevating Grader; Engine Man, Dredge; Excavator or Powerbelt Machine; Finishing Machine, self- propelled oscillating screed; Forklift; Generators, Two through Six 30 KW or over; Grader, Road with power blade; Greaser; Highlift; Hoist, Concrete and Brick (Brick cages or concrete skips operating

or on tower, Towermobile, or similar equipment); Hoist, Three or more drums in use; Hoist, Stack; Hydro-Hammer; Lad-A-Vator, hoisting brick or concrete; Loading Machine such as Barber-Greene; Mechanic on job site

GROUP 2: Air Tugger with plant air; Boiler (for power or heating shell of building or temporary enclosures in connection with construction work); Boiler, Temporary; Compressor, One over 125 CFM; Compressor, truck mounted; Conveyor, Large (not self- propelled); Conveyor, Large (not self- propelled) moving brick and concrete (distributing) on floor level; Curb Finishing Machine; Ditch Paving Machine; Elevator (outside); Endless Chain Hoist; Fireman (as required); Form Grader; Hoist, One Drum regardless of size (except brick or concrete); Lad-A-Vator, other hoisting; Manlift; Mixer, Asphalt, over 8 cu ft capacity; Mixer, one bag capacity or less; Mixer, without side loader, two bag capacity or more; Mixer, with side loader, regardless of size, not Paver; Mud Jack (where mud jack is used in conjenction with an air compressor, operator shall be paid $ .55 per hour in addition to his basic hourly rate for covering both operations); Pug Mill operator; Pump, Sump - self powered, automatic controlled over 2""; Scissor Lift (used for hoisting); Skid Steer Loader; Sweeper, Street; Tractor, small wheel type 50 HP and under with grader blade and similar equipment; Welding Machine, One over 400 amp; Winch, operating from truck

GROUP 3: Boat operator - outboard motor, job site; Conveyors (such as Con-Vay-It) regardless of how used; Elevator (inside); Heater operator, 2 through 6; Sweeper, Floor

GROUP 4: Crane type

HOURLY PREMIUMS:

Backhoe, Hydraulic 2 cu yds or less without oiler - $2.00;
Crane,climbing (such as Linden) - $.50;
Crane, Pile Driving and Extracting - $ .50
Crane with boom (including job) over
100 ft from pin to pin - add $.01 per foot
to maximum of $4.00);
Crane, using rock socket tool - $ .50;
Derrick, diesel, gas or electric hoisting material
and erecting steel (150 ft or more above ground) - $ .50;
Dragline, 7 cu yds and over - $ .50;
Hoist, Three or more drums in use - $ .50;
Scoop, Tandem - $.50;
Shovel, Power - 7 cu yds and over - $ .50;
Tractor, Tandem Crawler - $ .50;
Tunnel, man assigned to work in tunnel or
tunnel shaft - $ .50;
Wrecking, when machines are working on
second floor or higher - $ .50

ENGI0513-006 05/01/2022

ADAIR, AUDRAIN, BOLLINGER, BOONE, BUTLER, CALLAWAY, CAPE GIRARDEAU, CARTER, CLARK, COLE, CRAWFORD, DENT, DUNKLIN, GASCONADE, HOWELL, IRON, KNOX, LEWIS, MACON, MADISON, MARIES, MARION, MILLER, MISSISSIPPI, MONITEAU, MONROE, MONTGOMERY, MORGAN, NEW MADRID, OREGON, OSAGE, PEMISCOT, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. FRANCOIS, STE. GENEVIEVE, SCHUYLER, SCOTLAND, SCOTT, SHANNON,

SHELBY, STODDARD, TEXAS, WASHINGTON, AND WAYNE COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 33.24	28.75
GROUP 2	$ 32.89	28.75
GROUP 3	$ 32.69	28.75
GROUP 4	$ 29.04	28.75

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt finishing machine & trench widening spreader, asphalt plant console operator; autograder; automatic slipform paver; back hoe; blade operator - all types; boat operator tow; boiler two; central mix concrete plant operator; clam shell operator; concrete mixer paver; crane operator; derrick or derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader; hoisting engine 2 active drums; launchhammer wheel; locomotive operator standrad guage; mechanics and welders; mucking machine; piledriver operator; pitman crane operator; push cat operator; guad-trac; scoop operator; sideboom cats; skimmer scoop operator; trenching machine operator; truck crane, shovel operator.

GROUP 2: A-Frame; asphalt hot-mix silo; asphalt roller operator asphalt plant fireman (drum or boiler); asphalt plant man; asphalt plant mixer operator; backfiller operator; barber-greene loader; boat operator (bridge & dams); chip spreader; concrete mixer operator skip loader; concrete plant operator; concrete pump operator; dredge oiler; elevating graded operator; fork lift; grease fleet; hoisting engine one; locomotive operator narrow guage; multiple compactor; pavement breaker; powerbroom self-propelled; power shield; rooter; slip-form finishing machine; stumpcutter machine; side discharge concrete spreader; throttleman; tractor operator (over 50 hp); winch truck; asphalt roller operator; crusher operator.

GROUP 3: Spreader box operator, self-propelled not asphalt; tractor operator (50 h.p. or less); boilers one; chip spreader (front man); churn drill operator; compressor over 105 CFM 2-3 pumps 4"" & over; 2-3 light plant 7.5 KWA or any combination thereof; clef plane operator; compressor maintenance operator 2 or 3; concrete saw operator (self-propelled); curb finishing mancine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; riller operator other than high type asphalt; screening & washing plant operator; siphons & jets; subgrading machine operator; tank car heater (combination boiler & booster); ulmac, ulric or similar spreader; vibrating machine operator; hydrobroom.

GROUP 4: Oiler; grout machine; oiler driver; compressor over 105 CFM one; conveyor operator one; maintenance operator; pump 4"" & over one.

FOOTNOTE: HOURLY PREMIUMS

Backhoe hydraulic, 2 cu. yds. or under Without oiler - $2.00
Certified Crane Operator - $1.50;
Certified Hazardous Material Operator $1.50;
Crane, climbing (such as Linden) - $0.50;
Crane, pile driving and extracting - $0.50;
Crane, with boom (including jib) over 100' from pin to pin add $0.01 per foot to maximum of $4.00;
Crane, using rock socket tool - $0.50;
Derrick, diesel, gas or electric, hoisting material and erecting steel (150' or more above the ground) - $0.50;
Dragline, 7 cu. yds, and over - $0.50;
Hoist, three or more drums in use - $0.50; Scoop, Tandem - $0.50;
Shovel, power - 7 cu. yds. or more - $0.50;
Tractor, tandem crawler - $0.50;
Tunnel, man assigned to work in tunnel or tunnel shaft - $0.50;
Wrecking, when machine is working on second floor or higher - $0.50;

ENGI0513-007 05/05/2022

ST. LOUIS CITY AND COUNTY

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 38.36	28.93
GROUP 2	$ 38.36	28.93
GROUP 3	$ 37.06	28.93
GROUP 4	$ 36.61	28.93

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Backhoe, cable or hydraulic; cableway; crane crawler or truck; crane, hydraulic-truck or cruiser mounted 16 tons & over; crane locomotive; derrick, steam; derrick car & derrick boat; dragline; dredge; gradall, crawler or tire mounted; locomotive, gas, steam & other powers; pile driver, land or floating; scoop, skimmer; shovel, power (steam, gas, electric or other powers); switch boat; whirley.

GROUP 2: Air tugger w/air compressor; anchor-placing barge; asphalt spreader; athey force feeder loader (self-propelled); backfilling machine; backhoe-loader; boat operator-push boat or tow boat (job site); boiler, high pressure breaking in period; boom truck, placing or erecting; boring machine, footing foundation; bull- float; cherry picker; combination concrete hoist & mixer (such as mixer mobile); compressor (when operator runs throttle); concrete breaker (truck or tractor mounted); concrete pump, such as pump-crete machine; concrete saw (self-propelled), concrete spreader; conveyor, large (not self-propelled), hoisting or moving brick and concrete into, or into and on floor level, one or both; crane, hydraulic-rough terrain, self-propelled; crane hydraulic-truck or cruiser mounted-under 16 tons; drilling machines, self-powered use for earth or rock drilling or boring (wagon drills nd any hand drills obtaining power from other sources including concrete breakers, jackhammers and barco equipment-no engineer required); elevating grader; engineman, dredge; excavator or powerbelt machine; finishing machine, self-propelled oscillating screed; forklift; grader, road

with power blade; highlift. greaser; hoist, stack, hydro-hammer; loading machine (such as barber-greene); machanic, on job site; mixer, pipe wrapping machines; plant asphalt; plant, concrete producing or ready-mix job site; plant heating-job site; plant mixing-job site; plant power, generating-job site; pumps, two through six self-powered over 2""; pumps, electric submersible, two through six, over 4""; quad-track; roller, asphalt, top or sub-grade; scoop, tractor drawn; spreader box; sub-grader; tie tamper; tractor-crawler, or wheel type with or without power unit, power take-offs and attachments regardless of size; trenching machine; tunnel boring machine; vibrating machine automatic, automatic propelled; welding machines (gasoline or diesel) two through six; well drilling machine

GROUP 3: Conveyor, large (not self-propelled); conveyor, large (not self-propelled) moving brick and concrete distributing) on floor level; mixer two or more mixers of one bag capacity or less; air tugger w/plant air; boiler, for power or heating on construction projects; boiler, temporary; compressor (mounted on truck; curb finishing machine; ditch paving machine; elevator; endless chain hoist; form grader; hoist, one drum regardless of size; lad-a-vator; manlift; mixer, asphalt, over 8 cu. ft. capacity, without side loader, 2 bag capacity or more; mixer, with side loader, regardless of size; pug mill operator; pump, sump-self-powered, automatic controlled over 2"" during use in connection with construction work; sweeper, street; welding machine, one over 400 amp.; winch operating from truck; scissor lift (used for hoisting); tractor, small wheel type 50 h.p. & under with grader blade & similar equipment; Oiler on dredge and on truck crane.

GROUP 4: Boat operator-outboard motor (job site); conveyor (such as con-vay-it) regardless of how used; sweeper, floor

HOURLY PREMIUMS:

Backhoe, hydraulic 2 cu. yds. or under without oiler	$2.00
Certified Crane Operator	1.50
Certified Hazardous Material Operator	1.50
Crane, climbing (such as Linden)	.50
Crane, pile driving and extracting	.50
Crane, with boom (including jib) over 100' (from pin to pin) add $.01 per foot to maximum of	4.00
Crane, using rock socket tool	.50
Derrick, diesel, gas or electric, hoisting material and erecting steel (150' or more above ground)	.50
Dragline, 7 cu. yds. and over	.50
Hoist, three (3) or more drums in use	.50
Scoop, Tandem	.50
Shovel, power - 7 cu. yds. or more	.50
Tractor, tandem crawler	.50
Tunnel, man assigned to work in tunnel or tunnel shaft	.50
Wrecking, when machine is working on second floor or higher	.50

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* IRON0010-012 04/01/2023

	Rates	Fringes

Ironworkers:
ANDREW, BARTON, BENTON,
CAMDEN, CEDAR, CHARITON,
CHRISTIAN, COOPER, DADE,
DALLAS, DAVIESS, DE KALB,
GENTRY, GREENE, GRUNDY,
HARRISON, HICKORY, HOLT,
HOWARD, LACLEDE, LINN,
LIVINGSTON, MERCER,
MONITEAU, MORGAN, NODAWAY,
PETTIS, POLK, PUTNAM,
RANDLOPH, ST. CLAIR,
SULLIVAN, TANEY, VERNON,
WEBSTER, WRIGHT and WORTH
Counties and portions of
ADAIR, BOONE, MACON,
MILLER and RANDOLPH
Counties.....$ 33.50 33.38
ATCHISON, BATES, BUCHANAN,
CALDWELL, CARROLL, CASS,
CLAY, CLINTON, HENRY,
JACKSON, JOHNSON,
LAFAYETTE, PETTIS, PLATTE,
SALINE, AND RAY COUNTIES....$ 36.50 33.38

IRON0321-002 08/01/2022

DOUGLAS, HOWELL and OZARK COUNTIES

	Rates	Fringes
Ironworker	$ 23.50	19.96

IRON0396-004 08/04/2021

ST. LOUIS (City and County), ST. CHARLES, JEFFERSON, IRON, FRANKLIN, LINCOLN, WARREN, WASHINGTON, ST. FRANCOIS, STE. GENEVIEVE, and REYNOLDS Counties; and portions of MADISON, PERRY, BOLLINGER, WAYNE, and CARTER Counties

	Rates	Fringes
Ironworker	$ 36.71	28.96

IRON0396-009 08/04/2021

AUDRAIN, CALLAWAY, COLE, CRAWFORD, DENT, GASCONADE, MARIES, MONTGOMERY, OSAGE, PHELPS, PIKE, PULASKI, TEXAS and WRIGHT Counties; and portions of BOONE, CAMDEN, DOUGLAS, HOWELL, LACLEDE, MILLER, MONROE, OREGON, SHANNON and RALLS Counties

	Rates	Fringes
Ironworker	$ 32.24	28.96

IRON0577-005 06/01/2022

ADAIR, CLARK, KNOX, LEWIS, MACON, MARION, MONROE, RALLS, SCHUYLER, SCOTLAND, AND SHELBY COUNTIES

	Rates	Fringes

Ironworker.....$ 28.80 25.05

IRON0584-004 06/01/2022

BARRY, JASPER, LAWRENCE, MCDONALD, NEWTON AND STONE Counties

	Rates	Fringes
Ironworkers:	$ 28.00	16.00

IRON0782-003 08/01/2022

CAPE GIRARDEAU, MISSISSIPPI, NEW MADRID, SCOTT, & STODDARD Counties; and portions of BOLLINGER, BUTLER, CARTER, DUNKLIN, MADISON, PEMISCOT, PERRY, RIPLEY, and WAYNE Counties

	Rates	Fringes
Ironworkers:		
Locks, Dams, Bridges and other major work on the Mississippi and Ohio River only	$ 35.13	28.27
All Other Work	$ 30.73	24.12

LABO0042-003 03/01/2023

ST. LOUIS (City and County)

	Rates	Fringes
LABORER		
Plumber Laborer	$ 36.65	17.12

LABO0042-005 03/01/2023

ST. LOUIS (City and County)

	Rates	Fringes
LABORER		
Dynamiter, Powderman	$ 36.65	17.12
Laborers, Flaggers	$ 36.65	17.12
Wrecking	$ 36.65	17.12

LABO0110-005 05/01/2022

Jefferson and Washington Counties

	Rates	Fringes
LABORER (Jefferson County)		
GROUP 1	$ 34.49	15.42
GROUP 2	$ 35.09	15.42
LABORER (Washington County)		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man;

material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO0579-005 05/01/2022

	Rates	Fringes
LABORER (ANDREW, ATCHISON, BUCHANAN, CALDWELL, CLINTON, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HOLT, LIVINGSTON, MERCER, NODAWAY and WORTH COUNTIES.)		
GROUP 1	$ 28.29	16.34
GROUP 2	$ 28.64	16.34
LABORER (BARRY, BARTON, BATES, BENTON, CAMDEN, CARROLL, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HENRY. HICKORY, JASPER, JOHNSON, LACLEDE, LAWRENCE, MCDONALD, MORGAN, NEWTON, OZARK, PETTIS, POLK, ST.CLAIR, SALINE, STONE, TANEY, VERNON, WEBSTER and		

WRIGHT COUNTIES)

GROUP 1	$ 27.28	15.55
GROUP 2	$ 27.83	15.55

LABORER (LAFAYETTE COUNTY)

GROUP 1	$ 28.83	15.80
GROUP 2	$ 29.18	15.80

LABORERS CLASSIFICATIONS

GROUP 1: General Laborers - Carpenter tenders; salamander tenders; loading trucks under bins; hoppers & conveyors; track men & all other general laborers; air tool operator; cement handler-bulk or sack; dump man on earth fill; georgie buggie man; material batch hopper man; material mixer man (except on manholes); coffer dams; riprap pavers - rock, block or brick; signal man; scaffolds over ten feet not self-supported from ground up; skipman on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoline, oil drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator, all work in connection with hydraulic or general dredging operations; puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material or materials (where special protection is required); rubbing concrete; topper of standing trees; batter board man on pipe and ditch work; feeder man on wood pulverizers; board and willow mat weavers and cable tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 feet where compressed air is not used; abutment and pier hole men working six (6) feet or more below ground; men working in coffer dams for bridge piers and footings in the river; ditchliners; pressure groutmen; caulker; chain or concrete saw; cliffscalers working from scaffolds, bosuns' chairs or platforms on dams or power plants over (10) feet above ground; mortarmen on brick or block manholes; toxic and hazardous waste work.

GROUP 2: Skilled Laborers - Head pipe layer on sewer work; laser beam man; Jackson or any other similar tamp; cutting torch man; form setters; liners and stringline men on concrete paving, curb, gutters; hot mastic kettleman; hot tar applicator; sandblasting and gunite nozzlemen; air tool operator in tunnels; screed man on asphalt machine; asphalt raker; barco tamper; churn drills; air track drills and all similar drills; vibrator man; stringline man for electronic grade control; manhole builders-brick or block; dynamite and powder men; grade checker.

LABO0660-004 05/01/2022

Clark, Knox, Lewis, Marion, Pike, Ralls, Scotland, Shelby Counties

	Rates	Fringes
LABORER		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO0660-006 03/01/2023

Lincoln, Montgomery, St Charles and Warren Counties

	Rates	Fringes
LABORER (Common or General).....	$ 36.91	15.62

LABO0662-001 05/01/2022

Callaway, Cole, Miller and Moniteau Counties

	Rates	Fringes
LABORER		
GROUP 1.....	$ 32.10	15.42
GROUP 2.....	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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* LAB00663-002 04/01/2023

CASS, CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
LABORER		
GROUP 1	$ 34.15	17.06
GROUP 2	$ 35.36	17.06

LABORERS CLASSIFICATIONS

GROUP 1: General laborers, Carpenter tenders, salamander tenders, loading trucks under bins, hoppers and conveyors, track men and all other general laborers, air tool

operator, cement handler (bulk or sack), chain or concrete saw, deck hands, dump man on earth fill, Georgie Buggies man, material batch hopper man, scale man, material mixer man (except on manholes), coffer dams, abutments and pier hole men working below ground, riprap pavers rock, black or brick, signal man, scaffolds over ten feet not self-supported from ground up, skipman on concrete paving, wire mesh setters on concrete paving, all work in connection with sewer,water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipelines, power tool operator, all work in connection with hydraulic or general dredging operations, straw blower nozzleman,asphalt plant platform man, chuck tender, crusher feeder, men handling creosote ties on creosote materials, men working with and handling epoxy material or materials (where special protection is required), topper of standing trees, batter board man on pipe and ditch work, feeder man on wood pulverizers, board and willow mat weavers and cable tiers on river work, deck hands, pile dike and revetment work, all laborers working on underground tunnels less than 25 feet where compressed air is not used, abutment and pier hole men working six (6) feet or more below ground, men working in coffer dams for bridge piers and footings in the river, ditchliners, pressure groutmen, caulker and chain or concrete saw, cliffscalers working from scaffolds, bosuns' chairs or platforms on dams or power plants over (10) feet above ground, mortarmen on brick or block manholes, signal man.

