BID PACKAGE

FOR CONSTRUCTION ON COUNTY ROADS IN INYO COUNTY

North Round Valley Road Bridge Replacement Over Pine Creek Project

North Round Valley Bridge, Bishop, CA

TR-17-034

FOR USE IN CONNECTION WITH STATE OFFICE OF EMERGENCY SERVICES FUNDED CONSTRUCTION PROJECTS ADMINISTERED UNDER THE STANDARD PLANS AND STANDARD SPECIFICATIONS, DATED 2020, OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION, AND GENERAL PREVAILING WAGE RATES AND LABOR SURCHARGE AND EQUIPMENT RENTAL RATES

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North Round Valley Road Bridge Replacement Over Pine Creek Project

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NOTICE INVITING BIDS FOR

North Round Valley Road Bridge Replacement Over Pine Creek Project

North Round Valley Road, Bishop, CA

October 2020

COUNTY OF INYO
PUBLIC WORKS DEPARTMENT

NOTICE INVITING BIDS

The Inyo County Public Works Department is soliciting bids for the:

North Round Valley Road Bridge Replacement Over Pine Creek Project

The project location is briefly described below:

North Round Valley Road Bridge over Pine Creek, approximately 12 miles north of Bishop California, near the community of 40 Acres.

Bid Packages, which include the Notice Inviting Bids, Bid Proposal Forms, Contract and Bond Forms, Special Provisions, and Plans may be obtained from the Inyo County Public Works Department, 168 North Edwards Street, P.O. Drawer Q, Independence, CA 93526, Telephone (760) 878-0201. A non-refundable fee of $50.00 will be charged for each Bid Package.

To expedite shipping, fax to (760) 878-2001 a copy of (1) your mailed check, (2) your bidder contact information, and (3) your FedEx number for shipping. Checks are to be made out to *Inyo County Public Works Department.* The Bid Package is also available for inspection at the department offices during regular business hours. Bid Packages are also available to download free of charge at the County of Inyo website at https://www.inyocounty.us/services/county-administration/bid-request-rfp.

Bidders must register as plan holders with Inyo County Public Works Department to be able to submit a bid. Bidders who fail to notify the County that they are plan holders may not be informed of the issuance of any addenda. If the County issues any addenda to the bid packages that are not acknowledged by the bidder, the bid proposal may be rejected.

Bids must be delivered in a sealed envelope clearly marked thereon with the bidder's name and address, the word BID, and the project title:

North Round Valley Road Bridge Replacement Over Pine Creek Project

To be considered, **bids must be received by the assistant clerk to the Inyo County Board of Supervisors, 224 N. Edwards Street (mailing address: P.O. Box N), Independence, CA 93526 at or before 3:30 P.M., on December 2nd , 2020** at which time they will be publicly opened and read. **If office closures due to Covid-19 are still in effect on the bid opening date, bids will be read aloud over a conference line, all bidders will be provided with the call-in information.** No oral, email, telephone, or fax proposals or modifications will be accepted.

General Work Description:
The existing North Round Valley Road Bridge (Bridge Number 48C0044), built in 1987, was closed due to high velocity flows that occurred in June and July 2017. The high flows undermined both existing abutment foundations due to scour, and eroded approximately 50-feet of the south approach roadway behind the southern abutment. The bridge is to be replaced by an approximately 85-foot (ft) single-span, precast/prestressed wide flange girder superstructure on high cantilever abutments founded on cast-in-drilled-hole (CIDH) concrete piles. The North Round Valley Road Bridge Replacement project will generally consist of: (1) clearing and grubbing, (2) installing temporary BMPs, (3) constructing a temporary water diversion, (4) removal of the existing bridge, (5) construction of the new bridge, (6) construction of abutments, (7) placement of precast/prestressed CA wide flange girder superstructure, (8)

construction of bridge deck and barriers, (9) installation of permanent erosion control/scour BMPs including rip-rap, and (10) reconstruction of road approaches.

The Contractor is responsible to perform, place, construct or install other items and details not mentioned here as shown on the plans and as described in the special provisions and Standard Specifications. The Contractor is also responsible for performing the work in accordance with the environmental permits included in the *Information Packet* and all applicable local, state, and federal laws and regulation.

Bids shall conform to and be responsive to the contract documents, which include the notice inviting bids, bid proposal forms, contract and bond forms, *Inyo County Standard Specifications* and *Standard Plans,* dated 2020, *California Department of Transportation Standard Specifications* and *Standard Plans,* dated 2018, special provisions, project plans, and current edition of the *Manual of Uniform Traffic Control Devices*, and any other documents incorporated therein by reference. Bids are required for the entire work described in the contract documents. Each bid must be submitted on the bid proposal forms furnished as part of the bid package.

General requests for information, such as how to order bid packages, engineer's estimate, plan holders list, bid results or summaries, subcontractor lists, or similar information should be directed to the receptionist at the Inyo County Public Works Department at 760-878-0201.

Technical questions related to engineering, site conditions, materials, construction methods, or testing should be directed to Jake Trauscht of Inyo County Public Works at jtrauscht@inyocounty.us or 760-878-0204.

All Requests for Information (RFI) must be submitted by 5:00 p.m. on November 24th, 2020. Submit RFIs by fax (760-878-2001 Attn: Jake Trauscht) or by email to jtrauscht@inyocounty.us. The County of Inyo will not respond to any RFIs submitted after that time.

A mandatory job walk for this project has been scheduled for November 19th, 2020 at 10 A.M., at the intersection of Pine Creek Road and North Round Valley Road. If unable to attend on this date, bidders are required to contact Jake Trauscht on 760-878-0202 to schedule an alternate time for the visit prior to preparing their bid.

Each bid must be accompanied by a cashier's check, a certified check, or a bidder's bond from an admitted corporate surety on the form provided in the bid package, in an amount not less than 10% of the amount of the bid, and made payable to the County of Inyo. The check or bidder's bond shall be given as security that the bidder will enter into the contract with the county and furnish the required labor and materials payment bond, faithful performance bond, certificates of insurance, or other required documents, if the bid is accepted. The check or bond will be forfeited to the county if the bidder fails to timely enter into said contract or furnish the required bonds, certificates of insurance, or other required documents. The check or bidder's bond may be retained by the county for sixty (60) days or until the contract is fully executed by the successful bidder and the county, whichever occurs first.

The basis of contract award will be the responsive, low-bid amount indicated for the scope of work.

The successful bidder shall be required to furnish a faithful performance bond and a labor and materials payment bond on the forms provided in the bid package in the amount of 100% of the maximum contract amount.

The contractor, subcontractor, or the sub-recipient of subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of the contract.

The contract is subject to, and incorporates by reference, the provisions of **Public Contract Code Section 22300**, pursuant to which the contractor is permitted to substitute securities for earned retentions or have them placed in escrow at the contractor's expense.

The contract is also subject to the State Contract nondiscrimination and compliance requirements pursuant to **Government Code Section 12990, et seq**.

Pursuant to **Section 1773** of the **Labor Code**, to which this contract is subject, the prevailing wage per diem rates in Inyo County have been determined by the Director of the State Department of Industrial Relations. These wage rates appear in the Department of Transportation publication entitled *General Prevailing Wage Rates*. Future effective wage rates, which have been predetermined and are on file with the State Department of Industrial Relations, are referenced, but not printed, in said publication. Such rates of wages are also on file with the State Department of Industrial Relations and the offices of the Public Works Department of the County of Inyo and are available to any interested party upon request.

Attention is directed to the federal minimum wage rate requirements of this project. If there is a difference between the minimum wage rates predetermined by the U.S. Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, the Contractor and subcontractors shall pay not less than the higher wage rate. The county will not accept lower state wage rates not specifically included in the federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the federal wage determinations. Where federal wage determinations do not contain the state wage rate determination otherwise available for use by the Contractor and subcontractors, the Contractor and subcontractors shall pay not less than the federal minimum wage rate, which most closely approximates the duties of the employees in question.

The bidder and all subcontractors must be licensed as required by law at the time the bid is accepted and the contract is awarded. The bid will not be accepted nor a contract awarded without proof of the contractor's current registration pursuant to Section 1725.5 of the Labor Code. Failure of the bidder to obtain proper and adequate licensing for an award of a contract shall constitute a failure to execute the contract and shall result in the forfeiture of the security of the bidder. The contractor license classification required for this project is Class A or a combination of all of the specialty classifications that will be required for the complete performance of all of the work in accordance with the contract documents. In addition, the bidder, if a joint venture, must have a current joint venture license at the time of award of the contract in accordance with **Business and Professions Code Section 7029.1.**

The Bidder is further advised, pursuant to Public Contract Code Section 20103.5, that the first payment for work or material under this Contract shall not be made unless and until the Registrar of Contractors verifies to the County that the records of the Contractors' State License Board indicate that the Contractor was properly licensed at the time the contract was awarded. Any bidder or contractor not so licensed shall be subject to all legal penalties imposed by law, including, but not limited to, any appropriate disciplinary action by the Contractors' State License Board.

Inyo County reserves the right at any stage of these proceedings to reject any or all bids or to waive any immaterial defect in any bid if it is deemed to be in the best interest of the County.

The meanings of words used in this notice inviting bids are the same as those set forth in Section 1 of the Department of Transportation Standard Specifications, dated 2018.

Each bidder must supply all the information required by the contract documents, special provisions and the standard specifications.

Bid Protest: In the event a dispute arises concerning the bid process prior to the award of the contract, the party wishing resolution of the dispute shall submit a request in writing to the County Director of

Purchasing. Bidder may appeal the recommended award or denial of award, provided the following stipulations are met:

A. Appeal must be in writing.
B. Must be submitted within ten (10) calendar days of the date of the recommended award or denial of award letters.
C. An appeal of a denial of award can only be brought on the following grounds:
D. Failure to follow the selection procedures and adhere to requirements specified in the Bid Package or any addenda or amendments.
E. There has been a violation of conflict of interest as provided by California Government Code Section 87100 et seq.
F. A violation of State or Federal law.
G. Appeals will not be accepted for any other reasons than those stated above. All appeals must be sent to:

Clint Quilter
County of Inyo
Purchasing Department
224 N. Edwards St.
Independence, CA 93526

County's Purchasing Agent shall make a decision concerning the appeal, and notify the Proposer making the appeal, within a reasonable timeframe prior to the tentatively scheduled date for awarding the contract. The decision of County's Purchasing Director shall be deemed final.

County of Inyo
Public Works Department

Michael Errante, P.E. Digitally signed by Michael Errante, P.E. Date: 2020.10.22 13:28:17 -07'00'

Michael Errante, P.E.
Director of Public Works

Dated: October 22, 2020

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BID
PROPOSAL
FORMS FOR

North Round Valley Road Bridge Replacement Over Pine Creek Project

North Round Valley Road, Bishop, CA

October 2020

BID PROPOSAL FORM

To: COUNTY OF INYO
Public Works Department
168 N. Edwards Street
P.O. Drawer Q
Independence, California 93526
(Herein called the "Owner")

From: _____
_____
_____
_____

(Herein called the "Contractor").

FOR: North Round Valley Road Bridge Replacement Over Pine Creek Project (Herein called "Project")

Bids will be opened at 3:30 P.M, on December 2nd, 2020 at the assistant clerk to the Inyo County Board of Supervisor's office, 224 N. Edwards Street, Independence, CA 93526.

This bid includes all costs for all labor, materials, tools, taxes, insurance, transportation, and other related functions to perform all work as required by, and in accordance with, the contract documents for the Project. The bidder must submit a total bid for all of the items included in the bid schedule.

In submitting this bid, it is understood that:

1. The notice inviting bids; these bid proposal forms; the contract and bond forms; the special provisions; the Department of Transportation Standard Plans, dated 2015; the Department of Transportation Standard Specifications, dated 2015; the current edition of the Manual of Uniform Traffic Control Devices, and the project plans; including any documents incorporated therein, are to be considered complementary and are incorporated herein by reference and made a part hereof with like force and effect as if all of said documents were set forth in full herein. All of said documents, which include these bid proposal forms, are referred to collectively as the contract documents and shall constitute the contract between the parties that will come into full force and effect upon acceptance, approval, and execution by the Inyo County Board of Supervisors.

2. The contract for the Project requires the contractor to deliver a complete and finished asphalt concrete roadway overlay and additional associated work. Anything necessary to complete this work properly and in accordance with the law and lawful governmental regulations, shall be performed by the contractor, whether set out specifically in the contract documents or not.

3. The contractor, if his/her bid is accepted, will furnish the required bonds and certificates of insurance and other required documents as described in the contract documents.

In submitting this bid, the contractor has familiarized itself or himself/herself with the bid package which includes the notice inviting bids; the bid proposal forms; the contract and bond forms; the special provisions; the Inyo County Standard Specifications and Plans, dated 2020, the California Department of Transportation Standard Plans, dated 2018, Department of Transportation Standard Specifications, dated 2018; the current edition of the Manual of Uniform Traffic Control Devices, and the project plans. Contractor further agrees in submitting this bid to perform all the work in accordance with the contract documents within **170 days** as required in **Section 8-1.05, "TIME"** of the special provisions. The undersigned has/have checked carefully the following figures and understand(s) that the County of Inyo will not be responsible for any errors or omissions on the part of the undersigned in making this bid.

Attached as a part of this bid is a bid bond from an admitted corporate surety on the form provided in the bid package ( ), or a certified or cashier's check ( ), in an amount not less than 10% of the amount of the bid submitted, either of which it is agreed, pursuant to the notice inviting bids and the bid proposal forms, shall be forfeited to or retained by the County of Inyo if the undersigned fails to execute the contract, or furnish the required bonds, certificates of insurance, and other required documents within ten (10) calendar days after receiving the contract documents.

Also attached as a part of this bid is the bid proposal form; bid item list; designation of subcontractors; Certification Regarding Equal Employment Opportunity; Public Contract Code Section 10285.1 Statement; Public Contract Code Section 10162 Questionnaire; Public Contract Code Section 10232 Statement; non-collusion affidavit; Contractor's Labor Code Certification; and either (a) cashier's or certified check form or (b) bid bond form. These documents have been completed and signed as required on the forms provided in the bid package. The bidder's signature on this proposal constitutes an endorsement and execution of each and every certification and declaration that is contained in these documents, and bidder's promise to perform and abide by the terms of these documents.

A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5 of the labor code. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 of the labor code at the time the contract is awarded.

The meanings of words used in these bid proposal forms are the same as set forth in **Section 1-1.02, "Definitions and Terms**" of the special provisions relating to this project.

ACCEPTANCE:

The owner reserves the right to reject this bid. However, this bid shall remain open and shall not be withdrawn for a period of sixty (60) calendar days from the date set for its opening.

If written notice of the acceptance of this bid is mailed or delivered to the undersigned within sixty (60) calendar days after the date set for its opening, or at any other time thereafter before it is withdrawn, the undersigned will execute and deliver the contract, bonds, certificates of insurance, and other required documents, to the owner within eight (8) working days, not including Saturdays, Sundays, and legal holidays, after receipt of the notification of acceptance of this bid (notification of award of contract).

The bidder shall set forth for each unit basis item of work an item price and a total for the item; and for each lump sum item, a total for the item; all in clearly legible figures in the respective spaces provided for this purpose. In the case of unit basis items, the amount set forth under the "Total" column shall be the extension of the item price bid on the basis of the estimated quantity for the item. The amount of the bid for comparison purposes will be the total of all items listed in the base bid schedule.

In case of discrepancy between the item unit price and the total set forth for a unit basis item, the item price shall prevail, except as provided in (a) or (b), as follows:

(a) If the amount set forth as an item price is unreadable or otherwise unclear, or is omitted, or is the same amount as the entry in the item "Total" column, then the amount set forth in the "Total" column for the item shall prevail and shall be divided by the estimated quantity for the item and the unit price thus obtained shall be the item price.

(b) (Decimal Errors) If the product of the entered item price and the estimated item quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc., from the entered item total, the discrepancy will be resolved by using the entered item price or item total, whichever most closely approximates percentage-wise the item price or item total in the engineer's estimate.

The undersigned, as bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm, or corporation; that he/she has carefully examined the location of the proposed work, the contract and bond forms, and the plans therein referred to; and he/she proposes, and agrees if this proposal is accepted, that he/she will contract with the County of Inyo, on the contract form provided in the bid package, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract, in the manner and time therein prescribed, and according to the requirements of the engineer as therein set forth; and that he/she will take in full payment therefore the following item prices:

BID ITEM LIST
NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT PROJECT

BIDDER'S COMPANY NAME: _____

ABBREVIATIONS: LS = LUMP SUM SQFT = SQUARE FEET LF = LINEAR FEET
CY = CUBIC YARD EA = EACH LB = POUND

ITEM NO.	DESCRIPTION	UNIT MEAS	EST. QUANTITY	UNIT PRICE	TOTAL DOLLARS
1	MOBILIZATION	LS	1	$	$
2	CONSTRUCTION SURVEYS	LS	1	$	$
3	TRAFFIC CONTROL SYSTEM	LS	1	$	$
4	JOB SITE MANAGEMENT	LS	1	$	$
5	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	1	$	$
6	TEMPORARY CREEK DIVERSION SYSTEM	LS	1	$	$
7	REMOVE ASPHALT CONCRETE SURFACING	SQFT	7,470	$	$
8	TEMPORARY HIGH-VISIBILITY FENCE (TYPE ESA)	LF	1,330	$	$
9	CLEARING AND GRUBBING	LS	1	$	$
10	STRUCTURE EXCAVATION (BRIDGE)	CY	68	$	$
11	STRUCTURE EXCAVATION (TYPE D)	CY	640	$	$
12	STRUCTURE BACKFILL (BRIDGE)	CY	275	$	$
13	FIBER ROLL	LF	480	$	$
14	HYDROSEED	SQFT	2,800	$	$
15	HOT MIX ASPHALT (TYPE A)	TON	196	$	$
16	24" CAST-IN-DRILLED-HOLE CONCRETE PILING	LF	1432	$	$
17	STRUCTURAL CONCRETE, BRIDGE FOOTING	CY	86	$	$
18	STRUCTURAL CONCRETE, BRIDGE	CY	148	$	$
19	STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER)	CY	93	$	$
20	FURNISH PRECAST PRESTRESSED CONCRETE CA WF GIRDER	EA	4	$	$

ITEM NO.	DESCRIPTION	UNIT MEAS	EST. QUANTITY	UNIT PRICE	TOTAL DOLLARS
21	ERECT PRECAST PRESTRESSED CONCRETE CA WF GIRDER	EA	4	$	$
22	JOINT SEAL (Type B)	LF	77	$	$
23	BAR REINFORCING STEEL (BRIDGE)	LB	56,727	$	$
24	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	LB	22,800	$	$
25	BRIDGE REMOVAL	LS	1	$	$
26	ROCK SLOPE PROTECTION (150 LB, CLASS III, METHOD B)	CY	472	$	$
27	ROCK SLOPE PROTECTION (1/2 TON, CLASS VII, METHOD B)	CY	1,362	$	$
28	ROCK SLOPE PROTECTION FABRIC (CLASS 8)	SQYD	1,128	$	$
29	TRANSITION RAILING (TYPE WB-31)	EA	4	$	$
30	IN-LINE TERMINAL SYSTEM	EA	4	$	$
31	CALIFORNIA ST-75 BRIDGE RAIL	LF	241	$	$
32	REMOVE GUARDRAIL	LF	250	$	$
33	PAINT TRAFFIC STRIPE (2-COAT)	LF	353	$	$

TOTAL BID (IN NUMBERS) _____

TOTAL BID (IN WORDS) _____

_____

REVIEWED AND CHECKED BY: _____

(For County Use)

TIME OF COMPLETION:

The undersigned further specifically agrees to complete all the work within **170 days after receipt of Notice to proceed** as required by **Section 8-1.05** of the Special Provisions.

BID SECURITY:

The required ten percent (10%) Bid Security for this bid is attached in the form of:
(Note: Check and complete one of the following items)

( ) Bid bond issued by _____,
an admitted corporate surety on the form provided in the bid package.

( ) Certified/cashier's check No. _____ issued by_____

_____

ADDENDA:

The undersigned acknowledges receipt of the following addenda and has provided for all addenda changes in this bid.

(Fill in addendum numbers and dates addenda have been received. If none have been received, enter "NONE".)

WARNING:

IF ADDENDA HAVE BEEN ISSUED BY THE COUNTY AND NOT NOTED ABOVE AS BEING RECEIVED BY THE BIDDER, THIS PROPOSAL MAY BE REJECTED.

BIDDER'S BUSINESS INFORMATION:

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation and names of the president, secretary treasurer, and manager thereof; if a co-partnership or joint venture, state the true name of the firm or joint venture and the names, current addresses, and telephone numbers of all individual co-partners or joint ventures composing the partnership or joint venture; if bidder or other interested person is an individual, state first and last names in full.

A. Individual ( ), Partnership ( ), Joint Venture ( ): Corporation ( ): Limited Liability Company (LLC) ( )

Personal Name:_____

Business Name:_____

Address:_____

_____ Zip Code _____

Telephone: (_____) _____

Federal Identification No. _____

Contractor's License No. _____, State of _____, Type_____

License Expiration Date _____

(The above address will be used to send notice of acceptance or requests for additional information)

THE UNDERSIGNED HEREBY DECLARES, UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA, THAT THE STATEMENTS MADE IN THIS BID PROPOSAL FORM, INCLUDING ALL OF THE ATTACHED STATEMENTS, DESIGNATIONS, CERTIFICATES, AND AFFIDAVITS, ARE TRUE AND CORRECT, AND THAT THEY ARE THE INDIVIDUAL, MANAGING PARTNER, OR CORPORATE OFFICER, DULY AUTHORIZED BY LAW TO MAKE THIS BID ON BEHALF OF CONTRACTOR, AND BY SIGNING BELOW DO MAKE THIS BID ON BEHALF OF CONTRACTOR ACCORDING TO ALL OF THE TERMS AND CONDITIONS SET FORTH OR REFERENCED HEREIN.

_____ _____

(Signature of Authorized Person) **(Title)**

_____ _____

(Printed Name) **(Date)**

DESIGNATION OF SUBCONTRACTORS

In compliance with the provisions of the **Subletting and Subcontracting Fair Practices Act (Section 4100 et. seq**. of the **Public Contract Code** of the **State of California**), the undersigned bidder has set forth below the full name, and the location of the place of business of each subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specifically fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications to which the attached bid is responsive, and the portion of the work which will be done by each subcontractor for each subcontract in excess of one-half of one percent of the prime contractor's total bid, or $10,000.00, whichever is greater.

The bidder understands that if he fails to specify a subcontractor for any portion of the work to be performed under the contract in excess of one-half of one percent of his bid, or $10,000.00, whichever is greater, he shall be deemed to have agreed to perform such portion himself, and that he shall not be permitted to sublet or subcontract that portion of the work except in cases of public emergency or necessity, and then only after a finding, reduced to writing as a public record of the awarding authority, setting forth the facts constituting the emergency or necessity.

If no subcontractors are to be employed on the project, enter the word "NONE".
(Use additional pages if necessary)

BID ITEM NO.	DESCRIPTION OF WORK	% OF TOTAL CONTRACT	SUBCONTRACTOR'S NAME, ADDRESS, AND PHONE NO.	LICENSE TYPE AND NUMBER	CA DIR REGIS

_____ _____
(Signature of Authorized Person) (Title)

_____ _____
(Printed Name) (Date)

PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

NORTH ROUND VALLEY ROAD BRIDGE REPLACMENT PROJECT

In conformance with **Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985),** the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has ___ , has not ___been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in **Public Contract Code Section 1101**, with any public entity, as defined in **Public Contract Code Section 1100**, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a checkmark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

NORTH ROUND VALLEY ROAD BRIDGE REPLACMENT PROJECT

In conformance with **Public Contract Code Section 10162**, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____

If the answer is yes, explain the circumstances in the following space.

By bidder's signature on the proposal, bidder certifies, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements in accordance with **Public Contract Code Section 10162** are true and correct.

PUBLIC CONTRACT CODE SECTION 10232 STATEMENT

NORTH ROUND VALLEY ROAD BRIDGE REPLACMENT OVER PINE CREEK PROJECT

In conformance with **Public Contract Code Section 10232**, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.
Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

_____

(Name and Title of Signer)

_____ _____

Signature **Date**

Company Name _____

Business Address _____

_____

CONTRACTOR'S LABOR CODE CERTIFICATION
(Labor Code Section 3700 et seq.)
NORTH ROUND VALLEY ROAD BRIDGE REPLACMENT OVER PINE CREEK PROJECT

I am aware of the provisions of **Section 3700** and following of the labor code which requires every employer to be insured against liability for worker's compensation or to undertake self- insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract.

_____

(Name and Title of Signer)

_____ _____

Signature **Date**

Company Name _____

Business Address _____

_____

_____

_____

(THE BIDDER'S EXECUTION ON THE SIGNATURE PORTION OF THIS PROPOSAL SHALL ALSO CONSTITUTE AN ENDORSEMENT AND EXECUTION OF THOSE CERTIFICATIONS WHICH ARE A PART OF THIS PROPOSAL)

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

The bidder_____, proposed subcontractor _____, hereby certifies that he has ___, has not ____, participated in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, or 11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filling requirements.

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

Noncollusion Affidavit
(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

To the COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS,

In conformance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Note: The above Noncollusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Noncollusion Affidavit.
Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

(Name and Title of Signer)

_____ _____
Signature **Date**

Company Name _____

Business Address _____

_____

_____

_____

Small Business Enterprise Commitment (Construction Contracts)

NOTE: PLEASE REFER TO INSTRUCTIONS ON THE REVERSE SIDE/NEXT PAGE OF THIS FORM

Department: **Inyo County Public Works Department** LOCATION: **BISHOP, CA**

PROJECT DESCRIPTION: NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT PROJECT

TOTAL CONTRACT AMOUNT: $_____

BID OPENING DATE: December 2, 2020

BIDDER'S COMPANY NAME:_____

BID ITEM NO.	ITEM OF WORK AND DESCRIPTION OR SERVICES TO BE SUBCONTRACTED OR MATERIALS TO BE PROVIDED	LICENSE INFO./CERT. No. of LOCAL AND SMALL BUSINESS ENTERPRISE AND EXPIRATION DATE	NAME AND CONTACT INFORMATION FOR LOCAL AND SMALL BUSINESS ENTERPRISE (Must be certified on the date bids are opened)	DOLLAR AMOUNT LOCAL AND SMALL BUSINESS ENTERPRISE

For Inyo County to Complete:

Project Number: TR- 17-034

Financing Type: _____

Contract Award Date: _____

Checked by:

_____ _____ _____

Print Name Signature Date

Total Claimed Participation

$_____

_____%

_____

Signature of Bidder

_____

Date (Area Code) Tel. No.

_____

Person to Contact (Please Type or Print)

Small Business Enterprise (Rev 5/10)

INSTRUCTIONS – Small Business Enterprise Commitment **(CONSTRUCTION CONTRACTS)**
(05/10)

ALL BIDDERS:

PLEASE NOTE: It is the bidder's responsibility to verify that the Small Business Enterprise (SBE) subcontractors are certified by the proper certifying authorities, and submit evidence of that certification with the bid. If a SBE prime contractor is not certified on the date of the bid opening, the SBE prime contractor will not qualify for the contracting preference. If the SBE subcontractor or subcontractors are not certified on the date of bid opening, that portion of that firm's participation will not count toward the minimum ten percent of the monetary value of the work needed to qualify for the contracting preference.

The form requires specific information regarding the construction contract: Total Contract Amount, Bid Opening Date, and Bidder's Name.

Indicate the appropriate bid item number (or numbers); Item of Work and description or services to be subcontracted or materials to be provided by the SBE; the SBE's business license information/expiration date, certification number and its expiration date; the SBE's contact information, including company and contact name, address, and telephone number; and the dollar amount expected to be paid to the SBE.

IMPORTANT: Identify **all** SBE firms participating in the project regardless of tier, including the prime contractor, if an SBE. Names of the First Tier SBE Subcontractors and their respective item(s) of work listed should be consistent, where applicable, with the names and items of work in the "List of Subcontractors" submitted with your bid. **Provide copies of the SBEs' quotes, and if applicable**, a copy of joint venture agreements pursuant to the Subcontractors Listing Law and the Special Provisions.

There is a column for the total SBE dollar amount. Enter the Total Claimed SBE Participation dollars and percentage amount of items of work submitted with your bid pursuant to the special provisions. (If 100% of item is not to be performed or furnished by the SBE, describe exact portion of time to be performed or furnished by the SBE.)

<u>This form must be submitted with the bid</u> if the bidder is attempting to qualify for the SBE contracting preference. If the bidder is not attempting to qualify for the SBE contracting preference the form does not need to be submitted.

FINAL REPORT – UTILIZATION OF SMALL BUSINESS ENTERPRISES
(SBE), FIRST-TIER SUBCONTRACTORS

PROJECT: **NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT PROJECT**			CONTRACT COMPLETION DATE
PRIME CONTRACTOR	BUSINESS ADDRESS		ESTIMATED CONTRACT AMOUNT

BID ITEM NO.	SUBCONTRACTOR NAME, BUSINESS ADDRESS, AND PHONE	DESCRIPTION OF WORK PERFORMED	SBE CERT. NUMBER	CONTRACT PAYMENTS		DATE WORK COMPLETE	DATE OF FINAL PAYMENT
				NON-SBE	SBE		
				$	$		
				$	$		
				$	$		
				$	$		
				$	$		
				$	$		
				$	$		
			TOTAL	$	$		

(i) Original Commitment

$ _____

2) I CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND CORRECT

CONTRACTOR REPRESENTATIVES SIGNATURE	BUSINESS PHONE NUMBER	DATE

4) TO THE BEST OF MY KNOWLEDGE, THE ABOVE INFORMATION IS COMPLETE AND CORRECT

RESIDENT ENGINEER'S SIGNATURE	BUSINESS PHONE NUMBER	DATE

To be completed by the contractor and submitted to the Resident Engineer upon project completion

INSTRUCTIONS - FINAL REPORT – UTILIZATION OF SMALL BUSINESS ENTERPRISES (SBE), FIRST-TIER SUBCONTRACTORS

The form requires specific information regarding the construction project, including the prime contractor name and address, contract completion date, and estimated contract amount. The objective of the form is to describe who did what by bid item numbers and description, asking for specific dollar values of item work completed broken down by subcontractors who performed the work, SBE and non-SBE work forces. SBE prime contractors are required to show the date of work performed by their own forces along with the corresponding dollar value of work.

Indicate appropriate bid item number or numbers, a description of work performed or materials provided, and subcontractor name and address. For those firms who are SBE, enter the SBE certification number. The SBE shall provide their certification number to the contractor and notify the contractor in writing with the date of decertification if their status changes during the course of the project.

The form has two columns for the dollar value to be entered for the item work performed by the subcontractor. The non-SBE column is used to enter the dollar value of work performed by firms who are not certified SBEs. Enter the dollar value of work performed by firms who are SBEs in the SBE column.

If the prime contractor or a subcontractor performing work as a SBE on the project becomes decertified and still performs work after their decertification date, enter the total value performed by the contractor/subcontractor under the appropriate SBE identification column.

If the prime contractor or a subcontractor performing work as a non-SBE on the project becomes certified as a SBE, enter the dollar value of all work performed after certification as a SBE under the appropriate SBE identification column.

Enter the total of each column on the form.

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT PROJECT
PROJECT NO. TR-17-034

CASHIER'S OR CERTIFIED CHECK

(Not required if bid bond accompanies the bid)

A cashier's or certified check in the required amount and made payable to the County of Inyo is attached below:

[ ]

ATTACH CHECK HERE

[ ]

Bidder (print name): _____

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT PROJECT

PROJECT NO. TR-17-034

BID BOND
(BID PROPOSAL GUARANTEE)

(Not required if certified or cashier's check accompanies the bid)

KNOW ALL MEN BY THESE PRESENTS: That we, _____

_____ as Principal, and
(Name of Bidder)

_____
(Name of Corporate Surety)

as Corporate Surety admitted to issue such bonds in the State of California, are held and firmly

bound unto the County of Inyo, State of California, in the sum of _____

_____ dollars ($_____)

for the payment whereof we hereby bind ourselves, our successors, heirs, executors, and administrators, jointly and severally, firmly by these presents.

The condition of the foregoing obligation is such that whereas the above bounded Principal is about to submit to the Board of Supervisors of the County of Inyo a bid for the construction of the **North Round Valley Road Bridge Replacement Project**, in compliance with the contract therefor:

Now, if the bid of the Principal shall be accepted and the contract awarded to the Principal by said Board of Supervisors, and if the Principal shall fail or neglect to enter into the contract therefor in accordance with the terms of the Principal's bid and the terms set forth in the bid package, or to furnish the required Faithful Performance and Labor and Materials Payment Surety Bonds, certificates of insurance, and other required documents, to the satisfaction of the Board of Supervisors of said county, no later than **EIGHT (8) WORKING DAYS** after the Principal has received notice from the county that the contract has been awarded to the Principal, then the sum guaranteed by this bond is forfeited to the County of Inyo.