GROUP 2: Skilled Laborer - spreader or screed man on asphalt machine, asphalt raker, grade checker, vibrator man, concrete saw over 5 hp., laser beam man, barco tamper, jackson or any other similar tamp, wagon driller, churn drills, air track drills and other similar drills, cutting torch man, form setters, liners and stringline men on concrete paving, curb, gutters and etc., hot mastic kettleman, hot tar applicator, hand blade operators, mortar men on brick or block manholes, sand blasting and gunnite nozzle men, rubbing concrete, air tool operator in tunnels, head pipe layer on sewer work, manhole builder (brick or block), dynamite and powder men.

LABO0840-011 05/01/2022

Crawford, Dent, Franklin, Gasconade, Howell, Maries, Oregon, Osage, Phelps, Pulaski, Shannon and Texas Counties

	Rates	Fringes
LABORER (Crawford, Dent, Gasconade, Howell, Maries, Oregon, Osage, Phelps, Pulaski, Shannon and Texas Counties)		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42
LABORER (Franklin County)		
GROUP 1	$ 34.44	15.42
GROUP 2	$ 35.04	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders;

salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO0955-012 05/01/2022

Adair, Audrain, Boone, Chariton, Cooper, Howard, Linn, Macon, Monroe, Putnam, Randolph, Schuyler and Sullivan Counties

	Rates	Fringes
LABORER		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine;

material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO1104-005 05/01/2022

Bollinger, Butler, Cape Girardeau, Carter, Dunklin, Iron, Madison, Mississippi, New Madrid, Pemiscot, Perry, Reynolds, Ripley, Scott, St Francois, Ste Genevieve, Stoddard and Wayne Counties

	Rates	Fringes
LABORER		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet

not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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PAIN0002-002 09/01/2007

CLARK, FRANKLIN, JEFFERSON, LEWIS, LINCOLN, MARION, PIKE, RALLS, ST. CHARLES, ST. LOUIS (CITY & COUNTY), AND WARREN COUNTIES

	Rates	Fringes
Painters:		
Brush and Roller; Taper	$ 28.61	10.24
High work over 60 feet	$ 29.11	10.24
Lead Abatement	$ 29.36	10.24
Pressure Roller; High work under 60 ft	$ 28.86	10.24
Spray & Abrasive Blasting; Water Blasting (Over 5000 PSI)	$ 30.61	10.24
Taper (Ames Tools & Bazooka)	$ 30.21	10.24

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* PAIN0002-006 04/01/2023

ADAIR, AUDRAIN, BOONE, CALLAWAY, CHARITON, COLE, GASCONADE, HOWARD, KNOX, LINN, MACON, MONROE, MONTGOMERY, OSAGE, PUTNAM,

RANDOLPH, SCHUYLER, SCOTLAND, SHELBY AND SULLIVAN COUNTIES and the City of Booneville.

	Rates	Fringes
Painters:		
Bridges, Dams, Locks or Powerhouses	$ 28.49	15.03
Brush and Roll; Taping, Paperhanging	$ 26.49	15.03
Epoxy or Any Two Part Coating; Sandblasting; Stage or other Aerial Work - Platforms over 50 feet high; Lead Abatement	$ 27.49	15.03
Spray; Structural Steel (over 50 feet)	$ 27.49	15.03
Tapers using Ames or Comparable Tools	$ 27.24	15.03

PAIN0003-004 04/01/2019

CASS, CLAY, CLINTON, JACKSON, JOHNSON, LAFAYETTE, PLATTE & RAY COUNTIES

	Rates	Fringes
Painters:		
Bridgeman; Lead Abatement; Sandblast; Storage Bin & Tanks	$ 33.41	17.76
Brush & Roller	$ 30.54	17.76
Drywall	$ 31.74	17.76
Paper Hanger	$ 31.04	17.76
Stageman; Beltman; Steelman; Elevator Shaft; Bazooka, Boxes and Power Sander; Sprayman; Dipping	$ 32.41	17.76
Steeplejack	$ 36.98	17.76

PAIN0003-011 04/01/2019

BATES, BENTON, CALDWELL, CARROLL, COOPER, DAVIESS, GRUNDY, HARRISON, HENRY, LIVINGSTON, MERCER, MONITEAU, MORGAN, PETTIS & SALINE COUNTIES

	Rates	Fringes
Painters:		
Bridgeman; Lead Abatement; Sandblast; Storage Bin & Tanks	$ 26.73	17.76
Brush & Roller	$ 24.43	17.76
Drywall	$ 25.39	17.76
Paper Hanger	$ 24.83	17.76
Stageman; Beltman; Steelman; Elevator Shaft; Bazooka, Boxes and Power Sander; Sprayman; Dipping	$ 26.35	17.76
Steeplejack	$ 29.58	17.76

PAIN0203-001 04/01/2012

BARRY, BARTON, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, HOWELL, JASPER, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, and WRIGHT COUNTIES

	Rates	Fringes
Painters:		
Finisher	$ 20.18	11.33
Painter	$ 19.75	11.76
Sandblaster, High Man, Spray Man, Vinyl Hanger, Tool Operator	$ 21.18	11.33

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* PAIN1185-008 04/01/2023

CAMDEN, CRAWFORD, DENT, LACLEDE, MARIES, MILLER, PHELPS, PULASKI AND TEXAS COUNTIES

	Rates	Fringes
Painters:		
Brush and Roller	$ 31.83	15.13
Floor Work	$ 32.83	15.13
Lead Abatement	$ 32.83	15.13
Spray	$ 32.83	15.13
Structural Steel, Sandblasting and All Tank Work	$ 33.83	15.13
Taping, Paperhanging	$ 32.83	15.13

PAIN1292-002 09/01/2022

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, MISSISSIPPI, NEW MADRID, OREGON, PEMISCOT, PERRY, REYNOLDS, RIPLEY, SCOTT, SHANNON, STODDARD and WAYNE COUNTIES

	Rates	Fringes
Painters:		
Bridges, Stacks & Tanks	$ 33.93	15.36
Brush & Roller	$ 29.58	15.36
Spray & Abrasive Blasting; Waterblasting (over 5000 PSI)	$ 31.58	15.36

Height Rates (All Areas):
Over 60 ft. $0.50 per hour.
Under 60 ft. $0.25 per hour.

PAIN1292-003 09/01/2022

IRON, MADISON, ST. FRANCOIS, STE. GENEVIEVE and WASHINGTON COUNTIES

	Rates	Fringes
Painters:		
Bridges, Stacks & Tanks	$ 33.93	15.36

Brush & Roller	$ 29.58	15.36
Spray & Abrasive Blasting; Waterblasting (Over 5000 PSI)	$ 31.58	15.36

Height Rates (All Areas):
Over 60 ft. $0.50 per hour
Under 60 ft. $0.25 per hour.

PAIN2012-001 04/20/2022

ANDREW, ATCHISON, BUCHANAN, DE KALB, GENTRY, HOLT, NODAWAY & WORTH COUNTIES

	Rates	Fringes
Painters:		
Brush & Roller	$ 33.35	18.73
Sandblaster	$ 37.27	18.73
Steeplejack	$ 40.84	18.73

PLAS0518-006 03/01/2023

BARRY, BARTON, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, AND WRIGHT COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 26.57	12.43

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* PLAS0518-007 04/01/2023

CASS (Richards-Gebaur AFB only), CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Cement Masons:	$ 36.57	18.30

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* PLAS0518-011 04/01/2023

ANDREW, ATCHISON, BATES, BUCHANNAN, CLINTON, DEKALB, GENTRY, HENRY, HOLT, JOHNSON, LAFAYETTE, NODAWAY & WORTH COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 36.03	20.50

PLAS0527-001 04/01/2021

	Rates	Fringes
CEMENT MASON		
FRANKLIN, LINCOLN AND WARREN COUNTIES	$ 34.79	19.58
JEFFERSON, ST. CHARLES COUNTIES AND ST.LOUIS (City and County)	$ 35.96	19.56

PLAS0527-004 06/01/2021

CRAWFORD, DENT, IRON, MADISON, MARION, PHELPS, PIKE, PULASKI, RALLS, REYNOLDS, ST. FRANCOIS, STE. GENEVIEVE, SHANNON, TEXAS, WASHINGTON COUNTIES

	Rates	Fringes
CEMENT MASON	$ 30.30	19.48

PLAS0908-001 05/01/2021

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, HOWELL, MISSISSIPPI, NEW MADRID, OREGON, PEMISCOT, PERRY, RIPLEY, SCOTT, STODDARD, AND WAYNE COUNTIES

	Rates	Fringes
CEMENT MASON	$ 30.30	17.53

PLAS0908-005 05/01/2021

BENTON, CALDWELL, CALLAWAY, CAMDEN, CARROLL, COLE, DAVIESS, GASCONADE, GRUNDY, HARRISON, LIVINGSTON, MACON, MARIES, MERCER, MILLER, MONTGOMERY, MORGAN, OSAGE, PETTIS & SALINE COUNTIES

	Rates	Fringes
CEMENT MASON	$ 30.30	17.53

PLUM0008-003 06/01/2022

CASS, CLAY, JACKSON, JOHNSON, AND PLATTE COUNTIES

	Rates	Fringes
Plumbers	$ 51.28	23.29

PLUM0008-017 06/01/2022

BATES, BENTON, CARROLL, HENRY, LAFAYETTE, MORGAN, PETTIS, RAY, ST. CLAIR, SALINE AND VERNON COUNTIES

	Rates	Fringes
Plumbers	$ 51.28	23.29

PLUM0045-003 08/01/2022

ANDREW, ATCHISON, BUCHANAN, CALDWELL, CLINTON, DAVIESS, DEKALB, GENTRY, HARRISON, HOLT, NODAWAY AND WORTH COUNTIES

	Rates	Fringes
Plumbers and Pipefitters	$ 41.35	25.45

PLUM0178-003 11/01/2022

BARRY, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE,

HICKORY, LACLEDE, LAWRENCE, POLK, STONE, TANEY, WEBSTER AND WRIGHT COUNTIES

	Rates	Fringes
Plumbers and Pipefitters	$ 35.75	15.32

PLUM0178-006 11/01/2022

BARTON, JASPER, MCDONALD AND NEWTON COUNTIES

	Rates	Fringes
Plumbers and Pipefitters		
Projects $750,000 & under	$ 32.78	15.32
Projects over $750,000	$ 35.75	15.32

PLUM0533-004 06/01/2022

BATES, BENTON, CARROLL, CASS, CLAY, HENRY, HICKORY, JACKSON, JOHNSON, LAFAYETTE, MORGAN, PETTIS, PLATTE, RAY, SALINE, ST. CLAIR AND VERNON COUNTIES

	Rates	Fringes
Pipefitters	$ 51.43	23.35

PLUM0562-004 07/01/2022

ADAIR, AUDRAIN, BOLLINGER, BOONE, BUTLER, CALLAWAY,CAMDEN, CAPE GIRARDEAU,CARTER, CHARITON, CLARK, COLE, COOPER, CRAWFORD, DENT, DUNKLIN, FRANKLIN, GASCONADE, GRUNDY, HOWARD, HOWELL, IRON, JEFFERSON, KNOX, LEWIS, LINCOLN, LINN, LIVINGSTON, MACON, MADISON, MARIES, MARION, MERCER, MILLER, MISSISSIPPI, MONITEAU, MONROE, MONTGOMERY, NEW MADRID, OREGON, OSAGE, PEMISCOTT, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. CHARLES, ST.FRANCOIS, STE. GENEVIEVE, ST. LOUIS, SCHUYLER, SCOTLAND, SCOTT, SHANNON, SHELBY, STODDARD, SULLIVAN, TEXAS, WARREN, WASHINGTON,AND WAYNE COUNTIES.

	Rates	Fringes
Plumbers and Pipefitters		
Mechanical Contracts including all piping and temperature control work $7.0 million & under	$ 44.66	21.49
Mechanical Contracts including all piping and temperature control work over $7.0 million	$ 44.66	21.49

PLUM0562-016 07/01/2022

CAMDEN, COLE, CRAWFORD, FRANKLIN, JEFFERSON, MARIES, MILLER, MONITEAU, OSAGE, PHELPS, PULASKI, ST. CHARLES, ST. LOUIS (City and County), WARREN and WASHINGTON COUNTIES

	Rates	Fringes
Plumbers		

Mechanical Contracts including all piping and temperature control work $7.0 million & under	$ 44.66	21.49
Mechanical Contracts including all piping and temperature control work over $7.0 million	$ 44.66	21.49

TEAM0013-001 05/01/2022

	Rates	Fringes
Truck drivers (ADAIR, BUTLER, CLARK, DUNKIN, HOWELL, KNOX, LEWIS, OREGON, PUTNAM, RIPLEY, SCHUYLER AND SCOTLAND COUNTIES)		
GROUP 1	$ 32.44	14.75
GROUP 2	$ 32.60	14.75
GROUP 3	$ 32.59	14.75
GROUP 4	$ 32.71	14.75
Truck drivers (AUDRAIN, BOLLINGER, BOONE, CALLAWAY, CAPE GIRARDEAU, CARTER, COLE, CRAWFORD, DENT, GASCONADE, IRON, MACON, MADISON, MARIES, MARION, MILLER, MISSISSIPPI, MONROE, MONTGOMERY, NEW MADRID, OSAGE, PEMISCOT, PERRY, PHELPS, PIKE, PULASKI, RALLS, REYNOLDS, ST. FRANCOIS, STE. GENEVIEVE, SCOTT, SHANNON, SHELBY, STODDARD, TEXAS, WASHINGTON AND WAYNE COUNTIES)		
GROUP 1	$ 33.17	14.75
GROUP 2	$ 33.33	14.75
GROUP 3	$ 33.32	14.75
GROUP 4	$ 33.44	14.75
Truck drivers (FRANKLIN, JEFFERSON and ST. CHARLES COUNTIES)		
GROUP 1	$ 35.53	14.75
GROUP 2	$ 35.64	14.75
GROUP 3	$ 35.68	14.75
GROUP 4	$ 35.75	14.75
Truck drivers (LINCOLN and WARREN COUNTIES)		
GROUP 1	$ 35.18	14.75
GROUP 2	$ 34.29	14.75
GROUP 3	$ 35.33	14.75
GROUP 4	$ 34.40	14.75

TRUCK DRIVERS CLASSIFICATIONS:

GROUP 1: Flat Bed Trucks, Single Axle; Station Wagons; Pickup Trucks; Material Trucks, Single Axle; Tank Wagon, Single Axle

GROUP 2: Agitator and Transit Mix Trucks

GROUP 3: Flat Bed Trucks, Tandem Axle; Articulated Dump Trucks; Material Trucks, Tandem Axle; Tank Wagon, Tandem Axle

GROUP 4: Semi and/or Pole Trailers; Winch, Fork & Steel Trucks; Distributor Drivers and Operators; Tank Wagon, Semi-Trailer; Insley Wagons, Dumpsters, Half-Tracks, Speedace, Euclids and other similar equipment; A-Frame and Derrick Trucks; Float or Low Boy

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TEAM0056-001 05/01/2020

	Rates	Fringes
Truck drivers (ANDREW, BARTON, BATES, BENTON, CALDWELL, CAMDEN, CARROLL, CEDAR, CHARITON, CHRISTIAN, CLINTON, COOPER, DADE, DALLAS, DAVIESS, DEKALB, DOUGLAS, GREENE, HENRY, HICHKORY, HOWARD, JASPER, LACLEDE, LAWRENCE, LINN, LIVINGSTON, MONITEAU, MORGAN, NEWTON, PETTIS, POLK, RANDOLPH, ST. CLAIR, SALINE, VERNON, WEBSTER AND WRIGHT COUNTIES)		
GROUP 1	$ 31.37	14.25
GROUP 2	$ 31.53	14.25
GROUP 3	$ 31.52	14.25
GROUP 4	$ 31.64	14.25
Truck drivers: (ATCHISON, BARRY, GENTRY, GRUNDY, HARRISON, HOLT, MCDONALD, MERCER, NODAWAY, OZARK, STONE, SULLIVAN, TANEY AND WORTH COUNTIES)		
GROUP 1	$ 30.64	14.25
GROUP 2	$ 30.80	14.25
GROUP 3	$ 30.79	14.25
GROUP 4	$ 30.91	14.25
Truck drivers; (BUCHANAN, JOHNSON AND LAFAYETTE COUNTIES)		
GROUP 1	$ 32.58	14.25
GROUP 2	$ 32.69	14.25
GROUP 3	$ 32.73	14.25
GROUP 4	$ 32.80	14.25

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Flat bed trucks single axle; station wagons; pickup trucks; material trucks single axle; tank wagons single axle.

GROUP 2: Agitator and transit mix-trucks.

GROUP 3: Flat bed trucks tandem axle; articulated dump trucks; material trucks tandem axle; tank wagons tandem axle.

GROUP 4: Semi and/or pole trailers; winch, fork & steel trucks; distributor drivers & operators; tank wagons semi-trailer; insley wagons, dumpsters, half-tracks, speedace, euclids & other similar equipment; A-frames and derrick trucks; float or low boy.

TEAM0245-001 03/26/2012

BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DALLAS, DENT, DOUGLAS, GREENE, HICKORY, HOWELL, JASPER, LACLEDE, LAWRENCE, MCDONALD, MILLER, NEWTON, OZARK, PHELPS, POLK, PULASKI, SHANNON, STONE, TANEY, TEXAS, VERNON, WEBSTER AND WRIGHT COUNTIES

	Rates	Fringes
Truck drivers:		
Traffic Control Service Driver	$ 20.45	0.00

PAID HOLIDAYS: New Year's Day, Decoration Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day, employee's birthday and 2 personal days.

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* TEAM0541-001 04/01/2023

CASS, CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 35.31	17.55
GROUP 2	$ 34.74	17.55
GROUP 3	$ 34.22	17.55

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Mechanics and Welders, Field; A-Frame Low Boy-Boom ruck Driver.

GROUP 2: Articulated Dump Truck; Insley Wagons: Dump Trucks, Excavating, 5 cu yds and over; Dumpsters; Half-Tracks: Speedace: Euclids & similar excavating equipment Material trucks, Tandem Two teams; Semi-Trailers; Winch trucks-Fork trucks; Distributor Drivers and Operators; Agitator and Transit Mix; Tank Wagon Drivers, Tandem or Semi; One Team; Station Wagons; Pickup Trucks; Material Trucks, Single Axle; Tank Wagon Drivers, Single Axle

GROUP 3: Oilers and Greasers - Field

TEAM0682-002 05/01/2017

ST LOUIS CITY AND COUNTY

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 33.30	13.79+a+b+c+d
GROUP 2	$ 33.50	13.79+a+b+c+d
GROUP 3	$ 33.60	13.79+a+b+c+d

a. PENSION: 5/1/2012 - $182.20 per week.

b. HAZMAT PREMIUM: If Hazmat certification on a job site is required by a state or federal agency or requested by project owner or by the employer, employees on that job

site shall receive $1.50 premium pay.

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 - Pick-up trucks; forklift, single axle; flatbed trucks; job site ambulance, and trucks or trailers of a water level capacity of 11.99 cu. yds. or less

GROUP 2 - Trucks or trailers of a water level capacity of 12.0 cu yds. up to 22.0 cu yds. including euclids, speedace and similar equipment of same capacity and compressors

GROUP 3 - Trucks or trailers of a water level capacity of 22.0 cu. yds & over including euclids, speedace & all floats, flatbed trailers, boom trucks, winch trucks, including small trailers, farm wagons tilt-top trailers, field offices, tool trailers, concrete pumps, concrete conveyors & gasoline tank trailers and truck mounted mobile concrete mixers

FOOTNOTE FOR TRUCK DRIVERS:

c. PAID HOLIDAYS: Christmas Day, Independence Day, Labor Day, Memorial Day, Veterans Day, New Years Day, Thanksgiving Day

d. PAID VACATION: 3 days paid vacation for 600 hours of service in any one contract year; 4 days paid vacation for 800 hours of service in any one contract year; 5 days paid vacation for 1,000 hours of service in any one contract year. When such an employee has completed 3 years of continuous employment with the same employer and then works the above required number of hours, he shall receive double the number of days of vacation specified above. When such an employee has completed 10 years of continuous employment with the same employer and then works the above required number of hours, he shall receive triple the number of days of vacation specified above. When such an employee has completed 15 years of continuous employment with the same employer and then works the above required number of hours, he shall receive 4 times the number of days of vacation specified above.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information

on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate

that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

PERMITS

CULTURAL RESOURCE ASSESSMENT
Section 106 Review

CONTACT PERSON/ADDRESS:

Beth Moots
Howe Company, LLC
804 E Patton Street
Macon, MO 63552

C:

Raegan Ball, FHWA
Michael Meinkoth, MoDOT
Taylor Peters, FHWA

PROJECT:

SHPO Project No. **005-CK-20** – Cultural Resources Survey of Proposed Bridge (#1100037) Replacement over BNSF Railroad (RRP-000S (582))

FEDERAL AGENCY:

FHWA

COUNTY:

Clark

The State Historic Preservation Office has reviewed the information submitted on the above referenced project. Based on this review, we have made the following determination:

☐ Adequate documentation has been provided as outlined in 36 CFR Section 800.11. After review of the initial submission, the project area has no known historic properties present and a low potential for the occurrence of cultural resources. We concur with a determination of **No Historic Properties Affected**.

☐ An adequate cultural resource survey of the project area has been previously conducted; therefore, SHPO concurs with your determination of **No Historic Properties Affected**.

☒ An adequate cultural resource survey has been conducted for this project titled, *Cultural Resource Investigations, Phase I Survey, Bridge No. 1100037 Replacement Project, Clark County, Missouri* by Craig Sturdevant. Based on this survey and its negative findings, SHPO concurs with your determination of **No Historic Properties Affected.**

For the above checked reason, the State Historic Preservation Office has no objection to the initiation of project activities. PLEASE BE ADVISED THAT, IF THE CURRENT PROJECT AREA OR SCOPE OF WORK CHANGES, A BORROW AREA IS INCLUDED IN THE PROJECT, OR CULTURAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, APPROPRIATE INFORMATION MUST BE PROVIDED TO THIS OFFICE FOR FURTHER REVIEW AND COMMENT. Please retain this documentation as evidence of compliance with Section 106 of the National Historic Preservation Act, as amended.

By: _____ **August 5, 2020**
Toni M. Prawl, Ph.D., Deputy State Historic Preservation Officer **Date**

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE
P.O. Box 176, Jefferson City, Missouri 65102
For additional information, please contact Jeffrey Alvey, (573) 751-7862.

Please be sure to refer to the project number: 005-CK-20

Missouri Department of Conservation

Natural Heritage Review Report

Resource Science Division
P. O. Box 180
Jefferson City, MO 65102
Prepared by: Jordan Meyer
NaturalHeritageReview@mdc.mo.gov
(573) 522 – 4115 ext. 3182

Beth Moots
Howe Company LLC.
804 E Patton Street
Macon, Missouri 63552
Beth@Howecompany.com

Project type:	Bridge
Location/Scope:	T55N R09W S3
County:	Clark
Query reference:	11000371 over Burlington Northern Santa Fe Railroad
Query received:	6/3/2020

This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it identifies public lands and sensitive resources known to have been located close to and/or potentially affected by the proposed project. On-site verification is the responsibility of the project. Natural Heritage records were identified at some date and location. This report considers records near but not necessarily at the project site. Animals move and, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean a protected species will not be encountered. These records only provide one reference and other information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed in order to avoid or minimize impacts. More information is at http://mdc.mo.gov/discover-nature/places-go/natural-areas and mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx.

Level 3 issues: Records of federal-listed (these are also state-listed) species or critical habitats near the project site:

Natural Heritage records identify no wildlife preserves, no designated wilderness areas or critical habitats, and no federal-listed species records within the project area, or in the public land survey section listed above or sections adjacent.

*FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. **Contact the U.S. Fish and Wildlife Service** (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132) for Endangered Species Act coordination and concurrence information).*

Level 2 issues: Records of state-listed (not federal-listed) endangered species AND / OR state-ranked (not state-listed endangered) species and natural communities of conservation concern. The Department tracks these species and natural communities due to population declines and/or apparent vulnerability.

Natural Heritage records identify no state-listed endangered species within the project area.

Natural Heritage records indicate the following State-ranked species near the project area:

Scientific Name	Common Name	State Rank	Proximity (miles)
Moehringia lateriflora	Grove Sandwort	S2S3	2.13
Poliocitellus franklinii	Franklin's Ground Squirrel	S2S3	2.76

State Rank Definitions:

- S1: Critically imperiled in the state because of extreme rarity of or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically, 5 or fewer occurrence or very few remaining individuals.
- S2: Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. (6 to 20 occurrences or few remaining individuals).
- S3: Vulnerable in the state means this species is rare and uncommon, or found only in a restricted range (even if abundant in some locations), or because of other factors making it

vulnerable to extirpation. Typically, 21 to 100 occurrences or between 3,000 and 10,000 individuals.

- S4: Uncommon but not rare, and usually widespread in the nation or state. Possibly of long-term concern. Usually more than 100 occurrences and more than 10,000 individuals.
- SU: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

There are no regulatory requirements associated with this status, but we encourage voluntary stewardship for all these species to minimize the risk of further decline that could lead to listing

See http://mdc.mo.gov/145 for a complete list of species and communities of conservation concern.

STATE ENDANGERED species are listed in and protected under the Wildlife Code of Missouri (3CSR10-4.111).

General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific Natural Heritage records):

- **Bridges:** Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic habitats. See link regarding https://mdc.mo.gov/sites/default/files/downloads/page/Streams.pdf .
  - Avoid disturbance to stream banks and riparian areas. Channel modification, flow interruption or bank modification should occur only in compliance with conditions established in permits required under the federal Clean Water Act.
  - Grade and seed disturbed areas as soon as possible to minimize erosion. Native grasses and wildflowers are recommended for plantings compatible with the local native landscape and wildlife needs. Annuals like ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as Crown Vetch and *Sericea lespedeza*.
  - All temporary in-channel fills that could impound water should be culverted. Culverts should (a) maintain at least six inches of water and (b) not create water velocities in excess of two feet per second during average annual discharges. A drop between the downstream end of the culverts and the downstream water surface should not occur at any time. Conditions provided within the USACE Clean Water Act Section 404 permit, if required (https://www.nwk.usace.army.mil/Missions/Regulatory-Branch/Nation-Wide-Permits/), should help minimize impacts to the aquatic organisms within the area.
  - Avoid work in the channel from March 15 until June 15, a time when many fish are spawning and eggs need minimal disturbance.

- **Indiana Bats and Northern Long-eared Bats** occur in Clark County and could occur in the project area. Indiana Bats *(Myotis sodalis*, federal and state-listed endangered) and Northern Long-eared Bats (*Myotis septentrionalis,* federal-listed threatened) hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana Bats and/or Northern Long-eared Bats, especially from September to April. **If any trees need to be removed by your project, please contact the U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.**

- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
  - Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
  - Drain water from boats and machinery that has operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
  - When possible, wash and rinse equipment thoroughly with hard spray or HOT water (≧140° F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.

These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Natural Heritage records largely reflect sites visited by specialists in the last 30 years. Many privately owned tracts have not been surveyed and could host remnants of species once but no longer common.

Missouri Department of Conservation

Missouri Department of Conservation's Mission is to
protect and manage the forest, fish, and
wildlife resources of the state and to
facilitate and provide opportunities for all citizens to
use, enjoy and learn about these resources.

Natural Heritage Review Level Two Report: State Listed Endangered Species and/or Missouri Species/Natural Communities of Conservation Concern

There are records for state-listed Endangered Species, or Missouri Species or Natural Communities of Conservation Concern within or near the defined Project Area. Please contact Missouri Department of Conservation for further coordination.

Foreword: Thank you for accessing the Missouri Natural Heritage Review Website developed by the Missouri Department of Conservation with assistance from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Missouri Department of Transportation and NatureServe. The purpose of this website is to provide information to federal, state and local agencies, organizations, municipalities, corporations and consultants regarding sensitive fish, wildlife, plants, natural communities and habitats to assist in planning, designing and permitting stages of projects.

PROJECT INFORMATION

Project Name and ID Number: Clark County Bridge 11000371 #7531
Project Description: Section 33, T65 N, R 9 W, lat:40.23'44" long: 91.54'7", over Burlington Northern Santa Fe Railroad, Clark County, MO
Project Type: Transportation, Structures and Bridges, Bridge Replacement and/or Removal - on existing alignment (within 12 feet up/down stream), Span
Contact Person: Beth Moots
Contact Information: beth@howecompany.com or 660-395-4693

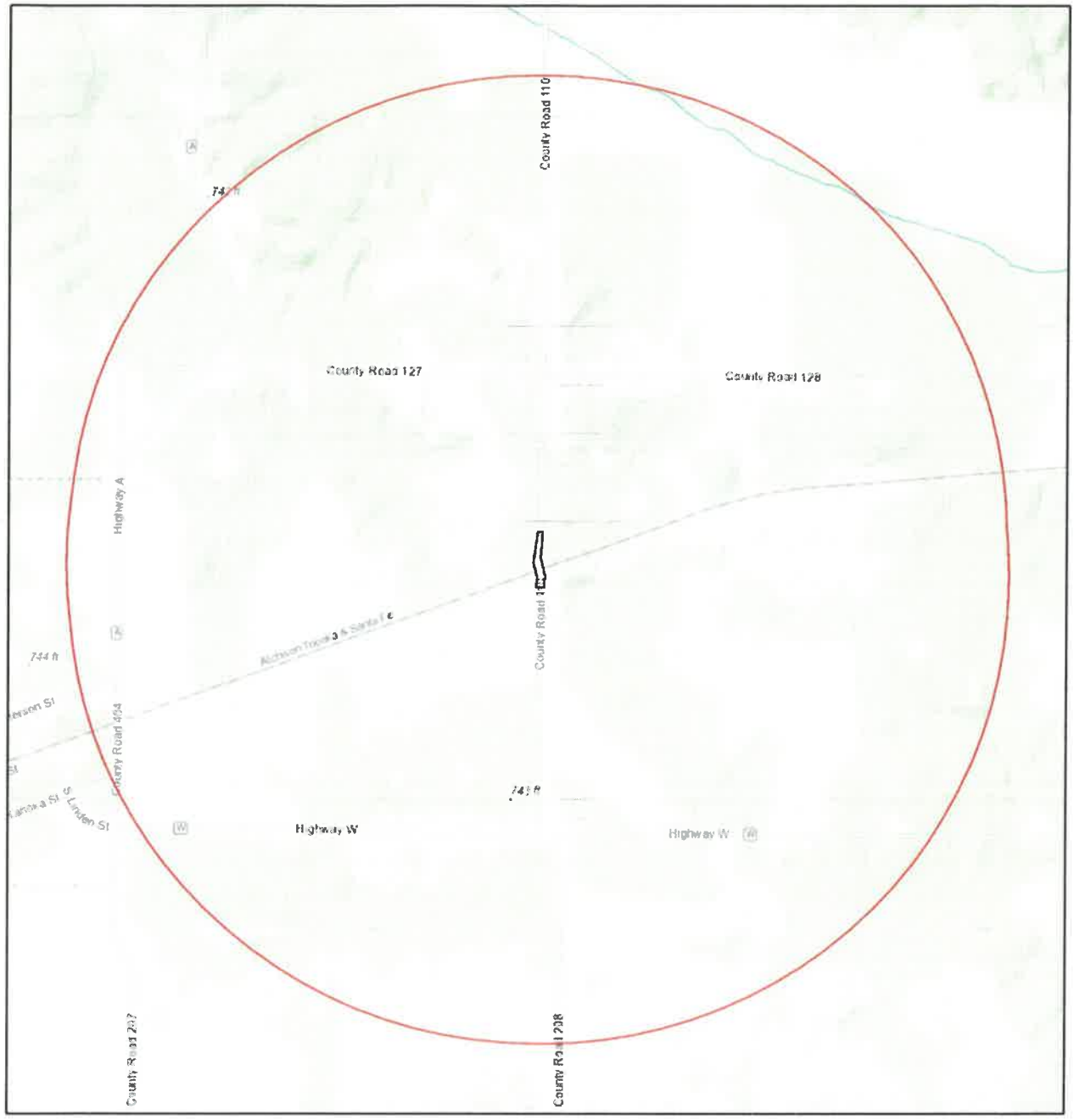
Disclaimer: The NATURAL HERITAGE REVIEW REPORT produced by this website identifies if a species tracked by the Natural Heritage Program is known to occur within or near the area submitted for your project, and shares suggested recommendations on ways to avoid or minimize project impacts to sensitive species or special habitats. If an occurrence record is present, or the proposed project might affect federally listed species, the user must contact the Department of Conservation or U.S. Fish and Wildlife Service for more information. The Natural Heritage Program tracks occurrences of sensitive species and natural communities where the species or natural community has been found. Lack of an occurrence record does not mean that a sensitive plant, animal or natural community is not present on or near the project area. Depending on the project, current habitat conditions, and geographic location in the state, surveys may be necessary. Additionally, because land use conditions change and animals move, the existence of an occurrence record does not mean the species/habitat is still present. Therefore, Reports include information about records near but not necessarily on the project site.

The Natural Heritage Report is not a site clearance letter for the project. It provides an indication of whether or not public lands and sensitive resources are known to be (or are likely to be) located close to the proposed project. Incorporating information from the Natural Heritage Program into project plans is an important step that can help reduce unnecessary impacts to Missouri's sensitive fish, forest and wildlife resources. However, the Natural Heritage Program is only one reference that should be used to evaluate potential adverse project impacts. Other types of information, such as wetland and soils maps and on-site inspections or surveys, should be considered. Reviewing current landscape and habitat information, and species' biological characteristics would additionally ensure that Missouri Species of Conservation Concern are appropriately identified and addressed in planning efforts.

U.S. Fish and Wildlife Service – Endangered Species Act (ESA) Coordination: Lack of a Natural Heritage Program occurrence record for federally listed species in your project area does not mean the species is not present, as the area may never have been surveyed. Presence of a Natural Heritage Program occurrence record does not mean the project will result in negative impacts. The information within this report is not intended to replace Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS) for listed species. Direct contact with the USFWS may be necessary to complete consultation and it is required for actions with a federal connection, such as federal funding or a federal permit; direct contact is also required if ESA concurrence is necessary. Visit the USFWS Information for Planning and Conservation (IPaC) website at https://ecos.fws.gov/ipac/ for further information. This site was developed to help streamline the USFWS environmental review process and is a first step in ESA coordination. The Columbia Missouri Ecological Field Services Office may be reached at 573-234-2132, or by mail at 101 Park Deville Drive, Suite A, Columbia, MO 65203.

Transportation Projects: If the project involves the use of Federal Highway Administration transportation funds, these recommendations may not fulfill all contract requirements. Please contact the Missouri Department of Transportation at 573-526-4778 or www.modot.mo.gov/ehp/index.htm for additional information on recommendations.

Clark County Bridge 11000371



May 27, 2020

1:19,199

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

☐ Project Boundary

☐ Buffered Project Boundary

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Species or Communities of Conservation Concern within the Area:

There are records for state-listed Endangered Species, or Missouri Species or Natural Communities of Conservation Concern within or near the defined Project Area. Please contact the Missouri Department of Conservation for further coordination.

MDC Natural Heritage Review
Resource Science Division
P.O. Box 180
Jefferson City, MO
65102-0180
Phone: 573-522-4115 ext. 3182
NaturalHeritageReview@mdc.mo.gov

Other Special Search Results:

No results have been identified for this project location.

Project Type Recommendations:
Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic habitats. See link regarding *Management Recommendations for Construction Projects Affecting Missouri Streams and Rivers*.