It is expressly agreed and understood that any errors, clerical, mathematical, or otherwise, in the bid shall not be or constitute a defense to a forfeiture of this bond.

WITNESS our hands and seals this _____day of _____, 20 ____.

_____
Principal

(SEAL) By_____
(Name & Title of Authorized Person)

_____
(Address for Notices to be Sent)

_____
Surety

(SEAL) By_____
(Name & Title of Authorized Person)

_____
(Address for Notices to be Sent)

NOTE:

THE SIGNATURES OF THE PRINCIPAL (BIDDER) AND SURETY MUST EACH BE ACKNOWLEDGED BY A NOTARY AND THE ACKNOWLEDGMENTS MUST BE ATTACHED TO THIS BOND. The bid bond must be executed on this form by a corporate surety admitted to issue such bonds in the State of California. No substitutions will be accepted. If an attorney-in-fact signs for the surety, an acknowledged statement from the surety appointing and empowering the attorney-in-fact to execute such bonds in such amounts on behalf of the surety, must accompany the bid bond.

ADDRESS OF COUNTY FOR NOTICES TO BE SENT:

County of Inyo (Attn.: Public Works Director)
224 North Edwards Street, P.O. Box N
Independence, California 93526

CONTRACT AND BONDS

FOR

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT PROJECT

BISHOP, CA

Includes:

Inyo County Standard Contract No. 147
Faithful Performance Bond
Labor and Material Bond

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CONTRACT
BY AND BETWEEN
THE COUNTY OF INYO
and

_____, CONTRACTOR

for the

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK PROJECT

THIS CONTRACT is awarded by the COUNTY OF INYO to CONTRACTOR on and made and entered into effective, _____, 20___, by and between the COUNTY OF INYO, a political subdivision of the State of California, (hereinafter referred to as "COUNTY"), and _____(hereinafter referred to as "CONTRACTOR"), for the construction or removal of the **NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK PROJECT** (hereinafter referred to as "PROJECT"), which parties agree, for and in consideration of the mutual promises, as follows:

1. SERVICES TO BE PERFORMED. CONTRACTOR shall furnish, at his/her own expense, all labor, materials, methods, processes, implements, tools, machinery, equipment, transportation, permits, services, utilities, and all other items, and related functions and otherwise shall perform all work necessary or appurtenant to construct the Project in accordance with the Special Provisions, which are incorporated herein by reference per section 4(c) of this Contract, within the Time for Completion set forth, as well as in all other in the Contract Documents, for:

Title: **NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK PROJECT**

2. TIME OF COMPLETION. Project work shall begin within 14 calendar days after receipt of the Notice to Proceed (NTP) (or on the start of work date identified in the NTP) and shall continue until all requested services are completed. Said services shall be completed no later than the Time of Completion as noted in the Project's Special Provisions. Procedures for any extension of time shall be complied with as noted in the Project's Special Provisions.

3. PAYMENT/CONSIDERATION. For the performance of all such work, COUNTY shall pay to CONTRACTOR for said work the total amount of: _____ dollars ($_____), adjusted by such increases or decreases as authorized in accordance with the Contract Documents, and payable at such times and upon such conditions as otherwise set forth in the Contract Documents.

4. ALL PROVISIONS SET FORTH HEREIN. CONTRACTOR and COUNTY agree that this Contract shall include and consist of:

a. All of the provisions set forth expressly herein;

b. The Bid Proposal Form, the Faithful Performance Bond, and the Labor and Materials Payment Bond, all of which are incorporated herein and made a part hereof by this reference; and

c. All of the other Contract Documents, as described in **Section 5-1.02, "Definitions,"** of the Standard Specifications of the Inyo County Public Works Department, dated May, 2020, all of which are incorporated herein and made a part of this Contract by this reference, including without limitation, the Bid Package, the Standard Specifications of the Inyo County Public Works Department, dated May, 2020, and the Special Provisions concerning this Project including the Appendices, the Plans, any and all amendments or changes to any of the above-listed documents, including, without limitation, contract change orders, and any and all documents incorporated by reference into any of the above-listed documents.

5. STANDARD OF PERFORMANCE. Contractor represents that he/she is qualified and licensed to perform the work to be done as required in this Contract. County relies upon the representations of Contractor regarding professional and/or trade training, licensing, and ability to perform the services as a material inducement to enter into this Contract. Acceptance of work by the County does not operate to release Contractor from any responsibility to perform work to professional and/or trade standards. Contractor shall provide properly skilled professional and technical personnel to perform all services under this Contract. Contractor shall perform all services required by this Contract in a manner and according to the standards observed by a competent practitioner of the profession. All work products of whatsoever nature delivered to the County shall be prepared in a manner conforming to the standards of quality normally observed by a person practicing in Contractor's profession and/or trade.

6. INDEPENDENT CONTRACTOR. Nothing contained herein or any document executed in connection herewith, shall be construed to create an employer-employee, partnership or joint venture relationship between County and Contractor, nor to allow County to exercise discretion or control over the manner in which Contractor performs the work or services that are the subject matter of this Contract; provided, however, the work or services to be provided by Contractor shall be provided in a manner consistent with reaching the County's objectives in entering this Contract.

Contractor is an independent contractor, not an employee of County or any of its subsidiaries or affiliates. Contractor will not represent him/herself to be nor hold her/himself out as an employee of County. Contractor acknowledges that s/he shall not have the right or entitlement in or to any of the pension, retirement or other benefit programs now or hereafter available to County's employees. The consideration set forth in Paragraph 3 shall be the sole consideration due Contractor for the services rendered hereunder. It is understood that County will not withhold any amounts for payment of taxes from the Contractor's compensation hereunder. Any and all sums due under any applicable state, federal or municipal law or union or professional and/or trade guild regulations shall be Contractor's sole responsibility. Contractor shall indemnify and hold County harmless from any and all damages, claims and expenses arising out of or resulting from any claims asserted by any third party, including but not limited to a taxing authority, as a result of or in connection with payments due it from Contractor's compensation.

7. ASSIGNMENT AND SUBCONTRACTING. The parties recognize that a

substantial inducement to County for entering into this Contract is the professional reputation, experience and competence of Contractor. Assignments of any and/or all rights, duties or obligations of the Contractor under this Contract will be permitted only with the express consent of the County. Contractor shall not subcontract any portion of the work to be performed under this Contract without the written authorization of the County. If County consents to such subcontract, Contractor shall be fully responsible to County for all acts or omissions of the subcontractor. Nothing in this Contract shall create any contractual relationship between County and subcontractor, nor shall it create any obligation on the part of the County to pay any monies due to any such subcontractor, unless otherwise required by law.

8. CLAIMS RESOLUTION. Pursuant to **Section 9204 of the Public Contract Code**, any and all claims submitted by Contractor to County will follow the provisions as set forth in the Project's Special Provisions.

9. INSURANCE INDEMNIFICATION. Contractor shall hold harmless, defend and indemnify County and its officers, officials, employees and volunteers from and against all claims, damages, losses, and expenses, including attorney fees arising out of the performance of the work described herein, caused in whole or in part by any negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, except where caused by the active negligence, sole negligence, or willful misconduct of the County.

10. INSURANCE. For the duration of this Agreement, Contractor shall procure and maintain insurance of the scope and amount specified in Attachment 3 and with the provisions specified in that attachment.

11. POLITICAL REFORM ACT. Contractor is not a designated employee within the meaning of the Political Reform Act because Contractor:

a. Will conduct research and arrive at conclusions with respect to his/her rendition of information, advice, recommendation or counsel independent of the control and direction of the County or of any County official, other than normal Contract monitoring; and

b. Possesses no authority with respect to any County decision beyond rendition of information, advice, recommendation or counsel [FPPC Reg. 18700(a)(2)].

12. COMPLIANCE WITH ALL LAWS.

Performance Standards: Contractor shall use the standard of care in its profession and/or trade to comply with all applicable federal, state and local laws, codes, ordinances and regulations that relate to the work or services to be provided pursuant to this Contract.

a. Safety Training:

i. Contractor shall provide such safety and other training as needed to assure work will be performed in a safe and healthful manner "in a language" that is understandable to employees receiving the training. The training shall in all respects be in compliance with CAL OSHA; and

ii. Contractor working with employees shall maintain a written Injury and Illness Prevention (IIP) Program, a copy of which must be maintained at each worksite or at a central worksite identified for the employees, if the Contractor has non-fixed worksites; and

iii. Contractor using subcontractors with the approval of the County to perform the work which is the subject of this Contract shall require each subcontractor working with employees to comply with the requirements of this section.

b. Child, Family and Spousal Support reporting Obligations**:**

i. Contractor shall comply with the state and federal child, family and spousal support reporting requirements and with all lawfully served wage and earnings assignment orders or notices of assignment relating to child, family and spousal support obligations.

c. Nondiscrimination:

i. Contractor shall not discriminate in employment practices or in the delivery of services on the basis of membership in a protected class which includes any class recognized by law and not limited to race, color, religion, sex (gender), sexual orientation, marital status, national origin (Including language use restrictions), ancestry, disability (mental and physical, including HIV and Aids), medical Conditions (cancer/genetic characteristics), age (40 and above) and request for family care leave.

ii. Contractor represents that it is in compliance with federal and state laws prohibiting discrimination in employment and agrees to stay in compliance with the Americans with Disabilities Act of 1990 (42 U.S.C. sections 12101, et. seq.), Age Discrimination in Employment Act of 1975 (42 U.S.C. 5101, et. seq.), Title VII (42 U.S.C. 2000, et. seq.), the California Fair Employment Housing Act (California Government Code sections 12900, et. seq.) and regulations and guidelines issued pursuant thereto.

13. LICENSES. Contractor represents and warrants to County that it has all licenses, permits, qualifications, insurance and approvals of whatsoever nature which are legally required of Contractor to practice its trade and/or profession. Contractor represents and warrants to County that Contractor shall, at its sole cost and expense, keep in effect or obtain at all times during the term of this Contract, any licenses, permits, insurance and approvals which are legally required of Contractor to practice its and/or profession.

14. PREVAILING WAGE. Pursuant to **Section 1720 et seq. of the Labor Code**, Contractor agrees to comply with the Department of Industrial Relations regulations, to which this Contract is subject, the prevailing wage per diem rates in Inyo County have been determined by the Director of the State Department of Industrial Relations. These wage rates appear in the Department publication entitled "General Prevailing Wage Rates," in effect at the time the project is advertised. Future effective wage rates, which have been predetermined and are on file with the State Department of Industrial Relations are referenced but not printed in said publication. Such rates of wages are also on file with the State Department of Industrial Relations and the offices of the Public Works Department of the County of Inyo and are available to any interested party upon request. Contractor agrees to comply with County and the Department of Industrial Relations regulations in submitting the certified payroll.

15. CONTROLLING LAW VENUE. This Contract is made in the County of Inyo, State of California. The parties specifically agree to submit to the jurisdiction of the Superior Court of California for the County of Inyo.

16. WRITTEN NOTIFICATION. Any notice, demand, request, consent, approval or

communication that either party desires or is required to give to the other party shall be in writing and either served personally or sent prepaid, first class mail. Any such notice, demand, et cetera, shall be addressed to the other party at the address set forth herein below. Either party may change its address by notifying the other party of the change of address. Notice shall be deemed communicated within 48 hours from the time of mailing if mailed as provided in this section.

If to County: County of Inyo
Public Works Department
Attn: Jake Trauscht
168 N. Edwards
PO Drawer Q
Independence, CA 93526

If to Contractor: _____
_____
_____
_____

17. AMENDMENTS. This Contract may be modified or amended only by a written document executed by both Contractor and County and approved as to form by Inyo County Counsel.

18. WAIVER. No failure on the part of either party to exercise any right or remedy hereunder shall operate as a waiver of any other right or remedy that party may have hereunder.

19. TERMINATION. This Contract may be terminated for the reasons stated below:

a. Immediately for cause, if either party fails to perform its responsibilities under this Contract in a timely and professional manner and to the satisfaction of the other party or violates any of the terms or provisions of this Contract. If termination for cause is given by either party to the other and it is later determined that the other party was not in default or default was excusable, then the notice of termination shall be deemed to have been given without cause pursuant to paragraph "b" of this section; or

b. By either party without cause upon fifteen (15) days' written notice of termination. Upon termination, Contractor shall be entitled to compensation for services performed up to the effective date of termination; or

c. By County upon oral notice from the Board of Supervisors based on funding ending or being materially decreased during the term of this Contract.

20. TIME IS OF THE ESSENCE. Time is of the essence for every provision.

21. SEVERABILITY. If any provision of this Contract is held to be invalid, void or unenforceable, the remainder of the provision and/or provisions shall remain in full force and effect and shall not be affected, impaired or invalidated.

22. CONTRACT SUBJECT TO APPROVAL BY BOARD OF SUPERVISORS. It is

understood and agreed by the parties that this Contract is subject to the review and approval by the Inyo County Board of Supervisors upon Notice and Public Hearing. In the event that the Board of Supervisors declines to enter into or approve said Contract, it is hereby agreed to that there is, in fact, no binding agreement, either written or oral, between the parties herein.

23. CONTRACT SUBJECT TO MASTER LEASE. It is understood and agreed by the parties that this Contract and the Lone Pine Dog Park Project is subject to review and approval by the Los Angeles Department of Water and Power, as owner of the land on which the dog park will be located. Contractor's activities are further subject to any terms, conditions, and/or limitations set forth in the Lease between the County of Inyo and City of Los Angeles, Department of Water and Power, for 4.13 acres of land known as Lone Pine Park, or any subsequent leases that may be negotiated between the Los Angeles Department of Water and Power and Inyo County.

24. ATTACHMENTS. All attachments referred to are incorporated herein and made a part of this Contract.

25. EXECUTION. This Contract may be executed in several counterparts, each of which shall constitute one and the same instrument and shall become binding upon the parties. In approving this Contract, it shall not be necessary to produce or account for more than one such counterpart.

26. ENTIRE AGREEMENT. This Contract, including the Contract Documents and all other documents which are incorporated herein by reference, constitutes the complete and exclusive agreement between the County and Contractor. All prior written and oral communications, including correspondence, drafts, memoranda, and representations, are superseded in total by this Contract.

27.

---o0o---

IN WITNESS WHEREOF, COUNTY and CONTRACTOR have each caused this Contract to be executed on its behalf by its duly authorized representative, effective as of the day and year first above written.

COUNTY	**CONTRACTOR**
COUNTY OF INYO	_____
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Dated: _____	Dated: _____

APPROVED AS TO FORM AND LEGALITY:

_____
County Counsel

APPROVED AS TO ACCOUNTING FORM:

_____
County Auditor

APPROVED AS TO INSURANCE REQUIREMENTS:

_____
County Risk Manager

ATTACHMENT 1

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK PROJECT

FAITHFUL PERFORMANCE BOND
(100% OF CONTRACT AMOUNT)

KNOW ALL MEN BY THESE PRESENTS: That _____

_____as Principal, hereinafter "Contractor,"
(Name of Contractor)

and _____
(Name of Corporate Surety)

as Corporate Surety, hereinafter called Surety, are held and firmly bound unto the County of Inyo as Obligee, hereinafter called County, in the amount of _____dollars ($_____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assignees, jointly and severally, firmly by these presents.

WHEREAS, Contractor has, by written Contract, dated _____, 20___, entered into an Contract with the County for the Construction of the **NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK PROJECT** (hereinafter referred to as "Project"), to be constructed in accordance with the terms and conditions set forth in the Contract for the Project, which contract is by reference incorporated herein and is hereinafter referred to as the "Contract."

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the County.

Whenever Contractor shall be, and is declared by County to be, in default under the Contract, the County having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly either:

1. Complete the Contract in accordance with its terms and conditions; or,

2. Obtain a Bid or Bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible Bidder, or if the County elects, upon determination by the County and the Surety jointly of the lowest responsible Bidder, arrange for a Contract between such Bidder and County, and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or contracts of completion arranged under

this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract price", as used in this paragraph, shall mean the total amount payable by County to Contractor under the Contract and any amendments thereto, less the amount properly paid by County to Contractor.

Any suit under this Bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due, or the date on which any warranty or guarantee period expires, whichever is later.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the County named herein.

---o0o---

Signed and sealed this _____ day of _____, 20 _____.

_____
(Name of Corporate Surety)

By: _____
(Signature)

(SEAL)

_____
(Title of Authorized Person)

_____
(Address for Notices to be Sent)

_____
(Name of Contractor)

By: _____
(Signature)

(SEAL)

_____
(Title of Authorized Person)

_____
(Address for Notices to be Sent)

NOTE: THE SIGNATURES OF THE CONTRACTOR AND THE SURETY MUST EACH BE ACKNOWLEDGED BEFORE A NOTARY PUBLIC (OR OTHER OFFICER AUTHORIZED UNDER CALIFORNIA LAW) AND THE ACKNOWLEDGMENTS MUST BE ATTACHED TO THIS BOND.

The Faithful Performance Bond must be executed by a corporate surety on this form. No substitutions will be accepted. If an attorney-in-fact signs for the surety, an acknowledged statement from the surety appointing and empowering the attorney-in-fact to execute such bonds in such amounts on behalf of the surety must accompany the Faithful Performance Bond.

ADDRESS OF COUNTY FOR NOTICES TO BE SENT:

County of Inyo
224 North Edwards Street, P.O. Box N
Independence, California 93526

ATTACHMENT 2

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK PROJECT

LABOR AND MATERIALS PAYMENT BOND
(100% OF CONTRACT AMOUNT)

KNOW ALL MEN BY THESE PRESENTS, that _____
(Name of Contractor)

_____ as Principal, hereinafter "CONTRACTOR,"

and _____
(Name of Corporate Surety)

as Corporate Surety, hereinafter called SURETY, are held and firmly bound unto the County of Inyo as Obligee, hereinafter called COUNTY, for the use and benefit of claimants as hereinafter defined in the amount of **One hundred ninety-one thousand nine hundred eighty-three and 97/100** dollars ($ **191,983.75**) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assignees, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written contract dated _____, 20____, entered into an Contract with the County for the construction of the **NORTH ROUND VALLEY ROAD BRIDGE OVER PINE CREEK PROJECT** (hereinafter referred to as "PROJECT"), to be constructed in accordance with the terms and conditions set forth in the contract for the PROJECT, which contract is by reference incorporated herein, and is hereinafter referred to as the "CONTRACT."

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly make payment to all claimants as hereinafter defined, for all labor and materials used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Contractor, or with a Subcontractor of the Contractor, for labor, materials, or both, used or reasonably required for use in the performance of the Contract. Labor and materials is construed to include, but not limited to, that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Contractor and Surety hereby jointly agree with the County that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) calendar days after the date on which the last of such claimant's work or

labor was done or performed, or materials were furnished by such claimant, may sue on this Bond for the benefit of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The County shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

   a) Unless claimant, other than one having a direct contract with the Contractor, shall have given written notice to any two of the following: the Contractor, the County, or the Surety above named, within ninety (90) calendar days after such claimant did or performed the last of the work or labor, or furnished the last of the material for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in any envelope addressed to the Contractor, County, or Surety, at the address below, or at any place where an office is regularly maintained for the transaction of their business. Such notice may also be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

   b) After the expiration of one (1) year following the date on which County accepted the work done under the Contract. However, if any limitation embodied in this Bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

   c) Other than in a State Court of competent jurisdiction in and for the County or other political subdivision of the state in which the Project, or any part thereof, is situated, and not elsewhere.

4. The amount of this Bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed or recorded against said Project, whether or not claim for the amount of such lien be presented under and against this Bond.

---o0o---

Signed and sealed this _____ day of _____, 20 ___.

_____
(Name of Contractor)

By: _____
(Signature)

(SEAL)

_____
(Title of Authorized Person)

_____
(Address for Notices to be Sent)

_____
(Name of Corporate Surety)

By: _____
(Signature)

(SEAL)

_____
(Title of Authorized Person)

_____
(Address for Notices to be Sent)

NOTE:
THE SIGNATURES OF THE CONTRACTOR AND THE SURETY MUST BE ACKNOWLEDGED BEFORE A NOTARY PUBLIC (OR OTHER OFFICER AUTHORIZED UNDER CALIFORNIA LAW).
The Labor and Materials Payment Bond must be executed by a corporate surety on this form. No substitutions will be accepted. If an attorney-in-fact signs for the surety, an acknowledged statement from the surety appointing and empowering the attorney-in-fact to execute such bonds in such amounts on behalf of the surety, must accompany the Labor and Materials Payment Bond.

ADDRESS OF COUNTY FOR NOTICES TO BE SENT TO:
County of Inyo
224 N. Edwards, P.O. Box N
Independence, California 93526

ATTACHMENT 3

AGREEMENT BETWEEN THE COUNTY OF INYO AND

_____

FOR THE _NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK_ PROJECT

TERM:
FROM:_____ TO: _____

SEE ATTACHED INSURANCE PROVISIONS

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK
INSURANCE PROVISIONS

Contractor shall procure and maintain for the duration of the contract, and for six years thereafter, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees, or subcontractors.

MINIMUM SCOPE AND LIMIT OF INSURANCE
Coverage shall be at least as broad as:

1. **Commercial General Liability** (CGL): Insurance Services Office (ISO) Form CG 00 01 covering CGL on an "occurrence" basis, including products and completed operations, property damage, bodily injury and personal & advertising injury with limits no less than **$5,000,000** per occurrence. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location (ISO CG 25 03 or 25 04) or the general aggregate limit shall be twice the required occurrence limit.
2. **Automobile Liability**: Insurance Services Office Form CA 0001 covering Code 1 (any auto), with limits no less than **$5,000,000** per accident for bodily injury and property damage.
3. **Workers' Compensation** insurance as required by the State of California, with Statutory Limits, and Employers' Liability insurance with a limit of no less than $1,000,000 per accident for bodily injury or disease.
4. **Builder's Risk** (Course of Construction) insurance utilizing an "All Risk" (Special Perils) coverage form, with limits equal to the completed value of the project and no coinsurance penalty provisions.
5. **Surety Bonds** as described below.
6. **Professional Liability** (if Design/Build), with limits no less than $2,000,000 per occurrence or claim, and $2,000,000 policy aggregate.
7. **Contractors' Pollution Legal Liability** and/or Asbestos Legal Liability and/or Errors and Omissions (if project involves environmental hazards) with limits no less than $1,000,000 per occurrence or claim, and $2,000,000 policy aggregate.

If the contractor maintains broader coverage and/or higher limits than the minimums shown above, Inyo County requires and shall be entitled to the broader coverage and/or the higher limits maintained by the contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to Inyo County.

OTHER INSURANCE PROVISIONS
The insurance policies are to contain, or be endorsed to contain, the following provisions:

Additional Insured Endorsement
Inyo County, its officers, officials, employees, and volunteers are to be covered as additional insureds on the CGL policy with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations and automobiles owned, leased, hired, or borrowed by or on behalf of the Contractor. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance (at least as broad as ISO Form CG 20 10, CG 11 85 or **both** CG 20 10, CG 20 26, CG 20 33, or CG 20 38; **and** CG 20 37

forms if later revisions used). An additional insured endorsement must be submitted along with the certificate of insurance as evidence, though failure to supply does not relive contractor of requirement.

Waiver of Subrogation
Contractor hereby agrees to waive rights of subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation. **The Workers' Compensation policy shall be endorsed with a waiver of subrogation** in favor of Inyo County for all work performed by the Contractor, its employees, agents and subcontractors. An endorsement specifying this waiver must be submitted along with the certificate of insurance as evidence, though failure to supply does not relive contractor of requirement.

Primary Coverage
For any claims related to this project, the **Contractor's insurance coverage shall be primary** insurance coverage at least as broad as ISO CG 20 01 04 13 as respects Inyo County, its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by Inyo County, its officers, officials, employees, or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

Notice of Cancellation
Each insurance policy required by this clause shall provide that coverage shall not be canceled, except with notice to Inyo County.

Self-Insured Retentions
Self-insured retentions must be declared to and approved by Inyo County. At the option of Inyo County, either: the contractor shall cause the insurer shall to reduce or eliminate such self-insured retentions as respects Inyo County, its officers, officials, employees, and volunteers; or the Contractor shall provide a financial guarantee satisfactory to Inyo County guaranteeing payment of losses and related investigations, claim administration, and defense expenses. The policy language shall provide, or be endorsed to provide, that the self-insured retention may be satisfied by either the named insured or Inyo County.

Builder's Risk (Course of Construction) Insurance
Contractor may submit evidence of Builder's Risk insurance in the form of Course of Construction coverage. Such coverage shall **name Inyo County as a loss payee** as their interest may appear.
If the project does not involve new or major reconstruction, at the option of Inyo County, an Installation Floater may be acceptable. For such projects, a Property Installation Floater shall be obtained that provides for the improvement, remodel, modification, alteration, conversion or adjustment to existing buildings, structures, processes, machinery and equipment. The Property Installation Floater shall provide property damage coverage for any building, structure, machinery or equipment damaged, impaired, broken, or destroyed during the performance of the Work, including during transit, installation, and testing at Inyo County's site.

Claims Made Policies – (If at all possible avoid and require occurrence type CGL policies)

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK
INSURANCE PROVISIONS

If any coverage required is written on a claims-made coverage form:

1. The retroactive date must be shown, and this date must be before the execution date of the contract or the beginning of contract work.
2. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of contract work.
3. If coverage is cancelled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective, or start of work date, the Contractor must purchase extended reporting period coverage for a minimum of five (5) years after completion of contract work.
4. A copy of the claims reporting requirements must be submitted to Inyo County for review.
5. If the services involve lead-based paint or asbestos identification/remediation, the Contractors Pollution Liability policy shall not contain lead-based paint or asbestos exclusions. If the services involve mold identification/remediation, the Contractors Pollution Liability policy shall not contain a mold exclusion, and the definition of Pollution shall include microbial matter, including mold.

Acceptability of Insurers

Insurance is to be placed with insurers authorized to conduct business in the state with a current A.M. Best rating of no less than A: VII, unless otherwise acceptable to Inyo County.

Verification of Coverage

Contractor shall furnish Inyo County with original Certificates of Insurance including all required amendatory endorsements (or copies of the applicable policy language effecting coverage required by this clause) and a copy of the Declarations and Endorsement Page of the CGL policy listing all policy endorsements to Inyo County before work begins. However, failure to obtain the required documents prior to the work beginning shall not waive the Contractor's obligation to provide them. Inyo County reserves the right to require complete, certified copies of all required insurance policies, including endorsements, required by these specifications, at any time.

Subcontractors

Contractor shall require and verify that all subcontractors maintain insurance meeting all requirements stated herein, and Contractor shall ensure that Inyo County is an additional insured on insurance required from subcontractors. For CGL coverage, subcontractors shall provide coverage with a form at least as broad as CG 20 38 04 13.

Surety Bonds

Contractor shall provide the following Surety Bonds:

1. Bid Bond
2. Performance Bond
3. Payment Bond
4. Maintenance Bond

The Payment Bond and the Performance Bond shall be in a sum equal to the contract price. If the Performance Bond provides for a one-year warranty a separate Maintenance Bond is not necessary. If the warranty period specified in the contract is for longer than one year a

Maintenance Bond equal to 10% of the contract price is required. Bonds shall be duly executed by a responsible corporate surety, authorized to issue such bonds in the State of California and secured through an authorized agent with an office in California.

Special Risks or Circumstances

Inyo County reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other circumstances.

EXHIBIT A

SPECIAL PROVISIONS

FOR

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT
OVER PINE CREEK PROJECT
BISHOP, CA

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COUNTY OF INYO
DEPARTMENT OF PUBLIC WORKS

SPECIFICATIONS APPROVAL

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK PROJECT

Bishop, CA

These Special Provisions have been reviewed and approved by the Inyo County Public Works Department under the direction of the undersigned and are approved for the work contemplated herein.

Michael Errante, P.E.

Digitally signed by Michael Errante, P.E.
Date: 2020.10.22 13:28:41 -07'00'

Director of Public Works

October 22, 2020
Specifications Approval Date

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NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK

Inyo County, California

Final Design Submittal

August 2020

Prepared For:

County of Inyo
Department of Public Works
P.O. Drawer Q
Independence, CA 93526

For use in conjunction with:
State of California Department of Transportation
Standard Specifications dated 2018

Prepared By:

MGE ENGINEERING, INC.
7415 Greenhaven Drive, Suite 100
Sacramento, CA 95831

STANDARD PLANS LIST

The standard plan sheets applicable to this Contract include those listed below. The applicable revised standard plans (RSPs) listed below are included in the project plans.

	ABBREVIATIONS, LINES, SYMBOLS, AND LEGEND
A3A	**Abbreviations (Sheet 1 of 3)**
A3B	**Abbreviations (Sheet 2 of 3)**
A3C	**Abbreviations (Sheet 3 of 3)**
A10A	**Legend - Lines and Symbols (Sheet 1 of 5)**
A10B	**Legend - Lines and Symbols (Sheet 2 of 5)**
A10C	**Legend - Lines and Symbols (Sheet 3 of 5)**
A10D	**Legend - Lines and Symbols (Sheet 4 of 5)**
A10E	**Legend - Lines and Symbols (Sheet 5 of 5)**
	PAVEMENT MARKERS, TRAFFIC LINES, AND PAVEMENT MARKINGS
A20A	**Pavement Markers and Traffic Lines - Typical Details**
RSP A20B	**Pavement Markers and Traffic Lines - Typical Details**
	EXCAVATION AND BACKFILL
A62C	**Limits of Payment for Excavation and Backfill - Bridge**
	OBJECT MARKERS, DELINEATORS, CHANNELIZERS, AND BARRICADES
A73A	**Object Markers**
RSP A73B	**Markers**
	MIDWEST GUARDRAIL SYSTEM - TYPICAL LAYOUTS FOR STRUCTURES
RSP A77Q1	**Midwest Guardrail System - Typical Layouts for Structure Approach**
RSP A77Q4	**Midwest Guardrail System - Typical Layouts for Structure Departure**
	MIDWEST GUARDRAIL SYSTEM - CONNECTION DETAILS AND TRANSITION RAILING TO BRIDGE RAILINGS, ABUTMENTS AND WALLS
A77U1	**Midwest Guardrail System - Connections to Bridge Railings without Sidewalks Details No. 1**
A77U2	**Midwest Guardrail System - Connections to Bridge Railings without Sidewalks Details No. 2**
RSP A77U4	**Midwest Guardrail System - Transition Railing (Type WB-31)**
	TEMPORARY WATER POLLUTION CONTROL
T56	**Temporary Water Pollution Control Details (Temporary Fiber Roll)**
	BRIDGE DETAILS
B0-13	**Bridge Details**
	JOINT SEALS
B6-21	**Joint Seals (Maximum Movement Rating = 2")**

ORGANIZATION

Special provisions are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*.

Each special provision begins with a revision clause that describes or introduces a revision to the *Standard Specifications* as revised by any revised standard specification.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* for any other reference to a paragraph of the *Standard Specifications*.

^^

DIVISION I GENERAL PROVISIONS

1 GENERAL

1-1.01 GENERAL

Unless otherwise stated, the work embraced herein shall be done in accordance with the Inyo County Standard Specifications and Standard Plans, dated 2020, the California Department of Transportation Standard Specifications and Standard Plans, dated 2018, and the current Manual of Uniform Traffic Control Devices, insofar as the same may apply, and in accordance with the following Special Provisions. Copies of the Inyo County Standard Plans and Standard Specifications may be obtained on the Inyo County website under Public Works (www.inyocounty.us/county_directory.htm), the Caltrans Standard Plans and Standard Specifications and the Manual of Uniform Traffic Control Devices may be obtained from the Department of Transportation. Copies are also available for review at the Inyo County Road Department.

In case of conflict between the Standard Specifications and these Special Provisions, the Special Provisions shall take precedence over and be used in lieu of such conflicting portions.

Amendments to the Standard Specifications set forth in these Special Provisions shall be considered as part of the Standard Specifications for the purposes set forth in Section 5-1.02, “Contract Components,” of the Standard Specifications. Whenever either the term “Standard Specification is revised” or the term “Standard Specifications are revised” is used in the Special Provisions, the indented text or table following the term shall be considered an amendment to the Standard Specifications. In case of conflict between such revisions and the Standard Specifications, the revisions shall take precedence over and be used in lieu of the conflicting portions.