- Avoid disturbance to stream banks and riparian areas. Channel modification, flow interruption or bank modification should occur only in compliance with conditions established in permits required under the federal Clean Water Act.
- Grade and seed disturbed areas as soon as possible to minimize erosion. Native grasses and wildflowers are recommended for plantings compatible with the local native landscape and wildlife needs. Annuals like ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crown vetch and sericea lespedeza.
- All temporary in-channel fills that could impound water should be culverted. Culverts should (a) maintain at least six inches of water and (b) not create water velocities in excess of two feet per second during average annual discharges. A drop between the downstream end of the culverts and the downstream water surface should not occur at any time. Conditions provided within the USACE Clean Water Act Section 404 permit, if required ((http://www.nwk.usace.army.mil/Portals/29/docs/regulatory/moregoffices.pdf), should help minimize impacts to the aquatic organisms within the area.
- Avoid work in the channel from March 15 until June 15, a time when many fish are spawning and eggs need minimal disturbance.

Project Location and/or Species Recommendations:

Endangered Species Act Coordination - Indiana bats *(Myotis sodalis*, federal- and state-listed endangered) and **Northern long-eared bats** (*Myotis septentrionalis,* federal-listed threatened) may occur near the project area. Both of these species of bats hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in wooded areas, often riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats or Northern long-eared bats, especially from September to April. **If any trees need to be removed for your project, please contact the U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.**

Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment. Please inspect and clean equipment thoroughly before moving between project sites. See http://mdc.mo.gov//9633 for more information.

- Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
- Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
- When possible, wash and rinse equipment thoroughly with hard spray or HOT water (?140° F, typically available at do-it-yourself car wash sites), and dry in the hot sun before using again.

Streams and Wetlands – Clean Water Act Permits: Streams and wetlands in the project area should be protected from activities that degrade habitat conditions. For example, soil erosion, water pollution, placement of fill, dredging, in-stream activities, and riparian corridor removal, can modify or diminish aquatic habitats. Streams and wetlands may be protected under the Clean Water Act and require a permit for any activities that result in fill or other modifications to the site. Conditions provided within the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit (http://www.nwk.usace.army.mil/Missions/RegulatoryBranch.aspx) and the Missouri Department of Natural Resources (DNR) issued Clean Water Act Section 401 Water Quality Certification (http://dnr.mo.gov/env/wpp/401/index.html), if required, should help minimize impacts to the aquatic organisms and aquatic habitat within the area. Depending on your project type, additional permits may be required by the Missouri Department of Natural Resources, such as permits for stormwater, wastewater treatment facilities, and confined animal feeding operations. Visit http://dnr.mo.gov/env/wpp/permits/index.html for more information on DNR permits. Visit both the USACE and DNR for more information on Clean Water Act permitting.

For further coordination with the Missouri Department of Conservation and the U.S. Fish and Wildlife Services, please see the contact information below.

MDC Natural Heritage Review
Resource Science Division
P.O. Box 180
Jefferson City, MO
65102-0180
Phone: 573-522-4115 ext. 3182
NaturalHeritageReview@mdc.mo.gov

U.S. Fish and Wildlife Service
Ecological Service
101 Park Deville Drive
Suite A
Columbia, MO
65203-0007
Phone: 573-234-2132

Miscellaneous Information

FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services (101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132; Fax 573-234-2181) for consultation.

STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and that are protected under the Wildlife Code of Missouri (RSMo 3 CSR 1 0). "State Endangered Status" is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR 1 0-4.111. Species tracked by the Natural Heritage Program have a "State Rank" which is a numeric rank of relative rarity. Species tracked by this program and all native Missouri wildlife are protected under rule 3CSR 10-4.110 General Provisions of the Wildlife Code.

Additional information on Missouri's sensitive species may be found at http://mdc.mo.gov/discover-nature/field-guide/endangered-species . Detailed information about the animals and some plants mentioned may be accessed at http://mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx . If you would like printed copies of best management practices cited as internet URLs, please contact the Missouri Department of Conservation.

USDA

United States Department of Agriculture

June 30, 2020

Beth Moots
HOWE COMPANY, LLC.
804 E. Patton Street
Macon, MO 63552

Dear Ms. Moots

Attached is a Farmland Conversion Impact Rating (form AD-1006) for the planned bridge replacement of bridge number 11000371, RRP-000S(582) in Clark County Missouri.

If you have any questions, please call me at (573) 769-2235 Ext. # 133.

Sincerely,

Scott Larsen
Area Resource Soil Scientist

Attachment

cc: Ashley Johnson, DC, NRCS, Kahoka, MO

Natural Resources Conservation Service
6465 Highway 168, Suite C, Palmyra, Missouri 63461
PH: (573) 769-2235 FAX: (855) 849-1536

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 6/15/20
Name Of Project CLARK COUNTY BRIDGE #11000371	Federal Agency Involved FHWA
Proposed Land Use CONTINUED USE AS A COUNTY ROAD	County And State CLARK COUNTY, MISSOURI
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 6/22/20

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).* Yes ☐ No ☑ | Acres Irrigated | Average Farm Size

Major Crop*(s)*	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By NRCS 6/30/2020

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	2.1			
B. Total Acres To Be Converted Indirectly	0.0			
C. Total Acres In Site	2.1	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	0	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15				
2. Perimeter In Nonurban Use	10				
3. Percent Of Site Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Distance From Urban Builtup Area	15				
6. Distance To Urban Support Services	15				
7. Size Of Present Farm Unit Compared To Average	10				
8. Creation Of Nonfarmable Farmland	10				
9. Availability Of Farm Support Services	5				
10. On-Farm Investments	20				
11. Effects Of Conversion On Farm Support Services	10				
12. Compatibility With Existing Agricultural Use	10				
TOTAL SITE ASSESSMENT POINTS	160	0	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	0	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	0	0	0	0

Site Selected: A	Date Of Selection 5/4/20	Was A Local Site Assessment Used? Yes ☐ No ■

Reason For Selection:

THE PROJECT WAS SELECTED BECAUSE IT FULLY UTILIZES THE EXISTING PUBLIC ROADWAY RIGHT OF WAY AND REQUIRES MINIMAL RIGHT OF WAY AND TEMPORARY CONSTRUCTION EASEMENTS COMPARED TO AN ALTERNATIVE ALIGNMENT WHICH WOULD REQUIRE THE ACQUISITION OF ADJACENT FARM GROUND.

Beth

From: Bree K. McMurray <Bree.McMurray@modot.mo.gov>
Sent: Thursday, October 15, 2020 2:49 PM
To: hdienst@centurytel.net; Clark.County@sos.mo.gov; Beth; Jo A. Dent; Robert J. Manzke
Cc: Taylor Peters (taylor.peters@dot.gov); raegan.ball.dot.gov; Christopher D. Shulse; Melissa Scheperle; Aaron Ball; Kyleen Kelly
Subject: T&E Clearance Date_FHWA-LPA_Programmatic_FORMAL_Consultation-IN_NLE bats_ClarkCounty_RRP-000S(582)_CR110_RRbridge
Attachments: FHWA_LPA_Aug2020_updatedIPaC_Clark_RRP-000S(582)_CR110_BNRR_bridge.pdf; USFWS_Formal_Programmatic_Consistency_Letter_LPA_Clark_RRP-000S(582) CR 110 _BNSF_RR.pdf; ClakCo_Signed-Commitment-letter_RRP-000S(582)_BNSF_Bridge_Oct2020.pdf; PBO_verification_letter_ClarkCo_CR110 _BNSF_Bridge_RRP-000S(582)_9-14-2020.pdf

Importance: High

All,

The Clark County Commission, Buddy Kattelmann-LPA sponsor, provided a letter of commitment to pay the in lieu mitigation fee for incidental take of Indiana bats for this project on 10/1/2020. The mitigation fee of $1193.50 is calculated based on 0.11 acre of tree clearing from 100-300' from edge of pavement. MoDOT and FHWA initiated formal range-wide programmatic consultation on 8/31/20. USFWS verified that this project meets the programmatic biological opinion parameters for formal consultation with compensatory mitigation on 9/11/2020.

MoDOT has determined that all T&E requirements have been met and will attach documentation for the completion of that commitment to the NEPA RER form.

Threatened and Endangered Species requirements for NEPA clearance were complete as of 9/14/2020 (the date MoDOT received the correct copy of the verification letter).

Jo and Beth, this email and the attachments should cover the information needed in the CE2 document for T&E: USFWS IPaC update, consistency letter and email below initiating formal programmatic consultation, USFWS Programmatic Biological Opinion verification letter, compensatory commitment letter from the sponsor, and T&E clearance date. If you'd like to insert the relevant dates in the T&E section of the CE2 I can review the T&E language if you like.

Jo, if you would, please upload this email with attachments to the T&E section of the RER as well. The final Mitigation Transaction Receipt will change hands between The Conservation Fund and MoDOT on behalf of FHWA. I will send notification when that is received for attaching to the RER. There is no further receipt needed from the sponsor.

Mr. Kattelmann, Mr. Peters, and Ms. Ball, the completed post-payment transaction receipt will be processed and provided to USFWS to complete the compensatory mitigation commitment. We will upload a copy to the RES when it has been processed.

Please note-all trees in the project limits must be cleared between November 1 and March 31 in any year, either through a Job Special Provision in the construction contract OR by local forces in the correct season ahead of the contract. Please make sure the tree clearing dates are noted in the construction diary to close the loop on satisfying the USFWS commitment. MoDOT is developing a JSP specific for formal programmatic consultation for bats and tree clearing and we will provide it to Howe Company for inclusion in the contract.

If you have further questions regarding this clearance or process, please don't hesitate to contact me. Threatened and Endangered species clearance does not constitute project clearance. If there are still NEPA steps to complete, Robert Manzke remains your primary MoDOT contact and Jo Ann Dent is your primary MoDOT Design-Environmental contact.

Bree K. McMurray
Threatened and Endangered Species Specialist
Missouri Dept. of Transportation
Design-Environmental and Historic Preservation
601 West Main
Jefferson City, MO 65102
Offc: (573) 526-0606
Cell: (573) 508-2205
Email: bree.mcmurray@modot.mo.gov

From: Hundley, Joshua T <Joshua_Hundley@fws.gov>
Sent: Friday, September 11, 2020 10:54 PM
To: raegan.ball.dot.gov <raegan.ball@dot.gov>
Cc: Jo A. Dent <Jo.Dent@modot.mo.gov>; Robert J. Manzke <Robert.Manzke@modot.mo.gov>; Beth <beth@howecompany.com>; Kyleen Kelly <Kyleen.Kelly@modot.mo.gov>; Taylor Peters (taylor.peters@dot.gov) <taylor.peters@dot.gov>; Melissa Scheperle <Melissa.Scheperle@modot.mo.gov>; Christopher D. Shulse <Christopher.Shulse@modot.mo.gov>; Bree K. McMurray <Bree.McMurray@modot.mo.gov>; Herrington, Karen <karen_herrington@fws.gov>; Weber, John S <John_S_Weber@fws.gov>
Subject: Re: [EXTERNAL] FHWA-LPA_Initiation_Programmatic_FORMAL_Consultation-IN_NLE bats_ClarkCounty_RRP-000S(582)_Cr110_RRbridge

Dear Ms. Ball,

Please see the attached letter regarding the Federal Highway Administration and Missouri Department of Transportation's Programmatic Formal Consultation for Indiana bat and NLEB in Clark County, MO.

To fulfill the mitigation responsibility for this project, please contact the Indiana Bat In Lieu Fee Coordinator with The Conservation Fund to arrange payment. Their contact information is noted below. At the completion of payment, MoDOT as the designated non-federal representative of the Federal Highway Administration (FHWA), will receive a transaction receipt to sign and return to The Conservation Fund (TCF). Once returned, TCF shall complete the execution of the document and then notify the Service by providing a completed transaction receipt that indicates the number of acres to be mitigated and the Mitigation Fees paid. A copy will also be provided to FHWA. This action must be completed prior to receiving federal construction authorization, unless written approval has been granted by the FHWA.

Lauri Lindquist
The Conservation Fund
IbatILFCoordinator@conservationfund.org
269-426-8825

Please let me know if you have any questions.

Josh Hundley
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, MO 65203-0057
573-234-5037 (office)

From: Bree K. McMurray <Bree.McMurray@modot.mo.gov>
Sent: Monday, August 31, 2020 4:36 PM
To: Hundley, Joshua T <Joshua_Hundley@fws.gov>; Herrington, Karen <karen_herrington@fws.gov>
Cc: Jo A. Dent <Jo.Dent@modot.mo.gov>; Robert J. Manzke <Robert.Manzke@modot.mo.gov>; Beth <beth@howecompany.com>; Kyleen Kelly <Kyleen.Kelly@modot.mo.gov>; raegan.ball.dot.gov <raegan.ball@dot.gov>; Taylor Peters (taylor.peters@dot.gov) <taylor.peters@dot.gov>; Melissa Scheperle <Melissa.Scheperle@modot.mo.gov>; Christopher D. Shulse <Christopher.Shulse@modot.mo.gov>
Subject: [EXTERNAL] FHWA-LPA_Initiation_Programmatic_FORMAL_Consultation-IN_NLE bats_ClarkCounty_RRP-000S(582)_Cr110_RRbridge

TAILS 03E14000-2020-R-2328

IPaC Record Locator: 290-22706441

Mr. Hundley and Ms. Herrington,

Clark County, MO proposes to construct a new concrete girder bridge to replace the existing bridge along County Road 110 over the Burlington Northern Railroad with a slightly shifted, straighter alignment. There is no evidence of bats using the existing bridge (May-June 2020 assessment). The sponsor submitted Threatened and Endangered Species assessment details and MoDOT agrees that there will be No Effect to gray bats (no suitable habitat, no records within 50 miles). There are suitable summer bat roost trees for Indiana and northern long-eared bats in the project limits, and MoDOT has verified that this project meets the parameters for Programmatic FORMAL Range-wide Consultation for Indiana and northern long-eared bats.

Tree clearing detail:

- There will be approximately 1.05 ac tree clearing for this project, all within 300 feet of improved facilities
- There are suitable summer bat roost trees in the project clearing limits
- There will be 0.94 ac of tree clearing between 0-100 feet from an improved facility
- There will be 0.11 ac tree clearing between 100-300 feet from an improved facility
- The sponsor commits to only remove suitable summer roost trees between Nov 1 and Mar 31

There are no known IN or NLE summer resources known within 6.5 miles of the project. There are no known caves within 28 miles. As the designated non-federal representative of FHWA for USFWS Section 7 Endangered Species Act requirements, MoDOT has determined and has generated a consistency letter that this project **'may affect, and is likely to adversely affect' Indiana and northern long-eared bats**. MoDOT is requesting that you verify the project is consistent with the Programmatic Biological Opinion.

As stated in the attached consistency letter, MoDOT and FHWA request you

1. Verify the Proposed Action is consistent with the scope of actions covered by the PBO
2. Verify all applicable avoidance, minimization, and compensation measures are included in the action proposal
3. Identify any action-specific monitoring and reporting requirements, consistent with the PBO
4. Identify anticipated incidental take.

This project is being evaluated as a documented Categorical Exclusion (CE2) and FHWA will not approve the NEPA documentation until T&E requirements and commitments have been described in full. We have requested from the sponsor, on letterhead, their commitment to clear suitable bat roost trees only between Nov 1 and Mar 31 and pay the compensatory mitigation fee.

I am attaching the updated IPaC official species list and the Consistency Letter.

MoDOT is of the understanding and has advised the sponsor that only the amount of tree clearing between 100-300 feet from an improved facility is subject to compensatory mitigation. The Conservation Fund per-acre compensatory mitigation cost is understood to be $6200. Below are the references used for calculation of compensatory mitigation.

%cover Clark County MO Compensatory Mitigation Ratio Percent Forest Cover (by county)

29045 MO Clark	0.1828

Table 3. Compensatory mitigation ratios for Indiana bat.

Project Location	<30% Forest Cover (within County)		≥30% Forest Cover (within County)	
	Active*	Inactive*	Active*	Inactive*
0-100 ft. edge of road/rail ballast	1.5	NLAA	1.25	NLAA
0-100 ft. edge of road/rail ballast – documented roosting/foraging habitat	2.25	1.75	2	1.5
100-300 ft. edge of road/rail ballast	2.25	1.75	2	1.5

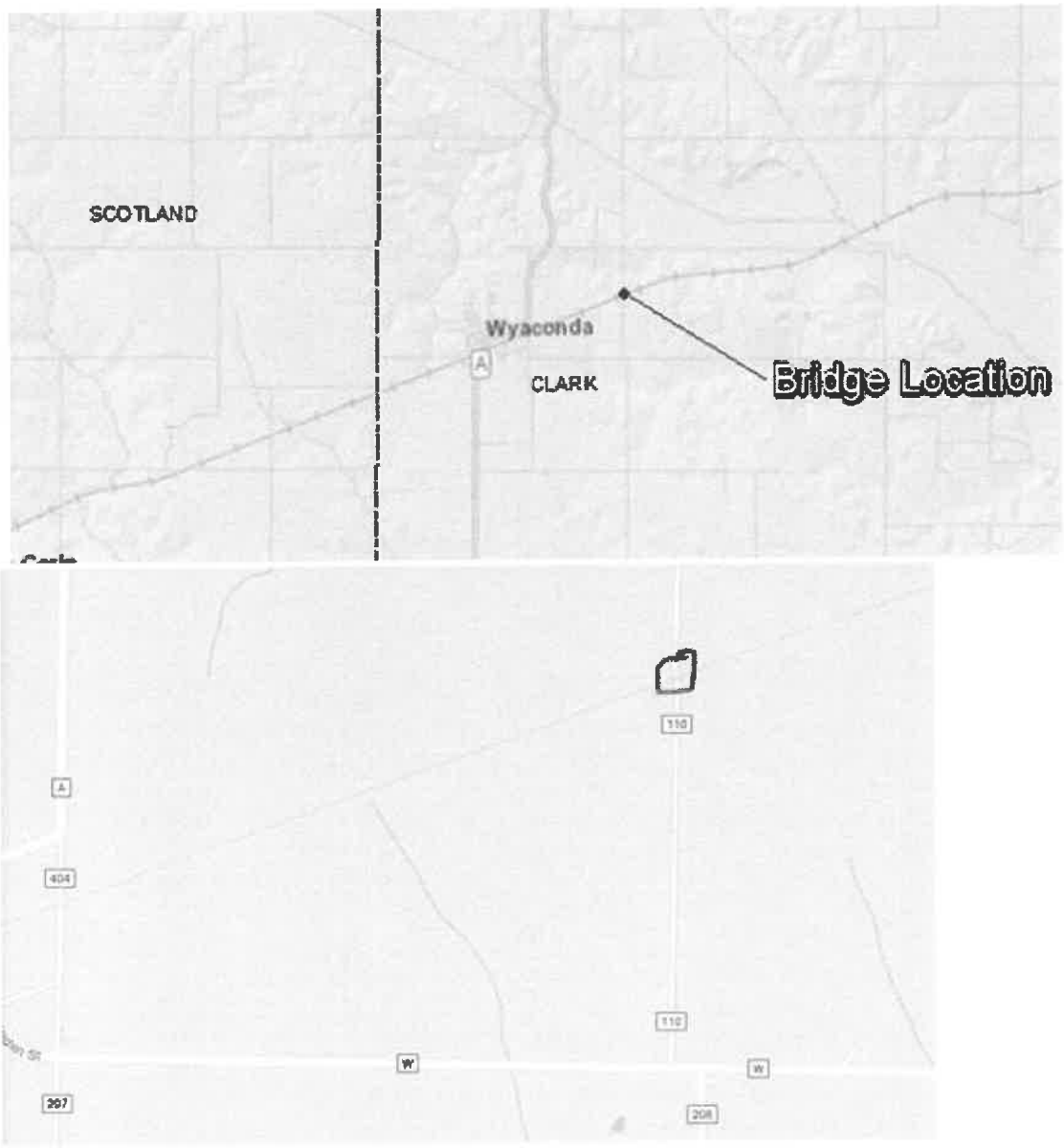
* for the state of Missouri, the inactive season for Indiana and northern long-eared bats is November 1 through March 31
https://www.fws.gov/midwest/endangered/section7/fhwa/pdf/IBAT_ILF_ratios_transportation_agencies.pdf

Good faith compensatory mitigation estimate:

0.11 ac x $6200/ac x 1.75 [multiplier] = $1,193.50.