1-1.07 DEFINITIONS

All definitions and terms in **Section 1-1.07B, "Glossary,"** of the Standard Specifications shall apply, except whenever the following terms or pronouns are used, the intent and meaning shall be as follows:

a) Admitted Surety Insurer, Corporate Surety: A corporate insurer or inter-insurance exchange to which the California State Insurance Commissioner has issued a certificate of authority to transact surety insurance in California, as defined in Section 105 of the California Insurance Code.

b) Bid Book: The Bid Package as described below.

c) Bid Package: The Notice Inviting Bids, Bid Proposal Forms, Contract and Bond Forms, Department of Transportation Standard Specifications, dated 2010, Department of Transportation Standard Plans, dated 2010, Special Provisions, and Plans obtained from Owner or Owner's agent and relating to this project.

d) Bid Proposal: The written offer of a bidder to perform the specified work in accordance with the Contract Documents, made out on the Bid Proposal forms furnished by the County of Inyo.

e) Days, Calendar Days: Unless otherwise specified, days, or calendar days, means each and every day shown on the calendar, Saturdays, Sundays and holidays included.

f) Contract Documents: The documents which make up the Contract, including any and all documents incorporated therein; also, any and all written agreements between the Owner and Contractor which amend or change the Contract, including but not limited to, contract change orders. These documents are identified in the Contract as component parts.

g) Contractor: Party awarded bid contract by owner.

h) County: The County of Inyo, State of California. See also "Owner."

i) Department: The Department of Public Works (Roads) of the County of Inyo.

j) Director: The Director of Public Works of the County of Inyo.

k) Department of Transportation: The Department of Public Works (Roads) of the County of Inyo, also referred to as the County; except, where Department of Transportation publications are cited, such citations are to remain as written and refer to the State of California, Department of Transportation.

l) Engineer: The Director of Public Works of the County of Inyo, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.

m) Laboratory: The Laboratory of the Department of Public Works (Roads) or other laboratories authorized by the Department of Public Works (Roads) of the County of Inyo to test materials and work involved in the Contract.

n) Owner: The County of Inyo, State of California.

o) Manual of Uniform Traffic Control Devices: The current State of California Department of Transportation publication entitled *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD) administered by the Federal Highway Administration.

p) Project: The erection, construction, alteration, repair or improvement of any structure, building, road, or other type improvement of any kind, which is required directly or indirectly by the Contract.

q) State: State of California.

r) **State Contract Act: Chapter 1, Division 2 of the Public Contract Code**. This contract is not subject to the provisions of this Act, except for language of said act that is specifically incorporated into this Contract by reference.

s) Working Days: Any day, except Saturdays, Sundays, and legal holidays (as identified in **Section 1-1.07B** of the Department of Transportation Standard Specifications), and days on which the Contractor is specifically required by the Contract Documents to suspend construction operations.

Add to section 1-1.09:

This project is in a freeze-thaw area.

^^

2 BIDDING

The bidder's attention is directed to the provisions in **Section 2, "Bidding,"** of the Inyo County Standard Specifications and these Special Provisions for the requirements and conditions which he must observe in the preparation of the Proposal Form and the submission of the bid.

2-1.01 GENERAL

Failure of the bidder to fulfill the requirements of the Special Provisions for submittals required to be furnished after bid opening, including but not limited to escrowed bid documents, where applicable, may subject the bidder to a determination of the bidder's responsibility in the event it is the apparent low bidder on a future public works contracts.

a. In accordance with **Public Contract Code Section 7106**, a Non-Collusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Non-Collusion Affidavit.
b. **Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985)** provides as follows:

Any state agency may suspend, for a period of up to three years from the date of conviction, any person from bidding upon, or being awarded, a public works or services contract with the agency under this part or from being a Subcontractor at any tier upon the Contract, if that person, or any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, has been convicted by a court of competent jurisdiction of any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any Public Works Contract, as defined in **Section 1101**, with any public entity, as defined in **Section 1100**, including, for the purposes of this article, the Regents of the University of California or the Trustees of the California State University. A state agency may determine the eligibility of any person to enter into a Contract under this article by requiring the person to submit a statement, under penalty of perjury, declaring that neither the person nor any Subcontractor to be engaged by the person has been convicted of any of the offenses referred to in this Section within the preceding three years.

A form for the statement required by **Section 10285.1** is included in the Proposal.

c. The contractor, sub recipient 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 Title 49 CFR (Code of Federal Regulations) part 26 in the award and administration of US 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. **Each subcontract signed by the bidder must include this assurance.**

d. **Federal Lobbying Restrictions** Section 1352, Title 31, United States Code prohibits Federal funds from being expended by the recipient or any lower tier sub recipient of a Federal-aid contract to pay for any person for influencing or attempting to influence a Federal agency or Congress in connection with the awarding of any Federal-aid contract, the making of any Federal grant or loan, or the entering into of any cooperative agreement.

If any funds other than Federal funds have been paid for the same purposes in connection with this Federal-aid contract, the recipient shall submit an executed certification and, if required, submit a completed disclosure form as part of the bid documents.

A certification for Federal-aid contracts regarding payment of funds to lobby Congress or a Federal agency is included in the Bid Package. Standard Form LLL, “Disclosure of Lobbying Activities,” with instructions for completion of the Standard Form is also included the section of the Bid Package entitled “Non-Lobbying Certification for Federal-Aid Contracts.” Signing the Bid Package shall constitute signature of the Certification.

The above-referenced certification and disclosure of lobbying activities shall be included in each subcontract and any lower-tier contracts exceeding $100,000. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the Engineer.

The Contractor, subcontractors and any lower-tier contractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by the Contractor, subcontractors and any lower-tier contractors. An event that materially affects the accuracy of the information reported includes:

1. A cumulative increase if $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

2. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

3. A change in the officer(s), employees(s), or Member(s) contacted to influence or attempt to influence a covered Federal Action.

2-1.06 BID DOCUMENTS- The Standard Specifications is amended to read:

The Bid Book is bound in a book together with the Notice Inviting Bids, Contract and Bond Forms entitled “Bid Package.”

Add between the 1st and 2nd paragraphs of section 2-1.06B:

The Department makes the following supplemental project information available:

Supplemental Project Information

Means	Description
Included in the *Information Handout*	1. CEQA – Initial Study/MND and Mitigation Monitoring and Reporting Program dated January 2020. 2. Foundation Report (Final Submittal) North Round Valley Road Bridge, Round Valley, California Dated August 10, 2020. 3. As-Built Bridge Plans. 4. Board Order No. R6V-2020-0036, Granting Clean Water Act Section 401 Water Quality Certification, North Round Valley Road Bridge Replacement Project, Inyo County. 5. Streambed Alteration Agreement. Notification No. 1600-2020-0055-R6. 6. U.S. Army Corps of Engineers Nationwide Permits 14 and 33. 7. North Round Valley Road Crossing Pine Creek Bridge Replacement Project Hydrology and Hydraulics Report dated September, 2020.

2-1.10 REQUIRED LISTING OF PROPOSED SUBCONTRACTORS– The Standard Specifications is amended to read:

On the Subcontractor List form, list each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid or $10,000, whichever is greater (Pub Cont Code § 4100 et seq.).

For each subcontractor listed, the Subcontractor List form must show:

1. Business name and the location of its place of business.

2. California contractor license number for a non-federal-aid contract.

3. Public works contractor registration number.

4. Portion of work it will perform. Show the portion of the work by:

    4.1. Bid item numbers for the subcontracted work

    4.2. Percentage of the subcontracted work for each bid item listed

    4.3. Description of the subcontracted work if the percentage of the bid item listed is less than 100 percent

A sheet for listing the subcontractors, as required herein, is included in the Proposal.

Bidders are cautioned that this listing requirement is in addition to the requirement to provide a list of DBE subcontractors after opening of the proposals.

2-1.33B ELECTRONIC BIDS – The Standard Specifications is amended to read:

Electronic bids will not be accepted.

^^

3 CONTRACT AWARD AND EXECUTION

The bidder's attention is directed to the provisions in **Section 3, "Contract Award and Execution,"** of the Inyo County Standard Specifications and these Special Provisions for the requirements and conditions concerning award and execution of the Contract.

3-1.01 GENERAL

The award of the contract, if it is awarded, will be to the lowest **responsible** bidder whose proposal complies with all the requirements prescribed.

3-1.04 CONTRACT AWARD – The Standard Specifications is amended to read:

1. The right is reserved to reject any and all proposals.
2. The award of the Contract, if it is awarded, will be to the lowest, responsible, responsive bidder whose proposal complies with all the requirements prescribed. Whenever possible, such award, if made, will be made within 30 days after the opening of the proposals. However, failure of the County to make award within 30 days after the opening of the proposals shall not relieve the Contractor of its requirement to deliver an executed contract and bonds, and any other required documents, within 10 calendar days of receipt of the Contract, as further described in **Section 3-1.18, "Contract Execution,"** of the Standard Specifications.
3. All bids will be compared on the basis of the Engineer's Estimate of the quantities of work to be done.

The contract shall be executed by the successful bidder and shall be returned, together with the contract bonds, to the county so that it is received within 10 working days, not including Saturdays, Sundays and legal holidays, after the bidder has received the contract for execution. Failure to do so shall be just cause for forfeiture of the proposal guaranty. The executed contract documents shall be delivered to the following address:

Inyo County Public Works Department

P.O. Drawer Q

168 North Edwards Street

Independence, California 93526

Attn: Director of Public Works

760-878-0201

3-1.05 CONTRACT BONDS – The Standard Specifications is amended to read:

Contractor shall provide the following Surety Bonds:

1. A performance bond.
2. A payment bond.

The payment bond and the performance bond shall be in a sum equal to the contract price.

Bonds shall be duly executed by a responsible corporate surety, authorized to issue such bonds in the State of California and secured through an authorized agent with an office in California.

3-1.06 CONTRACTOR LICENSE – The Standard Specifications is amended to read:

The successful bidder must be properly licensed as required by law and consistent with the Contract Documents, at the time the contract is awarded. Such license shall be a current California Class A Contractor's license or a combination of all of the specialty classifications that will be required for the complete performance of all of the work in accordance with the Contract Documents, and if applicable, a joint venture license as defined in the **Business and Professions Code Section 7029.** Failure of the bidder to obtain proper and adequate licensing for an award of a contract shall constitute failure to execute the contract and shall result in the forfeiture of the security of the bidder.

^^

4 SCOPE OF WORK

Not Modified

^^

5 CONTROL OF WORK

The bidder's attention is directed to the provisions in **Section 5, "Control of Work,"** of the Inyo County Standard Specifications and these Special Provisions.

5-1.13 SUBCONTRACTING – The Standard Specifications is amended to read:

No subcontract releases the Contractor from the contract or relieves the Contractor of their responsibility for a subcontractor's work.

If the Contractor violates Public Contract Code 4100 et seq., the County may exercise the remedies provided under Public Contract Code 4110. The County may refer the violation to the Contractors State License Board as provided under Public Contract Code 4111.

The Contractor shall perform work equaling at least 30 percent of the value of the original total bid with the Contractor's own employees and equipment, owned or rented, with or without operators.

Each subcontract must comply with the contract.

Each subcontractor must have an active and valid State contractor's license with a classification appropriate for the work to be performed (Business and Professions Code 7000 et seq.).

Submit copies of subcontracts upon request by the Engineer.

Before subcontracted work starts, submit a Subcontracting Request form.

Do not use a debarred contractor; a current list of debarred contractors is available at the Department of Industrial Relations' Web site.

Upon request by the Engineer, immediately remove and do not again use a subcontractor who fails to prosecute the work satisfactorily.

Replace section 5-1.26 with:

You place stakes and marks under Chapter 12, "Construction Surveys," of the Caltrans *Surveys Manual*. You repair or replace stakes and marks if they are damaged.

5-1.27BRECORDS RETENTION Add the following to the Standard Specifications:

For the purpose of determining compliance with **Public Contract Code, Section 10115 et.seq.** and **Title 21, California Code of Regulations, Chapter 21, Section 2500 et.seq**., when applicable, and all other matters connected with the performance of the Contract pursuant to **Government Code Section 8546.7**, the Contractor, subcontractors, and the County shall maintain all books, documents, papers, accounting records, and other evidence pertaining to the performance of the Contract, including but not

limited to, the costs of administering the Contract. All parties shall make such materials available at their respective offices at all reasonable times during the contract period for three years from the date of final payment under the Contract. The County, the State Auditor, or any duly authorized representative of the State government shall have access to any books, records, and documents of the Contractor that are pertinent to the Contract for purpose of audits, examinations, excerpts, and transactions, and copies thereof shall be furnished if requested.

5-1.32 AREAS FOR USE – The Standard Specifications is amended to read:

The highway right of way shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy the right of way, or allow others to occupy the right of way, for purposes which are not necessary to perform the required work.

Areas available for the use of the Contractor are designated on the plans. Use of the Contractor's work areas and other County property shall be at the Contractor's own risk, and the County shall not be held liable for damage to or loss of materials or equipment located within these areas.

The Contractor shall remove equipment, materials, and rubbish from the work areas and other County property which the Contractor occupies. The Contractor shall leave the areas in a presentable condition in conformance with the provisions in **Section 4-1.13, "Cleanup,"** of the Standard Specifications.

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6 CONTROL OF MATERIALS

6-2.02 QUALITY CONTROL

The bidder's attention is directed to the provisions in **Section 6-2.02, "Quality Control"** of the Standard Specifications for details on the Quality Control Program requirements.

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7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

The bidder's attention is directed to the provisions in **Section 7, "Legal Relations and Responsibility to the Public,"** of the Inyo County Standard Specifications and these Special Provisions.

7-1.02I(2) NONDISCRIMINATION. Attention is directed to the following Notice that is required by **Chapter 5 of Division 4 of Title 2, California Code of Regulations.**

NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM (GOV. CODE, SECTION 12990)

Your attention is called to the "Nondiscrimination Clause" set forth in **Section 7-1.02I(2), "Nondiscrimination,"** of the Standard Specifications, which is applicable to all nonexempt state contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth therein. The Specifications are applicable to all nonexempt state construction contracts and subcontracts of $5,000 or more:

1. During the performance of this contract, Contractor and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, age (over 40) or sex. Contractor and its subcontractors shall ensure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. Contractor and its subcontractors shall also comply with the provisions of the **Fair Employment and Housing Act (Gov. Code, Section 12990 et seq.)** and the applicable regulations promulgated thereunder (**Cal. Code of Reg., Title. 2, Section 7285.0 et seq**.).

The applicable regulations of the **Fair Employment and Housing Commission** implementing **Government Code, Section 12990,** set forth in **Chapter 5 of Division 4 of Title 2 of the California Code of Regulations** are incorporated into this Contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

2. This Contract shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Contract.

STANDARD CALIFORNIA NONDISCRIMINATION CLAUSE CONSTRUCTION CONTRACT SPECIFICATIONS (GOVERNMENT CODE, SECTION 12990)

These specifications are applicable to all state contractors and subcontractors having a construction contract or subcontract of $5,000 or more.

1. As used in the specifications:

   a. "Administrator" means Administrator, Office of Compliance programs, California Department of Fair Employment and Housing, or any person to whom the Administrator delegates authority;

   b. "Minority" includes:

      i) Black (all persons having primary origins in any of the black racial groups of Africa, but not of Hispanic origin);

      ii) Hispanic (all persons of primary culture or origin in Mexico, Puerto Rico, Cuba, Central or South America, or other Spanish derived culture or origin regardless of race);

      iii) Asian/Pacific Islander (all persons having primary origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent or the Pacific Islands); and

iv) American Indian/Alaskan Native (all persons having primary origins in any of the original peoples of North America and who maintain culture identification through tribal affiliation or community recognition).

2. Whenever the Contractor or any subcontractor subcontracts a portion of the work, it shall physically include in each subcontract of $5,000 or more the nondiscrimination clause in this Contract, either directly or through incorporation by reference. Any subcontract for work involving a construction trade shall also include the Standard California (Nondiscrimination) Construction Contract Specifications, either directly or through incorporation by reference.

3. The Contractor shall implement the specific nondiscrimination standards provided in paragraphs 6(a) through 6(e) of these specifications.

4. Neither the provision of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, **Government Code, Section 12990,** or the regulations promulgated pursuant thereto.

5. In order for the nonworking training hours of apprentices and trainees to be counted, 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 after 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 or the California Department of Industrial Relations.

6. The Contractor shall take specific actions to implement its nondiscrimination program. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor must be able to demonstrate fully its efforts under Steps a. through e. below:

   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, where possible, shall assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligations to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Deleted

   c. Disseminate the Contractor's equal employment opportunity policy by providing notice of the policy to unions and training, recruitment, and outreach programs and requesting their cooperation in assisting the Contractor to meet its obligations; and by posting the company policy on bulletin boards accessible to all employees at each location where construction work is performed.

   d. Ensure that all personnel making management and employment decisions regarding hiring, assignment, layoff, termination, conditions of work, training, rate of pay or other employment decisions, including all supervisory personnel, superintendents, general foremen, on-site foremen, etc., are aware of the Contractor's equal employment opportunity policy and obligations, and discharge their responsibilities accordingly.

   e. 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 equal employment opportunity policy and the Contractor's obligations under these specifications are being carried out.

7. Contractors are encouraged to participate in voluntary associations which assist in fulfilling their equal employment opportunity obligations.

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 any one or more of its obligations under 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 work force participation, 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.

8. The Contractor is required to provide equal employment opportunity for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Fair Employment and Housing Act (Government Code, Section 12990 et seq.) if a particular group is employed in a substantially disparate manner.

9. Establishment and implementation of a bona fide affirmative action plan pursuant to Section 8104 (b) of this Chapter shall create a rebuttal presumption that a contractor is in compliance with the requirements of Section 12990 of the Government Code and its implementing regulations.

10. The Contractor shall not use the nondiscrimination standards to discriminate against any person because of race, color, religion, sex, national origin, ancestry, physical handicap, medical condition, marital status, or age over 40.

11. The Contractor shall not enter into any subcontract with any person or firm decertified from state contracts pursuant to Government Code Section 12990.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the nondiscrimination clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Government Code Section 12990 and its implementing regulations by the awarding agency. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Government Code Section 12990.

13. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company equal employment opportunity policy is being carried out, to submit reports relating to the provisions hereof as may be required by OCP, and to keep records. Records for each employee shall at least include the employee's name, address, telephone number, 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, rate of pay, and locations at which the work was performed. Records shall be maintained in any easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

NOTE: Authority cited: **Sections 12935 (a) and 12990 (d), Government Code. Reference: Section 12990, Government Code.**

7-1.02KLABOR CODE

Attention is directed to **Section 7-1.02K(2), "Wages,"** of the Standard Specifications.

Pursuant to **Section 1773 of the Labor Code**, to which this Contract is subject, the prevailing wage per diem rates in Inyo County have been determined by the Director of the California Department of Industrial Relations. These wage rates appear in the publication entitled "General Prevailing Wage Rates," in effect at the time the project is advertised. Future effective wage rates, which have been predetermined and are on file with the California Department of Industrial Relations, are referenced, but not printed, in said publication. These general prevailing wage rates are not included in the Proposal and Contract for the project, but are available at the offices of the Inyo County Public Works Department or the California Department of Industrial Relations web site at http://www.dir.ca.gov. Changes, if any, to the general prevailing wage rates will be available at the same locations.

The prevailing wage rates determined by the Director of Industrial Relations refer to expiration dates. If the wage determination does not refer to a predetermined wage rate to be paid after the expiration date, said wage determination shall be in effect for the life of this Contract. If the wage determination

refers to a predetermined wage rate to become effective upon expiration of the wage determination and the predetermined wage rate is on file with the Department of Industrial Relations, such predetermined wage rate shall become effective on the date following the expiration date and shall apply to the balance of this Contract. If the predetermined wage rate refers to one or more additional expiration dates with additional predetermined wage rates, which expiration dates occur during the life of this Contract, each successive predetermined wage rate shall apply to this Contract on the date following the expiration date of the previous wage rate. If the last of such predetermined wage rates expires during the life of this Contract, such wage rate shall apply to the balance of the Contract.

Replace the 4th paragraph of section 7-1.02K(3):

Submit certified payroll and your signed contractor's acknowledgement to the Engineer.

Delete 5th and 6th paragraphs of section 7-1.02K(3).

Add to section 7-1.02M(2):

Comply with mitigation measures HAZ-1 as specified in the Mitigation Monitoring and Reporting Program in Appendix C of the CEQA – Initial Study/MND and Mitigation Monitoring and Reporting Program dated January 2020 and located in the Information Handout for the project.

7-1.04 PUBLIC SAFETY

The Contractor shall provide for the safety of traffic and the public in accordance with the provisions of **Section 7-1.04, "Public Safety,"** of the Standard Specifications. In addition to any other measures taken by the Contractor pursuant to the provisions of **Section 7-1.04, "Public Safety,"** of the Standard Specifications, the Contractor shall install temporary railing (Type K) between any lanes carrying public traffic and any excavation, obstacle, or storage area when the following conditions exist:

1. Excavations. The near edge of the excavation is 12 feet or less from the edge of the lane, except:
    a. Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
    b. Excavations less than one foot deep.
    c. Trenches less than one foot wide for irrigation pipe or electrical conduit, or excavations less than one foot in diameter.
    d. Excavations parallel to a lane for the purpose of pavement widening or reconstruction.
    e. Excavations in side slopes, where the slope is steeper than 4:1 (horizontal:vertical)
    f. Excavations protected by existing barrier or railing.
2. Temporarily Unprotected Permanent Obstacles. Whenever the work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or whenever the Contractor, for his convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.
3. Storage Areas. Whenever material or equipment is stored within 12 feet of the lane and such storage is not otherwise prohibited by the provisions of the Standard Specifications and these Special Provisions.

The approach end of temporary railing (Type K), installed in accordance with the requirements in this section shall be offset a minimum of 15 feet from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than one foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15 foot minimum offset cannot be achieved, the temporary railing shall be installed on the 10 to 1 skew to obtain the maximum available offset between the

approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Temporary railing (Type K) shall conform to the provisions in **Section 12-3.08, "Type K Temporary Railing,"** of the Standard Specifications. Temporary railing (Type K), conforming to the details shown on 2002 Standard Plan T3, may be used. Temporary railing (Type K) that was fabricated prior to January 1, 1993, and conforms to 1988 Standard Plan B11-30, may be used, provided the fabrication date is printed on the required Certificate of Compliance.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas, the Contractor shall close the adjacent traffic lane unless otherwise provided in the Standard Specifications and these Special Provisions:

Approach Speed of Public Traffic (Posted Limit - MPH)	WORK AREAS
Over 45	Within 6 feet of a traffic lane but not on a traffic lane.
35 to 45	Within 3 feet of a traffic lane but not on a traffic lane.

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of a traffic lane, the line of cones or delineators shall be considered to be the edge of traffic lane; however, the Contractor shall not reduce the width of an existing lane to less than 10 feet without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Suspended loads or equipment shall not be moved or positioned over public traffic or pedestrians.

Full compensation for conforming to the requirements in this section "Public Convenience and Safety," including furnishing and installing temporary railing (Type K) and temporary crash cushion modules, shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

7-1.05 INDEMNIFICATION

The Standard Specifications is amended to read:

Contractor shall defend, indemnify and hold harmless the County, its agents, officers, employees, and volunteers from and against all claims, damages, losses, judgments, liabilities, expenses and other costs, including litigation costs and attorney's fees, arising out of, resulting from, or in connection with the performance of this Contract by the Contractor, or Contractor's agents, officers or employees. Contractor's obligation to defend, indemnify and hold the County, its agents, officers, employees, and volunteers harmless applies to any actual or alleged personal injury, death, or damage or destruction to tangible or intangible property, including the loss of use. Excepting only those liabilities, claims, and damages caused solely and exclusively by the active fault or negligence of the County, the Engineer, or their officers, agents, employees, or volunteers, the Contractor's obligation under this paragraph extends to any claim, damage, loss, liability, expense or other cost which is caused in whole or in part by any act or omission of the Contractor or any of its subcontractors or the agents, employees, suppliers, or material men of any of them or anyone directly or indirectly employed by any of them, or anyone for whose acts or omissions any of them may be liable.

Contractor's obligation to defend, indemnify and hold the County, its agents, officers, employees, and volunteers harmless under the provisions of this paragraph is not limited to or restricted by any requirement in this Contract for the Contractor to procure and maintain a policy of insurance coverage.

7-1.11E TITLE VI ASSURANCES – Add the following section to the Standard Specifications:

During the performance of this Agreement, the contractor, for itself, its assignees and successors in interest (hereinafter collectively referred to as CONTRACTOR) agrees as follows:

1 Compliance with Regulations: CONTRACTOR shall comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the REGULATIONS), which are herein incorporated by reference and made a part of this agreement.

2 Nondiscrimination: CONTRACTOR, with regard to the work performed by it during the AGREEMENT, shall not discriminate on the grounds of race, color, sex, national origin, religion, age, or disability in the selection and retention of sub-applicants, including procurements of materials and leases of equipment. CONTRACTOR shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the Regulations.

3 Solicitations for Sub-agreements, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by CONTRACTOR for work to be performed under a Sub-agreement, including procurements of materials or leases of equipment, each potential sub-applicant or supplier shall be notified by CONTRACTOR of the CONTRACTOR'S obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

4 Information and Reports: CONTRACTOR shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the California Department of Transportation or FHWA to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of CONTRACTOR is in the exclusive possession of another who fails or refuses to furnish this information, CONTRACTOR shall so certify to the California Department of Transportation or the FHWA as appropriate, and shall set forth what efforts CONTRACTOR has made to obtain the information.

5 Sanctions for Noncompliance: In the event of CONTRACTOR's noncompliance with the nondiscrimination provisions of this agreement, the California Department of Transportation shall impose such agreement sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

   a. withholding of payments to CONTRACTOR under the Agreement within a reasonable period of time, not to exceed 90 days; and/or

   b. cancellation, termination or suspension of the Agreement, in whole or in part.

6 Incorporation of Provisions: CONTRACTOR shall include the provisions of paragraphs (1) through (6) in every sub-agreement, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

CONTRACTOR shall take such action with respect to any sub-agreement or procurement as the California Department of Transportation or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance, provided, however, that, in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a sub-applicant or supplier as a result of such direction, CONTRACTOR may request the California Department of Transportation enter into such litigation to protect the interests of the State, and, in addition, CONTRACTOR ma request the United States to enter into such litigation to protect the interests of the United States.

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8 PROSECUTION AND PROGRESS

The bidder's attention is directed to the provisions in **Section 8, "Prosecution and Progress,"** of the Inyo County Standard Specifications and these Special Provisions.

8-1.03 PRE-CONSTRUCTION CONFERENCE – The first paragraph of this section in the Standard Specifications is amended to read:

Prior to issuance of the Notice to Proceed, a pre-construction conference will be held, at a location to be determined, for the purpose of discussing with the Contractor the scope of work, contract drawings, specifications, existing conditions, materials to be ordered, equipment to be used, and all essential matters pertaining to the prosecution of and the satisfactory completion of the project as required. The Contractor's representatives at this conference should include all major superintendents for the work and may include subcontractors.

8-1.04B STANDARD START – The Standard Specifications is amended to read as set forth in (a) through (f) below:

a. As execution of the agreement by the County is a matter of public record, the Contractor will be considered to have received actual notice of the date that the agreement is executed by the County on the date that the agreement is so executed. The County may, but is not required to, send written notice of the execution date to the Contractor.

b. The County shall thereafter send the written Notice to Proceed to the Contractor as otherwise provided in this Agreement.

c. The Contractor shall begin work within fifteen (15) working days after the date on which the Contractor receives the Notice to Proceed.

d. For the purposes of determining the Contractor's compliance with the time limits for completion of the Project pursuant to the Agreement, the Contractor's first working day shall be deemed to be the fourteenth (14th) working day after the date on which the Contractor receives the Notice to Proceed.

e. The Notice to Proceed shall be issued by the County not less than fifteen (15) nor more than thirty (30) calendar days after the receipt from the Contractor of satisfactory Labor and Materials Payment Bonds, Faithful Performance Bonds, Certificates of Insurance, and other documents as required by law and the Contract.

f. The Contractor may start jobsite activities prior to receiving the notice of Contract approval if all of conditions stated below are met and as approved by the County:

   (1) Deliver the signed Contract, bonds, and evidence of insurance to the Department

   (2) Submit a 72-hour notice

   (3) Obtain an encroachment permit from the Department

   (4) Receive the Department's authorization to start

   (5) Perform work at your own risk

   (6) Perform work under the Contract

8-1.05 TIME – Add the following to the Standard Specifications

The Contractor shall diligently prosecute the project to completion before the expiration of **170 days** after the date that is deemed to be Contractor's first working day.

8-1.10 LIQUIDATED DAMAGES – The Standard Specifications is amended to read:

The Contractor shall pay to the County of Inyo the sum of **$2,000.00 per day** for each and every calendar days delay in finishing the work in excess of the number of working days prescribed above.

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9 PAYMENT

The bidder's attention is directed to the provisions in **Section 9, "Payments,"** of the Inyo County Standard Specifications and these Special Provisions.

9-1.03 SCOPE PAYMENT – amend the last sentence of this section to read:

Prompt Progress Payment to Subcontractors: A prime contractor or subcontractor shall pay any subcontractor not later than 10 days of receipt of each progress payment in accordance with the provision in Section 7108.5 of the California Business and Professions Code concerning prompt payment to subcontractors. The 10 days is applicable unless a longer period is agreed to in writing. Any delay or postponement of payment over 30 days may take place only for good cause and with the agency's prior written approval. Any violation of Section 7108.5 shall subject the violating contractor or subcontractor to the penalties, sanction and other remedies of that section. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the prime contractor, deficient subcontract performance, or noncompliance by a subcontractor.

9-1.07APAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS – GENERAL

Replace "Department's" in the 5th paragraph of section 9-1.07A with:

Caltrans

9-1.16 PROGRESS PAYMENTS – Add the following to the Standard Specifications:

No partial payment will be made for any materials on hand that have been furnished but not incorporated into the work.

The Contractor's attention is directed to the prohibitions and penalties pertaining to unlicensed contractors as provided in **Business and Professions Code, Sections 7028.15(a) and 7031**.

9-1.16E WITHHOLDS – Add the following to the Standard Specifications

The Contractor's attention is directed to **Public Contract Code Section 10263, "Withheld payments; substitution of securities for moneys; escrow; interest,"** which reads as follows:

a. Provisions shall be included in any invitation for bid and in any contract documents to permit the substitution of securities for any moneys withheld by a public agency to ensure performance under a contract. At the request and expense of the contractor, securities equivalent to the amount withheld shall be deposited with the State Treasurer or a state or federally chartered bank in California, as the escrow agent, who shall then pay the moneys to the contractor. Upon satisfactory completion of the contract, the securities shall be returned to the contractor.

b. Alternatively, the contractor may request and the owner shall make payment of retentions earned directly to the escrow agent. The contractor may direct the investment of the payment into securities and the contractor shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by the contractor. Upon satisfactory completion of the contract, the contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the owner, pursuant to the terms of this section.

c. Alternatively, and subject to the approval and at the sole discretion of the public agency, the payment of retentions earned may be deposited directly with a person licensed under **Division 6 (commencing with Section 17000) of the Financial Code** as the escrow agent.

Upon written request of an escrow agent who has not been approved by the public agency under this subdivision, the public agency shall provide written notice to that escrow agent within 10 business days of receipt of the request indicating the reason or reasons for not approving that escrow agent. An agent that has been disapproved by the public agency may not maintain any cause of action of any nature against the state or any public agency, officer, agent, or employee of any public agency, in connection with the disapproval of that escrow agent. The payments shall be deposited in a trust account with a federally chartered bank or savings association within 24 hours of receipt by the escrow agent. The contractor shall not place any retentions with the escrow agent in excess of the coverage provided to that escrow agent pursuant to **subdivision (b) of Section 17314 of the Financial Code**. In all respects not inconsistent with this subdivision, the remaining provisions of this section shall apply to escrow agents acting pursuant to this subdivision. In addition, an escrow agent subject to this subdivision shall maintain insurance to cover negligent acts and omissions of the escrow agent in connection with the handling of retentions under this section in an amount not less than one hundred thousand dollars ($100,000) per contract, executed by an admitted insurer and in a form satisfactory to the public agency.

d. Securities eligible for investment under this section shall include those listed in **Section 16430 of the Government Code**, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the contractor and public agency.

The contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

Prompt Payment of Funds Withheld to Subcontractors: The agency shall hold retainage from the prime contractor and shall make prompt and regular incremental acceptances of portions, as determined by the agency, of the contract work, and pay retainage to the prime contractor based on these acceptances. The prime contractor, or subcontractor, shall return all monies withheld in retention from a subcontractor within 30 days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the agency. Federal law (49CFR26.29) requires that any delay or postponement of payment over 30 days may take place only for good cause and with the agency's prior written approval. Any violation of this provision shall subject the violating prime contractor or subcontractor to the penalties, sanctions and other remedies specified in Section 7108.5 of the Business and Professions Code. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the prime contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the prime contractor, deficient subcontract performance, or noncompliance by a subcontractor.

9-1.16F RETENTIONS – Amend the Standard Specifications to read:

The County will withhold 5 percent of all progress payments as retention. Retention will be paid to you on the Final Payment.

You will have the right to substitute securities for the retention under Pub Cont Code § 22300. No substitution will be accepted until:

1. The County approves the securities and their value,
2. The parties have entered into an escrow agreement (if the securities are to be held in escrow) in a form substantially similar to that under § 22300,
3. All documentation necessary for assignment of the securities to the County or to the escrow agent, are delivered in a form satisfactory to the County.

If you have substituted securities for any of the retention, the County may request that such securities be revalued from time to time, but not more often than monthly. Such revaluation will be made by a person or entity designated by the County and approved by you. If such revaluation results in a determination that the securities have a market value less than the amount of retention for which they were substituted, then the amount of the retention required under the Contract will be increased by such difference in market value. Such increased retention will be withheld from the next progress payment(s) due to you under the Contract.

9-1.17D(3) FINAL DETERMINATION OF CLAIMS – Replace the 3rd and 4th paragraph with:

The Director of Public Works will make the final determination of any claims which remain in dispute after completion of claim review by the Engineer's authorized representative.

A Claim Review Board, appointed by the Director of Public Works, will review such claims and make a written recommendation. The Contractor may meet with the Claims Review Board to make a presentation in support of such claims with the Engineer's authorized representative present.

9-1.22 ARBITRATION – Amend the Standard Specifications to read:

This contract is not governed by the provisions of the State Contract Act. The adoption and use of the Standard Specifications in the performance of the work called for in this Contract shall not be construed as an election by the County to proceed under Section 20396 of the Public Contract Code. In the event that a dispute arises between the parties, they are not obligated to submit the matter to arbitration in any form (although they may do so upon written agreement).

RESOLUTION OF CONSTRUCTION CLAIMS

All public works claims of three hundred seventy-five thousand dollars ($375,000.00) or less which arise between Owner and Contractor under this Contract shall be governed by **Article 1.5** (commencing with **Section 20104**) of the **Public Contract Code**.

Section 20104.2 of the **Public Contract Code** provides:

For any claim subject to this article, the following requirements apply:

a) The claim shall be in writing and shall include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

b) (1) For claims of less than fifty thousand dollars ($50,000.00), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

c) (1) For claims of over fifty thousand dollars ($50,000.00) and less than or equal to three hundred seventy-five thousand dollars ($375,000.00), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

e) If, following the meet and confer conference, the claim or any portion remains in dispute, the claimant may file a claim pursuant to **Chapter 1** (commencing with **Section 900**) and **Chapter 2** (commencing with **Section 910**) of **Part 3 of Division 3.6 of Title 1 of the Government Code**. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time the claim is denied, including any period of time utilized by the meet and confer conference.

Section 20104.4 of the Public Contract Code provides:

The following procedures are established for all civil actions filed to resolve claims subject to this article:

A. Within 60 days, but no earlier than 30 days, following the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court.

B. (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to **Chapter 2.5** (commencing with **Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure**, notwithstanding **Section 1141.11** of that code. The **Civil Discovery Act of 1986 (Article 3** (commencing with **Section 2016**) of **Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure**) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

(2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

(3) In addition to **Chapter 2.5** (commencing with **Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure**, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

Section 20104.6 of the **Public Contract Code** provides:

(a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the Contract.

(b) In any suit filed under **Section 20104.4**, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court oflaw.

Section 9204 of the **Public Contract Code** provides:

a) The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.

b) Notwithstanding any other law, including, but not limited to, Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2, Chapter 10 (commencing with Section 19100) of Part 2, and Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, this section shall apply to any claim by a contractor in connection with a public works project.

c) For purposes of this section:

(1) "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.

(B) Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

(C) Payment of an amount that is disputed by the public entity.

(2) "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.

(3) (A) "Public entity" means, without limitation, except as provided in subparagraph (B), a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.

(B) "Public entity" shall not include the following:

(i) The Department of Water Resources as to any project under the jurisdiction of that department.

(ii) The Department of Transportation as to any project under the jurisdiction of that department.

(iii) The Department of Parks and Recreation as to any project under the jurisdiction of that department.

(iv) The Department of Corrections and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with Section 7000) of Title 7 of Part 3 of the Penal Code.

(v) The Military Department as to any project under the jurisdiction of that department.

(vi) The Department of General Services as to all other projects.

(vii) The High-Speed Rail Authority.

(4) "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

(5) "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d) (1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(e) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(f) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(g) This section applies to contracts entered into on or after January 1, 2017.

(h) Nothing in this section shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

(i) This section shall remain in effect only until January 1, 2020, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2020, deletes or extends that date.

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DIVISION II GENERAL CONSTRUCTION

10 GENERAL

The bidder's attention is directed to the provisions in **Section 10, "General,"** of the Standard Specifications and these Special Provisions.

10-4 WATER USAGE – The Standard Specifications is amended to read:

Attention is directed to the various sections of the Standard Specifications and these Special Provisions that require the use of water for the construction of this project. Attention is also directed to the provisions of **Section 7, "Legal Relations and Responsibility to the Public,"** of the Standard Specifications with regards to the Contractor's responsibilities for public convenience, public safety, preservation of property and responsibility for damage.

Nothing in this section **"Water Conservation"** shall be construed as relieving the Contractor from furnishing an adequate supply of water required for the proper construction of this project in accordance with the Standard Specifications or these Special Provisions or relieving the Contractor from the legal responsibilities defined in **Section 7**.

The Contractor shall, whenever possible and not in conflict with the above requirements, minimize the use of water during construction of the project. Watering equipment shall be kept in good working order; water leaks shall be repaired promptly; and washing of equipment, except when necessary for safety or for the protection of equipment, shall be discouraged.

When ordered by the Engineer, a dust palliative conforming to the provisions of **Section 18, "Dust Palliative,"** of the Standard Specifications shall be used to control dust on this project. Full Compensation for application of dust palliative shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

10-6 WATERING – Add the following to the Standard Specifications:

NOTE: ***It will be the Contractor's sole responsibility to ascertain and verify the existence, suitability, availability, haul distance, and storage arrangements for acquiring reliable and sufficient water supplies for use on this project. Full compensation for acquiring a reliable water supply shall be considered as included in the prices paid for the various items of work involved and no additional compensation will be allowed therefor.***

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11 WELDING

Not Modified

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12 TEMPORARY TRAFFIC CONTROL

Before obliterating any pavement delineation that is to be replaced on the same alignment and location, as determined by the Engineer, such pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall also include the limits or changes in striping pattern, including one and two-way barrier lines, limit lines, crosswalks, and other pavement markings. Full compensation for referencing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation and no additional compensation will be allowed therefore.

Add to section 12-4.02C(7)(a):

North Round Valley Road is closed to the public and will remain so through the duration of construction. The contractor is to maintain the existing traffic control systems in place, but may add to or modify the existing traffic control systems as needed. Inyo County Road department will remove the existing traffic control system when the project is complete.

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13 WATER POLLUTION CONTROL

Add to the end of section 13-3.01A:

This project's risk level is 1.

Comply with Board Order No. R6V-2020-0036, Granting Clean Water Act Section 401 Water Quality Certification, North Round Valley Road Bridge Replacement Project, Inyo County, dated July 2, 2020 and located in the Information Handout for the project.

Replace section 13-12 with:

13-12 TEMPORARY CREEK DIVERSION SYSTEMS

13-12.01 GENERAL

13-12.01A Summary

Section 13-12 includes specifications for constructing, maintaining, reconstructing, and removing temporary creek diversion system (TCDS), and restoring creek bed to original condition. The temporary diversion system is used to divert upstream water flows to allow construction in a dry or dewatered location.

13-12.01B Definitions

Not Used

13-12.01C Submittals

Submit a certificate of compliance for:

1. Pipe material
2. Gravel gradations
3. Plastic sheeting
4. Cofferdam materials

13-12.01C(1) Temporary Creek Diversion System Plan

Within 20 days of Contract approval, submit 3 copies of the Temporary Creek Diversion System Plan (TCDSP). The TCDSP must include:

1. Installation and removal process, including equipment, platforms for equipment, and access locations.
2. Anticipated flow rates.
3. Calculations supporting the sizing of piping, channels, pumps, or other conveyance by using FHWA HY-8 or other equivalent method. Calculate the discharge water flow rate and velocity anticipated where it discharges on any erodible surface, so its conveyance does not cause erosion within the project or at the discharge to the water body. Temporary culverts attached to banks, walls, or other locations must be designed to hold the full weight of the culvert at capacity and restrain the culvert for any expected hydraulic forces.
4. Plans showing locations of diversion, including layouts, cross sections, and elevations.
5. Materials proposed for use, including MSDS if applicable.
6. Operation and maintenance procedures for the TCDS.
7. Restoration plans showing before and after conditions, including photos of existing conditions for areas disturbed during the installation, operation, and removal of the TCDS.
8. Monitoring and reporting plan to ensure applicable water quality objectives are met. This includes schedule of work including Temporary BMP implementation as part of the Construction Site BMP strategy, and SWPPP or WPCP as applicable. Use with section 13-3.01A.
9. Details of the pumping system, if used, including power source, debris handling, fish screens, and monitoring requirements.
10. Fish passage plan, following the Caltrans Fish Passage Design for Road Crossings, CA Department of Fish and Wildlife (CDFW), CA Salmonid Stream Habitat Restoration Manual, and National Marine Fisheries Service (NMFS), Guidelines for Salmonid Passage at Stream Crossings, as required by the applicable PLACs.
11 The TCDS design must demonstrate how it will comply with section 13-12.03A, water tightness, and prevent seepage.
12. Contingency plan to remove workers, equipment, materials, fuels, and any other work items that will cause pollution or violation of PLACs during a rain event out of the flow area. Develop the contingency plan for when a 12-inch freeboard cannot be maintained and overtopping of the coffer dams may occur.

If revisions are required, the Engineer notifies you of the date when the review stopped and provides comments. Submit a revised TCDSP within 15 days of receiving the comments. The Department's review resumes when a complete TCDSP has been resubmitted.

Submit an electronic copy on a read-only CD, DVD, or other Engineer-authorized data storage device and 4 printed copies of the authorized TCDSP.

If the RWQCB or other regulatory agency requires review of the authorized TCDSP, the Engineer submits it to the RWQCB for review and comment. If the Engineer orders changes to the TCDSP based on the RWQCB's comments, submit a revised TCDSP within 10 days.

All submittals which include plans, specifications, and calculations must be sealed and signed by a civil engineer registered in the State.

13-12.01D Quality Assurance

Not Used

13-12.02 MATERIALS

13-12.02A Gravel

Gravel must:

1. Be river run gravel obtained from a river or creek bed with gradation of 100 percent passing a 3/4 inch sieve and 0% passing a 3/8 inch sieve
2. Be clean, hard, sound, durable, uniform in quality, and free of any detrimental quantity of soft, thin, elongated or laminated pieces, disintegrated material, organic matter, or other deleterious substances
3. Be composed entirely of particles that have no more than 1 fractured face
4. Have a cleanliness value of at least 85, as determined by California Test 227

13-12.02B Impermeable Plastic Membrane

Impermeable plastic membrane must be:

1. Single ply, commercial quality, polyethylene with a minimum thickness of 10 mils complying with ASTM D2103. You must use stronger plastic membrane if required as part of design to resist hydraulic forces.
2. Free of holes, punctures, tears or other defects that compromise the impermeability of the material.
3. Suitable for use as an impermeable membrane.
4. Resistant to UV light, retaining a minimum grab breaking load of 70 percent after 500 hours under ASTM D4355.

13-12.02C Gravel-Filled Bags

Gravel-filled bags must comply with section 13-5.02G.

The 2nd paragraph of section 13-5.02G does not apply.

13-12.02D Plastic Pipes

Plastic pipe must comply with section 61-3.01 and must:

1. Be clean, uncoated, in good condition free of rust, paint oil dirt or other residues that could potentially contribute to water pollution
2. Be adequately supported for planned loads
3. Use watertight joints under section 61-2.01.
4 Be made of a material or combination of materials that are suitable for clean water and which do not contain banned, hazardous or unlawful substances
5. For temporary pipes not reused on the project you may use the following materials:
    5.1. PVC closed-profile wall pipe must comply with ASTM F1803
    5.2. PVC solid wall pipe must comply with ASTM D3034, ASTM F679, AWWA C900, AWWA C905, or ASTM D2241 and cell class 12454 defined by ASTM D1784
    5.3. HDPE solid wall pipe must comply with AASHTO M 326 and ASTM F714
    5.4. Polyethylene large-diameter-profile wall sewer and drain pipe must comply with ASTM F894

13-12.02E Rock

Rock layer must comply with the table titled *Rock Gradation for 7-inch-thick Layer* in section 72-4.02.

13-12.02F Pumping System

Pumping system must:

1. Comply with section 74-2.02B
2. Be equipped with secondary containment
3. Be free of fuel and oil leaks
4. Meet intake screen regulatory requirements

13-12.02G Seepage Pumping System

If seepage occurs in the dewatered work area, the water must be removed by sump pumps as part of the TCDS.

Seepage pumping system must:

1. Comply with section 74-2.02B
2. Ensure discharge water conform with PLACs or is treated on site
3. Be free of fuel and oil leaks

13-12.02H Discharge Water Energy Dissipation and Erosion Control

Discharge water from pumps, pipes, ditches, or other conveyances must have BMPs to dissipate the flows and velocity of water discharged from the temporary diversion system if erosion would otherwise occur.

Energy dissipation measures:

1. May be plastic sheeting, flared end sections, rubber matting, or other materials appropriate for the design hydraulics
2. Must be anchored to prevent movement by expected flows
3. Must be removed when the TCDS is removed

13-12.03 CONSTRUCTION

13-12.03A General

Do not use motorized equipment or vehicles in areas of flowing or standing water for the construction or removal of the TCDS in compliance with section 13-4.03.

Remove vegetation to ground level and clear away debris.

Place temporary or permanent fill as allowed by PLACs.

Place rock at outlet of diversion pipe under section 72-4.03, except motorized vehicles and equipment must not be used in areas of flowing or standing water.

Do not construct or reconstruct TCDS if the 72-hour forecasts predict a 50 percent or greater chance of rain in the project area.

Stop allwork and remove all material and equipment from the creek between upstream and downstream cofferdams if the 72-hour forecasts predict a 50 percent or greater chance of rain in the project area and the predicted rainfall is estimated to produce a flow rate exceeding the design capacity of the TCDS.

If the required freeboard cannot be maintained and overtopping may occur, implement contingency plan to remove all workers, equipment, and potential sources of pollution from the dry working area of the creek bed.

The TCDS must be constructed within the temporary impact footprint as described in the environmental commitments.

Lap and join joints between the edges of impermeable plastic membrane with commercial-quality waterproof tape with minimum 4-inch lapping at the edges.

Seal openings or penetrations through the impermeable plastic membrane with commercial quality waterproof tape.

The TCDS must be water tight to keep the work area dry for construction and prevent the creation of pollutants. Maintain all portions of the TCDS and fix leaks as soon as they are discovered.

Contact water agencies that discharge to the construction area to ensure that unexpected water is not discharged during construction which could compromise the TCDS.

13-12.03B Maintenance

Maintain the TCDS to provide a minimum freeboard of 12 inches between the water surface and the impermeable top of the cofferdams.

Do not discharge runoff from existing or proposed drainage systems into the dry work area between the cofferdams. Runoff from these systems may be connected to the diversion pipe or conveyed by pipes downstream of the cofferdam.

Prevent leaks in the TCDS. Provide seepage pumps as necessary and keep the work area dry to prevent the creation of sediment-laden water.

Repair holes, rips and voids in the impermeable plastic membrane with commercial-quality waterproof tape. Replace impermeable plastic membrane when patches or repairs compromise the impermeability of the material.

Repair TCDS within 24 hours after the damage occurs.

Prevent debris from entering the TCDS and receiving water.

Remove and immediately replace gravel, gravel-filled bags, impermeable plastic membrane, or plastic pipes contaminated by construction activities.

Remove sediment deposits and debris from the TCDS as needed. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water, under sections 19-1.01 and 19-2.03 B.

13-12.03C Removal

When no longer required, remove all components of TCDS. Return the creek bed and banks to the original condition.

Do not excavate the native creek material. Backfill ground disturbance, including holes and depressions caused by the installation and removal of the TCDS with gravel. Maintain the original line and grade of the creek bed.

13-12.04 PAYMENT

Not Used

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14 ENVIRONMENTAL STEWARDSHIP

Add to the end of section 14-1.02:

An ESA exists on this project.

Before starting job site activities, install temporary high-visibility fence (Type ESA) to protect the ESA and mark its boundaries.

Limited access to the ESA is allowed for biological monitoring and surveys, and release of encroaching wildlife. Notify the Engineer 1 business day before the planned entry date. Any other access to the ESA is prohibited.

Add to section 14-2.01:

Comply with mitigation measures CR-1, CR-2, and CR-3 as specified in the Mitigation Monitoring and Reporting Program in Appendix C of the CEQA – Initial Study/MND and Mitigation Monitoring and Reporting Program dated January 2020 and located in the Information Handout for the project.

Add to section 14-6.01:

Comply with Streambed Alteration Agreement. Notification No. 1600-2020-0055-R6, located in the Information Handout for the project.

Add to the 1st paragraph of section 14-6.03A:

This project is within or near habitat for the regulated species shown in the following table:

Regulated Species

Golden Eagle
Bald Eagle
Swainson's Hawk
Bank Swallow
Owens Sucker
Owens Speckled Dace

Comply with mitigation measures BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, and BIO-7 as specified in the Mitigation Monitoring and Reporting Program in Appendix C of the CEQA – Initial Study/MND and Mitigation Monitoring and Reporting Program dated January 2020 and located in the Information Handout for the project.

14-8.02 NOISE CONTROL – The Standard Specifications is amended to read:

The noise level from the Contractor's operations between the hours of 7:00 p.m. and 7:00 a.m. shall not exceed 86 dBa at a distance of 15 m {50 feet}. This requirement shall not relieve the Contractor from responsibility for complying with local ordinances regulating noise level.

The noise level requirement shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

Add to the end of section 14-9.02:

Comply with mitigation measure AIR-1 as specified in the Mitigation Monitoring and Reporting Program in Appendix C of the CEQA – Initial Study/MND and Mitigation Monitoring and Reporting Program dated January 2020 and located in the Information Handout for the project.

The US EPA has established the National Emission Standards for Hazardous Air Pollutants (NESHAP). Under the Health & Safety Code § 39658(b)(1), your demolition and rehabilitation activities must comply with 40 CFR 61, Subpart M (National Emission Standard for Asbestos).

You must inspect and test the existing concrete for asbestos. Inspection and sampling of the existing concrete must be completed by an asbestos professional inspector.

The asbestos survey and sampling report for this project is included in the *Information Handout*.

Notify the US EPA and the California Air Resources Board of your demolition activities even if the activities will not disturb asbestos-containing material.

You may obtain an Asbestos NESHAP Notification of Demolition and Renovation Form at the California Air Resources Board's website:

http://www.arb.ca.gov/enf/asbestos/asbestos.htm

Instead of the 10 working days specified at the website, mail or deliver the form with the necessary attachments at least 15 days before starting demolition or rehabilitation activities to:

US EPA - REGION IX
ASBESTOS NESHAP NOTIFICATION (AIR-5)
75 HAWTHORNE ST
SAN FRANCISCO, CA 94105

Mail or fax a copy of the notification form to:

CALIFORNIA AIR RESOURCES BOARD
ENFORCEMENT DIVISION
ASBESTOS NESHAP NOTIFICATION
P.O. BOX 2815
SACRAMENTO, CA 95812
FAX: (916) 229-0645

Submit a copy of the notification form and attachments as informational submittals before starting demolition or rehabilitation activities.

You must notify the Great Basin Unified Air Pollution Control District of your demolition activities even if the activities will not disturb asbestos-containing material.

You may obtain the notification form, submittal instructions, and other information from:

Great Basin Unified Air Pollution Control District
https://gbuapcd.org/

Instead of the 10 working days specified at the website, submit a notification form to the Great Basin Unified Air Pollution Control District at least 15 days before starting demolition or rehabilitation activities.

Submit a copy of the notification form and the necessary attachments as informational submittals before starting demolition or rehabilitation activities.

If you discover unanticipated asbestos-containing material during the demolition or rehabilitation activities, immediately stop work in that area and notify the Engineer. The Department will use other forces to remove and dispose of the material. Do not resume work in the area until authorized.

Notify the Great Basin Unified Air Pollution Control District of a change to your demolition or rehabilitation activities, including a revised work plan or the discovery of unanticipated asbestos-containing materials, within 2 days of the change or discovery.

14-11.02 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES – Add the following to the Standard Specifications:

When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in **Section 25914.1 of the Health and Safety Code**, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In accordance with **Section 25914.1 of the Health and Safety Code**, removal of asbestos or hazardous substances, including any exploratory work to identify and determine the extent of such asbestos or hazardous substance will be performed by separate contract.

Add to the 1st paragraph of section 14-11.14A:

Wood removed from metal beam guard railing is treated wood waste.

^^

15 EXISTING FACILITIES

Replace section 15-1.03D with:

Remove existing asphalt concrete within the limits of approach roadway reconstruction. Do not disturb the existing subgrade material below the existing aggregate base material.

^^

16 TEMPORARY FACILITIES

Not Modified

^^

DIVISION III EARTHWORK AND LANDSCAPE

17 GENERAL

Not Modified

^^

18 DUST PALLIATIVES

Not Modified

^^

19 EARTHWORK

Replace the 2nd, 3rd, and 4th paragraphs of section 19-2.03B with:

Dispose of surplus material. Ensure enough material is available to complete the embankments before disposing of it.

Add to the end of section 19-3.01A:

Structure backfill includes constructing the geocomposite drain system. The systems must comply with section 68-7.

Add to the beginning of section 19-3.03B(1):

For footings at locations with structure excavation (Type D), ground or surface water is expected to be encountered.

^^

20 LANDSCAPE

Not Modified

^^

21 EROSION CONTROL

Add to section 21-2.01A:

Hydroseed includes (1) hydroseeding with fiber, seed, and fertilizer, (2) power applying (blowing) straw, and (3) applying tackifier and fiber over the top of the blown straw.

Add to section 21-2.01C(1):

Straw is to be certified weed-free.

Add to section 21-2.02F:

The seed mixture shall consist of the following species:

Common Name	Pounds per acre
Sagebrush Big Basin	0.20
Rabbitbrush Rubber	0.20
Indian Ricegrass Rimrock	2.00
Squirreltail	1.00

^^

22 FINISHING ROADWAY

Not Modified

^^^

DIVISION IV SUBBASES AND BASES

23 GENERAL

Not Modified

^^^

24 STABILIZED SOILS

Not Modified

^^^

25 AGGREGATE SUBBASES

Not Modified

^^^

26 AGGREGATE BASES

Not Modified

^^^

27 CEMENT TREATED BASES

Not Modified

^^^

28 CONCRETE BASES

Not Modified

^^^

29 TREATED PERMEABLE BASES

Not Modified

^^^

30 RECLAIMED PAVEMENT

Not Modified

^^^

31–35 RESERVED

Not Modified

^^

DIVISION V SURFACINGS AND PAVEMENTS

36 GENERAL

Not Modified

^^

37 BITUMINOUS SEALS

Not Modified

^^

38 RESERVED

Not Modified

^^

39 ASPHALT CONCRETE

Replace section 39-1.03 with:

HMA includes preparation of the existing aggregate base subgrade material.

Replace section 39-2.01C(3)(b) with:

Compact the top 6-inches of existing aggregate base subgrade material to a relative compaction of at least 95%.

Replace *Reserved* in section 39-2.02B(3) with:

The grade of asphalt binder for Type A HMA must be 64-28.

For Type A HMA using RAP substitution of greater than 15 percent of the aggregate blend, the virgin binder grade must comply with the PG binder grade specified above with 6 degrees C reduction in the upper and lower temperature classification.

For Type A HMA using RAP substitution of 15 percent or less of the aggregate blend, the grade of the virgin binder must comply with the PG binder grade specified above.

^^

40 CONCRETE PAVEMENT

Not Modified

^^

41 EXISTING CONCRETE PAVEMENT

Not Modified

^^

42 GROOVE AND GRIND CONCRETE

Not Modified

^^

43–44 RESERVED

Not Modified

^^

DIVISION VI STRUCTURES

45 GENERAL

Not Modified

^^

46 GROUND ANCHORS AND SOIL NAILS

Not Modified

^^

47 EARTH RETAINING SYSTEMS

Not Modified

^^

48 TEMPORARY STRUCTURES

Not Modified

^^

49 PILING

Add to section 49-1.03:

Expect difficult pile installation due to the presence of caving soils, high ground water, and cobbles and boulders.

Add to section 49-3.02B(6)(c):

The synthetic slurry must be one of the materials shown in the following table:

Material	Manufacturer
SlurryPro CDP	KB INTERNATIONAL LLC 735 BOARD ST STE 209 CHATTANOOGA TN 37402 (423) 266-6964
Super Mud	PDS CO INC 105 W SHARP ST EL DORADO AR 71731 (870) 863-5707
Shore Pac GCV	CETCO CONSTRUCTION DRILLING PRODUCTS

	2870 FORBS AVE HOFFMAN ESTATES IL 60192 (800) 527-9948
Terragel or Novagel Polymer	GEO-TECH SERVICES LLC 220 N. ZAPATA HWY STE 11A-449A LAREDO TX 78043 (210) 259-6386
BIG FOOT	MATRIX CONSTRUCTION PRODUCTS 50 S MAIN ST STE 200 NAPERVILLE IL 60540 (877) 591-3137
POLY-BORE	BAROID INDUSTRIAL DRILLING PRODUCTS 3000 N SAM HOUSTON PKWY EAST HOUSTON TX 77032 (877) 379-7412

Use synthetic slurries in compliance with the manufacturer's instructions. Synthetic slurries shown in the above table may not be appropriate for a given job site.

Synthetic slurries must comply with the Department's requirements for synthetic slurries to be included in the above table. The requirements are available from the Offices of Structure Design, P.O. Box 168041, MS# 9-4/11G, Sacramento, CA 95816-8041.

SlurryPro CDP synthetic slurry must comply with the requirements shown in the following table:

SlurryPro CDP

Quality characteristic	Test method	Requirement
Density During drilling (pcf) Before final cleaning and immediately before placing concrete (pcf)	Mud weight (density), API RP 13B-1, section 4	 ≤ 67.0[a] ≤ 64.0[a]
Viscosity During drilling (sec/qt) Before final cleaning and immediately before placing concrete (sec/qt)	Marsh funnel and cup. API RP 13B-1, section 6.2	 50–120 ≤ 70
pH	Glass electrode pH meter or pH paper	6.0–11.5
Sand content, percent by volume Before final cleaning and immediately before placing concrete (%)	Sand, API RP 13B-1, section 9	≤ 1.0

NOTE: Slurry temperature must be at least 40 °F when tested.
[a]If authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

Super Mud synthetic slurry must comply with the requirements shown in the following table:

Super Mud

Quality characteristic	Test method	Requirement
Density During drilling (pcf) Before final cleaning and immediately before placing concrete (pcf)	Mud weight (density), API RP 13B-1, section 4	 ≤ 64.0[a] ≤ 64.0[a]
Viscosity During drilling (sec/qt)	Marsh funnel and cup. API RP 13B-1, section 6.2	 32–60

Before final cleaning and immediately before placing concrete (sec/qt)		≤ 60
pH	Glass electrode pH meter or pH paper	8.0–10.0
Sand content, percent by volume Before final cleaning and immediately before placing concrete (%)	Sand, API RP 13B-1, section 9	≤ 1.0

NOTE: Slurry temperature must be at least 40 °F when tested.
[a]If authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

Shore Pac GCV synthetic slurry must comply with the requirements shown in the following table:

Shore Pac GCV

Quality characteristic	Test method	Requirement
Density During drilling (pcf) Before final cleaning and immediately before placing concrete (pcf)	Mud weight (density), API RP 13B-1, section 4	 ≤ 64.0[a] ≤ 64.0[a]
Viscosity During drilling (sec/qt) Before final cleaning and immediately before placing concrete (sec/qt)	Marsh funnel and cup. API RP 13B-1, section 6.2	 33–74 ≤ 57
pH	Glass electrode pH meter or pH paper	8.0–11.0
Sand content, percent by volume Before final cleaning and immediately before placing concrete (%)	Sand, API RP 13B-1, section 9	≤ 1.0

NOTE: Slurry temperature must be at least 40 °F when tested.
[a]If authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

Terragel or Novagel Polymer synthetic slurry must comply with the requirements shown in the following table:

Terragel or Novagel Polymer

Quality characteristic	Test method	Requirement
Density During drilling (pcf) Before final cleaning and immediately before placing concrete (pcf)	Mud weight (density), API RP 13B-1, section 4	 ≤ 67.0[a] ≤ 64.0[a]
Viscosity During drilling (sec/qt) Before final cleaning and immediately before placing concrete (sec/qt)	Marsh funnel and cup. API RP 13B-1, section 6.2	 45–104 ≤ 104
pH	Glass electrode pH meter or pH paper	6.0–11.5
Sand content, percent by volume Before final cleaning and immediately before placing concrete (%)	Sand, API RP 13B-1, section 9	≤ 1.0

NOTE: Slurry temperature must be at least 40 °F when tested.

[a]If authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

BIG-FOOT synthetic slurry must comply with the requirements shown in the following table:

BIG-FOOT

Quality characteristic	Test method	Requirement
Density During drilling (pcf) Before final cleaning and immediately before placing concrete (pcf)	Mud weight (density), API RP 13B-1, section 4	 ≤ 64.0[a] ≤ 64.0[a]
Viscosity During drilling (sec/qt) Before final cleaning and immediately before placing concrete (sec/qt)	Marsh funnel and cup. API RP 13B-1, section 6.2	 30–125 55-114
pH	Glass electrode pH meter or pH paper	8.5–10.5
Sand content, percent by volume Before final cleaning and immediately before placing concrete (%)	Sand, API RP 13B-1, section 9	 ≤ 1.0

NOTE: Slurry temperature must be at least 40 °F when tested.
[a]If authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

POLY-BORE synthetic slurry must comply with the requirements shown in the following table:

POLY-BORE

Quality characteristic	Test method	Requirement
Density During drilling (pcf) Before final cleaning and immediately before placing concrete (pcf)	Mud weight (density), API RP 13B-1, section 4	 62.8-65.8[a] 62.8-64.0[a]
Viscosity During drilling (sec/qt) Before final cleaning and immediately before placing concrete (sec/qt)	Marsh funnel and cup. API RP 13B-1, section 6.2	 50–80 50-80
pH	Glass electrode pH meter or pH paper	7.0–10.0
Sand content, percent by volume Before final cleaning and immediately before placing concrete (%)	Sand, API RP 13B-1, section 9	 ≤ 1.0

NOTE: Slurry temperature must be at least 40 °F when tested.
[a]If authorized, you may use slurry in a salt water environment. The allowable density of slurry in a salt water environment may be increased by 2 pcf.

Add to section 49-3.02C(4):

If the hole is drilled below the specified tip elevation shown, the reinforcement must extend to within 3 inches of the bottom of the drilled hole for the piles that are specified as end bearing.

^^

50 PRESTRESSING CONCRETE

Not Modified

^^

51 CONCRETE STRUCTURES

Add to section 51-1.01A:

Use precast prestressed concrete deck panels to form the soffit of the deck slab between girders.

Add to section 51-1.02B:

For abutments, wingwalls, deck slab, diaphragms, and railing curbs, ~~the portions of structures shown in the following table,~~ concrete must contain at least 675 pounds of cementitious material per cubic yard:

For the precast girders, concrete must contain at least 675 pounds of cementitious material per cubic yard and have air entrainment of 6 percent:

Concrete for concrete bridge decks must contain polymer fibers. Each cubic yard of concrete must contain at least 1 pound of microfibers and at least 3 pounds of macrofibers.

Concrete for concrete bridge decks must contain a shrinkage reducing chemical admixture. Each cubic yard of concrete must contain at least 3/4 gallon of a shrinkage reducing admixture. If you use the maximum dosage rate shown on the Authorized Material List for the shrinkage reducing admixture, your submitted shrinkage test data does not need to meet the shrinkage limitation specified.

Replace the 2nd paragraph of section 51-1.03H with:

Cure the top surface of bridge decks by (1) misting and (2) the water method using a curing medium under section 90-1.03B(2). After strike off, immediately and continuously mist the deck with an atomizing nozzle that forms a mist and not a spray. Continue misting until the curing medium has been placed and the application of water for the water method has started. At the end of the curing period, remove the curing medium and apply curing compound on the top surface of the bridge deck during the same work shift under section 90-1.03B(3). The curing compound must be curing compound no. 1.

Delete the 4th paragraph of section 51-1.03H.