If you have additional questions, please do not hesitate to contact me at the number or email below.

Clark County, CR 110 over Burlington Northern RR near Wyaconda, MO RRP-000S(582), location



Clark County, CR 110 over Burlington Northern RR near Wyaconda, MO RRP-000S(582), aerial

Bree K. McMurray
Threatened and Endangered Species Specialist
Missouri Dept. of Transportation
Design-Environmental and Historic Preservation
601 West Main
Jefferson City, MO 65102
Offc: (573) 526-0606
Cell: (573) 508-2205
Email: bree.mcmurray@modot.mo.gov

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

In Reply Refer To:
Consultation Code: 03E14000-2020-SLI-2328
Event Code: 03E14000-2020-E-08414
Project Name: FHWA-LPA Fed Trans Project Clark Co RRP-000S(582) CR 110 and BNSF RR

August 31, 2020

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. **Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days.** The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Refer to the Midwest Region S7 Technical Assistance website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects: projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Federally Listed Bat Species

Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use water features and forested riparian corridors for foraging and travel. If your project will impact caves, mines, associated riparian areas, or will involve tree removal around these features particularly within stream corridors, riparian areas, or associated upland woodlots gray bats could be affected.

Indiana and northern long-eared bats - These species hibernate in caves or mines only during the winter. In Missouri the hibernation season is considered to be November 1 to March 31. During the active season in Missouri (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags 5 inches diameter at breast height (dbh) for Indiana bat, and 3 inches dbh for northern long-eared bat, that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Tree species often include, but are not limited to, shellbark or shagbark hickory, white oak, cottonwood, and maple. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, Indiana bats or northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas;
- Trees found in highly-developed urban areas (e.g., street trees, downtown areas);
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees; and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of "There are no listed species found within the vicinity of the project," then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.

2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project other than bats (see #3 below) then project proponents can conclude the proposed activities **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species through the S7 Technical Assistance website.

3. If IPac returns a result that one or more federally listed bat species (Indiana bat, northern long-eared bat, or gray bat) are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** these bat species **IF** one or more of the following activities are proposed:

a. Clearing or disturbing suitable roosting habitat, as defined above, at any time of year;
b. Any activity in or near the entrance to a cave or mine;
c. Mining, deep excavation, or underground work within 0.25 miles of a cave or mine;
d. Construction of one or more wind turbines; or
e. Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on listed bat species. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.

If any of the above activities are proposed in areas where one or more bat species may be present, project proponents can conclude the proposed activities **may affect** one or more bat species. We recommend coordinating with the Service as early as possible during project planning. If your project will involve removal of over 5 acres of suitable forest or woodland habitat, we recommend you complete a Summer Habitat Assessment prior to contacting our office to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the Range-wide Indiana Bat Summer Survey Guidelines.

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Next Steps

Should you determine that project activities **may affect** any federally listed species or trust resources described herein, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Karen Herrington

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
(573) 234-2132

Project Summary

Consultation Code: 03E14000-2020-SLI-2328

Event Code: 03E14000-2020-E-08414

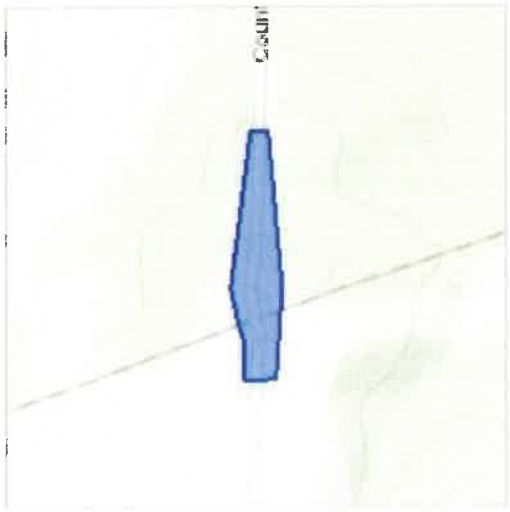
Project Name: FHWA-LPA Fed Trans Project Clark Co RRP-000S(582) CR 110 and BNSF RR

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Replace the existing bridge with a new 206.86' long, 3 span, concrete girder bridge. The bridge is located on CRD 110 over Burlington Northern Santa Fe Railroad. Construction will likely begin late 2020 or spring 2021. The bend in the road alignment will be straightened in the new proposed design.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/40.39605465810432N91.90187049189315W



Counties: Clark, MO

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

IPaC Record Locator: 290-22706441

July 23, 2020

Subject: Consistency letter for the 'FHWA-LPA Fed Trans Project Clark Co RRP-000S(582) CR 110 and BNSF RR' project (TAILS 03E14000-2020-R-2328) under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request to verify that the **FHWA-LPA Fed Trans Project Clark Co RRP-000S(582) CR 110 and BNSF RR** (Proposed Action) may rely on the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, and is likely to adversely affect the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*). Consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required.

This "may affect - likely to adversely affect" determination becomes effective when the lead Federal action agency or designated non-federal representative requests the Service rely on the PBO to satisfy the agency's consultation requirements for this project. Please provide this consistency letter to the lead Federal action agency or its designated non-federal representative for review, and as the agency deems appropriate, transmit to this Service Office for verification that the project is consistent with the PBO.

This Service Office will respond by letter to the requesting Federal action agency or designated non-federal representative within 30 calendar days to:

- verify that the Proposed Action is consistent with the scope of actions covered under the PBO;
- verify that all applicable avoidance, minimization, and compensation measures are included in the action proposal;
- identify any action-specific monitoring and reporting requirements, consistent with the monitoring and reporting requirements of the PBO, and
- identify anticipated incidental take.

ESA Section 7 compliance for this Proposed Action is not complete until the Federal action agency or its designated non-federal representative receives a verification letter from the Service.

For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities: If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency accordingly.

The following species may occur in your project area and **are not** covered by this determination:

- Gray Bat, *Myotis grisescens* (Endangered)

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

FHWA-LPA Fed Trans Project Clark Co RRP-000S(582) CR 110 and BNSF RR

Description

Replace the existing bridge with a new 206.86' long, 3 span, concrete girder bridge. The bridge is located on CRD 110 over Burlington Northern Santa Fe Railroad. Construction will likely begin late 2020 or spring 2021. The bend in the road alignment will be straightened in the new proposed design.

Determination Key Result

Based on your answers provided, this project is likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the conclusion and Incidental Take Statement provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

Qualification Interview

1. Is the project within the range of the Indiana bat[1]?

   [1] See Indiana bat species profile

   Automatically answered
   Yes

2. Is the project within the range of the Northern long-eared bat[1]?

   [1] See Northern long-eared bat species profile

   Automatically answered
   Yes

3. Which Federal Agency is the lead for the action?
   A) Federal Highway Administration (FHWA)

4. Are *all* project activities limited to non-construction[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

   [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

   No

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces[1]?

   [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

   No

6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum[1]?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   No

7. Is the project located **within** a karst area?

   No

8. Is there *any* suitable[1] summer habitat for Indiana Bat or NLEB **within** the project action area[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the national consultation FAQs.

   Yes

9. Will the project remove *any* suitable summer habitat[1] and/or remove/trim any existing trees **within** suitable summer habitat?

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   Yes

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

    No

11. Have presence/probable absence (P/A) summer surveys[1][2] been conducted[3][4] **within** the suitable habitat located within your project action area?

[1] See the Service's summer survey guidance for our current definitions of suitable habitat.

[2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

[3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

[4] Negative presence/probable absence survey results obtained using the summer survey guidance are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

No

12. Does the project include activities **within documented Indiana bat habitat**[1][2]?

[1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

[2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

No

13. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors?

Yes

14. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors occur[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    B) During the inactive season

15. Does the project include activities **within documented NLEB habitat**[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    No

16. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

    Yes

17. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

    B) During the inactive season

18. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

    Yes

19. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

    Yes

20. Are *all* trees that are being removed clearly demarcated?

    Yes

21. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

    No

22. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

    No

23. Does the project include slash pile burning?

    No

24. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

    Yes

25. Is there *any* suitable habitat[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    Yes

26. Has a bridge assessment[1] been conducted **within** the last 24 months[2] to determine if the bridge is being used by bats?

    [1] See User Guide Appendix D for bridge/structure assessment guidance

    [2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

    Yes

    SUBMITTED DOCUMENTS

    - *2020.06.11 Bridge Assessment.pdf* https://ecos.fws.gov/ipac/project/N7IMCSTJCNDWHPSHO6SYHIC73Y/projectDocuments/22702070

27. Did the bridge assessment detect *any* signs of Indiana bats and/or NLEBs roosting in/under the bridge (bats, guano, etc.)[1]?

    [1] If bridge assessment detects signs of *any* species of bats, coordination with the local FWS office is needed to identify potential threatened or endangered bat species. Additional studies may be undertaken to try to identify which bat species may be utilizing the bridge prior to allowing *any* work to proceed.

    Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

    No

28. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

    No

29. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

    No

30. Will the project involve the use of **temporary** lighting *during* the active season?

    No

31. Will the project install new or replace existing **permanent** lighting?

    No

32. Does the project include percussives or other activities (**not including tree removal/ trimming or bridge/structure work**) that will increase noise levels above existing traffic/ background levels?

    No

33. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

    Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

    Yes

34. Will the project raise the road profile **above the tree canopy**?

    No

35. Are the project activities that are not associated with habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives consistent with a No Effect determination in this key?

    Automatically answered

    Yes, other project activities are limited to actions that DO NOT cause any additional stressors to the bat species as described in the BA/BO

36. Is the habitat removal portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

    Automatically answered

    Yes, because the tree removal/trimming that occurs outside of the Indiana bat's active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, includes clear demarcation of the trees that are to be removed, and does not alter documented roosts and/or surrounding summer habitat within 0.25 miles of a documented roost.

37. Is the habitat removal portion of this project consistent with a Likely to Adversely Affect determination in this key?

    Automatically answered

    Yes, because the tree removal that occurs outside the Indiana bat's active season is 100-300 feet from the existing road/rail surface, and is not in documented roosting/ foraging habitat or travel corridors.

38. Is the habitat removal portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

    Automatically answered

    Yes, because the tree removal/trimming that occurs outside of the NLEB's active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, includes clear demarcation of the trees that are to be removed, and does not alter documented roosts and/or surrounding summer habitat within 0.25 miles of a documented roost.

39. Is the habitat removal portion of this project consistent with a Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because the tree removal that occurs outside the NLEB's active season is 100-300 feet from the existing road/rail surface, and is not in documented roosting/foraging habitat or travel corridors.

40. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

Automatically answered

Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected

41. **General AMM 1**

Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

Yes

42. **Tree Removal AMM 1**

Can *all* phases/aspects of the project (e.g., temporary work areas, alignments) be modified, to the extent practicable, to avoid tree removal[1] in excess of what is required to implement the project safely?

Note: Tree Removal AMM 1 is a minimization measure, the full implementation of which may not always be practicable. Projects may still be NLAA as long as Tree Removal AMMs 2, 3, and 4 are implemented and LAA as long as Tree Removal AMMs 3, 5, 6, and 7 are implemented.

[1] The word "trees" as used in the AMMs refers to trees that are suitable habitat for each species within their range. See the USFWS' current summer survey guidance for our latest definitions of suitable habitat.

Yes

43. **Tree Removal AMM 3**

Can tree removal be limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits)?

Yes

44. For Indiana bat, if applicable, compensatory mitigation measures are required to offset adverse effects on the species (see Section 2.10 of the BA). Please select the mechanism in which compensatory mitigation will be implemented:

    1. Range-wide In Lieu Fee Program, The Conservation Fund

Project Questionnaire

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

   Yes

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

   No

3. How many acres[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0.5

4. How many acres[1] of trees are proposed for removal between 100-300 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0.1

5. **Please verify:**
   All tree removal will occur greater than 0.5 mile from any hibernaculum.

   Yes, I verify that all tree removal will occur greater than 0.5 miles from any hibernaculum.

6. Is the project location 0-100 feet from the edge of existing road/rail surface?

   Yes

7. Is the project location 100-300 feet from the edge of existing road/rail surface?

   Yes

8. **Please verify:**
   No documented Indiana bat roosts or surrounding summer habitat within 0.25 mile of documented roosts will be impacted between May 1 and July 31.

Yes, I verify that no documented Indiana bat roosts or surrounding summer habitat within 0.25 mile of documented roosts will be impacted during this period.

9. **Please verify:**
   No documented NLEB roosts or surrounding summer habitat within 150 feet of documented roosts will be impacted between June 1 and July 31.

   Yes, I verify that no documented NLEB roosts or surrounding summer habitat within 150 feet of documented roosts will be impacted during this period.

10. Please describe the proposed bridge work:

    Construct a new 206.86' long, 3 span, concrete girder bridge to replace the existing bridge. The bridge is located on CRD 110 over Burlington Northern Santa Fe Railroad. The current alignment has a slight bend in the road. This will be straightened with the proposed new design plans.

11. Please state the timing of all proposed bridge work:

    Construction will occur in Late 2020 or 2021. All tree clearing will occur during the inactive season November 1, 2020 to March 31, 2021.

12. Please enter the date of the bridge assessment:

    June 11, 2020

13. You have indicated that the following Avoidance and Minimization Measures (AMMs) will be implemented as part of the proposed project:
    - *General AMM 1*
    - *Tree Removal AMM 1*
    - *Tree Removal AMM 3*

Avoidance And Minimization Measures (AMMs)

This determination key result includes the committment to implement the following Avoidance and Minimization Measures (AMMs):

GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

TREE REMOVAL AMM 1

Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal.

TREE REMOVAL AMM 3

Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on December 02, 2019. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

CLARK COUNTY COURTHOUSE
KAHOKA, MO

Clark County Clerk Jenn Church
Deputy County Clerk Connie Miller

111 E. Court St. Suite 110, Kahoka, Mo 63445
(660)-727-3283 Fax: (660)727-1088

Date: 10/1/2020

Ms. Bree McMurray
Threatened and Endangered Species Specialist
601 West Main St
PO Box 270
Jefferson City, MO 65102

RE: Mitigation Fee
Clark County, MO Bridge 11000371, RRP-000S(582)

Ms. McMurray,

Please accept this letter as a commitment from Clark County to make payment to The Conservation Fund in the amount of $1,193.50 for the compensatory mitigation fee for the above referenced project. Thank you for your assistance with this project.

Sincerely,

Buddy Kattelmann
Presiding Commissioner

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

September 10, 2020

Raegan Ball
Federal Highway Administration
3220 W. Edgewood, Suite H
Jefferson City, MO 65109

TAILS: 03E14000-2020-SLI-2328

RE: FHWA-LPA Fed Trans Project Clark Co RRP-000S(582) CR 110 and BNSF RR

Dear Ms. Ball:

The U.S. Fish and Wildlife Service (Service) is responding to your request dated August 31, 2020, to verify that the proposed FHWA-LPA Fed Trans Project Clark Co RRP-000S(582) CR 110 and BNSF RR (the Project) may rely on the November 5, 2018, Programmatic Biological Opinion (BO) for federally funded or approved transportation projects that may affect the federally listed endangered Indiana bat (*Myotis sodalis*) and/or federally listed threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*). We received your request and the associated LAA Consistency Letter on August 31, 2020.

This letter provides the Service's response as to whether the Federal Highway Administration (FHWA) may rely on the BO to comply with Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) for the Project's effects to the Indiana bat and/or NLEB.

The FHWA has determined that the Project is *likely to adversely affect* the Indiana bat and/or the NLEB.

Conclusion

The Service has reviewed the effects of the proposed Project, which includes the FHWA's commitment to implement any applicable mitigation measures as indicated on the LAA Consistency Letter. We confirm that the proposed Project's effects are consistent with those analyzed in the BO. The Service has determined that projects consistent with the conservation measures and scope of the program analyzed in the BO are not likely to jeopardize the continued existence of the Indiana bat and/or the NLEB. In coordination with your agency and the other sponsoring Federal Transportation Agencies, the Service will reevaluate this conclusion annually in light of any new pertinent information under the adaptive management provisions of the BO.

Incidental Take

Indiana Bat

The Service anticipates that tree removal associated with the proposed Project will cause incidental take of Indiana bats. As described in the Incidental Take Statement (ITS) of the BO, such taking will be difficult to detect. The Service determined that it is appropriate to measure the amount or extent of incidental taking resulting from BO projects using the proposed acreage of tree removal from Indiana bat suitable habitat as a surrogate for the numbers of individuals taken.

The proposed Project will remove 1.05 acres of trees from habitat that is suitable for the Indiana bat. All tree removal will occur in winter and comply with all other conservation measures in the BO. Based on the BO, 0.94 acres of the removal are not anticipated to result in any adverse effects, and 0.11 acres are anticipated to result in adverse effects.

The FHWA uses the mitigation ratio of 1 to 1.75 from Table 3 of the BO[1] to calculate the compensatory mitigation required to offset these adverse impacts for a total of 0.1925 acres[2] of trees that is suitable for the Indiana bat.