Replace *Reserved* in section 51-4.01C(2)(e) with:

Submit 3 copies of shop drawings for PC PS concrete deck panels. Include the following:

1. Panel materials
2. Handling procedures
3. Method of prestressing
4. Strand arrangements and working stresses, including any addition or rearrangement of reinforcing steel from that shown
5. Method of support and grade adjustment
6. Accommodation for skew
7 Methods of sealing against grout leaks
8. Additional details as required to supplement the Contract plans

^^

52 REINFORCEMENT

Add to section 52-2.01A(3):

52-2.01A(3)(c) Certificates

Submit a certificate of compliance for each shipment of dual-coated bar reinforcing steel. Include the following with the submittal:

1. Certification that the reinforcement complies with ASTM A1055
2. All certifications specified in ASTM A1055

Add to section 52-2.01B:

You may use dual-coated bar reinforcing steel complying with ASTM A1055 as an alternative to epoxy-coated reinforcement or epoxy-coated prefabricated reinforcement. Bar reinforcing steel to be dual-coated must be deformed, Grade 60 bars complying with ASTM A706.

Dual-coated bar reinforcement must be the same bar size and must be placed at the same spacing as described for epoxy-coated reinforcement and epoxy-coated prefabricated reinforcement.

Add to section 52-2.01C:

Do not bend bar reinforcing steel complying with ASTM A1055 after coating application if used as an alternative to epoxy coated prefabricated reinforcement.

Job site and PC plant practices for substituted bar reinforcement must comply with appendix X1 of ASTM A1055, except replace "should" with "must."

^^

53 SHOTCRETE

Not Modified

^^

54 WATERPROOFING

Not Modified

^^

55 STEEL STRUCTURES

Not Modified

^^

56 OVERHEAD SIGN STRUCTURES, STANDARDS, AND POLES

Not Modified

^^

57 WOOD AND PLASTIC LUMBER STRUCTURES

Not Modified

^^

58 SOUND WALLS

Not Modified

^^

59 STRUCTURAL STEEL COATINGS

Not Modified

^^

60 EXISTING STRUCTURES

Not Modified

^^

DIVISION VII DRAINAGE FACILITIES

61 GENERAL

Not Modified

^^

62–63 RESERVED

Not Modified

^^

64 PLASTIC PIPE

Not Modified

^^

65 CONCRETE PIPE

Not Modified

^^

66 CORRUGATED METAL PIPE

Not Modified

^^

67 STRUCTURAL PLATE CULVERTS

Not Modified

^^

68 SUBSURFACE DRAINS

Not Modified

^^

69 OVERSIDE DRAINS

Not Modified

^^

70 MISCELLANEOUS DRAINAGE FACILITIES

Not Modified

^^

71 EXISTING DRAINAGE FACILITIES

Not Modified

^^

DIVISION VIII MISCELLANEOUS CONSTRUCTION

72 SLOPE PROTECTION

Not Modified

^^

73 CONCRETE CURBS AND SIDEWALKS

Not Modified

^^

74 PUMPING EQUIPMENT AND CONTROLS

Not Modified

^^

75 MISCELLANEOUS METAL

Not Modified

^^

76 WELLS

Not Modified

^^

77 LOCAL INFRASTRUCTURE

Not Modified

^^

78 INCIDENTAL CONSTRUCTION

Not Modified

^^

79 RESERVED

Not Modified

^^

80 FENCES

Not Modified

^^

DIVISION IX TRAFFIC CONTROL DEVICES

81 MISCELLANEOUS TRAFFIC CONTROL DEVICES

Not Modified

^^

82 SIGNS AND MARKERS

Not Modified

^^

83 RAILINGS AND BARRIERS

Replace *Reserved* in section 83-2.02C(3) with:

The offset from the face of the Type WB-31 transition railing to the hinge point must be at least 3'-6".

The offset from the face of the adjacent midwest guardrail system to the hinge point must be transitioned from the offset at the Type WB-31 transition railing to 4'-0" using a ratio of 6:1.

Add to section 83-2.04A(2):

Terminal systems must be the MSKT-SP-MGS Test Level 4 system.

Add to section 83-2.04A(3):

Install the MSKT-SP-MGS terminal systems per manufacturer’s instructions.

Add to section 83-2.05A(1):

California ST-75 bridge rail work includes the tubular bicycle railing.

^^

84 MARKINGS

Painting pavement markings shall conform to the provisions in **Section 84-2, "Traffic Stripes and Pavement Markings,"** of the Standard Specifications and these Special Provisions.

Paint for pavement markings shall conform to **Section 84-2.02C, "Paint,"** of the Standard Specifications as follows: Paint Type (Water Borne Traffic Line); Color (White); **State Specification No. 8010-20B.**

Glass beads shall conform to **Section 84-2.02D, "Glass Beads,"** of the Standard Specifications as follows**: State Specification No. 8010-004 (Type II).**

The Contractor's attention is directed to **Sections 84-2.03c(3), "Painted Traffic Stripes and Pavement Markings"** of the Standard Specifications, which shall be adhered to, where applicable, by the Contractor at the direction and approval of the Engineer.

Add to the end of the 1st paragraph of section 84-2.02F:

The paint must be slow-curing epoxy traffic paint.

Add between the 5th and 6th paragraphs of section 84-2.03C(3)(b):

Apply the paint for the traffic stripes and pavement markings at a minimum thickness of 0.025 ± 0.002 inch and at a minimum application rate of 64 sq ft/gal.

84-2.04 PAYMENTS - the Standard Specifications is amended to read as follows:

Painted pavement markings will be measured by the square yard for the actual area painted.

The contract price paid per square yard of pavement marking, of the number of coats designated in the Engineer's Estimate, shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in painting pavement markings, including establishing alignment and layout work, complete in place, as shown on the plans, as specified in the specifications and these Special Provisions, and as directed by the Engineer.

^^

85 RESERVED

Not Modified

^^

DIVISION X ELECTRICAL WORK

86 GENERAL

Not Modified

^^

87 ELECTRICAL SYSTEMS

Not Modified

^^

88 RESERVED

Not Modified

^^

DIVISION XI MATERIALS

89 AGGREGATE

Not Modified

^^

90 CONCRETE

Add to section 90-1.02I(2)(a):

The mortar strength of the fine aggregate relative to the mortar strength of Ottawa sand must be a minimum of 100 percent under California Test 515.

Add to section 90-1.02:

90-1.02K Polymer Fibers

Fibers must comply with ASTM D7508. Microfibers must be from 1/2 to 2 inches long. Macrofibers must be from 1 to 2-1/2 inches long.

^^

91 PAINT

Not Modified

^^

92 ASPHALT BINDERS

Not Modified

^^

93 RESERVED

Not Modified

^^

94 ASPHALTIC EMULSIONS

Not Modified

^^

95 EPOXY

Not Modified

^^^

96 GEOSYNTHETICS

Not Modified

^^^

97–98 RESERVED

Not Modified

^^^

DIVISION XII BUILDING CONSTRUCTION

99 BUILDING CONSTRUCTION

Not Modified

RSS. Use in all projects. Do not add. Inserted by boilerplate merge.

REVISED STANDARD SPECIFICATIONS DATED 04-17-20

ORGANIZATION

Revised standard specifications are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*. A date under a main-section heading is the date of the latest revision to the section.

Each revision to the *Standard Specifications* begins with a revision clause that describes or introduces a revision to the *Standard Specifications*. For a revision clause that describes a revision, the date on the right above the clause is the publication date of the revision. For a revision clause that introduces a revision, the date on the right above a revised term, phrase, clause, paragraph, or section is the publication date of the revised term, phrase, clause, paragraph, or section. For a multiple-paragraph or multiple-section revision, the date on the right above a paragraph or section is the publication date of the paragraphs or sections that follow.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* for any other reference to a paragraph of the *Standard Specifications*.

^^

DIVISION I GENERAL PROVISIONS

1 GENERAL

04-17-20

Add between the 1st and 2nd paragraphs of section 1-1.01:

10-19-18

Global revisions are changes to contract documents not specific to a section of the Standard Specifications. In each contract document at each occurrence, interpret the following terms as shown:

Term	Interpretation	Conditions
Fed-Std-595	AMS Std 595	--

04-17-20

Grade SS1	Grade SS-1	--
Grade SS1h	Grade SS-1h	--
Grade CSS1	Grade CSS-1	--
Grade CSS1h	Grade CSS-1h	--
Grade QS1h	Grade QS-1h	--
Grade CQS1h	Grade CQS-1h	--

Add to the table in the 1st paragraph of section 1-1.06:

04-19-19

CSC	conductor signal cable

04-17-20

NDS	National Design Specification for Wood Construction
BWC	Bonded wearing course

Replace the row for *12* in the table in the 1st paragraph of section 1-1.08 with:

04-17-20

12	Orange (Ora)	1750 E 4TH ST STE 100 SANTA ANA CA	1750 E 4TH ST STE 100 SANTA ANA CA 92705-3909

Replace the 9th row in the table of section 1-1.11 with:

04-19-19

Department of Conservation, Division of Mine Reclamation	http://www.conservation.ca.gov/dmr	--	--

Add to the table in section 1-1.11:

04-19-19

Data Interchange for Materials Engineering	https://dime.dot.ca.gov	MATERIALS ENGINEERING AND TESTING SERVICES DEPARTMENT OF TRANSPORTATION 5900 FOLSOM BLVD SACRAMENTO CA 95819-4612	(916) 227-5238
SWRCB, Land Disposal Program	https://www.waterboards.ca.gov/water_issues/programs/land_disposal/walist.html	--	--

^^

2 BIDDING

10-19-18

Replace the 5th paragraph of section 2-1.12B(1) with:

10-19-18

You are responsible to verify at bid opening the DBE firm is certified as a DBE by the California Unified Certification Program and possesses the most specific available NAICS codes or work codes applicable to the type of work the firm will perform on the Contract.

Replace section 2-1.12B(2) with:

10-19-18

2-1.12B(2) DBE Commitment Submittal

Submit DBE information under section 2-1.33.

Submit a copy of the quote from each DBE shown on the DBE Commitment form that describes the type and dollar amount of work shown on the form no later than 4 p.m. on the 5th day after bid opening. If the last day for submitting the quote falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the 5th day.

Submit a DBE Confirmation form for each DBE shown on the DBE Commitment form to establish that it will be participating in the Contract in the type and dollar amount of work shown on the form. If a DBE is participating as a joint venture partner, submit a copy of the joint venture agreement.

Failure to submit a completed DBE Confirmation form and a copy of the quote from each DBE will result in disallowance of the DBE's participation.

Add between the 4th and 5th paragraphs of section 2-1.15B:

10-19-18

Submit a copy of the quote from each DVBE listed on the Certified DVBE Summary form that describes the type and dollar amount of work shown on the form no later than 4 p.m. on the 4th business day after bid opening.

Add between the 3rd and 4th paragraphs of section 2-1.15C(1):

10-19-18

Submit a copy of the quote from each DVBE listed on the Certified DVBE Summary form that describes the type and dollar amount of work shown on the form no later than 4 p.m. on the 4th business day after bid opening.

Add between the 1st and 2nd paragraphs of section 2-1.18C:

10-19-18

Failure to submit a completed Certified Small Business Listing for the Non–Small Business Preference form by 4 p.m. on the 2nd business day after bid opening will result in a nonresponsive bid.

Replace section 2-1.33B with:

10-19-18

2-1.33B Bid Form Submittal Schedules

2-1.33B(1) General

The *Bid* book includes forms specific to the Contract. The deadlines for the submittal of the forms vary depending on the requirements of each Contract. Determine the requirements of the Contract and submit the forms based on the applicable schedule specified in section 2-1.33B.

Bid forms and information on the form that are due after the time of bid may be submitted at the time of bid.

2-1.33B(2) Federal-Aid Contracts

2-1.33B(2)(a) General

Section 2-1.33B(2) applies to a federal-aid contract.

2-1.33B(2)(b) Contracts with a DBE Goal

2-1.33B(2)(b)(i) General

Section 2-1.33B(2)(b) applies if a DBE goal is shown on the *Notice to Bidders*.

2-1.33B(2)(b)(ii) Bid Form Submittal

Submit the bid forms according to the schedule shown in the following table:

Bid Form Submittal Schedule for a Federal-Aid Contract with a DBE Goal

Form	Submittal deadline
Bid to the Department of Transportation	Time of bid except for the public works contractor registration number
Copy of the Bid to the Department of Transportation as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Subcontractor List	Time of bid except for the public works contractor registration number
Copy of the Subcontractor List as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Small Business Status	Time of bid
Opt Out of Payment Adjustments for Price Index Fluctuations[a]	Time of bid
DBE Commitment	No later than 4 p.m. on the 5th day after bid opening[b]
DBE Confirmation	No later than 4 p.m. on the 5th day after bid opening[b]
DBE Good Faith Efforts Documentation	No later than 4 p.m. on the 5th day after bid opening[b]

[a]Submit only if you choose the option.
[b]If the last day for submitting the bid form falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the day specified.

2-1.33B(2)(b)(iii) Reserved

2-1.33B(2)(c) Contracts without a DBE Goal

2-1.33B(2)(c)(i) General

Section 2-1.33B(2)(c) applies if a DBE goal is not shown on the *Notice to Bidders*.

2-1.33B(2)(c)(ii) Bid Form Schedule

Submit the bid forms according to the schedule shown in the following table:

Bid Form Submittal Schedule for a Federal-Aid Contract without a DBE Goal

Form	Submittal deadline
Bid to the Department of Transportation	Time of bid except for the public works contractor registration number
Copy of the Bid to the Department of Transportation as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Subcontractor List	Time of bid except for the public works contractor registration number
Copy of the Subcontractor List as submitted at the time of bid with the public works contractor registration numbers	10 days after bid opening
Small Business Status	Time of bid
Opt Out of Payment Adjustments for Price Index Fluctuations[a]	Time of bid

[a]Submit only if you choose the option.

2-1.33B(2)(c)(iii) Reserved

2-1.33B(2)(d)–2-1.33B(2)(h) Reserved

2-1.33B(3) Non-Federal-Aid Contracts

2-1.33B(3)(a) General

Section 2-1.33B(3) applies to non-federal-aid contracts.

2-1.33B(3)(b) Contracts with a DVBE Goal

2-1.33B(3)(b)(i) General

Section 2-1.33B(3)(b) applies if a DVBE goal is shown on the *Notice to Bidders*.

2-1.33B(3)(b)(ii) Bid Form Submittal

Submit the bid forms according to the schedule shown in the following table:

Bid Form Submittal Schedule for a Non-Federal-Aid Contract with a DVBE Goal

Form	Submittal deadline
Bid to the Department of Transportation	Time of bid except for the public works contractor registration number for a joint-venture contract
For a joint-venture contract, copy of the Bid to the Department of Transportation as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Subcontractor List	Time of bid
Opt Out of Payment Adjustments for Price Index Fluctuations[a]	Time of bid
Certified DVBE Summary	No later than 4 p.m. on the 4th business day after bid opening
California Company Preference	Time of bid
Request for Small Business Preference or Non–Small Business Preference[a]	Time of bid
Certified Small Business Listing for the Non–Small Business Preference[a]	No later than 4 p.m. on the 2nd business day after bid opening

[a]Submit only if you choose the option or preference.

2-1.33B(3)(b)(iii) Reserved

2-1.33B(3)(c) Contracts without a DVBE Goal

2-1.33B(3)(c)(i) General

Section 2-1.33B(3)(c) applies if a DVBE goal is not shown on the *Notice to Bidders*.

2-1.33B(3)(c)(ii) Bid Form Submittal

Submit the bid forms according to the schedule shown in the following table:

Bid Form Submittal Schedule for a Non-Federal-Aid Contract without a DVBE Goal

Form	Submittal deadline
Bid to the Department of Transportation	Time of bid except for the public works contractor registration number for a joint-venture contract
For a joint-venture contract, copy of the Bid to the Department of Transportation as submitted at the time of bid with the public works contractor registration number	10 days after bid opening
Subcontractor List	Time of bid
Opt Out of Payment Adjustments for Price Index Fluctuations[a]	Time of bid
California Company Preference	Time of bid
Certified DVBE Summary[b]	No later than 4 p.m. on the 4th business day after bid opening
Request for Small Business Preference or Non–Small Business Preference[a]	Time of bid
Certified Small Business Listing for the Non–Small Business Preference[a]	No later than 4 p.m. on the 2nd business day after bid opening

[a]Submit only if you choose the option or preference.
[b]Submit only if you obtain DVBE participation or you are the apparent low bidder, 2nd low bidder, or 3rd low bidder and you choose to receive the specified incentive.

2-1.33B(3)(c)(iii) Reserved

2-1.33B(3)(d)–2-1.33B(3)(h) Reserved

2-1.33B(4)–2-1.33B(9) Reserved

^^

3 CONTRACT AWARD AND EXECUTION

04-17-20

Replace the 1st paragraph of Section 3-1.04 with:

04-17-20

Submit any bid protest to the Office Engineer before contract award.

^^

4 SCOPE OF WORK

10-18-19

Replace the 7th and 8th paragraphs of section 4-1.07B with:

10-18-19

The Department decides whether to accept a VECP and the estimated net construction-cost savings from adopting the VECP or parts of it. The Department may require you to accept a share of the investigation cost as a condition of reviewing a VECP. In determining the estimated net construction-cost savings, the Department excludes your VECP preparation cost and the Department's VECP investigation costs, including parts paid by you. After written acceptance, the Department considers the VECP and deducts the agreed cost of the investigation.

Replace item 4 in the list in the 9th paragraph of section 4-1.07B with:

10-18-19

4. Adjusts the payment so that the Change Order results in a credit to the Department of 50 percent of the estimated net construction-cost savings, except if the VECP provides a reduction in traffic congestion or avoids traffic congestion

Replace the 10th paragraph of section 4-1.07B with:

10-18-19

If a VECP providing for a reduction in traffic congestion or avoiding traffic congestion is accepted by the Department, the Department adjusts the payment that results in a credit to the Department of 40 percent of the estimated net construction-cost savings attributable to the VECP. Submit detailed traffic handling comparisons between the existing Contract and the proposed change, including estimates of the traffic volumes and congestion.

10-18-19

Delete the 12th paragraph of section 4-1.07B

^^

5 CONTROL OF WORK

04-17-20

Replace the 6th paragraph of section 5-1.13B(2) with:

10-19-18

If the Department authorizes the termination or substitution of a listed DBE, make good faith efforts to find another DBE. The substitute DBE must (1) perform at least the same dollar amount of work as the original DBE under the Contract to the extent needed to meet the DBE goal and (2) be certified as a DBE with the most specific available NAICS or work code applicable to the type of work the DBE will perform on the Contract at the time of your request for substitution. Submit your documentation of good faith efforts within 7 days of your request for authorization of the substitution. The Department may authorize a 7-day extension of this submittal period at your request. Refer to 49 CFR 26 app A for guidance regarding evaluation of good faith efforts to meet the DBE goal.

Replace the 2nd sentence in the 2nd paragraph of section 5-1.13C with:

10-19-18

The substitute must be another DVBE, unless DVBEs are not available. The substitute must perform the work originally stated.

Replace the 6th paragraph of section 5-1.13C with:

10-19-18

If a DVBE substitute is not available, requests for substitutions of a listed DVBE must include:

1. Contact with the DVBE advocate from the Department and the Department of Veteran Affairs
2. Search results from the Department of General Services' website of available DVBEs
3. Communication with a DVBE community organization nearest the job site, if applicable
4. Documented communication with DVBEs describing the work to be performed, the percentage of the total bid, the corresponding dollar amount, and the responses to the communication

Replace section 5-1.24 with:

10-19-18

5-1.24 CONSTRUCTION SURVEYS

5-1.24A General

The Department places stakes and marks under chapter 12, "Construction Surveys," of the Department's *Surveys Manual*.

Submit your request for Department-furnished stakes:

1. Once staking area is ready for stakes
2. On a Request for Construction Staking form

After your submittal, the Department starts staking within 2 business days.

Preserve stakes and marks placed by the Department. If the stakes or marks are destroyed, the Department replaces them at the Department's earliest convenience and deducts the cost.

Replace section 5-1.26 with:

10-19-18

5-1.26 RESERVED

Replace the 2nd and 3rd paragraphs of section 5-1.43A with:

10-18-19

Submit potential claim records using the Department's Internet potential claim system. For information on submittal of potential claim records using the Internet potential claim system, go to the Department's Division of Construction website.

A potential claim record that you submit using the Internet potential claim system is the same as the originator of the claim and you signing the potential claim record.

For the Internet potential claim system, potential claim records are:

1. Initial Potential Claim Record form
2. Supplemental Potential Claim Record form
3. Full and Final Potential Claim Record form
4. Closed Potential Claim Record form

Submit a Closed Potential Claim Record form if you choose not to pursue an Initial Potential Claim Record that has been submitted.

Replace item 3.3.4 in the list in the 2nd paragraph of section 5-1.43D with:

04-17-20

3.3.4. Equipment rates at the rental rates listed in Labor Surcharge and Equipment Rental Rates in effect when the affected work related to the potential claim was performed

Add between the 2nd and 3rd paragraphs of section 5-1.43D:

04-17-20

If the total potential claim cost exceeds $500,000, include an independent CPA cost audit report. Submit the audit report within 70 days of the completion of the potentially claimed work. The CPA's cost audit must be performed as an examination-level engagement under the attestation engagements in the *Government Auditing Standards* published by the Comptroller General of the United States. The attest documentation prepared by the CPA in connection with the audit must be submitted for review with the audit report. Within 20 days of the Engineer's request, make your financial records available for an audit by the State for verifying the actual cost described in your audit. The Department does not participate in costs for the report where no entitlement is determined. If entitlement is determined, the Department pays for 1/2 the cost of the report; the Contractor pays for the other 1/2. The cost is determined under section 9-1.05 except no markup is allowed.

Replace section 5-1.43E(1)(i) with:

04-17-20

Pay the DRA or each DRB member $2,000 per day for the DRA's or DRB member's participation at each on-site meeting.

On-site meetings include:

1. Initial project meeting
2. Progress meetings
3. Dispute meetings

The payment includes full compensation for on-site time, travel expenses, transportation, lodging, travel time, and incidentals for each day or portion thereof.

Before a DRA or DRB member spends any time reviewing the plans or specifications, evaluating positions, preparing recommendations, completing forms, or performing any other off-site DRA- or DRB-related tasks, the parties must agree to pay for the tasks. Pay the DRA or DRB member $200 per hour for these off-site tasks. This payment includes full compensation for incidentals such as expenses for telephone, fax, and computer services.

The Department does not pay for (1) any DRA- or DRB-related work performed after Contract acceptance or (2) your cost of preparing for or attending ADR resolution meetings.

The Department pays:

1. $2,000 for each DRA on-site meeting
2. $6,000 for each DRB on-site meeting
3. $200 per hour for agreed off-site DRA- or DRB-related tasks

The Department does not adjust the unit price for an increase or decrease in the quantity of:

1. DRA on-site meeting
2. DRB on-site meeting
3. Hourly off-site DRA- or DRB-related tasks

Within 60 days of receipt of Department payment, submit copies of associated invoices and supporting documents in the form of a canceled check or bank statement for DRA- or DRB- payment verification.

Replace section 5-1.43E(2)(a) with:

04-17-20

Section 5-1.43E(2) applies to a contract with an estimated cost from $3 million to $10 million.

Replace item 1.2 in the list in the 1st paragraph of section 5-1.43E(2)(b) with:

10-19-18

1.2. Have completed training by the Department

Replace section 5-1.43E(3)(a) with:

04-17-20

Section 5-1.43E(3) applies to a contract with an estimated cost of over $10 million.

Replace item 1.2 in the list in the 1st paragraph of section 5-1.43E(3)(b) with:

10-19-18

1.2. Have completed training by the Department

^^

6 CONTROL OF MATERIALS

04-19-19

Replace section 6-1.03 with:

04-19-19

6-1.03 LOCAL MATERIALS

6-1.03A General

Local material must be rock, sand, gravel, earth, or mineral material other than local borrow, or selected material obtained or produced from a source in the work vicinity, specifically for use on the project. Local borrow must not be a material from an established commercial source.

Upon your request, the Department tests material for quality characteristics from an untested local source. If satisfactory material from that source is used in the work, the Department does not charge you for the tests; otherwise, the Department deducts the test costs.

^^

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

10-18-19

Replace item 1.3 in the list in the 2nd paragraph of section 7-1.02K(3) with:

10-18-19

1.3. Last four digits of social security number pursuant to Labor Code § 226(a)

Replace the 6th through 10th paragraphs of section 7-1.02K(3) with:

04-19-19

You may submit certified payroll records electronically using the Department's secure file transfer protocol site. For information on electronic submission of certified payroll records, go to the Department's Division of Construction website.

Submit payroll records electronically in a nonmodifiable PDF file, using the following file-naming convention:

TT-EA-WE-DOCTYPE.PDF

where:

TT = district, leading zero
EA = Contract number, excluding the district identification number, expressed as 6 characters
WE = week ending date entered as month, leading zero; day of month, leading zero; year, last 2 digits
DOCTYPE = labor payroll document type, CP for Certified Payroll, FB for Fringe Benefit Statement, or SC for Statement of Compliance

Before submitting the payroll records electronically, you and your subcontractors must each complete and sign the Request for Electronic Submission of Certified Payroll Records and e-mail it in PDF format to the district Labor Compliance Office. The Department provides you and your subcontractors' assigned representatives the accounts and user identifications by e-mail after each Request for Electronic Submission of Certified Payroll Records is received.

Each electronic submission must:

1. Include certified payroll records in a nonmodifiable PDF file
2. Include a signed Statement of Compliance form with each weekly record as a nonmodifiable PDF file
3. Be received by the Department by close of business on the 15th day of the month for the prior month's work

Replace the 12th paragraph of section 7-1.02K(3) with:

10-18-19

Make all payroll records, including employee's complete social security number, available for inspection and copying or furnish a copy upon request of a representative of the:

1. Department
2. Division of Labor Standards Enforcement of the Department of Industrial Relations
3. Division of Apprenticeship Standards of the Department of Industrial Relations

Replace the 1st sentence in the 5th paragraph of section 7-1.02K(6)(a) with:

10-19-18

Submit copies of your Injury and Illness Prevention Program, Code of Safe Practices, and permits required by Cal/OSHA as informational submittals.

Replace section 7-1.02K(6)(j)(iii) with:

10-18-19

7-1.02K(6)(j)(iii) Unregulated Earth Material Containing Lead

Reserved

Replace *Reserved* in section 7-1.02M(2) with:

10-18-19

Submit the names and emergency telephone numbers of the nearest fire suppression agencies before the start of job site activities as an informational submittal. Post the names and phone numbers at a prominent place at the job site.

Submit a copy of your fire prevention plan required by Cal/OSHA as an informational submittal before the start of job site activities.

04-19-19

Cooperate with fire prevention authorities in performance of the work.

Immediately report fires occurring within and near the project limits by dialing 911 and to the nearest fire suppression agency by using the emergency phone numbers retained at the job site.

Prevent project personnel from setting open fires that are not part of the work.

Prevent the escape of and extinguish fires caused directly or indirectly by job site activities.

Replace the 2nd paragraph of section 7-1.02M(3) with:

04-19-19

For the list of permitted sites, go to the Department of Conservation, Division of Mine Reclamation website.

Replace the 13th paragraph of section 7-1.03 with:

10-18-19

For a taper on a bridge deck or approach slab, construct the taper with rapid setting concrete under section 60-3.02B(2) or polyester concrete under section 60-3.04B(2). Prepare the surface to receive the taper under section 60-3.02C(7). For tapers with aggregate fillers, rake conform edges to ensure smooth transitions. Cure the taper for at least 3 hours or the minimum time recommended by the manufacturer before opening to traffic.

Replace the 4th sentence in the 16th paragraph of section 7-1.03 with:

10-18-19

When not shown and if ordered, providing flaggers is change order work.

Replace the 3rd sentence in the 7th paragraph of section 7-1.04 with:

10-18-19

When not shown and if ordered, providing flaggers is change order work.

Replace the 13th paragraph of section 7-1.04 with:

10-18-19

Equipment must enter and leave the highway via existing ramps and crossovers and must move in the direction of traffic. All movements of workers and construction equipment on or across lanes open to traffic must be performed in a manner that do not endanger the public. Your vehicles or other mobile equipment leaving an open traffic lane to enter the construction area must slow down gradually in advance of the location of the turnoff to give the traffic following an opportunity to slow down. When leaving a work area and entering a roadway carrying traffic, your vehicles and equipment must yield to traffic. Compensation for flaggers, used for all movement of workers and construction vehicles and equipment on or across lanes open to traffic, is included in the bid items of work involved.

^^

8 PROSECUTION AND PROGRESS

04-17-20

Replace the row for *Safety* in the table in the 2nd paragraph of section 8-1.03 with:

10-19-18

Safety	Injury and Illness Prevention Program, Code of Safe Practices, and job site posters

Replace the 2nd paragraph of section 8-1.07C with:

04-17-20

Losses for idle equipment, idle workers, and moving or transporting equipment are eligible for delay-related payment adjustments.

Replace item 3 in the list in the 3rd paragraph of section 8-1.07C with:

04-19-19

3. Delay days exclude Saturdays and holidays.

Add to section 8-1.07C:

04-17-20

If you claim additional costs due to impacts from an excusable delay, you must comply with section 5-1.42. Support your claim for additional costs based on the difference between the cost to perform the work as planned and the cost to perform the work as changed as determined under section 9-1.04. The Department adjusts payment for the work portion that was impacted.

Replace section 8-1.14E with:

10-18-19

8-1.14E Payment Adjustment for Termination

If the Department issues a termination notice, the Engineer determines the payment for termination during the performance period, from contract approval date to contract acceptance date, based on the following:

1. Direct cost for the work performed:
    - 1.1. Including:
        - 1.1.1. Mobilization
        - 1.1.2. Demobilization
        - 1.1.3. Securing the job site for termination
        - 1.1.4. Losses from the sale of materials
    - 1.2. Not including:
        - 1.2.1. Cost of materials you keep
        - 1.2.2. Profit realized from the sale of materials
        - 1.2.3. Cost of material damaged by:
            - 1.2.3.1. Act of God
            - 1.2.3.2. Act of a public enemy
            - 1.2.3.3. Fire
            - 1.2.3.4. Flood.
            - 1.2.3.5. Governor-declared state of emergency
            - 1.2.3.6. Landslide
            - 1.2.3.7. Tsunami
        - 1.2.4. Other credits
2. Cost of remedial work, as estimated by the Engineer, is not reimbursed.
3. Allowance for profit not to exceed 4 percent of the cost of the work performed where a likelihood of having made a profit had the Contract not been terminated is shown.
4. Material handling costs for material returned to the vendor or disposed of as ordered.
5. Costs in determining the payment adjustment due to the termination, excluding attorney fees and litigation costs.
6. Overhead costs.

Termination of the Contract does not relieve the surety of its obligation for any just claims arising out of the work performed.

^^

9 PAYMENT

04-17-20

Add between the 1st and 2nd paragraphs of section 9-1.04A:

04-17-20

The Tentative Daily Extra Work Agreement form is used to identify the labor, materials, and equipment used on change order work paid at force account. Signatures on this form do not constitute final agreement regarding payment.

Replace section 9-1.07B(5) with:

10-19-18

9-1.07B(5) Hot Mix Asphalt Containing Reclaimed Asphalt Pavement

The Engineer calculates the quantity of asphalt in HMA containing RAP using the following formula:

Qrap = *HMARTT* x *Xaa*

where:
Xaa = *Xta* – [(*Xrap x Xra x (Xta-100)) / (100 x (Xra – 100))*]

and:
Qrap = quantity in tons of asphalt used in HMA containing RAP
HMARTT = HMA containing RAP, total tons placed
Xaa = asphalt content of HMA containing RAP adjusted to exclude the asphalt content in RAP, expressed as a percentage of the total weight of HMA containing RAP
Xta = total theoretical asphalt content in HMA containing RAP from the job mix formula, expressed as a percentage of the total weight of HMA containing RAP
Xrap = RAP percentage in HMA containing RAP from the job mix formula, expressed as a percentage of the total dry weight of aggregate in HMA containing RAP
Xra = average asphalt content of RAP from the job mix formula, expressed as percentage of total weight of RAP

Replace the 2nd sentence in the 7th paragraph of section 9-1.11E with:

04-19-19

The cost is determined under section 9-1.05 except no markup is allowed.

Replace section 9-1.16C with:

10-19-18

9-1.16C Materials On Hand

A material on hand but not incorporated into the work is eligible for a progress payment if:

1. Compliant with other Contract parts
2. Material cost exceeds either of the following:
   - 2.1. $50,000
   - 2.2. $25,000 if the requestor is certified as one or more of the following:
     - 2.2.1. DVBE
     - 2.2.2. DBE
     - 2.2.3. Small business as certified by Department of General Services, Office of Small Business and Disabled Veteran Business Enterprise Services

3. Purchased
4. Invoice is submitted
5. Stored within the State and you submit evidence that the stored material is subject to the Department's control
6. Protected from weather and contamination
7. Water pollution control measures are established and maintained
8. Requested on the Department-furnished form

Replace the 1st paragraph of section 9-1.16E(3) with:

10-18-19

During each estimate period you fail to comply with a Contract part, including the submittal of a document as specified, such as QC plans, schedules, traffic control plans and water pollution control submittals, the Department withholds a part of the progress payment except as specified below for the failure to submit a document during the last estimate period.

Replace the 3rd paragraph of section 9-1.17C with:

10-18-19

If you claim that the total for work completed, excluding deductions, in the proposed final estimate is less than 90 percent of your total bid, the Department adjusts the final payment to cover your overhead. The adjustment in the final estimate is 10 percent of the difference between 90 percent of your total bid and the total for work completed, excluding deductions. The Department does not make this adjustment on a terminated contract.

Replace section 9-1.17D(2)(b) with:

04-17-20

9-1.17D(2)(b) Overhead Claims

9-1.17D(2)(b)(i) General

Section 9-1.17D(2)(b) includes specifications for overhead claims.

The Department deducts an amount for field and home office overhead paid on added work from any claim for overhead. The home office overhead deduction equals 5 percent of the added work. The field office overhead deduction equals 5-1/2 percent of the added work.

9-1.17D(2)(b)(ii) Definitions

actual daily overhead rates: The home office overhead and field office overhead rates expressed per business day for the contract performance period. The home office overhead rate is calculated using the Eichleay Formula and is based on overhead cost pools and all allocation bases from Contract and company revenues.

added work: Equals the value of the work completed minus the total bid.

contract performance period: The period from Contract approval to Contract acceptance.

9-1.17D(2)(b)(iii) Submittals

Submit the following for an overhead claim:

1. Final amount of additional payment requested.
2. Specific identification of each claim and dates associated with each claim for which you seek reimbursement for specific overhead costs.
3. Audit report prepared by an independent CPA for the contract performance period identifying the actual daily overhead rates, supporting calculations and documentation for both field and home office overhead excluding a profit markup.

Field office overhead costs from which the actual daily overhead rate is calculated must be:

1. Allowable under 48 CFR 31
2. Supported by reliable records
3. Related solely to the project
4. Incurred during the contract performance period
5. Comprised of only time-related field office overhead costs
6. Not a direct cost

Home-office overhead costs from which the actual daily overhead rate is calculated must be:

1. Allowable under 48 CFR 31
2. Supported by reliable records
3. Incurred during the contract performance period
4. Comprised of only fixed home-office overhead costs
5. Not a direct cost

Failure to submit the audit report for an overhead claim with the claim statement is a waiver of the overhead claim and operates as a bar to arbitration on the claim (Pub Cont Code § 10240.2).

The CPA's audit must be performed as an examination-level engagement under the attestation engagements in the *Government Auditing Standards* published by the Comptroller General of the United States. The CPA's audit report must express an opinion of whether or not your calculations of your actual field and home office overhead daily rates comply with section 9-1.17D(2)(b). The attest documentation prepared by the CPA in connection with the audit must be submitted for review with the audit report.

Within 20 days of the Engineer's request, make your financial records available for an audit by the State for verifying the actual daily overhead rates in your audit report. The actual rate of time-related overhead is subject to authorization by the Engineer.

The Department pays for 1/2 the cost of the report unless otherwise specified. The cost is determined under section 9-1.05 except no markup is allowed.

^^

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

04-19-19

Replace the 1st sentence in the 4th paragraph of section 10-6 with:

04-19-19

The sources and discharge of recycled water must comply with the water-recycling criteria of the CDPH, SWRCB Order No. WQ 2016-0068-DDW, and the requirements of the appropriate RWQCB.

^^

11 WELDING

04-19-19

Replace the table in the 3rd paragraph of section 11-1.01 with:

04-19-19

AWS code	Year of adoption
D1.1	2015
D1.3	2018
D1.4	2018
D1.5	2015
D1.6	2017
D1.8	2016

Replace the introductory clause in the 1st paragraph of section 11-1.03 with:

04-19-19

Replace clause 6.1.3 of AWS D1.1, the 1st paragraph of clause 9.1.2 of AWS D1.4, and clause 6.1.2 of AWS D1.5 with:

Replace the introductory clause of the 2nd paragraph of section 11-1.04 with:

04-19-19

Replace clause 6.14.6.1 of AWS D1.1, clause 9.8.1 of AWS D1.4, and clause 6.1.3.4 of AWS D1.5 with:

Add before the 1st paragraph of section 11-1.05:

04-19-19

Replace the first sentence of clause 5.21.1.1 of AWS D1.1 with the following:

5.21.1.1. The separation between surfaces of plug and slot welds, and of joints landing on a backing, shall not exceed 1/16 in [2 mm].

Replace clause 3.3.1.1 of AWS D1.5 with the following:

3.3.1.1. The separation between surfaces of plug and slot welds, and of joints landing on a backing, shall not exceed 2 mm [1/16 in].

Replace item 2 in the list in the 2nd paragraph of section 11-1.05 with:

04-19-19

2. Be mechanically and radiographically tested. Mechanical and radiographic testing and acceptance criteria must comply with the applicable AWS codes. The type of mechanical testing must be authorized.

Replace the 1st paragraph of 11-1.06 with:

04-19-19

Replace item 3 of clause 6.26.3.2 of AWS D1.5 with:

3. If indications that exhibit these planar characteristics are present at scanning sensitivity, or other evidence exists to suggest the presence of transverse cracks, a more detailed evaluation of the discontinuity by other means must be performed (e.g., alternate UT techniques, RT, grinding, or gouging for visual inspection or MT of the excavated areas.)

Replace the scanning angle in clause 6.24.2.2 of AWS D1.5 with:

Up to 45 degrees

Replace the 2nd paragraph of section 11-1.06 with:

04-19-19

Clause 6.6.5 of AWS D1.1, clause 9.6.5 of AWS D1.4, and clause 6.6.5 of AWS D1.5 do not apply.

Replace the introductory clause of the 1st paragraph of section 11-2.04 with:

04-19-19

Clauses 6.1.4.1 and 6.1.4.3 of AWS D1.1, the 2nd paragraph of clause 9.1.2 of AWS D1.4, clauses 6.1.3.1 through 6.1.3.3 of AWS D1.5, and clause 7.2.3 of AWS D1.8 are replaced with:

Replace item 2 in the list in the 2nd paragraph of section 11-2.04 with:

04-19-19

2. Structural steel for building construction work is performed at a permanent fabrication or manufacturing plant that is certified under the AISC Quality Certification Program, Category BU, Standard for Steel Building Structures.

Replace section 11-2.06 with:

04-19-19

11-2.06 WELDING PROCEDURES QUALIFICATION

Welding procedures qualification for work welded under AWS D1.5 must comply with clause 5.12 or 5.12.4 of AWS D1.5 and the following:

1. Macroetch tests are required for all WPS qualification tests, and acceptance must comply with clause 5.19.3 of AWS D1.5.
2. If a nonstandard weld joint is to be made using a combination of WPSs, you may conduct a test under figure 5.3, combining the qualified or prequalified WPSs to be used in production, if the essential variables, including weld bead placement, of each process are limited to those established in table 5.4 of AWS D1.5.
3. Before preparing mechanical test specimens, inspect the PQR welds by visual and radiographic tests. The backing bar must be 3 inches in width and must remain in place during NDT. Results of the visual and radiographic tests must comply with clause 6.26.2 of AWS D1.5 excluding clause 6.26.2.2. All other requirements for clause 5.17 are applicable.

When electric resistance welding is used for work welded under AWS D1.1, the welding procedure must be qualified under Clause 4 of AWS D1.1. Welding procedures must be qualified for the thickness and the pole diameter tested. Test samples for tapered poles must be obtained from three locations, each end and the middle of the tapered pole, to qualify for the diameter range tested.

Replace the 3rd paragraph of section 11-3.02 with:

04-19-19

The AISC Certification category for pole structures is Bridge and Highway Metal Component (CPT) or Standard for Steel Building Structures (BU).

^^

Replace section 12 with:

10-18-19

12 TEMPORARY TRAFFIC CONTROL

04-17-20

12-1 GENERAL

12-1.01 GENERAL

Section 12-1 includes general specifications for providing temporary traffic control.

Temporary traffic control, including flagging, apparel, temporary traffic control devices, and equipment for flaggers, must comply with the *California MUTCD,* Part 6, "Temporary Traffic Control."

12-1.02 MATERIALS

Not Used

12-1.03 CONSTRUCTION

Assign flaggers to:

1. Control traffic
2. Warn the public of any dangerous conditions resulting from the work activities
3. Provide for the passage of traffic through the work as specified for the passage of traffic for public convenience and public safety

Maintain flagging apparel, traffic control devices, and equipment for flaggers in good repair.

12-1.04 PAYMENT

Not Used

12-2 RESERVED

12-3 TEMPORARY TRAFFIC CONTROL DEVICES

12-3.01 GENERAL

12-3.01A General

12-3.01A(1) Summary

Section 12-3.01 includes general specifications for providing temporary traffic control devices.

Providing temporary traffic control devices includes installing, placing, maintaining, repairing, replacing, and removing temporary traffic control devices.

Do not use different types of channelizing devices on the same alignment. The types include plastic drums, portable delineators, channelizers, tubular markers, traffic cones, and Type I and Type II barricades.

12-3.01A(2) Definitions

Category 1 temporary traffic control devices: Small devices weighing less than 100 lb certified as crashworthy by crash testing or crash testing of similar devices. Category 1 temporary traffic control devices include traffic cones, plastic traffic drums, portable delineators, and channelizers.

Category 2 temporary traffic control devices: Small devices weighing less than 100 lb that are not expected to produce significant changes in vehicular velocity but could cause harm to impacting vehicles. Category 2 temporary traffic control devices include barricades and portable sign supports.

Category 3 temporary traffic control devices: Devices weighing 100 lb or more that are expected to produce significant changes in the vehicular velocity of impacting vehicles. Category 3 temporary traffic control devices include crash cushions, impact attenuator vehicles, temporary railing, temporary barrier, and end treatments for temporary railings and barriers.

orange: Orange, red-orange, fluorescent orange, or fluorescent red-orange.

useable shoulder area: Any longitudinal paved or unpaved contiguous surface adjacent to the traveled way with:

1. Enough weight-bearing capacity to support temporary traffic control devices, such as flashing arrow signs, PCMSs, and impact attenuator vehicles
2. Slope not greater than 6:1 (horizontal:vertical)

12-3.01A(3) Submittals

At least 5 business days before starting any work using the devices or within 2 business days after the request if the devices are already in use, submit as informational submittals:

1. Self-certification for crashworthiness of Category 1 temporary traffic control devices. Either you or the manufacturer must perform the self-certification. Include:
   1.1. Date
   1.2. Federal aid number for a federal-aid contract
   1.3. Contract number, district, county, route, and post miles of the project limits
   1.4. Company name, street address, city, state, and zip code of the certifying vendor
   1.5. Printed name, signature, and title of the certifying person
   1.6. Types of Category 1 temporary traffic control devices
2. List of proposed Category 2 temporary traffic control devices

Obtain a standard form for self-certification from the Engineer.

Submit a sample of the type of portable delineator that you will be using before placing the delineators on the job site.

12-3.01A(4) Quality Assurance

Reserved

12-3.01B Materials

The condition of temporary traffic control devices must comply with the most current edition of the American Traffic Safety Services Association publication *Quality Guidelines for Temporary Traffic Control Devices and Features*.

Category 2 temporary traffic control devices must be on FHWA's list of acceptable crashworthy Category 2 hardware for work zones. For this list, go to FHWA's Safety Program website.

Category 2 temporary traffic control devices must be labeled with the FHWA acceptance letter code and the name of the manufacturer. The label must be legible and permanently affixed to the temporary traffic control device by the manufacturer.

Category 3 temporary traffic control devices must be on the Authorized Material List for highway safety features.

Retroreflectivity for the following materials must comply with Table 2A-3, "Minimum Maintained Retroreflectivity Levels," of the *California MUTCD* and be on the Authorized Material List for signing and delineation materials:

1. Retroreflective sheeting for barricades
2. Retroreflective bands for portable delineators
3. Retroreflective sheeting for construction area signs
4. Retroreflective sheeting for channelizers
5. Reflectors for Type K temporary railing
6. Retroreflective cone sleeves
7. White and orange retroreflective stripes for plastic traffic drums

The following temporary traffic control devices must be visible from 1,000 feet during the hours of darkness under an illumination of legal high-beam headlights by persons with 20/20 vision or vision corrected to 20/20:

1. Retroreflective bands on portable delineators
2. Retroreflective sheeting on channelizers
3. Retroreflective cone sleeves on traffic cones

12-3.01C Construction

Perform all layout work necessary to place channelizing devices:

1. On the proper alignment
2. Uniformly at the location and spacing described
3. Straight on a tangent alignment
4. On a true arc in a curved alignment

If temporary traffic control devices are damaged, displaced, or stop operating or functioning as described from any cause during the progress of the work, immediately repair, repaint, or replace the components and restore them to their original locations and positions.

If ordered, furnish and place additional temporary traffic control devices. This work is change order work unless the temporary traffic control devices are being furnished and placed for public safety or public convenience.

Level and plumb a portable system.

Delineate the location of a trailer mounted system with a taper consisting of 9 traffic cones placed 25 feet apart, except where the system is placed within a lane closure or behind a barrier or guardrail.

When a portable system is not in use, remove it from the job site, place it behind a barrier or guardrail, or move it to an area at least 15 feet from the edge of the traveled way.

12-3.01D Payment

Not Used

12-3.02 TRAFFIC CONES

12-3.02A General

Section 12-3.02 includes specifications for placing traffic cones.

12-3.02B Materials

A traffic cone must be flexible, orange, and manufactured from commercial-quality material designed for the intended purpose.

The outer section of the portion above the base of the traffic cone must be translucent and fabricated of a highly pigmented, orange, PV compound. The overall height of a traffic cone must be at least 28 inches and the bottom inside diameter of the traffic cone must be at least 10.5 inches.

During the hours of darkness, a traffic cone must have a retroreflective cone sleeve.

Retroreflective cone sleeves must be permanently affixed, double-band, sleeves consisting of 2 white retroreflective bands. The top band must be 6 inches wide and placed a maximum of 4 inches from the top of the cone. The lower band must be 4 inches wide and placed 2 inches below the bottom of the top band. You may use traffic cones with double-band retroreflective cone sleeves during daylight hours.

12-3.02C Construction

Use the same type of retroreflective cone sleeve for all cones used on the project.

Anchor the base of a traffic cone if it does not have enough size and weight to keep the cone in an upright position.

12-3.02D Payment

Not Used

12-3.03 PLASTIC TRAFFIC DRUMS

12-3.03A General

12-3.03A(1) Summary

Section 12-3.03 includes specifications for placing plastic traffic drums.

12-3.03A(2) Definitions

Reserved

12-3.03A(3) Submittals

Submit a certificate of compliance for plastic traffic drums.

12-3.03A(4) Quality Assurance

Reserved

12-3.03B Materials

A plastic traffic drum must comply with the manufacturer's instructions for weight and ballast.

A plastic traffic drum must:

1. Be orange LDPE
2. Be flexible and collapsible upon vehicle impact
3. Have a weighted base to maintain an upright position and prevent displacement by passing traffic
4. Have a height such that the top of the drum is at least 36 inches above the traveled way

The weighted base must:

1. Be detachable
2. Be shaped to prevent rolling upon impact
3. Have a 38-inch maximum outside diameter
4. Have a 4-inch maximum height above the ground surface

12-3.03C Construction

Use 1 type of plastic traffic drum on the project.

Use the same type and brand of retroreflective sheeting for all plastic traffic drums used on the project.

Do not use sandbags or comparable ballast.

Moving plastic traffic drums from location to location if ordered after initial placement is change order work.

12-3.03D Payment

Not Used

12-3.04 PORTABLE DELINEATORS

12-3.04A General

Section 12-3.04 includes specifications for placing portable delineators.

12-3.04B Materials

A portable delineator, including its base, must be made of a material that has enough rigidity to remain upright when unattended and must be flexible or collapsible upon impact by a vehicle. The base must be (1) shaped to prevent rolling after impact and (2) anchored or weigh enough to keep the delineator in an upright position. Ballast for a portable delineator must comply with the manufacturer's instructions.

A portable delineator must be a minimum of 36 inches in height. The vertical portion of a portable delineator must be predominantly orange. The post must be not less than 3 inches in width or diameter. Retroreflectorization of a portable delineator that has a height of less than 42 inches must be provided by two 3-inch-wide white bands placed a maximum of 2 inches from the top with a maximum of 6 inches between the bands. Retroreflectorization of a portable delineator that has a height of 42 inches or more

must be provided by four 4- to 6-inch-wide alternating orange and white stripes with the top stripe being orange.

12-3.04C Construction

Use only 1 type of portable delineator on the project.

12-3.04D Payment

Not Used

12-3.05 CHANNELIZERS

12-3.05A General

Section 12-3.05 includes specifications for placing channelizers.

12-3.05B Materials

A channelizer must be on the Authorized Material List for signing and delineation materials.

Its post must be orange.

A channelizer must be affixed with 3-by-12-inch, retroreflective, white sheeting.

12-3.05C Construction

Install channelizers on clean, dry surfaces.

Cement the channelizer bases to the pavement as specified for cementing pavement markers to the pavement in section 81-3.

When no longer required for the work, remove the channelizers and the underlying adhesive used to cement the channelizer bases to the pavement.

Do not remove channelizers that are shown to be left in place at the time of work completion.

12-3.05D Payment

Not Used

12-3.06–12-3.09 RESERVED

12-3.10 BARRICADES

12-3.10A General

Section 12-3.10 includes specifications for placing barricades.

12-3.10B Materials

Markings for barricade rails must be alternating orange and white retroreflective stripes.

Orange retroreflective sheeting must match color PR no. 6, Highway Orange, of the FHWA Color Tolerance Chart.

The interface between the rail surface and the retroreflective sheeting must be free of air bubbles or voids.

The predominant color of barricade components other than the rails must be white or unpainted galvanized metal or aluminum.

You may use a Type III barricade as a sign support if the barricade has been successfully crash tested under *NCHRP Report 350* criteria or the Manual for Assessing Safety Hardware (MASH) crash testing guidelines as a single unit with an attached sign panel of the size and type to be used.

A sign panel for a construction area sign or marker panel to be mounted on a barricade must comply with section 12-3.11B(2).

Do not imprint an owner identification on the retroreflective face of any rail.

12-3.10C Construction

Place each barricade such that the stripes slope downward in the direction road users are to pass.

Place each sand-filled bag near the ground level on the lower parts of the frame or stays to serve as ballast for the barricades. Do not place ballast on top of barricades or over any retroreflective barricade rail face that is facing traffic.

Do not remove barricades that are shown to be left in place at the time of work completion.

Moving a barricade from location to location is change order work if ordered after initial placement of the barricade.

12-3.10D Payment

Not Used

12-3.11 CONSTRUCTION AREA SIGNS

12-3.11A General

12-3.11A(1) Summary

Section 12-3.11 includes specifications for placing construction area signs.

04-17-20

Construction area signs include general information signs and all temporary signs and object markers required for the direction of traffic within the project limits.

10-18-19

12-3.11A(2) Definitions

background: Dominant sign color.

legend: Letters, numerals, tildes, bars, arrows, route shields, symbols, logos, borders, artwork, and miscellaneous characters that are intended to convey specific meanings on traffic signs.

12-3.11A(3) Submittals

Reserved

12-3.11A(4) Quality Assurance

Reserved

12-3.11B Materials

12-3.11B(1) General

04-17-20

Construction area sign must be the product of a commercial sign manufacturer.

10-18-19

The style, font, size, and spacing of the legend must comply with the *Standard Alphabets* published in the FHWA's Standard Highway Signs Book.

The sign must be visible from 500 feet and legible from 300 feet at noon on a cloudless day and during the hours of darkness under an illumination of legal low-beam headlights by persons with 20/20 vision or vision corrected to 20/20. A fabric sign panel on a portable sign is not subject to the visibility and legibility requirements for headlight illumination during the hours of darkness.

04-17-20

Construction area sign must have a black legend on a retroreflective, fluorescent orange background. W10-1 advance warning sign for highway-rail grade crossings must have a black legend on a retroreflective fluorescent yellow background.

10-18-19

12-3.11B(2) Stationary-Mounted Signs

04-17-20

Stationary-mounted sign must comply with section 82-2 and must have Type XI retroreflective sheeting.

A temporary sign support of any type placed within 15 feet from the edge of the traveled way must comply with the specifications for a Category 2 temporary traffic control device.

The sign post must be good, sound wood posts with the breakaway feature as shown for a roadside sign.

Fastening hardware and back braces must be commercial-quality materials.

12-3.11B(3) Portable Signs

Each portable sign must consist of a base, standard or framework, and a sign panel. Units delivered to the job site must be capable of being placed into immediate operation.

A sign panel for a portable sign must comply with the specifications for a stationary-mounted sign panel or be fabricated from one of the following materials:

1. Type VI, retroreflective, elastomeric roll-up fabric
2. Nonretroreflective, cotton, drill fabric
3. Nonretroreflective, flexible, industrial, nylon fabric
4. Another type of fabric if authorized

Do not use nonretroreflective portable signs during the hours of darkness.

The bottom of the portable sign panel must be at least 1 foot above the edge of the traveled way.

12-3.11B(4) Temporary Object Markers

A temporary object marker must be mounted on a stationary wood or metal post and must comply with section 82.

A marker panel for a Type N (CA), Type P (CA), or Type R (CA) object marker must comply with the specifications for a marker panel for a stationary sign panel in section 12-3.11B(2).

A target plate, post, and the hardware for a Type K (CA) and Type L (CA) temporary object marker must comply with the specifications for these items in section 82.

12-3.11B(5) General Information Signs

Reserved

12-3.11C Construction

12-3.11C(1) General

Place all construction area signs outside of the traveled way. Do not block a bicycle or pedestrian pathway with a construction area sign.

Place, install, maintain, and remove temporary object markers shown as construction area signs as specified for construction area signs.

Maintain accurate information on construction area signs. Immediately replace or correct signs that convey inaccurate information.

During the progress of work, immediately cover or remove unneeded signs.

Cover each unneeded sign such that the message cannot be seen. Securely fasten the cover to prevent movement from wind.

Check each covered sign daily for damage to the cover and immediately replace any cover if needed.

Clean each construction area sign panel at the time of installation and at least once every 4 months thereafter.

Be prepared to furnish additional construction area sign panels, posts, and mounting hardware or portable sign mounts on short notice due to changing traffic conditions or damage caused by traffic or other conditions. Maintain an inventory of commonly required items at the job site or make arrangements with a supplier who is able to furnish the items daily on short notice.

Replace any damaged construction area sign or repair the sign if authorized.

Remove any sign panel that exhibits irregular luminance, shadowing, or dark blotches at nighttime under vehicular headlight illumination.

12-3.11C(2) Stationary-Mounted Signs

Install stationary-mounted signs as described for the installation of roadside signs except:

1. Back braces and blocks for sign panels are not required for signs 48 inches or smaller in width and diamond-shaped signs 48 by 48 inches or smaller.
2. Bottom of the sign panel must be at least 7 feet above the edge of the traveled way.
3. You may install a construction area sign on an above-ground, temporary platform sign support or on an existing lighting standard or other support if authorized. Do not make holes in a standard to support the sign if it is installed on an existing lighting standard.
4. Post embedment must be at least 2.5 feet if the post hole is backfilled around the post with commercial-quality concrete. The concrete must contain at least 295 pounds of cementitious material per cubic yard.

The Engineer determines the post size and number of posts if the type of sign installation is not shown.

Excavate each post hole by hand methods without the use of power equipment. You may use power equipment where you determine that subsurface utilities are not present in the area of the proposed post hole if authorized. The post-hole diameter must be at least 4 inches greater than the longest cross-sectional dimension of the post if it is backfilled with commercial-quality concrete.

Furnishing, installing, maintaining, moving, and removing any additional construction area signs if ordered is change order work.

12-3.11C(3) General Information Signs

Reserved

12-3.11D Payment

Not Used

12-3.12 TELESCOPING FLAG TREES

12-3.12A General

Section 12-3.12 includes specifications for placing telescoping flag trees.

12-3.12B Materials

Telescoping flag trees must be manufactured from commercial-quality material designed for the intended purpose and capable of maintaining an upright position at all times while in use.

12-3.12C Construction

Not Used

12-3.12D Payment

Not Used

12-3.13–12-3.19 RESERVED

12-3.20 TYPE K TEMPORARY RAILING

12-3.20A General

12-3.20A(1) Summary

Section 12-3.20 includes specifications for placing Type K temporary railing and Type K temporary terminal sections.

Type K temporary railing must consist of interconnected PC concrete barrier panels.

You may have your name or logo on each panel of Type K temporary railing. The name or logo must not be more than 4 inches in height and must be located not more than 12 inches above the bottom of the rail panel.

Reinforcing steel must comply with section 52.

12-3.20A(2) Definitions

Reserved

12-3.20A(3) Submittals

Submit a certificate of compliance for Type K temporary railing not cast at the job site.

12-3.20A(4) Quality Assurance

Reserved

12-3.20B Materials

12-3.20B(1) General

Concrete must comply with the specifications for minor concrete except load tickets and a certificate of compliance are not required.

Steel bars to receive bolts at the ends of the concrete panels must comply with ASTM A36/A36M. The bolts must comply with ASTM A307.

You may substitute a round bar of the same diameter for the end-connecting bolt shown. If a round bar is used, the round bar must:

1. Comply with ASTM A36/A36M
2. Have a minimum length of 26 inches
3. Have a 3-inch-diameter, 3/8-inch-thick plate welded on the upper end using a 3/16-inch fillet weld

The final surface finish of the railing must comply with section 51-1.03F(2).

Cure the exposed surfaces of the railing by the water method, the forms-in-place method, or the curing compound method using curing compound no. 1.

12-3.20B(2) Type K Temporary Terminal Section

The closure plate for a Type K temporary terminal section must be a white, commercial-quality steel plate shaped to conform to the cross section of the barrier. The mechanical expansion anchors for connecting the closure plate to the railings must comply with section 75-3 for concrete anchorage devices.

12-3.20C Construction

12-3.20C(1) General

Before placing Type K temporary railing on the job site, paint the exposed surfaces of the railing with white paint complying with the specifications for acrylic emulsion paint for exterior masonry. The repainting of the units is change order work if it is ordered after the units are in place.

Place Type K temporary railing on a firm, stable foundation. Grade the foundation to provide a uniform bearing surface throughout the entire length of the railing.

Structure excavation and backfill must comply with section 19-3 except compaction of earth fill placed behind Type K temporary railing in a curved layout is not required.

Place and maintain the abutting ends of PC concrete units in alignment without substantial offset from each other.

The drilling of holes and bonding of threaded rods or dowels must comply with the specifications for drilling and bonding dowels in section 51-1.

Install a reflector on the top or face of the rail of each rail unit placed within 10 feet of a traffic lane. Apply adhesive for mounting the reflector under the reflector manufacturer's instructions.

Install a Type P marker panel at each end of railing placed adjacent to a 2-lane, two-way highway and at the end facing traffic for railing installed adjacent to a one-way roadbed. If the railing is placed on a skew, install the marker at the end of the skew nearest the traveled way. Type P marker panels must comply with section 82 except you must furnish the marker panels.

After removing Type K temporary railing:

1. Restore the area to its previous condition or construct it to its planned condition if temporary excavation or embankment was used to accommodate the railing.
2. Remove all threaded rods or dowels to a depth of at least 1 inch below the surface of the concrete. Fill the resulting holes with mortar under section 51-1 except cure the mortar by the water method or by the curing compound method using curing compound no. 6.

If the Engineer orders a lateral move of Type K temporary railing and repositioning is not shown, the lateral move is change order work and the railing is not measured in the new position.

12-3.20C(2) Type K Temporary Terminal Section

When the Type K temporary terminal section is no longer required, remove the anchor bolts connecting the closure plate to the concrete barrier or cut the bolts flush with the face of the barrier. If the anchor bolts are removed, fill the holes with grout.

12-3.20D Payment

The payment quantity for temporary railing (Type K) is the length measured along the top of the railing.

12-3.21 TEMPORARY TRAFFIC SCREENS

12-3.21A General

Section 12-3.21 includes specifications for installing temporary traffic screens.

12-3.21B Materials

Temporary traffic screen panels must be one of the following:

1. CDX grade or better plywood
2. Weather-resistant strand board
3. Plastic

Plastic temporary traffic screen panels must be on the Authorized Material List for temporary traffic screen.

Wale boards for use with plywood or strand board must be Douglas fir, rough sawn, construction grade or better.

Pipe screen supports must be schedule 40, galvanized steel pipe.

Nuts, bolts, and washers must be cadmium plated.

Screws must be black or cadmium-plated flat head, cross-slotted, with full-thread length.

Temporary traffic screen panels must be CDX grade or better, plywood or weather-resistant strand board.

Wale boards must be Douglas fir, rough sawn, construction grade or better.

Pipe screen supports must be schedule 40, galvanized steel pipe.

Nuts, bolts, and washers must be cadmium plated.

Screws must be black or cadmium-plated flat head, cross-slotted screws with full-thread length.

12-3.21C Construction

Install and anchor temporary traffic screens to the top of the Type K temporary railing. The temporary traffic screen must have 3-foot-long openings spaced at 200-foot intervals.

A lateral move of Type K temporary railing with attached temporary traffic screen is change order work if ordered and repositioning is not shown.

12-3.21D Payment

The payment quantity for temporary traffic screen is the length measured along the line of the screen with no deductions for openings in the temporary traffic screen.

12-3.22 TEMPORARY CRASH CUSHION MODULES

12-3.22A General

Section 12-3.22 includes specifications for placing sand-filled temporary crash cushion modules in groupings or arrays.

If activities expose traffic to a fixed obstacle, protect the traffic from the obstacle with a sand-filled temporary crash cushion. The crash cushion must be in place before opening traffic lanes adjacent to the obstacle.

12-3.22B Materials

Each sand-filled temporary crash cushion module must be manufactured after March 31, 1997 and be on the Authorized Material List for highway safety features.

The color of each module must be standard yellow with black lids as furnished by the manufacturer. Each module must be free from structural flaws and objectionable surface defects.

For a module requiring a seal, the top edge of the seal must be securely fastened to the wall of the module by a continuous strip of heavy-duty tape.

Fill each module with sand under the manufacturer's instructions and to the sand capacity in pounds for each module shown. Sand for filling the modules must be clean, commercial-quality, washed concrete sand. When sand is placed in a module, the sand must contain no more than 7 percent water when tested under California Test 226.

12-3.22C Construction

Use the same type of crash cushion module for a single grouping or array.

Temporary crash cushion arrays must not encroach on the traveled way.

Secure the sand-filled modules in place before starting an activity requiring a temporary crash cushion.

Maintain sand-filled temporary crash cushions in place at each location, including times when work is not actively in progress. You may remove the crash cushions during the work shift for access to the work if the exposed fixed obstacle is 15 feet or more from the nearest lane carrying traffic. Reset the crash cushion before the end of the work shift.

Immediately repair sand-filled temporary crash cushion modules damaged due to your activities. Remove and replace any module damaged beyond repair. Repair and replacement of temporary crash cushion modules damaged by traffic are change order work.

You may place sand-filled temporary crash cushion modules on movable pallets or frames complying with the dimensions shown. The pallets or frames must provide a full-bearing base beneath the modules. Do not move the modules and supporting pallets or frames by sliding or skidding along the pavement or bridge deck.

Attach a Type R or Type P marker panel to the front of the temporary crash cushion if the closest point of the crash cushion array is within 12 feet of the traveled way. Firmly fasten the marker panel to the crash cushion with commercial quality hardware or by other authorized methods. Attach the Type R marker panel such that the top of the panel is 1 inch below the module lid. Attach the Type P marker panel such that the bottom of the panel rests upon the pallet or roadway surface if pallets are not used.

A lateral move of a temporary crash cushion module is change order work if ordered and the repositioning is not shown.

Remove sand-filled temporary crash cushion modules, including sand, pallets or frames, and marker panels, at Contract acceptance. Do not install sand-filled temporary crash cushion modules in the permanent work.

12-3.22D Payment

The payment quantity for temporary crash cushion module does not include:

1. Modules placed for public safety
2. Modules placed in excess of the number described
3. Repositioned modules

12-3.23 IMPACT ATTENUATOR VEHICLES

12-3.23A General

12-3.23A(1) Summary

Section 12-3.23 includes specifications for using impact attenuator vehicles.

12-3.23A(2) Definitions

impact attenuator vehicle: Support truck towing a deployed attenuator mounted to a trailer or a support truck with a deployed attenuator mounted to the support truck.

12-3.23A(3) Submittals

Submit a certificate of compliance for each attenuator.