Based on the mitigation identified above[2] and the information provided in Table 2 of Exhibit E in The Conservation Fund's (TCF) In Lieu Fee (ILF) Instrument[3], the FHWA will contribute $1,193.50 to TCF prior to the start of construction in order to comply with the mitigation requirements of the program of transportation projects reviewed in the BO. These calculations are based on the 2019-2020 Land Use Values in Table 2 of Exhibit E in TCF's ILF Instrument, which are applicable even if the project construction should occur in a different calendar year. At the time of payment, the FHWA or designated non-federal representative shall notify the Service of compliance with the compensatory mitigation requirements as described above.

The purchase of species conservation credits and/or in-lieu fee contributions shall occur prior to construction of a transportation project covered under this programmatic consultation. Exceptions to this program stipulation include emergency projects that do not require a letting prior to construction. In these cases, purchase of credits and/or in-lieu fee contributions shall occur within three months of completion of the project. This timeframe allows for measuring the acres of habitat affected by the emergency project and for financial processing.

The Service will add the acreage of Project-related tree removal to the annual total acreage attributed to the BO as a surrogate measure of Indiana bat incidental take and exempted from the prohibitions of Section 9 of the ESA. Such exemption is effective as long as your agency implements the reasonable and prudent measure (RPM) and accompanying terms and conditions of the BO's ITS.

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[1] https://www.fws.gov/midwest/endangered/section7/fhwa/pdf/IBAT_ILF_ratios_transportation_agencies.pdf

[2] XX acres * XX ratio

[3] https://www.fws.gov/midwest/endangered/section7/fhwa/pdf/IBAT_ExhibitE_Table2__FeeSchedule_LandValues.pdf

The sole RPM of the BO's ITS requires the Federal Transportation Agencies to ensure that State/Local transportation agencies, who choose to include eligible projects under the programmatic action, incorporate all applicable conservation measures in the project proposals submitted to the Service for ESA section 7 compliance using the BO. The implementing terms and conditions for this RPM require the Federal Transportation Agencies to offer training to appropriate personnel about using the BO, and promptly report sick, injured, or dead bats (regardless of species) or any other federally listed species located in project action areas.

Northern Long-eared Bat

The Service anticipates that tree removal associated with the Project will cause incidental take of NLEBs. However, the Project is consistent with the BO, and such projects will not cause take of NLEB that is prohibited under the ESA section 4(d) rule for this species (50 CFR §17.40(o)). Therefore, the incidental take of NLEBs resulting from the Project does not require exemption from the Service.

Reporting Dead or Injured Bats

The FHWA, its State/Local cooperators, and any contractors must take care when handling dead or injured Indiana bats and/or NLEBs, or any other federally listed species that are found at the Project site to preserve biological material in the best possible condition and to protect the handler from exposure to diseases, such as rabies. Project personnel are responsible for ensuring that any evidence about determining the cause of death or injury is not unnecessarily disturbed. Reporting the discovery of dead or injured listed species is required in all cases to enable the Service to determine whether the level of incidental take exempted by this BO is exceeded, and to ensure that the terms and conditions are appropriate and effective. Parties finding a dead, injured, or sick specimen of any endangered or threatened species must promptly notify this Service Office.

Reinitiation Notice

This letter concludes consultation for the Project, which qualifies for inclusion in the BO issued to the Federal Transportation Agencies. To maintain this inclusion, a reinitiation of this Project-level consultation is required where the FHWA discretionary involvement or control over the Project has been retained (or is authorized by law) and if:

1. the amount or extent of incidental take of Indiana bat is exceeded;
2. new information reveals that the Project may affect listed species or critical habitat in a manner or to an extent not considered in the BO;
3. the Project is subsequently modified in a manner that causes an effect to listed species or designated critical habitat not considered in the BO; or
4. a new species is listed or critical habitat designated that the Project may affect.

Per condition #1 above, the anticipated incidental take is exceeded when the Project removes trees of more than 0.11 acres of habitat suitable for the Indiana bat. In instances where the amount or extent of incidental take is exceeded, the FHWA is required to immediately request a

reinitiation of this Project-level consultation.

We appreciate your continued efforts to ensure that this Project is fully consistent with all applicable provisions of the BO. If you have any questions regarding our response or if you need additional information, please contact Josh Hundley at 573-234-5037.

Sincerely,

KAREN HERRINGTON

Digitally signed by KAREN HERRINGTON
Date: 2020.09.11 15:33:03 -05'00'

Field Office Supervisor

MoDOT
Missouri Department of Transportation
Patrick K. McKenna, Director

105 West Capitol Avenue
P.O. Box 270
Jefferson City, Missouri 65102
573.751.2551
Fax: 573.751.6555
1.888.ASK MODOT (275.6636)

TO: Kevin Ward
Division Administrator
Federal Highway Administration

FROM: Jo Ann Dent
MoDOT Senior Environmental Specialist

DATE: January 13, 2021

SUBJECT: Design, Environmental Studies
Local Public Agency Project (LPA)
Clark County
LPA Job No. RRP-000S(582)
County Road 110 Overpass Bridge 11000371
U.S. DOT Crossing 005026U

TAYLOR R PETERS
Digitally signed by TAYLOR PETERS
Date: 2021.01.26 16:48:50 -06'00

Enclosed is documentation to support a Categorical Exclusion (CE) classification for the subject LPA project. The enclosed NEPA documentation and related technical studies/reports have been reviewed by MoDOT for compliance with all applicable federal, state, and local laws and regulations. This NEPA document has been prepared in compliance with the Council on Environmental Quality regulations for implementing the provisions of the NEPA, as well as FHWA Environmental regulations and related procedures.

Clark County plans to demolish Bridge 11000371 at U.S. DOT Crossing No. 005026U over Burlington Northern Santa Fe (BNSF) railroad line and replace it with a 210.36-foot-long, 26'-9"-wide, three-span NU-43 concrete bridge, with two lanes, and MoDOT Type-D barrier curb. The new bridge will be raised to provide 24-foot vertical clearance over the railroad tracks. Each corner of the bridge will include a bridge approach transition section connected to either a TL-2 crashworthy end terminal or 31-inch Midwest Guardrail System (MGS) railing with an MGS end anchor. Fill and gravel will be placed on the roadway to raise approaches to meet the bridge. All disturbed grassy areas will be seeded and mulched.

The proposed project requires 0.89-acre temporary easements, 2.08 acres of permanent easements, and no new right of way.

This project is partially funded through the Railway-Highway Crossings Section 130 Program which provides funding for the elimination of hazards at railway-highway crossings. It is programmed in the 2020-2024 Statewide Transportation Improvement Program (STIP).

The project requires tree clearing between 100 feet and 300 feet from the existing improved facility (road, bridge, gravel rail bed). According to the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat, this project requires formal Endangered Species Act (ESA) Section 7 consultation with U.S. Fish and Wildlife Service (USFWS). Further, the Programmatic Categorical Exclusion Agreement between FHWA and MoDOT specifies the preparation of a CE2 document for FHWA review and approval when formal consultation under ESA Section 7 is required.

Enclosure

January 13, 2021

CATEGORICAL EXCLUSION DETERMINATION
[Per 23 CFR 771.117(d)]
Local Public Agency Project

Job Number: RRP-000S(582) **Route:** County Road 110 **County:** Clark

Project Location/Termini: Overpass Bridge 11000371 at U.S. DOT Crossing No. 005026U, at Mile Post 270.880, on County Road 110, over Burlington Northern Santa Fe (BNSF) Railroad, approximately one mile east of Wyaconda. The project begins approximately 2,700 feet north of the intersection of Route W and County Road 110, continuing for approximately 932 feet. The total project length is 0.18-mile. See the attached *Project Location Map*.

Existing Conditions: In 2019, MoDOT conducted an inspection of Overpass Bridge 11000371. It is load posted at 13 tons and the condition rating for the deck, superstructure, and substructure is 6—satisfactory condition. The existing structure is one-lane with roadway curves at each end limiting sight distance and posing a safety hazard when traffic from both directions needs to cross the bridge. The existing County Road 110 is gravel and although daily traffic counts are very low at approximately 15 vehicles per day, nearby residents must share the road and the one-lane bridge with farm vehicles and oversized machinery. Additionally, the railing on the bridge does not meet current American Association of State Highway Transportation Officials (AASHTO) standards. The BNSF railroad line under the overpass bridge experiences approximately 62 freight trains and two passenger trains per day, for a total of 64 trains per day, making this one of the busiest railroad line segments in the state.

Proposed Improvements: Clark County plans to demolish Bridge 11000371 and replace it with a 210.36-foot-long, 26'-9"-wide, three span NU-43 concrete bridge, with two lanes, and MoDOT Type-D barrier curb. The new bridge will be raised to provide 24-foot vertical clearance over the BNSF railroad tracks. Each corner of the bridge will include a bridge approach transition section connected to either a TL-2 crashworthy end terminal or 31-inch Midwest Guardrail System (MGS) railing with an MGS end anchor. Fill and gravel will be placed on the roadway to raise approaches to meet the bridge. All disturbed grassy areas will be reseeded and mulched. Fill and gravel will be placed on the roadway to raise approaches to meet the bridge. The contractor awarded the construction contract will choose a borrow site and will be responsible for obtaining necessary environmental permits and clearances for that site.

Overpass Agreement

On November 11, 2019, Clark County and BNSF railroad executed the attached *Overpass Agreement* outlining the proposed demolition of the existing overpass bridge and construction of the new overpass bridge. The county must provide project plans and specifications to BNSF for review and written approval prior to construction. Once project plans are approved, BNSF will grant Clark County a Temporary Construction License for constructing the new bridge across or upon BNSF's right of way, and a permanent easement to enter upon and use the portion of BNSF right of way for operation and maintenance of the new bridge. Clark County will own the overpass bridge, roadway approaches, lighting, drainage, and any access roads to BNSF gates.

- **Commitment:** Clark County will provide project plans and specifications to BNSF for review and written approval prior to construction to obtain a Temporary Construction License for constructing the new bridge across or upon BNSF's right of way, and a permanent easement to enter upon and use the portion of BNSF right of way for operation and maintenance of the new bridge.

Note that in the November 11, 2019, Overpass Agreement, BNSF will also permanently close two at-grade railroad crossings at U.S. DOT Crossing No. 005020D on County Road 159 near Medill, and at U.S. DOT Crossing No. 005027B on County Road 404, near Wyaconda. The two crossing closings are independent of the replacement of overpass Bridge 11000371 and no FHWA funds will be used for closing those two crossings. However, construction associated with these permanent closures will be included in the county's construction contract with project RRP-000S(582), as outlined in the Overpass Agreement. The crossings on County Road 159 and County Road 404 are not included in this NEPA review.

On August 11, 2020, BNSF and Clark County executed the attached *Amendment to Overpass Agreement* which amends the following sections specific to replacement of overpass Bridge 11000371:

- Under Recitals, the bridge number was corrected from Bridge 407001 to Bridge 1100037.
- Under Scope of Work, Article I, Section 1, roads excluded to vehicular traffic during construction were updated.

This project is partially funded through the Railway-Highway Crossings Section 130 Program which provides funding for the elimination of hazards at railway-highway crossings. It is programmed in the 2020-2024 Statewide Transportation Improvement Program (STIP).

Current ADT: 15 (2020) **Future ADT:** 19 (2039)

Right-of-Way Required - Acres: New Right of Way----------0.00
Permanent Easements------2.08
Temporary Easements------0.89

Displacements (Type and Number): Residential—0 Commercial—0

Socioeconomic/Community Impacts: Executive Order 12898—Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, enacted in 1993, requires each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects to minority and low-income populations.

Demographic Information

MoDOT's environmental specialist reviewed the online EJScreen mapping tool provided by the U.S. Environmental Protection Agency (EPA), and 2017 estimated data from the American Community Survey. The project limits are within Census Tract 29045950 Block Group 1001. The study area to assess community impacts was defined as the project limits plus a 1-mile radius around the project limits. The population of the study area is approximately 10 people.

Based on the data reviewed, percentages of low-income populations in the project study area are higher than all other jurisdictions. No minority populations were identified in the project study area. Additionally, 100 percent of the population age 5 years and over within the study area speak only English, higher than the state and county and equal to Block Group 1001. The above data is summarized in the *Environmental Justice Populations* table below.

ENVIRONMENTAL JUSTICE POPULATIONS				
	Missouri	**Clark County**	**Census Track 29045950 Block Group 1001**	**Project Study Area (Project limits + 1-mile radius)**
Total Population:	6,137,428	6,797	567	10
*Poverty:	13.20%	14.90%	21.07%	36.00%
**Minority:	20.90%	3.20%	2.65%	0.00
Age 5+ English Speaking Only:	93.90%	93.90%	100.00%	100.00%

**Poverty – income below current poverty rate*
***Minority – non-white and/or Hispanic*

Public Involvement

On June 6, 2019, the Clark County Commission met with BNSF Railroad representatives; Howe Company, the county's consulting engineer; and MoDOT staff to discuss the replacement of Bridge 11000371. Because this project has little direct impact to the public other than to adjacent landowners, the county road and bridge supervisor contacted the four owners of land adjacent to the bridge by telephone or in-person, about the project. All four landowners expressed their support for the project and offered no objections.

On September 24, 2019, the attached *Public Notice and Request for Comments* regarding the proposed bridge replacement was posted on MoDOT's Northeast District website, on MoDOT's public website, and posted on the door of the Clark County Courthouse. Public comments were allowed up to October 25, 2019. Neither the county nor MoDOT's Multimodal Operations Division received any public comments.

There are no known substantive public controversies regarding this project.

Traffic Impacts

Vehicular traffic will be restricted from the use of County Road 110 between Route W and County Road 127 that runs east-to-west and intersects County Road 110 approximately 2,300 feet north of the existing overpass bridge. Clark County will ensure traffic control during construction is compliant with *Section 8A-08 Temporary Traffic Control Zones* of the *Manual of Traffic Control Devices* (MUTCD). Clark County plans to post "Road Closed to Thru Traffic" signs at the closest intersections on either side of the bridge; at the intersection of Route W/County Road 110 to the south, and at the intersection of County Road 127/County Road 110 to the north. Moveable barricades posted with "Road Closed" signs will be placed at each end of the project limits. Prior to posting signs and installing barricades the county will ensure the contractor provides written notification of the road closure to area emergency responders, schools, and the post office in Wyaconda. See the attached *Traffic Control Plan Sheet* for more detail. The road will remain open to local traffic, particularly adjacent property owners. A detour route will include County Road 110, Route W, and County Road 404 for a total detour length of approximately 3.66 miles. See the attached *Detour Route Map*.

- **Commitment:** Clark County plans to minimize and manage traffic impacts during construction by committing to the following:
    a. ensuring traffic control during construction is compliant with Section 8A-08 Temporary Traffic Control Zones of the Manual of Traffic Control Devices (MUTCD).
    b. posting "Road Closed to Thru Traffic" signs at the closest intersections on either side of the bridge, at the intersection of Route W/County Road 110 to the south, and at the intersection of County Road 127/ County Road 110 to the north.
    c. placing moveable barricades posted with "Road Closed" signs at each end of the project limits.
    d. ensuring the contractor provides written notification of the road closure to area emergency responders, schools, and the post office in Wyaconda prior to posting signs and installing barricades.
    e. ensuring County Road 110 remain open to local traffic, particularly adjacent property owners.
    f. providing a detour route which will include County Road 110, Route W, and County Road 404 for a detour length of approximately 3.66 miles.

The two BNSF at-grade railroad crossings at U.S. DOT Crossing No. 005020D on County Road 159 near Medill, and at U.S. DOT Crossing No. 005027B on County Road 404, near Wyaconda will be permanently closed before construction is completed for the overpass bridge. The permanent at-grade crossing closings will have no impact to traffic during construction of this project.

Clark County will ensure a Traffic Management Plan (TMP) is included in the construction contract to respond to temporary disruptions in travel patterns and travel time. Once developed, Clark County will assess the impacts of the TMP within the framework of NEPA. If the TMP could result in impacts that were not previously reviewed under NEPA—such as new or additional road closures, access changes, or other circumstances that could cause new or modified impacts to resources, Clark County will notify MoDOT environmental staff for review of these impacts prior to implementing the TMP.

- **Commitment:** Clark County will ensure a Traffic Management Plan (TMP) is included in the construction contract to respond to temporary disruptions in travel patterns and travel time. Once developed, Clark County will assess the impacts of the TMP within the framework of NEPA. If the TMP could result in impacts that were not previously reviewed under NEPA—such as new or additional road closures, access changes, or other circumstances that could cause new or modified impacts to resources, Clark County will notify MoDOT environmental staff for review of these impacts prior to implementing the TMP.

Property Acquisitions

The project requires 0.89-acre of temporary easements for grading and for staging materials and equipment during construction. Permanent easements in the amount of 2.08 acres are needed to replace the bridge and for future maintenance of the bridge, ditches, and areas of rock blanket. See the *Easement Acquisitions* table on the following page. Plan sheets are available upon request.

EASEMENT ACQUISITIONS					
	PROPERTY OWNERS	PARCEL NUMBER	PLAN SHEET NUMBER	TEMPORARY (ACRES)	PERMANENT (ACRES)
1	LaFrenz	1	9	0.11	0.20
2	McElroy	3	9	0.17	0.17
3	BNSF Railroad	5	9	0.20	0.77
4	Humes	2	10	0.14	0.36
5	Graham Trust	4	10	0.27	0.58
			TOTALS:	0.89	2.08

Clark County will conduct all right-of-way and easement acquisitions and will provide services to all impacted households without discrimination in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (referred to as the Uniform Act). The Uniform Act and Missouri state laws require just compensation be paid to the owners(s) of private property taken for public use. The Uniform Act is carried out without discrimination and in compliance with Title IV (the Civil Rights Act of 1964), the President's Executive Order on Environmental Justice, and the Americans with Disabilities Act.

- **Commitment:** Clark County will conduct right of way acquisitions and provide services to all impacted households without discrimination in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Summary

Based on Clark County's contact with BNSF Railroad and adjacent property owners, the posted public notice and opportunity for public comment, no residential or commercial displacements, implementation of the Uniform Act, the county's plan to effectively minimize temporary impacts during construction, and the safety benefits the improvements will provide, it is determined in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23, that temporary construction impacts and the completed project will not result in disproportionately high and adverse effects on minority and low-income populations.

Farmland Impacts: The Farmland Protection Policy Act (FPPA) mandates agencies identify and consider adverse effects of federal projects on farmland. In cooperation with the local Natural Resources Conservation Service (NRCS) office, the act requires an assessment for potential conversion of farmland to non-farming purposes.