12-3.23A(4) Quality Assurance

Before using an impact attenuator vehicle, conduct a meeting with the Engineer, subcontractors, and other parties involved with traffic control to discuss the operation of the impact attenuator vehicle during moving lane closures and when placing and removing components of a stationary traffic control system.

Schedule the location, time, and date for the meeting with all participants. Furnish a meeting facility located within 5 miles of the job site or at another location if authorized.

12-3.23B Materials

An impact attenuator vehicle must be on the Authorized Material List for highway safety features. The vehicle must comply with Veh Code Div 12.

Each attenuator must be individually identified with the manufacturer's name, address, attenuator model number, and a specific serial number. The name and number must be a minimum 1/2 inch high and located on the left, street side, lower front corner.

An impact attenuator vehicle must comply with the following test levels as specified in the National Cooperative Highway Research Program Report 350:

1. Test level 3 if the preconstruction posted speed limit is 50 mph or more
2. Test level 2 or 3 if the preconstruction posted speed limit is 45 mph or less

The impact attenuator vehicle must comply with the attenuator manufacturer's instructions for:

1. Support truck except the weight of the support truck must be within the allowable vehicle weight limits shown on the Authorized Material List for highway safety features and the manufacturer's instructions
2. Trailer-mounted attenuator
3. Truck-mounted attenuator

A flashing arrow sign must comply with section 12-3.30 except you may use a PCMS instead of a flashing arrow sign. A PCMS used as a flashing arrow sign must comply with the specifications for an arrow board in the *California MUTCD*.

Each impact attenuator vehicle must have:

1. Inverted V chevron pattern placed across the entire rear of the attenuator composed of alternating 4-inch-wide, nonreflective black stripes and 4-inch-wide, yellow retroreflective stripes sloping at 45 degrees
2. Type II flashing arrow sign
3. Flashing or rotating amber light
4. Operable 2-way communication system for maintaining contact with workers

12-3.23C Construction

Do not use an impact attenuator vehicle until authorized.

Monitor the placement and use of the attenuator vehicle on a regular basis and adjust the use of the attenuator to match changing field conditions as construction progresses.

After placing the components of a stationary traffic control system, you may place the impact attenuator vehicle in advance of the work area or at another authorized location to protect traffic and workers.

Secure objects, including equipment, tools, and ballast, on impact attenuator vehicles to prevent their loosening upon impact by an errant vehicle.

Do not use a damaged attenuator in the work. Replace any attenuator damaged from an impact during work activities.

12-3.23D Payment

Not Used

12-3.24–12-3.29 RESERVED

12-3.30 FLASHING ARROW SIGNS

12-3.30A General

Section 12-3.30 includes specifications for placing flashing arrow signs.

12-3.30B Materials

A flashing arrow sign must comply with the requirements shown in the following table:

Flashing Arrow Sign Requirements

Type	Panel size (min, inches)	Number of panel lights (min)	Legibility distance[a] (min, miles)
I	48 x 96	15	1
II	36 x 72	13	3/4

[a]The legibility distance is the distance that a flashing arrow sign must be legible at noon on a cloudless day and during the hours of darkness by persons with 20/20 vision or vision corrected to 20/20.

A flashing arrow sign must be finished with commercial-quality nonreflective black enamel and must be equipped with yellow or amber lamps that form arrows or arrowheads. Each lamp must be equipped with a visor and the lamps must be controlled by an electronic circuit that provides from 30 to 45 complete operating cycles per minute for each of the displays and modes specified. The control must be capable of dimming the lamps by reducing the voltage to 50 ± 5 percent for nighttime use. Type I signs must have both manual and automatic photoelectric-dimming controls. Dimming in both modes must be continuously variable over the entire dimming range.

A flashing arrow sign must be capable of operating in the following display modes:

1. Pass left display
2. Pass right display
3. Simultaneous display
4. Caution display or alternating diamond

A flashing arrow sign must be capable of operating in the flashing arrow mode or the sequential mode.

In the flashing arrow mode, all lamps forming the arrowhead and shaft must flash on and off simultaneously.

In the sequential mode, either arrowheads or arrows must flash sequentially in the direction indicated.

In the simultaneous display mode, the lamps forming both the right and left arrowheads and the lamps forming the arrow shaft or center 3 lamps for Type I signs must flash simultaneously. For Type II signs, the lamps forming the right and left arrowhead, but not the center lamp, may be illuminated continuously; the lamps forming the shaft and the center lamp of the arrowheads must flash on and off simultaneously.

In the caution display mode, a combination of lamps not resembling any other display or mode must flash.

Each flashing arrow sign must be:

1. Mounted on a truck or trailer
2. Capable of operating when the vehicle is moving
3. Capable of being placed and maintained in operation at locations described

A Type II flashing arrow sign must be controllable by the operator of the vehicle while the vehicle is in motion.

The bottom of the flashing arrow sign must be a minimum of 7 feet above the roadway when mounted.

The trailer for a flashing arrow sign must be equipped with (1) devices to level and plumb the sign and (2) a supply of electrical energy capable of operating the sign.

12-3.30C Construction

Not Used

12-3.30D Payment

Not Used

12-3.31 PORTABLE FLASHING BEACONS

12-3.31A General

Section 12-3.31 includes specifications for placing, maintaining, and removing portable flashing beacons.

12-3.31B Materials

Each portable flashing beacon must have:

1. Standard and base
2. Signal section
3. Flasher unit
4. Battery power source

The components must be assembled to form a complete, self-contained, portable flashing beacon that can be delivered to the job site and placed into immediate operation.

The portable flashing beacon must be weatherproof and operate a minimum of 150 hours between battery recharging and routine maintenance.

The signal section must be yellow and comply with section 86-1.02R(4)(a), except it must be rated for 25 W at 12 V.

The flash rate for the flashing unit must comply with chapter 4L, "Flashing Beacons," of the *California MUTCD*.

The standard must be adjustable to allow variable mounting of the signal section from 6 to 10 feet, from the bottom of the base to the center of the lens, and be capable of being secured at the desired height. The standard must be securely attached to the base and have a length of multiconductor, neoprene-jacketed cable long enough for the full vertical height.

The base must be (1) large enough to accommodate at least two 12 V automotive-type storage batteries and (2) a shape and weight such that the beacon will not roll if struck by a vehicle or pushed over.

12-3.31C Construction

Remove portable flashing beacons from the traveled way at the end of each night's work. You may store the flashing beacon at selected central locations within the highway where designated by the Engineer.

Moving portable flashing beacons from location to location if ordered after initial placement is change order work.

12-3.31D Payment

The payment quantity for flashing beacon (portable) is the number of portable flashing beacon locations with each location counting as 1 measurement unit.

12-3.32 PORTABLE CHANGEABLE MESSAGE SIGNS

12-3.32A General

12-3.32A(1) Summary

Section 12-3.32A includes specifications for placing, maintaining, and removing portable changeable message signs.

12-3.32A(2) Definitions

Reserved

12-3.32A(3) Submittals

If requested, submit a certificate of compliance for each PCMS.

Submit your cell phone number before starting the first activity that requires a PCMS.

12-3.32A(4) Quality Assurance

Reserved

12-3.32B Materials

Each PCMS consists of a sign panel, a controller unit, a power supply, and a structural support system.

The PCMS must:

1. Be assembled to form a complete self-contained unit that can be delivered to the job site and placed into immediate operation.
2. Operate at an ambient air temperature from -4 to 158 degrees F.
3. Not be affected by mobile radio transmissions other than those required to control the PCMS.
4. Be capable of displaying a 3-line message with at least 7 characters per line.
5. Provide a complete alphanumeric selection.
6. Be internally or externally illuminated during the hours of darkness, when non-illuminated pixels are used.
7. Have a dimming control that automatically adjusts the character light intensity to provide optimum character visibility and legibility under all ambient lighting conditions. The dimming control must have a minimum 3 manual dimming modes of different intensities.

A message with 18-inch high characters or 15-inch high characters must be visible from a distance of 1,500 feet and legible from a distance of at least 750 feet at noon on a cloudless day and during the night by persons with 20/20 vision or vision corrected to 20/20.

A message with 10-inch high characters must be legible from a distance of at least 650 feet at noon on a cloudless day and during the night by persons with 20/20 vision or vision corrected to 20/20.

The controller must:

1. Be an all solid-state unit.
2. Include at least 5 preprogrammed messages.

3. Have a user adjustable display rate.
4. Have a user adjustable flashing-off time.
5. Include a screen to review the messages before being displayed on the sign.
6. Include a keyboard message entry system. The keyboard must be equipped with a security lockout feature.
7. Have nonvolatile memory to store an infinite number of user created messages.
8. Be installed at a location that allows the user to perform all the functions from a single position.

12-3.32C Construction

Use a PCMS with characters:

1. At least 18 inches in height where the useable shoulder area is 15 feet wide or more
2. At least 12 inches in height where the useable shoulder area is less than 15 feet wide
3. At least 10 inches in height if the PCMS is:
   3.1. Mounted on a service patrol truck or incident response vehicle
   3.2. Used for traffic control where the posted speed limit is less than 40 mph

Place a PCMS as far from the traveled way as practicable where it is legible to approaching traffic without encroaching on the traveled way. Where the vertical roadway curvature restricts the sight distance of approaching traffic, place the sign on or before the crest of the curvature where it is most visible to the approaching traffic. Where the horizontal roadway curvature restricts the sight distance of approaching traffic, place the sign at or before the curve where it is most visible to approaching traffic. Where practicable, place the sign behind guardrail or Type K temporary railing.

If multiple signs are needed, place each sign on the same side of the road at least 1,000 feet apart on freeways and expressways and at least 500 feet apart on other types of highways.

Operate the PCMS under the manufacturer's instructions.

When in operation, place the bottom of a PCMS at least 7 feet above the roadway in areas where pedestrians are anticipated and 5 feet above the roadway elsewhere. Place the top of the PCMS no more than 14.5 feet above the roadway.

If more than one PCMS is simultaneously visible to traffic, only one sign may display a sequential message at any time. Do not use dynamic message displays, such as animation, rapid flashing, dissolving, exploding, scrolling, horizontal movement, or vertical movement of messages. The message must be centered within each line of the display.

You may use an additional PCMS if more than 2 phases are needed to display a message.

Display only messages shown or ordered.

Repeat the entire message continuously in not more than 2 phases of at least 3 seconds per phase. The sum of the display times for both of the phases must be a maximum of 8 seconds. If more than 2 phases are needed to display a message, use an additional PCMS.

You must be available by cell phone during activities that require a sign. Be prepared to immediately change the displayed message if ordered. You may operate the sign with a 24-hour timer control or remote control if authorized.

Keep the PCMS clean to provide maximum visibility.

After the initial placement, move a sign from location to location as ordered.

12-3.32D Payment

Not Used

12-3.33 PORTABLE SIGNAL SYSTEMS

12-3.33A General

Section 12-3.33 includes specifications for installing, maintaining, and removing portable signal systems, including installing lighting and flashing beacons for traffic control.

A portable signal system must comply with section 87-20, except it must be trailer mounted.

12-3.33B Materials

Not Used

12-3.33C Construction

If the portable signal system is out of operation, provide flaggers to control the traffic until the traffic signals are in operation.

12-3.33D Payment

Not Used

12-3.34 TEMPORARY FLASHING BEACON SYSTEMS

12-3.34A General

Section 12-3.34 includes specifications for installing, maintaining, and removing temporary flashing beacon systems.

A temporary flashing beacon system must comply with section 87-20.

12-3.34B Materials

The sign panels installed on a temporary flashing beacon system must comply with section 12-3.11.

12-3.34C Construction

Not Used

12-3.34D Payment

Not Used

12-3.35 AUTOMATED WORK ZONE INFORMATION SYSTEMS

12-3.35A General

12-3.35A(1) Summary

Section 12-3.35 includes specifications for installing automated work zone information systems.

12-3.35A(2) Definitions

Reserved

12-3.35A(3) Submittals

Reserved

12-3.35A(4) Quality Assurance

Assign an on-site system coordinator. The coordinator must be available locally to service, maintain, and relocate system components as necessary. The coordinator must be accessible 24–7 while the system is deployed. If the system fails to perform as specified, perform any necessary remedial work and replace any failed components within 24 hours of notification of a system or component failure.

12-3.35B Materials

12-3.35B(1) General

The AWIS must be a proven system that has been successfully deployed and operated in actual work zones or congested areas.

The system must acquire traffic data throughout the work zone and automatically display predetermined information to motorists without operator intervention after system initialization.

Real-time information must be displayed to motorists using a PCMS. The sign must comply with section 12-3.32.

The system must be controlled either locally or remotely by a dedicated controller or computer.

Authorized users must be able to both locally and remotely override motorist information messages.

Traffic sensors must not require adjustments after the initial deployment.

12-3.35B(2) General System Function Requirements

The general system functions of the AWIS must be capable of:

1. Preventing any unauthorized users or systems from gaining access to the PCMSs through an industry authentication and encryption standard level of security.
2. Providing current operational status locally and remotely. Operational status must include current traffic data and messages, communications system, and power status.
3. Delivering notifications either by telephone, voice, or text messages to alert support staff of trouble conditions.
4. Generating trouble alerts for conditions such as (1) low roadside equipment power or voltage, (2) system communications failure, (3) low speed traffic detected, and (4) excessive delay detected.
5. Adjusting the thresholds of reduced speed and congestion-induced delay at which the system initiates a trouble alert.
6. Allowing programming of the hours during which the trouble condition alerting subsystem initiates notification to authorized users.
7. Measuring periodically and automatically the power levels of all equipment. Alert support staff, locally and remotely via a telephone message, in time to provide supplemental power before the system ceases to operate.
8. Displaying preprogrammed messages based on the time of day and day of week.

12-3.35B(3) Motorist Information Message Requirements

The AWIS must be capable of:

1. Displaying predetermined speed, delay, diversion, and closure messages to motorists when user-adjustable thresholds are exceeded.
2. Updating its speed and delay advisory messages at least once per minute. The actual message updates must be consistent with traffic conditions.
3. Selecting messages for each PCMS independently, based on the traffic conditions downstream of the sign.
4. Recording motorist information messages in a comma-separated values file with time and date stamps, including message overrides with user ID.
5. Displaying default messages when traffic conditions, system algorithms, and user parameters do not dictate that an advisory message should be displayed.
6. Displaying separate, independent, default messages on each PCMS.
7. Analyzing traffic parameters in work zones in which there are multiple speed limits.

The following parameters for the selection and presentation of information messages must be adjustable by the user:

1. Message update frequency
2. Minimum delay necessary to trigger a delay advisory message
3. Persistence of delay before a delay message is displayed
4. Level of delay required to trigger a diversion message
5. Change in delay needed to cause a delay advisory message update
6. Change in downstream speed at which a speed advisory message update occurs

12-3.35B(4) System Communication Requirements

The wireless communications subsystem of the AWIS must:

1. Operate independently of the public cellular phone system for receiving data to ensure reliable communications
2. Communicate independent of the line of sight or distance
3. Incorporate an error detection and correction mechanism to ensure the integrity of all traffic condition data and motorist information messages
4. Configure automatically during system initialization

12-3.35B(5) Traffic Data Acquisition Requirements

The AWIS must collect accurate traffic data using a speed measurement technique with an accuracy of ±5 mph, allowing specific information messages. The system must collect data during reduced visibility conditions, including precipitation, fog, darkness, excessive dust, and road debris.

The system must (1) archive the data with time and date stamps and (2) aggregate the data in operator-definable time increments, accessible 24–7 to the Engineer in a comma-separated values file.

12-3.35B(6) User Interface

The system must have a user interface to control the AWIS PCMS communications. The interface must be (1) software compatible with a Windows environment or (2) a web service accessed by a web browser.

Provide any software on a CD or other Engineer-authorized data-storage device for installation at the Department's Transportation Management Center.

The user interface must, at a minimum, provide the user with a list of AWIS PCMSs in the field, location information for each AWIS PCMS, and a real-time on-board display of the message in the field. Control options must, at a minimum, provide the user the ability to change the on-board messages and flash rate.

12-3.35C Construction

Obtain authorization for the message content and the threshold used for triggering the message before displaying any message on a PCMS.

Provide complete setup and support for the AWIS PCMS communications.

12-3.35D Payment

Not Used

12-3.36 PORTABLE TRANSVERSE RUMBLE STRIPS

Reserved

12-3.37 PORTABLE RADAR SPEED FEEDBACK SIGN SYSTEMS

12-3.37A General

Section 12-3.37 includes specifications for placing, maintaining, and removing portable radar speed feedback sign systems.

12-3.37B Materials

A portable radar speed feedback sign system consists of a radar speed feedback sign system and a power source.

The system must comply with section 87-14, except:

1. System must be mounted on a trailer
2. LED character display must remain blank when no vehicles are detected or when the detected vehicle speed is 10 miles less than the pre-set speed

12-3.37C Construction

Place the portable radar speed feedback sign:

1. As far from the traveled way as practicable where it is visible and legible to approaching traffic. Where practicable, place the sign behind a barrier or guardrail.
2. At or before the crest of roadway vertical curvatures that restrict sight distance.

3. At or before the curve of horizontal roadway curvatures that restrict sight distance.

12-3.37D Payment

Not Used

12-3.38 AUTOMATED FLAGGER ASSISTANCE DEVICES

12-3.38A General

12-3.38A(1) Summary

Section 12-3.38 includes specifications for placing, maintaining, and removing automated flagger assistance devices (AFADs).

12-3.38A(2) Definitions

automated flagger assistance devices: Devices that enable a flagger to be positioned out of the lane of traffic and are used to control motorists through work zones. They are designed to be remotely operated either by a single flagger at one end of the work zone or at a central location, or by separate flaggers near the devices.

12-3.38A(3) Submittals

Submit a copy of the manufacturer's operating instructions for the automated flagger assistance devices.

12-3.38A(4) Quality Assurance

Reserved

12-3.38B Materials

04-17-20

The automated flagger assistance device must comply with the *California MUTCD,* Section 6E.04, and Section 6E.06, "Red/Yellow Lens Automated Flagger Assistance Devices."

10-18-19

The device must:

1. Be equipped with a gate arm, which must not extend into the opposing lane
2. Alternately display a steadily illuminated circular red lens and a flashing circular yellow lens to control traffic
3. Have a fail-safe device that prevents the operator from inadvertently actuating a simultaneous flashing circular yellow lens at both ends of the work zone
4. Have a device that monitors for malfunctions and prevents the display of conflicting indication
5. Have a 24-by-30-inch R10-6 STOP HERE ON RED sign mounted on the trailer

The device must continuously monitor the wireless communication links and verify transmission and reception of data between the devices. If communication is lost, the devices must immediately display the circular red/stop indication and lower the gate arms.

12-3.38C Construction

The devices must:

1. Be placed where a flagger station is shown with an unobstructed view from the operator
2. Be placed outside of the traveled lane
3. Be attended by the operator when in use
4. Have a minimum of 9 cones placed on a taper in advance of the device and along the edge of shoulder or edge of the traveled way at 25-foot intervals to a point not less than 25 feet past the device
5. Be clearly visible to approaching traffic and illuminated during the hours of darkness

If any device unit becomes inoperative, do one of the following:

1. Replace the unit with the same type and model.
2. Revert to human flagging operations.

3. Terminate all construction activities requiring the use of the devices.

Incorporate the devices into the traffic control using one of the following methods:

1. Method 1: Place one device at each end of the closure.
2. Method 2: Place one device at one end of the closure and a flagger at the opposite end of the closure.

Use two operators for both methods, except you may use a single operator if:

1. Operator has an unobstructed view of the devices
2. Operator has an unobstructed view of approaching traffic in both directions
3. Second flagger is on-site to assist with manual flagging should the device malfunction, or to direct traffic when drivers fail to comply with the devices

When AFADs are in operation:

1. Use portable transverse rumble strips at your discretion
2. Do not use the 48-inch-by-48-inch C9A (CA) sign
3. Do not use the gate cones

12-3.38D Payment

If automated flagger assistance devices bid item is not shown on the Bid Item List, providing AFADS is change order work.

12-3.39–12-3.40 RESERVED

12-4 MAINTAINING TRAFFIC

12-4.01 GENERAL

12-4.01A General

Section 12-4.01 includes general specifications for maintaining traffic through construction work zones.

If local authorities regulate traffic, notify them at least 5 business days before the start of job site activities. Cooperate with the local authorities to handle traffic through the work zone and to make arrangements to keep the work zone clear of parked vehicles.

12-4.01B Materials

Not Used

12-4.01C Construction

Not Used

12-4.01D Payment

Not Used

12-4.02 TRAFFIC CONTROL SYSTEMS

12-4.02A General

12-4.02A(1) Summary

Section 12-4.02 includes specifications for providing a traffic control system to close traffic lanes, shoulders, ramps, and connectors.

A traffic control system for a closure includes flagging and the temporary traffic control devices described as part of the traffic control system. Temporary traffic control devices must comply with section 12-3.

12-4.02A(2) Definitions

Construction Zone Enhanced Enforcement Program (COZEEP): Program that provides California Highway Patrol officers to monitor the movement of traffic within the work zone.

designated holidays: Designated holidays are shown in the following table:

Designated Holidays

Holiday	Date observed
New Year's Day	January 1st
Washington's Birthday	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4th
Labor Day	1st Monday in September
Veterans Day	November 11th
Thanksgiving Day	4th Thursday in November
Christmas Day	December 25th

If a designated holiday falls on a Sunday, the following Monday is a designated holiday. If November 11th falls on a Saturday, the preceding Friday is a designated holiday.

12-4.02A(3) Submittals

12-4.02A(3)(a) General

Submit a request for a minor deviation from the specified work hours. For a project in District 7, submit the request at least 15 days before the proposed closure date. Your request may be authorized if (1) the Department does not accrue a significant cost increase and (2) the work can be expedited and better serve the traffic.

If a closure is not opened to traffic by the specified time, submit a work plan that ensures that future closures will be opened to traffic by the specified time. Allow 2 business days for review.

Submit closure schedule requests and closure schedule amendments using LCS to show the locations and times of the requested closures.

Submit a traffic break request using LCS to show the location and time of the requested traffic break.

12-4.02A(3)(b) Closure Schedules

Every Monday by noon, submit a closure schedule request for planned closures for the next week.

Except for a project in District 7, the next week is defined as Sunday at noon through the following Sunday at noon.

For a project in District 7, the next week is defined as Friday at noon through the following Friday at noon.

Submit a closure schedule request from 25 days to 125 days before the anticipated start of any job site activity that reduces:

1. Horizontal clearances of traveled ways, including shoulders, to 2 lanes or fewer due to activities such as temporary barrier placement and paving
2. Vertical clearances of traveled ways, including shoulders, due to activities such as pavement overlays, overhead sign installation, or falsework girder erection

Submit closure schedule changes, including additional closures, by noon at least 3 business days before a planned closure.

Cancel closure requests using LCS at least 48 hours before the start time of the closure.

The Department notifies you through LCS of authorized and unauthorized closures and closures that require coordination with other parties as a condition for authorization.

12-4.02A(3)(c) Contingency Plans for Closures

Submit a contingency plan for an activity that could affect a closure if a contingency plan is specified in the special provisions or if a contingency plan is requested.

If a contingency plan is requested, submit the contingency plan within 1 business day of the request.

The contingency plan must identify the activities, equipment, processes, and materials that may cause a delay in the opening of a closure to traffic. The plan must include:

1. List of additional or alternate equipment, materials, or workers necessary to ensure continuing activities and on-time opening of closures if a problem occurs. If the additional or alternate equipment, materials, or workers are not on the job site, specify their location, the method for mobilizing these items, and the required time to complete mobilization.
2. General time-scaled logic diagram displaying the major activities and sequence of the planned activities. For each activity, identify the critical event that will activate the contingency plan.

Submit revisions to a contingency plan at least 3 business days before starting the activity requiring the contingency plan. Allow 2 business days for review.

12-4.02A(3)(d) Traffic Break Schedule

Every Monday by noon, submit a traffic break request for the next week. Support for a traffic break is based on local California Highway Patrol staffing levels and may not be available for the date or time requested.

Traffic break requests are limited to the hours when a shoulder or lane closure is allowed.

Cancel a traffic break request using LCS at least 48 hours before the start time of the traffic break.

The Department notifies you through LCS of authorized and unauthorized traffic breaks.

The Department does not adjust time or payment if (1) a California Highway Patrol officer is unavailable for the requested date or time or (2) your request is not authorized.

12-4.02A(4) Quality Assurance

Reserved

12-4.02B Materials

Not Used

12-4.02C Construction

12-4.02C(1) General

Work that interferes with traffic is limited to the hours when closures are allowed.

Do not reduce an open traffic lane width to less than 10 feet. If traffic cones or delineators are used for temporary edge delineation, the side of the base of the cones or delineators nearest to traffic is considered the edge of the traveled way.

Do not simultaneously close consecutive ramps in the same direction of travel servicing 2 consecutive local streets unless authorized.

Notify the Engineer of delays in your activities caused by the denial of either (1) an authorized closure or (2) a closure schedule request for the specified time frame allowed for closures.

Discuss the contingency plan for any activity that could affect the closure schedule with the Engineer at least 5 business days before starting the activity requiring the plan.

If you do not open a closure to traffic by the specified time, suspend work and submit a work plan. No further closures are allowed until your work plan has been authorized.

If the Engineer orders you to remove a closure before the time designated in the authorized closure schedule, any delay caused by this order is an excusable delay.

The Engineer may reschedule a closure that was canceled due to unsuitable weather.

You may use automated flagger assistance devices to enhance the traffic control system for a lane closure on a two-lane convention highway, except if a bid item for automated flagger assistance devices is shown in the Bid Item List, the use of AFADs is required.

Do not use automated flagger assistance devices:

1. On multi-lane highways
2. As a substitute or a replacement for a temporary traffic control signal
3. If the devices impair access for pedestrians and bicycles, unless alternate access is provided
4. If the usable shoulder area is not wide enough to place a trailer mounted device
5. If the distance between the devices is more than 800 feet, except when each device is controlled by a separate operator and radio communication is available between the AFAD operators

12-4.02C(2) Lane Closure System

12-4.02C(2)(a) General

The Department provides LCS training. Request the LCS training at least 30 days before submitting the 1st closure request. The Department provides the training within 15 days after your request.

LCS training is web-based or held at a time and location agreed upon by you and the Engineer. For web-based training, the Engineer provides you the website address to access the training.

Within 5 business days after completion of the training, the Department provides LCS accounts and user IDs to your assigned, trained representatives.

Each representative must maintain a unique password and current user information in the LCS.

The project is not accessible in LCS after Contract acceptance.

12-4.02C(2)(b) Status Updates for Authorized Closures

Update the status of authorized closures using the LCS Mobile web page.

For a stationary closure on a traffic lane, use code:

1. 10-97 immediately before you place the 1st cone on the traffic lane
2. 10-98 immediately after you remove all of the cones from the traffic lane

For a stationary closure on the shoulder, use code:

1. 10-97 immediately before you place the 1st cone after the last advance warning sign
2. 10-98 immediately after you remove the last cone before the advance warning signs

For a moving closure, use code:

1. 10-97 immediately before the actual start time of the closure
2. 10-98 immediately after the actual end time of the closure

For closures not needed on the authorized date, use code 10-22 within 2 hours after the authorized start time.

If you are unable to access the LCS Mobile web page, immediately notify the Engineer of the closure's status.

12-4.02C(3) Closure Requirements and Charts

12-4.02C(3)(a) General

Where 2 or more lanes in the same direction, including the shoulders, are adjacent to the area where the work is being performed, close the adjacent lane under any of the following conditions:

1. Work is off the traveled way but within 6 feet of the edge of the traveled way, and the approach speed is greater than 45 mph.
2. Work is off the traveled way but within 3 feet of the edge of the traveled way, and the approach speed is less than 45 mph.

Closure of the adjacent traffic lane is not required during any of the following activities:

1. Work behind a barrier

2. Paving, grinding, or grooving
3. Installation, maintenance, or removal of traffic control devices except for temporary railing

12-4.02C(3)(b) Complete Freeway or Expressway Closure Requirements

Reserved

12-4.02C(3)(c) HOV, Express, and Bus Lane Closure Requirements

Reserved

12-4.02C(3)(d) City Street Closure Requirements

Reserved

12-4.02C(3)(e) Closure Restrictions for Special Events and Venues

Reserved

12-4.02C(3)(f) Closure Restrictions for Designated Holidays and Special Days

Reserved

12-4.02C(3)(g) Freeway or Expressway Lane Requirement Charts

Reserved

12-4.02C(3)(h) Complete Freeway or Expressway Closure Hour Charts

Reserved

12-4.02C(3)(i) Complete Connector Closure Hour Charts and Connector Lane Requirement Charts

Reserved

12-4.02C(3)(j) Complete Ramp Closure Hour Charts and Ramp Lane Requirement Charts

Reserved

12-4.02C(3)(k) Conventional Highway Lane Requirement Charts

Reserved

12-4.02C(3)(l) Complete Conventional Highway Closure Hour Charts

Reserved

12-4.02C(3)(m) City Street Closure Hour Charts and City Street Lane Requirement Charts

Reserved

12-4.02C(3)(n) Concrete Slab and Approach Slab Replacement Closure Hours Table

Reserved

12-4.02C(3)(o)–12-4.02C(3)(s) Reserved

12-4.02C(4)–12.4.02C(6) Reserved

12-4.02C(7) Traffic Control System Requirements

12-4.02C(7)(a) General

Control traffic using stationary closures.

If components of the traffic control system are displaced or cease to operate or function as specified, immediately repair them to their original condition or replace them and place them back in their original locations.

Vehicles equipped with attenuators must comply with section 12-3.23.

Each vehicle used to place, maintain, and remove components of a traffic control system on a multilane highway must have a Type II flashing arrow sign that must operate whenever the vehicle is used for placing, maintaining, or removing the components. For a stationary closure, vehicles with a Type II flashing arrow sign not involved in placing, maintaining, or removing the components must display only

the caution display mode. If a flashing arrow sign is required for a closure, activate the sign before the closure is in place.

12-4.02C(7)(b) Stationary Closures

Except for channelizing devices placed along open trenches or excavations adjacent to the traveled way, remove the components of the traffic control system for a stationary closure from the traveled way and shoulders at the end of each work period. You may store the components at authorized locations within the limits of the highway.

If a traffic lane is closed with channelizing devices for excavation work, move the devices to the adjacent edge of the traveled way when not excavating. Space the devices as shown for the lane closure.

12-4.02C(7)(c) Moving Closures

For a moving closure, use a PCMS that complies with section 12-3.32 except the sign must be truck mounted. The full operational height to the bottom of the sign may be less than 7 feet above the ground but must be as high as practicable.

If you use a flashing arrow sign in a moving closure, the sign must be truck mounted. Operate the flashing arrow sign in the caution display mode if it is being used on a 2-lane, two-way highway.

12-4.02C(7)(d) Traffic Breaks

You may request a traffic break for special operations such as:

1. Installation, removal, or replacement of an overhead power line or other utility cable across the highway
2. Installation or removal of traffic control devices in areas without a standard-width shoulder
3. Transportation of large equipment across the highway
4. Access to median areas for workers or equipment

If the Department authorizes the traffic break, the Engineer notifies you and arranges the traffic break with the California Highway Patrol through COZEEP. The duration of a traffic break must not exceed 5 minutes or as authorized.

Two California Highway Patrol officers per vehicle are required for traffic breaks occurring any time from 2200 to 0600 hours.

A minimum of 2 California Highway Patrol vehicles will be assigned to conduct a traffic break.

Place a PCMS approximately 2,000 feet upstream of the work area or as agreed upon by the Engineer. The PCMS must comply with section 12-3.32 except the PCMS must not be trailer mounted. Monitor the traffic during the traffic break. If a queue develops, reposition the PCMS truck far enough upstream of the traffic break to provide real-time notification to motorists before they approach the traffic queue.

12-4.02C(8) Traffic Control System Signs

12-4.02C(8)(a) General

Traffic control system signs must comply with section 12-3.11.

12-4.02C(8)(b) Connector and Ramp Closure Signs

Inform motorists of a temporary closing of a (1) connector or a (2) freeway or expressway entrance or exit ramp using:

1. SC6-3(CA) (Ramp Closed) sign for closures of 1 day or less
2. SC6-4(CA) (Ramp Closed) sign for closures of more than 1 day

SC6-3(CA) and SC6-4(CA) signs must be stationary mounted at the locations shown and must remain in place and visible to motorists during the connector or ramp closure.

Notify the Engineer at least 2 business days before installing the sign and install the sign from 7 to 15 days before the closure.

12-4.02C(9) Flagging

12-4.02C(9)(a) General

12-4.02C(9)(a)(i) Summary

Section 12-4.02C(9) includes specifications for flaggers, AFAD operators, additional flaggers, advance flaggers and flagger stations.