According to the 2010 U.S. Census Bureau Urban Area Reference Map for the project limits, this project is located entirely outside of a designated urbanized area and requires permanent easements. There is potential for conversion of farmland; therefore, the project is subject to the FPPA.

The project consultant submitted the Farmland Conversion Impact Rating Form AD-1006 to the NRCS for review and response. On June 30, 2020, the NRCS responded that the project site does not contain prime farmland or farmland of statewide or local importance. Nothing further is required. The completed *Farmland Conversion Impact Rating Form AD-1006* is attached.

Wetlands/Stream Impacts: Wetlands are defined (*Federal Register*, 1982) as "Those areas inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil condition." Recognizing the variety of beneficial functions of wetlands, Executive Order (E.O.) 11990—Wetlands Protection mandates consideration of wetland impacts, as does Missouri's E.O. 96-03. Further, E.O. 11990 mandates a no-net-loss-of-national-wetlands policy. Section 404 of the Clean Water Act of 1977 authorizes the U.S. Army Corps of Engineers (USACE) to regulate the discharge of dredged or fill material in all waters of the United States, including jurisdictional wetlands.

According to a review of USGS topographic maps, the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory mapper, and Google Earth imagery, no blue line streams or wetlands exist within or adjacent to the project limits. Because the county will not impact wetlands or place material or fill into jurisdictional waters, a Section 404 permit from the USACE is not required.

Water Quality Impacts: National Pollutant Discharge Elimination System (NPDES) is a national program under Section 402 of the Clean Water Act for regulation of discharges of pollutants from point sources to waters of the United States. Discharges are illegal unless authorized by a NPDES permit.

Section 402 NPDES Municipal Separate Storm Sewer System (MS4) Permit

This project is not within a Missouri Department of Natural Resources (MDNR) Municipal Separate Storm Sewer System (MS4) area; therefore, Clark County does not have a Storm Water Management Plan or a MS4 permit. Additionally, because the county will not place material or fill into jurisdictional waters, neither a Section 404 permit from the USACE or a Section 401 Water Quality Certification from MDNR are required.

Section 402 NPDES (Land Disturbance Permit)

Because the project will disturb over one acre of land, Clark County will ensure the contractor obtains a NPDES construction or land disturbance permit from MDNR prior to the start of construction. Clark County will ensure the contractor implements an on-site Storm Water Pollution Prevention Plan (SWPPP) under the Construction or Land Disturbance NPDES Operating Permit to prevent or minimize adverse impacts to streams within and adjacent to the project area. This plan shall describe best management practices and procedures designed to reduce suspended solids, turbidity, and downstream sedimentation that may degrade water quality and adversely impact aquatic life. The plan provides for temporary erosion and sediment control measures that will be included within construction contract specifications.

- **Commitment:** Clark County will ensure the contractor obtains a NPDES construction or land disturbance permit from MDNR prior to the start of construction. Clark County will ensure the contractor implements an on-site Storm Water Pollution Prevention Plan (SWPPP) under the Land Disturbance NPDES Operating Permit to prevent or minimize adverse impacts to streams within and adjacent to the project area. This plan shall describe best management practices and procedures designed to reduce suspended solids, turbidity, and downstream sedimentation that may degrade water quality and adversely impact aquatic life. The plan provides for temporary erosion and sediment control measures that will be included within construction contract specifications.

Floodplain Impacts: Executive Order 11988—Floodplain Management and subsequent federal floodplain management guidelines mandate evaluation of floodplain impacts. When available, flood hazard boundary maps produced by the Federal Emergency Management Agency (FEMA) and flood insurance studies prepared for the National Flood Insurance Program for a project area are used to determine limits of the base floodplain, also known as the one-percent and 100-year floodplain, and the extent of encroachment.

FEMA and FHWA guidelines at 23 CFR 650 identify the base flood as the flood having a one-percent probability of being equaled or exceeded in any given year. Base flood is the area of one-percent flood hazard within a county or community. The regulatory floodway is the channel of a stream and any adjacent floodplain areas that must be kept free of encroachment so the one-percent flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA mandates that projects must cause no rise in the regulatory floodway and a maximum of one-foot cumulative rise for all projects in the base floodplain.

According to the attached *FEMA National Flood Hazard Layer Firmette*, the project is within Zone X - Area of Minimal Flood Hazard. Therefore, floodplain permitting and the requirements of 23 CFR Section 650 Subpart A do not apply.

Federal Emergency Management Agency (FEMA) Buyout Lands Impacts: The Flood Disaster Protection Act of 1973, as amended by the Disaster Relief and Emergency Assistance Act of 1988 (The Stafford Act), identified use of disaster relief funds under Section 404 for the Hazard Mitigation Grant Program (HMGP), including acquisition and relocation of flood-damaged property. The Volkmer Bill also expanded use of HMGP funds under Section 404 to buy out flood-damaged property affected by the Great Flood of 1993. Numerous restrictions are placed on FEMA buyout properties and processing an exemption from FEMA to use a parcel can require two to three years.

According to the ArcMap GIS FEMA buyout layer, no FEMA buyout sites are within or near the project limits. The project will not result in development on any FEMA buyout sites.

Air Quality Impacts: The Clean Air Act (CAA) requires adoption of air quality standards, quality control regions, and state implementation plans. The federal government created the National Ambient Air Quality Standards (NAAQS) to protect public health, safety, and welfare from known or anticipated effects of sulfur dioxide, particulate matter, carbon monoxide, nitrogen dioxide, ozone, and lead. Missouri added criteria for hydrogen sulfide and sulfuric acid. Transportation can contribute to four of six NAAQS pollutants: ozone, carbon monoxide, particulate matter, and nitrogen dioxide. Transportation conformity with the NAAQS ensures federally funded or approved transportation plans, programs, and projects conform to air quality objectives established in State Implementation Plans. MoDOT is responsible for implementing the conformity regulation in nonattainment and maintenance areas.

The project is in a non-classified area defined by the EPA through the CAA. Therefore, conformity requirements of 40 CFR Part 93 do not apply and no further action is necessary. The project is not expected to generate large and permanent quantities of air pollutants. Dust and emissions from construction vehicles and equipment will be minor and temporary.

Noise Impacts: The 1972 Federal-aid Highway Act required FHWA to develop a noise standard for new Federal-aid highway projects. FHWA Noise Standards give highway agencies flexibility to conform to national requirements. MoDOT's noise policy on highway traffic noise and construction noise is in the Engineering Policy Guide at 127.13. It describes MoDOT's implementation of the FHWA Noise Standard requirements contained in 23 CFR Part 772. MoDOT developed the noise policy, which was approved by FHWA.

The primary sources of highway traffic noise are tire-pavement interface, engine noise, and exhaust noise. In very general terms, the lower threshold of highway noise impact is roughly the point where interference with normal human speech is appreciable.

The project will provide a new bridge on essentially the same alignment with a raised profile to provide a 24-foot vertical clearance over the railroad tracks. The project is a physical alteration of an existing highway. However, because there are no noise sensitive receptors in the study area, the project does not qualify for either 2a or 2b under the definition of a Type I Project provided below. This project is classified as Type III. Consequently, the project is not subject to MoDOT's noise policy and a noise analysis is not required. Definition of a Type I Project:

1. The construction of a highway on new location; or,
2. The physical alteration of an existing highway where there is either:
    i. Substantial Horizontal Alteration. A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or,
    ii. Substantial Vertical Alteration. A project that removes shielding (vegetation does not constitute shielding as it typically does not provide substantial noise reduction), as it thereby exposes the line-of-sight between the receptor and the traffic noise source (maintenance and resurfacing projects are not Type I projects). This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor; or,
3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a High Occupancy Vehicle (HOV) lane, High Occupancy Toll (HOT) lane, bus lane, or truck climbing lane; or,
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or,
5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or,
6. Restriping existing pavement for the purpose of adding a through-traffic lane or an auxiliary lane; or,
7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza.
8. If any portion of a project evaluated under NEPA is determined to be Type I per 23 CFR 772.5, then the entire project area as defined in the environmental document is a Type I project.

As is required by 23 CFR 772.19, the temporary increase in noise levels from construction was considered. Land use in the area is mainly agricultural. The nearest residence is over 1,000 feet south of the project limits and will experience minimal construction noise effects. Clark County will ensure construction specifications require all construction equipment be in good working order. Mufflers are required to help reduce and address construction noise impacts. Overall, noise impacts from construction are expected to be minor and to occur infrequently.

- **Commitment:** Clark County will ensure construction specifications will indicate that all construction equipment be in good working order. Mufflers will be required to help reduce and address construction noise impacts.

Cultural Resources/Section 4(f) Historic Sites Impacts:

Section 106

Efforts to identify historic properties and assess potential adverse effects have been implemented pursuant to 36 CFR Part 800, Protection of Historic Properties, the regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470).

In May 2020, the county's consultant submitted draft Section 106 documentation to MoDOT Historic Preservation staff for review and comment.

Archaeology

MoDOT determined no previous archaeological sites or surveys are in the vicinity of the project limits. However, archaeological sites have been found in similar settings in the region. Considering the proposed new construction in relatively undisturbed fields outside existing right-of-way, MoDOT recommended an archaeological survey.

Architecture

MoDOT determined Bridge 1100037, constructed in 1949, is a built-up girder bridge, specifically a steel through girder-floorbeam bridge with timber girder approach spans over the railroad tracks. The bridge features metal and timber components. Missouri contains at least 11 non-state and state steel, through girder-floorbeam bridges over railroad tracks constructed between 1902 and 1950, five of which have been reconstructed. Bridge 1100037 has not been reconstructed.

According to the National Cooperative Highway Research Program's (NCHRP) A Context for Common Historic Bridge Types report (NCHRP Project 25-25, Task 15), metal built-up girder bridges possess moderate significance. Within this type, surviving riveted, built-up girders from the early-twentieth century of reasonable integrity are more significant because of their relative rarity. The first generation, welded steel girders that survived from the 1950s are also of higher significance as these structures have mostly been replaced because of their structural deficiency (Brinckerhoff and Engineering and Industrial Heritage 2005:3-111). Bridge 1100037 features riveted metal plate girders with wood abutments and a wood deck, portions of which have been replaced. While the bridge is a riveted model, it is a later example compared to most riveted bridges of this type. The bridge is not related to New Deal funding from the 1930s, nor funding from the 1950s associated with the State Highway Department assuming ownership of previous county roads. Association with these funding incentives in Missouri would add historical significance to the bridge.

In summary, this bridge is a late example of the built-up girder type that is not long, is not an early example of its type, and is not associated with major programs to improve grade separations. The bridge would fall under the Program Comment for Post-1945 Concrete and Steel Bridges, if not for the timber components. Therefore, consultation with the State Historic Preservation Officer (SHPO) was required. Overall, the bridge is not an exceptional example of the built-up girder or girder/floorbeam type. MODOT recommended Bridge 1100037 as not eligible for listing in the National Register of Historic Places.

Cultural Resource Investigation Phase I Survey

On July 24, 2020, the county's consultant submitted the draft Cultural Resource Investigations Phase I Survey prepared by Environmental Research Center of Missouri, Inc., for review by MoDOT Historic Preservation staff. MoDOT suggested minor revisions to the survey and recommended a determination of No Historic Properties Affected based on the Phase I Survey results. Once revisions were made to the document, the consultant submitted the survey to the SHPO for review and concurrence with MoDOT's determination. See the attached *Cover Letter to SHPO*.

On August 5, 2020, the SHPO issued its Cultural Resource Assessment Form indicating that an adequate cultural resource survey was conducted. Based on this survey and its negative findings, the SHPO concurred with the No Historic Properties Affected determination. The *SHPO Cultural Resource Assessment Form* is attached and the Phase I Survey is available upon request.

Clark County will notify MoDOT if changes are made to the project, including but not limited to the addition of new right of way or easements or changing the scope of the project to ensure any changes are reviewed under Section 106.

- **Commitment:** Clark County will notify MoDOT if changes are made to the project, including but not limited to the addition of new right of way or easements or changing the scope of the project to ensure any changes are reviewed under Section 106.

Tribal Consultation

FHWA must consult with any Native American Indian tribe that may attach religious and cultural significance to historic properties that could be affected by project undertakings.

In the attached *FHWA Tribal Notification Email* dated June 22,2020, FHWA initiated consultation with the following Tribes: Iowa Tribe of Kansas and Nebraska, Iowa Tribe of Oklahoma, Miami Tribe of Oklahoma, Osage Nation, Sac and Fox Tribe of the Missouri in Kansas and Nebraska, Sac and Fox Tribe of the Mississippi in Iowa, and Sac and Fox Nation of Oklahoma.

In the attached July 13, 2020, *Miami Tribe of Oklahoma Response*, the tribe offers no objection to the project and is currently unaware of existing documentation directly linking a specific Miami culture or historic site to the project.

In the attached July 27, 2020, *Osage Nation Response* email, the tribe states there are no known Osage resources within the project area, but requested to review the final report.

On July 27, 2020, FHWA mailed the final Cultural Resources Survey report to the Miami Tribe of Oklahoma and the Osage Nation. See the attached *FHWA Email Cultural Resources Survey to Tribes*.

As of the date of this document, no additional responses have been received from any tribes.

Section 4(f) Historic Sites

Section 4(f) is part of the Department of Transportation Act of 1966 designed in part to preserve privately or publicly owned historic sites. A historic site is protected under Section 4(f) only if it is on or eligible for the National Register of Historic Places. Federally funded actions cannot result in a use to Section 4(f) eligible sites unless there is no feasible and prudent avoidance alternative to the use of the land and the proposed action includes all possible planning to minimize harm to the property resulting from such use, or FHWA determines the use of the property will have a de minimis impact.

No Section 4(f) historic sites are involved in this project.

Public Lands - Section 4(f) and Section 6(f) Impacts:

Section 4(f)

Section 4(f) is part of the Department of Transportation Act of 1966 designed to preserve publicly owned parks, recreation areas, and wildlife and waterfowl refuges. Federally funded actions cannot result in a use to Section 4(f) eligible sites unless there is no feasible and prudent avoidance alternative to the use of the land and the proposed action includes all possible planning to minimize harm to the property resulting from such use, or FHWA determines the use of the property will have a de minimis impact.

Section 6(f)

Section 6(f) is part of the Land and Water Conservation Fund (LWCF) Act designed to provide restrictions for public recreation facilities funded with LWCF money. The LWCF Act provides funds for the acquisition and development of public outdoor recreation facilities that could include community, county, and state parks, trails, fairgrounds, conservation areas, boat ramps, shooting ranges, etc. LWCF-assisted facilities must be maintained for outdoor recreation in perpetuity, and therefore, require mitigation that includes replacement land of at least equal value and recreation utility.

According to Google Earth imagery and ArcMap GIS public lands layers, the nearest resource is Clark Conservation Area over two miles from the project area. Project construction will not restrict access to this resource. The project will not result in a use to any Section 4(f) resources nor will it result in the conversion of any Section 6(f) lands.

Threatened and Endangered Species Impacts: The Endangered Species Act (ESA) provides for the protection of threatened and endangered species, both plants and animals, and the habitats that are considered critical to the survival of these species, e.g., breeding, nesting, roosting, and foraging areas. The ESA requires FHWA and MoDOT to consult with the U.S. Fish and Wildlife Services (USFWS) regarding its projects and measures that can be implemented to minimize or eliminate project impacts to these species.

Projects also must address potential impacts to state listed species. The State of Missouri maintains endangered species legislation that protects these species (state ESA). The state ESA and the Missouri Wildlife Code protect state listed species. The Missouri Cave Resources Act protects caves from trespass, vandalism, contamination, and destruction. The Missouri Department of Conservation (MDC) is the administrative, regulatory, and enforcement agency for state sensitive species.

MoDOT reviewed all documentation submitted and generated including the attached *USFWS IPaC Official Species Lists* (Consultation Code: 03E14000-2020SLI-2328, May 27, 2020, updated August 31, 2020); MDC Natural Heritage Review (NHR) Level 2 Report; MDC NHR follow-up report (June 3, 2020); project information provided by the county; project plan sheets; site map; photographs; and Google Earth imagery. The Missouri Natural Heritage Database (NHD, 2020) and Missouri Speleological Society Cave Database (MSS, 2019) were also reviewed for additional natural resource information in and around the project area.

The USFWS IPaC Official Species Lists includes Gray, Indiana, and Northern long-eared bats within and near the project area; and no critical habitats.

Gray Bats

Gray bats are cave obligate species, which congregate in maternity or bachelor colonies in the summer using dome cave and mine habitat, and mixed colonies during winter hibernation in vertical or pit-type caves and mines, using mainly stream corridors for foraging spring through fall. It is possible for gray bats to roost in small clusters temporarily on a bridge or inside large culverts, but very rarely to be a sizable summer gray bat colony that would produce considerable staining and guano.

There are no perennial streams in the project limits. The nearest summer records for this species are over 50 miles from the project area in a different watershed. Based on a May 2020 field visit, and photographs submitted, the existing bridge showed no signs of bat staining or guano. MoDOT has determined there will be No Effect to gray bats.

Indiana and Northern long-eared Bats

Indiana and northern long-eared bats winter in caves and mines in Missouri. The entire state of Missouri is within the breeding range of these species. During the active season, Indiana bats can occur in forested areas of the state where they may use suitable summer roost trees with exfoliating bark. Summer habitat for the threatened northern long-eared bat overlaps greatly with Indiana bat habitat and includes additional use of trees with splits, crevices, hollow sections, and other damage. Any projects that involve tree clearing in Missouri could impact these species by removing suitable summer bat roosting habitat. Clearing of trees greater than three inches in diameter is needed for this project.

There are no known winter or summer records within 6.5 miles for either species, and no known caves within 28 miles of the project area. There will be no impact to winter bat cave habitat. Although there are no known Indiana and northern long-eared bat summer records within 6.5 miles of the project area, it would be possible for these forest bat species to use suitable roost trees in the project area outside of hibernation season.

The proposed footprint for this project includes removal of approximately 1.05-acre of trees, including the removal of trees over 100 feet from the edge of an improved facility (road, bridge, gravel rail bed). The sponsor conducted a habitat assessment in June 2020 and identified 26 potentially suitable summer bat roost trees in the project limits that included large shagbark hickories and snags. Presence/probable absence surveys were not completed for Indiana or northern long-eared bats. Clark County commits to removing all trees only between November 1 and March 31 and will limit the tree clearing to only what is necessary to complete the project. Clark County will ensure that dates of tree removal are recorded in construction notes, even if trees are cleared by local forces ahead of the contract to confirm adherence to the seasonal tree clearing commitment. MoDOT on behalf FHWA determined this project May Affect, and is Likely to Adversely Affect Indiana and/or northern long-eared bats.

- **Commitment:** Clark County commits to removing all trees only between November 1 and March 31 and will limit the tree clearing to only what is necessary to complete the project.
- **Commitment:** Clark County will ensure that dates of tree removal are recorded in construction notes, even if trees are cleared by local forces ahead of the contract to confirm adherence to the seasonal tree clearing commitment.

All tree clearing will occur within 300 feet from the edge of existing facilities, which qualifies for the use of USFWS formal range-wide programmatic consultation guidelines. On July 23, 2020, MoDOT generated the attached *USFWS Formal Programmatic Consistency Letter* under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects (PBO) within the Range of the Indiana Bat and Northern Long-eared Bat. Verification that the project is consistent with the PBO was requested from USFWS to include the following:

1. Verification the Proposed Action is consistent with the scope of actions covered by the PBO;
2. Verification all applicable avoidance, minimization, and compensation measures are included in the action proposal;
3. Identification of any action-specific monitoring and reporting requirements, consistent with the PBO; and
4. Identification of anticipated incidental take.

In the attached September 10, 2020, *USFWS PBO Verification Letter*, USFWS concurred with MoDOT's May Affect, and Likely to Adversely Affect determination for Indiana bat and/or northern long-eared bat and verified the project may rely on the November 5, 2018 PBO. USFWS determined that projects consistent with the conservation measures and scope of the program analyzed in the PBO are not likely to jeopardize the continued existence of the Indiana bat and/or the northern long-eared bat.

Incidental Take – Indiana Bat

"Take" is defined in Section 3 of the ESA as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or attempt to engage in any such conduct." USFWS anticipates that tree removal associated with the proposed project will cause incidental take of Indiana bats and that it is appropriate to measure the amount or extent of incidental taking resulting from BO projects using the proposed acreage of tree removal from Indiana bat suitable habitat as a surrogate for the numbers of individuals taken.

The proposed project will remove 1.05-acre of trees including habitat that is suitable for the Indiana bat. All tree removal will occur in winter, between November 1 and March 31, and comply with all other conservation measures in the PBO. Based on the PBO, 0.94-acre of the tree removal is not anticipated to result in any adverse effects. However, 0.11-acre of tree removal is anticipated to result in adverse effects. Mitigation requirements are described in the PBO. MoDOT understands and has advised Clark County that only the amount of tree clearing between 100-300 feet from an improved facility is subject to compensatory mitigation.

Following is a summary of the required compensatory tree mitigation for unavoidable impacts to Indiana bat summer roosting habitat. According to the **Compensatory Mitigation Ratio Percent Forest Cover (by county)**, the percent of forest cover for Clark County, MO is 0.1828 or 18.28 percent. The table below outlines the compensatory mitigation ratios for Indiana bat based on the tree clearing limits.

Compensatory Mitigation Ratios for Indiana Bat https://www.fws.gov/midwest/endangered/section7/fhwa/pdf/IBAT_ILF_ratios_transportation_agencies.pdf				
Project Location	< 30% Forest Cover (within County)		≥ 30% Forest Cover (within County)	
	Active*	Inactive*	Active*	Inactive*
0-100 ft. edge of road/rail ballast	1.5	NLAA	1.25	NLAA
0-100 ft. edge of road/rail ballast – Documented roosting/foraging habitat	2.25	1.75	2	1.5
100-300 ft. edge of road/rail ballast	2.25	1.75	2	1.5

**For the state of Missouri, the inactive season for Indiana bats is November 1 - March 31.*

USFWS indicated in its September 10, 2020, PBO verification letter that $1,193.50 is to be paid for mitigation to The Conservation Fund (TCF) in-lieu fee instrument prior to the start of construction (FHWA authorization for construction). On October 1, 2020, Clark County submitted the attached *Clark County Compensatory Mitigation Fee Letter of Commitment* to pay the full compensatory mitigation fee of $1,193.50 to TCF for Indiana bat prior to the removal of any trees and prior to FHWA authorization for construction, and will provide the final transaction receipt generated by TCF to MoDOT and FHWA as proof of payment.

- **Commitment:** Clark County commits to paying the full compensatory mitigation fee of $1,193.50 to TCF for Indiana bat prior to the removal of any trees and prior to FHWA authorization for construction, and will provide the final transaction receipt generated by TCF to MoDOT and FHWA as proof of payment.

Migratory Birds

The Migratory Bird Treaty Act of 1918 (MBTA) makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase or barter any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. "Take" refers to killing adults, eggs, or young of the bird species protected by the act. MoDOT conducts field checks for the presence of nesting birds for projects that involve impacts to the underside of bridge decks and the substructure. If birds are found to be nesting on a structure, MoDOT assesses and applies a job special provision if necessary, to protect against disturbance or harm to any nests or birds during the active breeding season.

On May 21, 2020, Clark County's consultant inspected Overpass Bridge 11000371 and submitted photographs for MoDOT review. MoDOT concurred with the consultant there is no evidence of bird nesting or staining on or under the bridge. Therefore, there are no conflicts or concerns with the Migratory Bird Treaty Act.

Hazardous Waste Sites Impacts: The Missouri Department of Natural Resources (MDNR) online interactive Environmental Site Tracking and Research Tool (E-START) was reviewed to determine if any of the following sites exist within or directly adjacent to the project corridor: Superfund sites; Federal Facilities; Resource Conservation and Recovery Act Corrective Action sites; Brownfields/Voluntary Cleanup Program sites; Brownfield Assessments; and Petroleum and Hazardous Substance Storage Tank Facilities.

According to MoDOT's review of the project area using the MDNR E-START online mapping tool, there are no Hazardous Substance Investigation and Cleanup Sites and no Regulated Petroleum and Hazardous Substance Storage Tank Facilities in the vicinity of the project area. There are no hazardous waste site concerns based on this information. However, the potential to encounter hazardous wastes from sites unknown to Clark County and MoDOT should always be a consideration.

If regulated hazardous or solid wastes are found during construction activities, Clark County's construction inspector shall direct the contractor to cease work at the suspect site. The construction inspector shall contact the appropriate MoDOT environmental specialist to discuss options for remediation. The environmental specialist, the construction office, and the contractor shall develop a plan for sampling, remediation, and continuation of project construction. Independent consulting, analytical, and remediation services shall be contracted, if necessary. The MDNR and the EPA shall be contacted for coordination and approval of required activities.

- **Commitment:** Clark County's construction inspector shall direct the contractor to cease work at the suspect site if regulated hazardous or solid wastes are found during construction activities. The construction inspector shall contact the appropriate MoDOT environmental specialist to discuss options for remediation. The environmental specialist, the construction office, and the contractor shall develop a plan for sampling, remediation, and continuation of project construction. Independent consulting, analytical, and remediation services will be contracted if necessary. The MDNR and the EPA shall be contacted for coordination and approval of required activities.

Asbestos and Heavy Metals Paint Survey

Demolition and renovation/replacement of bridges and/or buildings requires an asbestos inspection by a current MDNR-certified asbestos inspector and a heavy metals paint inspection by an inspector currently licensed by the Missouri Department of Health and Senior Services.

- **Commitment:** Clark County will ensure an asbestos inspection is conducted by a current MDNR-certified asbestos inspector and a heavy metals paint inspection is conducted by an inspector currently licensed by the Missouri Department of Health and Senior Services prior to FHWA authorization for construction. Clark County will submit the inspection reports to MoDOT

MDNR must be notified in advance of all bridge demolitions. Clark County will ensure its contractor notifies DNR 10 days in advance of the bridge demolition and include this language in construction contract documents.

- **Commitment:** Clark County will ensure its contractor notifies MDNR 10 days in advance of the bridge demolition and include this language in construction contract documents.

ENVIRONMENTAL COMMITMENTS:

1. Clark County will provide project plans and specifications to BNSF for review and written approval prior to construction to obtain a Temporary Construction License for constructing the new bridge across or upon BNSF's right of way, and a permanent easement to enter upon and use the portion of BNSF right of way for operation and maintenance of the new bridge.
2. Clark County plans to minimize and manage traffic impacts during construction by committing to the following:
    a. ensuring traffic control during construction is compliant with *Section 8A-08 Temporary Traffic Control Zones* of the *Manual of Traffic Control Devices* (MUTCD).
    b. posting "Road Closed to Thru Traffic" signs at the closest intersections on either side of the bridge, at the intersection of Route W/County Road 110 to the south, and at the intersection of County Road 127/ County Road 110 to the north.
    c. placing moveable barricades posted with "Road Closed" signs at each end of the project limits.
    d. ensuring the contractor provides written notification of the road closure to area emergency responders, schools, and the post office in Wyaconda prior to posting signs and installing barricades.
    e. ensuring County Road 110 remain open to local traffic, particularly adjacent property owners.
    f. providing a detour route which will include County Road 110, Route W, and County Road 404 for a total detour length of 3.66 miles.
3. Clark County will ensure a Traffic Management Plan (TMP) is included in the construction contract to respond to temporary disruptions in travel patterns and travel time. Once developed, Clark County will assess the impacts of the TMP within the framework of NEPA. If the TMP could result in impacts that were not previously reviewed under NEPA—such as new or additional road closures, access changes, or other circumstances that could cause new or modified impacts to resources, Clark County will notify MoDOT environmental staff for review of these impacts prior to implementing the TMP.
4. Clark County will conduct all right of way and easement acquisitions and will provide services to all impacted households without discrimination in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
5. Clark County will ensure the contractor obtains a NPDES construction or land disturbance permit from MDNR prior to the start of construction. Clark County will ensure the contractor implements an on-site Storm Water Pollution Prevention Plan (SWPPP) under the Land Disturbance NPDES Operating Permit to prevent or minimize adverse impacts to streams within and adjacent to the project area. This plan shall describe best management practices and procedures designed to reduce suspended solids, turbidity, and downstream sedimentation that may degrade water quality and adversely impact aquatic life. The plan provides for temporary erosion and sediment control measures that will be included within construction contract specifications.
6. Clark County will ensure construction specifications will indicate that all construction equipment be in good working order. Mufflers will be required to help reduce and address construction noise impacts.
7. Clark County will notify MoDOT if changes are made to the project, including but not limited to the addition of new right of way or easements or changing the scope of the project to ensure any changes are reviewed under Section 106.
8. Clark County commits to removing all trees only between November 1 and March 31 and will limit the tree clearing to only what is necessary to complete the project.
9. Clark County will ensure that dates of tree removal are recorded in construction notes, even if trees are cleared by local forces ahead of the contract to confirm adherence to the seasonal tree clearing commitment.
10. Clark County commits to paying the full compensatory mitigation fee of $1,193.50 to TCF for Indiana bat prior to the removal of any trees and prior to FHWA authorization for construction, and will provide the final transaction receipt generated by TCF to MoDOT and FHWA as proof of payment.

11. Clark County's construction inspector shall direct the contractor to cease work at the suspect site if regulated hazardous or solid wastes are found during construction activities. The construction inspector shall contact the appropriate MoDOT environmental specialist to discuss options for remediation. The environmental specialist, the construction office, and the contractor shall develop a plan for sampling, remediation, and continuation of project construction. Independent consulting, analytical, and remediation services will be contracted if necessary. The MDNR and the EPA shall be contacted for coordination and approval of required activities.
12. Clark County will ensure an asbestos inspection is conducted by a current MDNR-certified asbestos inspector and a heavy metals paint inspection is conducted by an inspector currently licensed by the Missouri Department of Health and Senior Services prior to FHWA authorization for construction, and will submit the inspection reports to MoDOT.
13. Clark County will ensure its contractor notifies MDNR 10 days in advance of the bridge demolition and include this language in construction contract documents.
14. If there are changes in the project scope, project limits, existing conditions, pertinent regulations or environmental commitments, Clark County shall contact MoDOT to re-evaluate potential impacts prior to implementation. Environmental commitments are not subject to change without prior written approval from the Federal Highway Administration.

Howe Company LLC

Civil & Structural Engineers
www.howecompany.com

January 20, 2021

Clark County Commission
111 E. Court Street, Suite 110
Kahoka, MO 63445

RE: Clark County Bridge 1100037
Asbestos Inspection

On December 31, 2020 an asbestos inspection was performed on the above structure. The structure is a multi-span bridge with timber girders and abutments and timber and steel piers. The guardrail consisted of timber and steel and the deck is timber as well. 2 samples were collected were suspect ACM and sent to a laboratory for testing. No asbestos was detected. The results from the lab are enclosed.

Additionally, no paint was observed on the structure.

If any material is observed during demolition that was not visible at the time of the inspection please contact me.

If you have with any questions or concerns call me at 660-395-4693. Thank you!

Sincerely,

Beth Moots
HOWE COMPANY, LLC.

804 E Patton Street * Macon, Missouri 63552 * Phone: 660-395-HOWE (4693) * Fax: 660-395-4694

Clark 110

Clark 110

Clark 110

Clark 110

PLM Summary Report

2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client :	Moody Labs Customer	Lab Job No. : 21B-00469
Project :	Howe Company, Project: Clark County Bridge 1100037	Report Date : 01/19/2021
Project # :	Not Provided	Sample Date :12/31/2020
Identification :	Asbestos, Bulk Sample Analysis	
Test Method :	Polarized Light Microscopy / Dispersion Staining (PLM/DS) EPA Method 600 / R-93 / 116	

On 1/15/2021, two (2) bulk material samples were submitted by Beth Moots of Moody Labs Customer for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
1	Paper Material, North Span	None Detected - Felt / Tar Paper
2	Tar, North Abutment	None Detected - Tar

Analyst(s): Shaun Wilkerson

Lab Manager : Heather Lopez — Approved Signatory : Heather Lopez

Lab Director : Bruce Crabb — Approved Signatory : Bruce Crabb

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Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Moody Labs Customer
Project : Howe Company, Project: Clark County Bridge 1100037
Project # : Not Provided

Lab Job No. : 21B-00469
Report Date : 01/19/2021

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
1	Felt / Tar Paper (Black)	100%	Cellulose Fibers	85%	01/19	SW
			Tar Binders	15%		
2	Tar (Black)	100%	Tar Binders	100%	01/19	SW

CERTIFICATION NUMBER:

7019052220MOIR17259

THIS CERTIFIES

Beth C. Moots

HAS COMPLETED THE CERTIFICATION REQUIREMENTS FOR

Inspector

APPROVED: **07/24/2020**

EXPIRES: **05/22/2021**

TRAINING DATE: **05/22/2020**

Director of Air Pollution Control Program

PHOTOS

Photolog - Clark County Bridge No. 11000371

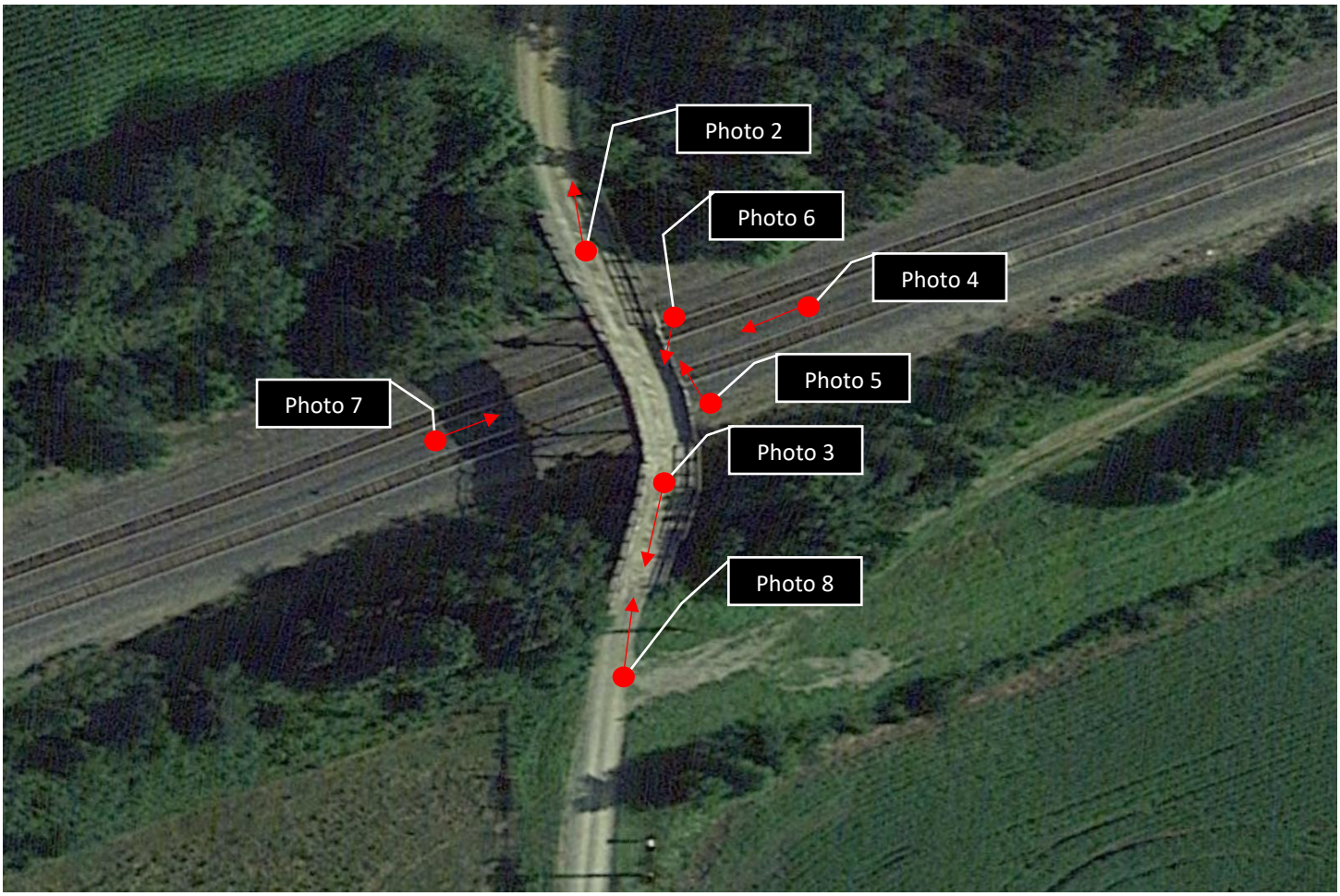

Photo 1: Site Map

Photo 2: North Facing View

Photo 3: South Facing View

Photo 4: West Facing View

Photo 5: North Facing Underside of Bridge

Photo 6: South Facing Underside of Bridge

Photo 7: East Facing View

Photo 8: North Facing onto Bridge