12-4.02C(9)(a)(ii) Definitions

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AFAD operator: Flagger certified by the manufacturer to operate the specific automated flagger assistance device.

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additional flagger: Flagger that controls the flow of traffic at intermediate locations within the limits of a closure with reversible control, at intersections, driveways and other traffic merging points.

advance flagger: Flagger positioned upstream of the traffic control system, who warns approaching traffic of road work ahead and potentially stopped traffic within the advance warning signs.

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incidental flagger: Flagger that performs flagging that is not part of a traffic control system.

12-4.02C(9)(a)(iii) Submittals

Submit as informational submittals:

1. Flagger certification for each flagger including AFAD operators. The submittal must include:
   1.1. Name of the individual receiving certification.
   1.2. Name of entity providing certification.
   1.3. Date of certification.
   1.4. Certification expiration date.
2. AFAD manufacturer certification for each AFAD operator. The submittal must include:
   2.1. Name of the manufacturer's authorized trainer.
   2.2. Name of the trainee.
   2.3. Description of device type and model for which training was provided.
   2.4. Date when the training was provided.
3. Training qualifications for each incidental flagger.

12-4.02C(9)(a)(iv) Quality Assurance

Flaggers must be at least 18 years of age and maintain a valid government issued identification and must possess proof of certification during flagging operations.

Effective July 1, 2020, flaggers that are part of a traffic control system must be certified by an authorized flagger training provider. The authorized flagger training provider list is available at the Department's Division of Construction website.

In addition, AFAD operators must be certified by the AFAD manufacturer on:

1. Device type and model to be used on the project
2. Installation procedures
3. Local and remote-controlled operation
4. Maintenance of the device

Incidental flaggers must be trained under 8 CA Code of Regs § 1599.

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12-4.02C(9)(b) Materials

Not Used

12-4.02C(9)(c) Construction

12-4.02C(9)(c)(i) General

Not Used

12-4.02C(9)(c)(ii) Flaggers

12-4.02C(9)(c)(ii)(A) General

Flaggers should stand in a conspicuous place and be visible to approaching vehicles.

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Flaggers must wear a hard hat, safety glasses, and Class 3, high-visibility, safety apparel under ANSI/SEA 107-2004.

Flaggers must be equipped with a 24-by-24-inch "STOP/SLOW" paddle with a rigid staff tall enough to maintain the bottom of the paddle a minimum of 6 feet above the pavement.

10-18-19

12-4.02C(9)(c)(ii)(B) Automated Flagger Assistance Device Operators

When AFADs are in operation, the AFAD operators must:

1. Be positioned away from the traveled way
2. Be positioned where they have an unobstructed line of sight to approaching vehicles and to the devices
3. Keep a backup hand held AFAD remote control readily available

A pilot car driver must not operate a device and must not be considered as one of the flaggers present on-site available to operate a device.

12-4.02C(9)(c)(ii)(C) Additional Flaggers

Provide additional flaggers at any of the following locations:

1. At high-volume intersections and driveways between the two flagger stations as shown
2. At Multi-lane and circular intersections

Additional flaggers use the STOP/SLOW sign paddle to control vehicles merging into the closure with reversible control.

If additional flaggers are not shown, providing additional flaggers is change order work.

12-4.02C(9)(c)(ii)(D) Advance Flaggers

Provide advance flaggers when any of the following conditions exist:

1. Queued traffic reaches the W20-4 (One Lane Road Ahead) sign.
2. When the horizontal roadway curvature restricts the sight distance of approaching traffic.
3. When the vertical roadway curvature restricts the sight distance of approaching traffic.

Advance flaggers use the SLOW sign paddle to warn approaching vehicles of the flagging operation ahead and signals the drivers to slow down. If the STOP/SLOW paddle is used, the STOP side must be covered.

If advance flaggers are not shown, providing advance flaggers is change order work.

12-4.02C(9)(c)(iii) Flagger Stations

Place flagger stations such that approaching vehicles have sufficient distance to react and follow the flagger's instructions.

Place a minimum of four cones at 50 feet intervals in advance of flagger stations.

During the hours of darkness, illuminate flagger stations under 8 CA Regs § 1523. Do not start flagging until flagger stations are illuminated.

Place advance warning signs W20-1, C9A(CA), and W3-4 upstream of the additional flagger station at intersections as shown.

Place advance warning signs W20-1, C9A(CA), and W3-4 upstream of the advance flagger station.

You may use a PCMS in place of an advance flagger. The PCMS must alternately display the messages "Prepare to Stop" and "Flagger Ahead". If the PCMS must be placed outside the project limits before the W20-1 construction area sign, place a portable W20-1 sign 500 feet in advance of the PCMS.

12-4.02C(9)(d) Payment

Not Used

12-4.02C(10)–12-4.02C(12) Reserved

12-4.02D Payment

The Department pays for change order work for a traffic control system by force account for increased traffic control and uses a force account analysis for decreased traffic control.

The Department does not pay for furnishing, placing, relocating, and removing PCMSs used for a traffic break.

The Department deducts the full cost of COZEEP support provided for the traffic break.

The hourly rate for each California Highway Patrol officer providing COZEEP support is $115. This rate includes full compensation for each hour or portion thereof that the officer provides the support. Markups are not added to any expenses associated with COZEEP support.

The minimum number of hours for an officer is 4 hours, except if a closure is already in place and the Engineer authorizes your request for an on-duty officer to conduct a traffic break, the minimum number of hours for an officer is 1 hour.

For a cancellation less than 48 hours before the scheduled start time of COZEEP support, except for a cancellation due to adverse weather or extenuating circumstances, the Department deducts:

1. Minimum of $50 per California Highway Patrol officer if the officer is notified before the start time
2. Maximum of 4 hours of pay per officer if the officer is not notified before the start time

12-4.03 FALSEWORK OPENINGS

04-17-20

12-4.03A General

Section 12-4.03 includes specifications for providing falsework openings.

12-4.03B Materials

Not Used

12-4.03C Construction

12-4.03C(1) General

Reserved

12-4.03C(2) Temporary Railing

Install Type K temporary railing on both sides of vehicular openings through falsework. If ordered, install temporary railing at other falsework less than 12 feet from the edge of a traffic lane. This is change order work.

Temporary railings for vehicular openings must start 150 feet in advance of the falsework and extend past the falsework in the direction of adjacent traffic flow. For 2-way traffic openings, temporary railing must extend at least 60 feet past the falsework in the direction of adjacent traffic flow.

Install temporary crash cushion modules as shown at the approach end of temporary railings located less than 15 feet from the edge of a traffic lane. For 2-way traffic openings install temporary crash cushion modules at the departing end of temporary railings located less than 6 feet from the edge of a traffic lane.

The Engineer determines the exact location and length of railing and the type of flare to be used.

Install temporary railing for protecting the falsework before erecting it. Do not remove temporary railing until authorized.

12-4.03D Payment

Not Used

10-18-19

12-4.04 TEMPORARY PEDESTRIAN ACCESS ROUTES

12-4.04A General

12-4.04A(1) Summary

Section 12-4.04 includes specifications for providing, maintaining, and removing temporary pedestrian access routes.

A temporary pedestrian access route includes temporary traffic control devices as shown except for Type K temporary railing and temporary crash cushions.

12-4.04A(2) Definitions

Reserved

12-4.04A(3) Submittals

If work activities require the closure of a pedestrian route and a temporary pedestrian access route is not shown, submit a work plan for a temporary pedestrian access route. The work plan must:

1. Describe the activities, processes, equipment, and materials that will be used to provide the temporary access route
2. Show the locations of the routes and the placement of traffic control devices for each stage of work
3. Include a time-scaled logic diagram displaying the sequence and duration of the planned activities for each stage of work
4. Be sealed and signed by an engineer who is registered as a civil engineer in the State

Submit "Temporary Pedestrian Access Route Contractor Compliance Report," within 2 business days after construction of a temporary pedestrian access route.

Submit "Temporary Pedestrian Access Route Contractor Weekly Report," within 2 business days of completing a weekly inspection.

12-4.04A(4) Quality Assurance

12-4.04A(4)(a) General

Reserved

12-4.04A(4)(b) Quality Control

Perform a review of the temporary pedestrian access route after it is constructed and document compliance on the "Temporary Pedestrian Access Route Contractor Compliance Report."

The Department will conduct a verification inspection after receiving the compliance report.

For a temporary pedestrian access route in use perform a weekly review and document compliance on the "Temporary Pedestrian Access Route Contractor Weekly Report."

12-4.04B Materials

The walkway surface must be slip resistant and surfaced with minor HMA or commercial-quality, bituminous material, commercial-quality concrete, or wood.

A handrail with a circular cross section must have an outer diameter from 1-1/4 to 2 inches. A handrail with a noncircular cross section must have a perimeter from 4 to 6-1/4 inches and a maximum cross-section dimension of 2-1/4 inches.

Fasteners must be rounded to prevent injury to a pedestrian's fingers, hands, and arms and to eliminate sharp edges that could catch on clothing.

A detectable warning surface must be on the Authorized Material List for detectable warning surfaces and match yellow color no. 33538 of AMS.Std.595.

Temporary traffic control devices used to channelize pedestrians must:

1. Be free of sharp or rough edges
2. Have a continuous detectable edging at least 6 inches high and at no more than 2 inches above the walkway surface
3. Be at least 32 inches in height
4. Have smooth connection points between devices to allow for a handrail
5. Have a top and bottom surface in the same vertical plane

12-4.04C Construction

Notify the Engineer 5 business days before closing an existing pedestrian route. Do not close the route until authorized.

If work activities require the closure of a pedestrian route and a temporary pedestrian access route is not shown, provide a temporary pedestrian access route near the traveled way. You may route pedestrians using the existing sidewalk or by constructing a temporary access route.

If a bid item for a temporary pedestrian access route is not shown on the Bid Item List, then constructing a temporary pedestrian access route is change order work, except when the closure is a result of your means and methods.

Construct a temporary pedestrian access route such that:

1. Walkway surface is firm and stable and free of irregularities
2. Cross slope of the pedestrian route is at most 50:1 (horizontal:vertical)
3. Longitudinal slope of the pedestrian route is at most 20:1 (horizontal:vertical)
4. Walkway, landings, blended transitions, and curb ramps are at least 60 inches wide except where not feasible, the width must be at least 48 inches wide with a 60-by-60-inch passing space at least every 200 feet
5. Lateral joints or gaps between surfaces are less than 1/2 inch wide
6. Discontinuities in surface heights are less than 1/2 inch and beveled if greater than 1/4 inch with a slope no greater than 2:1 (horizontal:vertical)
7. Ramps have:
    7.1. Longitudinal slope of at most 12:1 (horizontal:vertical)
    7.2. Rise less than 30 inches
    7.3. Protective edging at least 2 inches high on each side and handrails at a height from 34 to 38 inches above the walkway surface if the rise is greater than 6 inches
8. Curb ramps have:
    8.1. Longitudinal slope of at most 12:1 (horizontal:vertical)
    8.2. Protective edging at least 2 inches high on each side if the curb ramp does not have flares and the rise is greater than 6 inches
9. Pedestrians are channelized when routed off existing pedestrian routes

Construct handrails such that they are continuous, smooth and free of sharp or rough edges.

Provide an overhead covering to protect pedestrians from falling objects and drippings from overhead structures.

If the temporary access route is next to traffic or work activities, place a temporary barrier to separate the route from vehicles and equipment.

Install a detectable warning surface at locations where a curb ramp, landing, or blended transition connects to a street. Install the warning surface such that it extends a minimum of 36 inches in the

direction of travel and for the full width of the landing, blended transition, or curb ramp, excluding the flares.

Maintain the temporary pedestrian access route clear of obstructions. Do not allow traffic control devices, equipment, or construction materials to protrude into the walkway. Maintain a continuous unobstructed path connecting all pedestrian routes, parking lots, and bus stops located within the project limits.

Remove the temporary pedestrian access route when the Engineer determines it is no longer needed.

Provide a temporary pedestrian access route through falsework under section 16-2.02.

12-4.04D Payment

Not Used

12-4.05 BRIDGE CLEANING AND PAINTING ACTIVITIES

12-4.05A General

Section 12-4.05 includes specifications for maintaining traffic during bridge cleaning and painting activities.

Signs must comply with section 12-3.11.

12-4.05B Materials

Not Used

12-4.05C Construction

For bridge cleaning and painting activities, place the signs as shown in the following table in addition to those shown on the plans:

Sign no.	Sign description	Requirement
W20-1	Road Work Ahead	Place portable 30-by-30-inch signs at locations where traffic approaches a bridge with work underway. If the approach speed is greater than 50 mph, the sign must be 48 by 48 inches. The sign panel base material must not be plywood. Attach 2 orange, 16 sq in flags to each sign.
--	Cleaning and Painting Operations	Place a 48-by-48-inch sign near each W20-1 sign. Use 4-inch-high black lettering and include your name, address, and telephone number on an orange background.

The Engineer determines the exact locations of the signs. Do not use signs until needed. Maintain the signs in place during bridge cleaning and painting activities. Remove the signs at the end of each work shift.

After each day's bridge cleaning and painting activities, remove obstructions from the roadway to allow for free passage for traffic. Remove blast cleaning residue from the traveled way before opening the area to traffic.

You may lay supply lines along the top of curbs adjacent to railing posts if the lines do not interfere with traffic. Remove the lines when work is not in progress.

12-4.05D Payment

Not Used

12-4.06 TOLL BRIDGES

Reserved

12-4.07–12-4.10 RESERVED

12-5 RESERVED

12-6 TEMPORARY PAVEMENT DELINEATION

12-6.01 GENERAL

Section 12-6 includes specifications for placing temporary pavement delineation except for delineation on a seal coat project.

Temporary painted traffic stripes and painted pavement markings used for temporary delineation must comply with section 84-2.

Temporary signs for no-passing zones must comply with section 12-3.11.

12-6.02 MATERIALS

12-6.02A General

The following types of temporary pavement delineation must be on the Authorized Material List for signing and delineation materials:

1. Temporary pavement markers for long term day/night use (180 days or less)
2. Temporary pavement markers for short term day/night use (14 days or less)
3. Temporary (removable) striping and pavement marking tape (180 days or less)
4. Permanent traffic striping and pavement marking tape
5. Channelizers

12-6.02B Temporary Pavement Markers

Temporary pavement markers must be the same color as the lane line or centerline markers being replaced.

Temporary pavement markers must be for long-term day or night use, 180 days or less, except you may use temporary pavement markers for short-term day or night use, 14 days or less, if you place the permanent pavement delineation before the end of the 14 days.

12-6.02C Channelizers

Channelizers used for temporary edge line delineation must be orange and surface mounted.

12-6.03 CONSTRUCTION

12-6.03A General

If work activities obliterate pavement delineation, place temporary or permanent pavement delineation before opening the traveled way to traffic. The temporary pavement delineation must consist of a lane line and centerline pavement delineation for traveled ways open to traffic. On multilane roadways, freeways, expressways, and 2-lane roadways with shoulders 4 feet or more in width, the temporary pavement delineation must also include edge line delineation for traveled ways open to traffic.

Establish the alignment for temporary pavement delineation, including the required lines or markers. Surfaces to receive an application of paint or removable traffic tape must be dry and free from dirt and loose material. Do not apply temporary pavement delineation over existing pavement delineation or any other temporary pavement delineation. Maintain temporary pavement delineation until no longer needed or replace it with a new striping detail of temporary or permanent pavement delineation.

When the Engineer determines the temporary pavement delineation is no longer required for the direction of traffic, remove the temporary pavement delineation, including any underlying adhesive for temporary pavement markers, from the final layer of surfacing and from the pavement to remain in place. Remove temporary pavement delineation that conflicts with any subsequent or new traffic pattern for the area.

12-6.03B Temporary Lane Line and Centerline Delineation

If lane lines or centerlines are obliterated and temporary pavement delineation to replace the lines is not shown, the minimum lane line and centerline delineation must consist of temporary pavement markers placed longitudinally at 24-foot maximum intervals.

For temporary lane line or centerline delineation consisting entirely of temporary pavement markers for short-term day or night use, 14 days or less, do not use the markers for more than 14 days on lanes opened to traffic. Place the permanent pavement delineation before the end of the 14 days. If the permanent pavement delineation is not placed within 14 days, replace the temporary pavement markers with additional temporary pavement delineation equivalent to the pattern described for the permanent pavement delineation for the area.

If no-passing centerline pavement delineation is obliterated, install the following temporary no-passing zone signs before opening lanes to traffic:

1. W20-1 (Road Work Ahead) sign from 1,000 to 2,000 feet in advance of the no-passing zone
2. R4-1 (Do Not Pass) sign at the beginning of the no-passing zone and at 2,000-foot maximum intervals within the no-passing zone
3. W7-3a (Next ___ Miles) plaque beneath the W20-1 sign for continuous zones longer than 2 miles
4. R4-2 (Pass With Care) sign at the end of the no-passing zone

The Engineer determines the exact location of temporary no-passing zone signs. Maintain the temporary no-passing zone signs in place until you place the permanent no-passing centerline pavement delineation.

Remove the temporary no-passing zone signs when the Engineer determines they are no longer required for the direction of traffic.

12-6.03C Temporary Edge Line Delineation

On multilane roadways, freeways, expressways, and 2-lane roadways with shoulders 4 feet or more in width open to traffic where edge lines are obliterated and temporary pavement delineation to replace those edge lines is not shown, provide temporary pavement delineation for:

1. Right edge lines consisting of any of the following:
   1.1. Solid 6-inch-wide traffic stripe tape of the same color as the stripe being replaced.
   1.2. Traffic cones placed longitudinally at 100-foot maximum intervals.
   1.3. Portable delineators or channelizers placed longitudinally at 100-foot maximum intervals.
2. Left edge lines consisting of any of the following:
   2.1. Solid 6-inch-wide traffic stripe tape of the same color as the stripe being replaced.
   2.2. Traffic cones placed longitudinally at 100-foot maximum intervals.
   2.3. Portable delineators or channelizers placed longitudinally at 100-foot maximum intervals.
   2.4. Temporary pavement markers placed longitudinally at 6-foot maximum intervals.

You may apply temporary traffic stripe paint of the same color as the stripe being replaced instead of solid 6-inch-wide temporary traffic stripe tape where the removal of the temporary traffic stripe is not required.

The Engineer determines the lateral offset for traffic cones, portable delineators, and channelizers used for temporary edge line delineation. If traffic cones or portable delineators are used for temporary edge line delineation, maintain the cones or delineators during the hours of the day when they are in use.

Cement the bases of channelizers used for temporary edge line delineation to the pavement with hot melt bituminous adhesive as specified in section 81-3 for cementing pavement markers to pavement.

12-6.03D Temporary Traffic Stripe, Pavement Marking, and Pavement Markers

12-6.03D(1) General

Reserved

12-6.03D(2) Temporary Traffic Stripe Tape

Except where the temporary traffic stripe is used for 14 days or less, apply temporary removable traffic stripe tape under the manufacturer's instructions and as follows:

1. Slowly roll the tape with a rubber-tired vehicle or roller to ensure complete contact with the pavement surface.
2. Apply the tape straight on a tangent alignment and on a true arc on a curved alignment.

3. Do not apply the tape when the ambient air or pavement temperature is less than 50 degrees F unless otherwise authorized.

For temporary traffic stripe tape used for 14 days or less, apply the temporary removable traffic stripe tape under the manufacturer's instructions.

12-6.03D(3) Temporary Traffic Stripe Paint

Apply temporary traffic stripe paint under section 84-2.03, except you may apply 1 or 2 coats of the temporary traffic stripe paint for new or existing pavement.

You are not required to remove painted temporary traffic stripe that will be covered by paving work.

12-6.03D(4) Temporary Pavement Marking Tape

Apply temporary removable pavement marking tape as specified for applying temporary removable traffic stripe tape in section 12-6.03D(2).

12-6.03D(5) Temporary Pavement Marking Paint

Apply temporary pavement marking paint under section 84-2.03, except you may apply 1 or 2 coats of the temporary pavement marking paint.

You are not required to remove of painted temporary pavement markings that will be covered by paving work.

You may use permanent or temporary removable pavement marking tape instead of temporary pavement marking paint.

12-6.03D(6) Temporary Pavement Markers

Place temporary pavement markers under the manufacturer's instructions. Cement temporary markers to the surfacing with the manufacturer's recommended adhesive except do not use epoxy adhesive in areas where the removal of the pavement markers is required.

You may use retroreflective pavement markers instead of temporary pavement markers for long-term day or night use, 180 days or less, except to simulate patterns of broken traffic stripe. Retroreflective pavement markers used for temporary pavement markers must comply with section 81-3, except the waiting period before placing pavement markers on new asphalt concrete surfacing as specified in section 81-3.03 does not apply. Do not use epoxy adhesive to place pavement markers in areas where the removal of the pavement markers is required.

12-6.04 PAYMENT

The Department does not pay for additional temporary pavement delineation used to replace temporary pavement markers.

Temporary traffic stripe is measured as specified for traffic stripe in section 84.

Temporary pavement marking is measured as specified for pavement marking in section 84.

12-7 TEMPORARY PAVEMENT DELINEATION FOR SEAL COATS

12-7.01 GENERAL

Section 12-7 includes specifications for placing temporary pavement delineation for a seal coat project.

Temporary signs for no-passing zones must comply with section 12-3.11.

12-7.02 MATERIALS

Temporary raised pavement markers for seal coat applications must be temporary pavement markers for short-term day or night use, 14 days or less, on the Authorized Material List for signing and delineation materials.

12-7.03 CONSTRUCTION

Before applying binder that will obliterate existing traffic stripes, place temporary raised pavement markers on the existing traffic stripes except for right edge lines at 24-foot maximum intervals. Place 2

markers side by side on double traffic stripes with 1 marker placed on each stripe longitudinally at 24-foot maximum intervals. Place temporary raised pavement markers under the manufacturer's instructions. Before opening the lanes to uncontrolled traffic, remove the covers from the temporary raised pavement markers.

If you obliterate no-passing centerline pavement delineation, install the following temporary no-passing zone signs before opening lanes to traffic:

1. W20-1 (Road Work Ahead) sign from 1,000 to 2,000 feet in advance of the no-passing zone
2. R4-1 (Do Not Pass) sign at the beginning of the no-passing zone and at 2,000-foot maximum intervals within the no-passing zone
3. W7-3a (Next ___ Miles) plaque beneath the W20-1 sign for continuous zones longer than 2 miles
4. R4-2 (Pass With Care) sign at the end of the no-passing zone

The Engineer determines the exact location of the temporary no-passing zone signs. Maintain the temporary no-passing zone signs in place until you place the permanent no-passing centerline pavement delineation. Remove the temporary no-passing zone signs when the Engineer determines they are no longer required for the direction of traffic.

Maintain temporary pavement delineation until you replace it with the permanent pavement delineation.

12-7.04 PAYMENT

Not Used

12-8-12-10 RESERVED

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13 WATER POLLUTION CONTROL

04-17-20

Add to the end of section 13-1.01C(1):

04-17-20

Submittals for additional or new WPC practices to manage run-on, run-off, and stormwater conveyance must:

1. Describe the activities, processes, equipment, and materials that will be used to manage the run-on, run-off, and stormwater conveyance through the job site
2. Show the locations of the management practices
3. Include a time-scaled logic diagram displaying the sequence and duration of the management practices for each stage of work
4. Be sealed and signed by an engineer who is registered as a civil engineer in the State

Add after the 2nd paragraph of section 13-1.01C(5):

04-19-19

For partial listing of disposal facilities and their waste acceptance list, go to SWRCB website.

Replace the 3rd paragraph of section 13-1.01D(3) with:

04-17-20

Training for assistant WPC managers who inspect, repair, and maintain WPC practices, collect water quality samples, and record water quality data must include:

1. Review of the sampling and analysis plan and the *Construction Site Monitoring Program Guidance Manual*
2. Health and safety review
3. Sampling simulations

The training for assistant WPC managers must comply with the requirements described under "WPC Manager Training," and includes:

1. Obtaining a certificate by completing the 8-hour WPC manager training
2. Reviewing updates, revisions, and amendments to the training

For training requirements, go to the Construction Storm Water and Water Pollution Control website.

Replace the 1st paragraph of section 13-1.01D(4)(a) with:

04-17-20

Assign a WPC manager to implement the WPCP or SWPPP. Assign an alternate WPC manager to perform the responsibilities of the WPC manager in the manager's absence. The alternate WPC manager must have the same qualifications as the WPC manager. You may assign an assistant WPC manager to act under the supervision of the WPC manager to inspect, repair, and maintain WPC practices, collect water quality samples, and record water quality data. You may have more than one assistant WPC manager.

Replace the 1st paragraph of section 13-1.01D(4)(b) with:

04-17-20

The WPC manager must:

1. Comply with the requirements provided in the Construction General Permit for QSP
2. Comply with the requirements described under "WPC Manager Training," including:
   2.1. Obtaining a certificate by completing the 8-hour training
   2.2 Reviewing updates, revisions, and amendments to the training

For the requirements, go to the Construction Storm Water and Water Pollution Control website.

04-19-19

Delete item 2.6.3 in the list of section 13-1.01D(4)(c).

Replace item 7 in the list in the 1st paragraph of section 13-1.01D(4)(c) with:

04-17-20

7. Revise the WPCP or recommend changes to the SWPPP

Replace the 3rd sentence in the 4th paragraph of section 13-1.03A with:

04-17-20

Additional WPC work is change order work except when the additional WPC practices are a result of your means and methods.

Replace the 1st paragraph of section 13-2.01C with:

04-19-19

Within 7 days after Contract approval, submit one printed copy and an electronic copy on a read-only CD, DVD, or other authorized data-storage device of your WPCP unless different quantities are ordered at the preconstruction conference. You may assign a QSP other than the WPC manager to develop the WPCP.

Replace item 4 in the list in the 2nd paragraph of section 13-2.01C with:

04-19-19

4. Show the locations and types of temporary WPC practices that will be used in the work for whichever has the longest duration in the first:
   4.1. 60 days
   4.2. Construction phase

Replace the 4th paragraph of section 13-2.01C with:

04-19-19

After the Engineer authorizes the WPCP, submit one printed copy and an electronic copy on a read-only CD, DVD, or other Engineer-authorized data-storage device of the authorized WPCP.

04-19-19

Delete the row for Annual Certification in the table in section 13-3.01C(1).

Replace the 1st paragraph of section 13-3.01C(2)(a) with:

04-17-20

Within 15 days of Contract approval, submit 1 printed copy and an electronic copy on a read-only CD, DVD, or other authorized data-storage device of your SWPPP unless different quantities are ordered at the preconstruction conference.

You must assign a QSD to develop and revise the SWPPP.

Replace item 4 in the list in the 2nd paragraph of section 13-3.01C(2)(a) with:

04-19-19

4. Include a schedule showing when:
   4.1. Work activities that could cause the discharge of pollutants into stormwater will be performed
   4.2. WPC practices, including soil stabilization and sediment control, that will be used in the work for whichever has the longest duration in the first:
      4.2.1. 60 days
      4.2.2. Construction phase

Replace the 4th paragraph of section 13-3.01C(2)(a) with:

04-19-19

Submit an electronic copy on a read-only CD, DVD, or other Engineer-authorized data-storage device and 4 printed copies of the authorized SWPPP unless fewer quantities are authorized at the preconstruction conference.

Replace the introductory clause in the 7th paragraph of section 13-3.01C(2)(a) with:

04-19-19

Submit a revised SWPPP annually before September 15th and any time:

Add after the 7th paragraph of section 13-3.01C(2)(a):

04-19-19

Revise the SWPPP through amendment. The annual SWPPP amendment must include an annual winterization plan.

The annual winterization plan must describe the preparation for the upcoming rainy season including:

1. Updated schedule
2. Materials and labor
3. Management of stormwater through the job site including:
   3.1. Run-on
   3.2. Run-off
   3.3. Conveyance downslope
4. Management of areas within the job site including:
   4.1. Areas where work is suspended
   4.2. Areas of soil stabilization
   4.3. New disturbed soil areas
5. Changes to monitoring locations
6. Slope stabilization

04-19-19

Delete section 13-3.01C(5).

^^

14 ENVIRONMENTAL STEWARDSHIP

04-17-20

Add between the 3rd and 4th paragraphs of section 14-10.01:

04-19-19

If ordered, remove solid waste from illegal dumping on the project site. This work is change order work. Illegal dumping is:

1. Third party nonhazardous residential or commercial waste
2. Greater than 1.0 cubic yard per event

Replace section 14-11.05A with:

10-18-19

14-11.05A General

Do not stockpile material containing hazardous waste or contamination unless authorized in your excavation and transportation plan. Stockpiles containing hazardous waste or contamination must not be placed where affected by surface run-on or run-off. Cover stockpiles with a minimum 12-mils-thick plastic sheeting. Do not place stockpiles in ESAs. Stockpiled material must not enter storm drains, inlets, or waters of the State.

Add to the beginning of section 14-11.14D:

04-19-19

Store treated wood waste at the jobsite until transport to the CA permitted disposal site.

Add to the beginning of section 14-11.14E:

04-19-19

Transport treated wood waste directly to the CA permitted disposal site after leaving the jobsite. Do not mix treated wood waste from the job site with waste from any other generator.

Replace *Reserved* in section 14-11.15 with:

04-17-20

14-11.15A General

Section 14-11.15 includes specifications for disposing of electrical equipment containing hazardous materials.

14-11.15B Submittals

14-11.15B(1) General

Reserved

14-11.15B(2) Identification of Disposal Facilities

Thirty days before starting work submit the name and address of the appropriately permitted facilities where electrical equipment containing hazardous materials will be taken to dispose or recycle them.

14-11.15C Waste Management

14-11.15C(1) General

When you mishandle and damage electrical equipment you are the generator of resulting hazardous waste and are responsible for cleanup, management, and disposal of this hazardous waste and the associated costs for the work under section 14-11.06.

14-11.15C(2) Universal Waste

14-11.15C(2)(a) General

Universal wastes include removed:

1. Light bulbs
2. E-waste including, electronic devices as described in 22 CA Code Regs § 66273.3(a), containing:
   2.1. Circuit boards, including controller boxes and LED lights
   2.2. Computer screens or video screens
   2.3. Computer keyboards
   2.4. Cathode ray tube devices
3. Batteries as described in 22 CA Code Regs § 66273.2
4. Mercury-containing equipment as described in section 22 CA Code Regs §66273.4(a); such as lamps, timers, and switches
5. Fluorescent tubes, bulbs, and lamps

Manage and dispose of universal waste under 22 CA Code Regs § 66261.9. Transport universal wastes to an appropriately permitted recycling or disposal facility.

14-11.15C(2)(b) Undamaged Lithium Thionyl Chloride batteries

Package removed equipment containing undamaged lithium thionyl chloride batteries and place the packages in US DOT approved sealed shipping containers. Transport the containers to a recycling or disposal facility. Notify the receiving facility 48 hours before delivery. Affix a label to containers of intact units identifying the contents as "Universal Waste: Lithium Thionyl Chloride Batteries."

Ship lithium thionyl chloride batteries that are separated from the electrical equipment units they powered to a recycling or disposal facility under 49 CFR 173.185. Package the batteries such that contact between them and resulting short circuits are avoided. Prevent accidental contact between batteries by:

1. Covering terminal ends to prevent them from touching each other
2. Placing batteries in a sealed plastic bag packed with loose fill, such as vermiculite

The outer packaging must comply with 49 CFR 173.24 and 173.24a. Transport lithium thionyl chloride batteries to an approved hazardous waste recycling or disposal facility. For a partial list of facilities, go to:

http://www.calrecycle.ca.gov/Electronics/Recovery/Approved/Default.htm

14-11.15C(3) Damaged Lithium Thionyl Chloride batteries

Damaged Lithium thionyl chloride batteries are designated as an extremely hazardous waste under 22 CA Code of Regs, Div 4.5, Ch 11, Art 5, App 10.

When lithium thionyl chloride batteries are damaged by your mishandling you are the generator of the resulting hazardous waste and responsible for cleanup, management, and disposal of this hazardous waste and the associated costs for the work under section 14-11.06.

Lithium thionyl chloride batteries found damaged are Department-generated hazardous waste under section 14-11.07. Management of this Department-generated hazardous waste is change order work.

Use a hazardous waste manifest to transport this damaged equipment to an appropriately permitted disposal facility.

14-11.15C(4) Electrical Equipment Containing PCBs

14-11.15C(4)(a) General

PCBs are found in electrical equipment produced before 1979 such as transformers, capacitors, and fluorescent light ballasts.

14-11.15C(4)(b) Transformers and Capacitors

Manage and dispose of transformers and capacitors containing PCBs under 40 CFR Part 761 and 22 CA Code of Regs Div 4.5.

14-11.15C(4)(c) Undamaged Fluorescent Light Ballasts

Manage and dispose of fluorescent light ballasts containing PCBs under 22 CA Code of Regs § 67426.1 et seq. Fluorescent light ballasts containing PCBs must be packaged and transported by a hauler with a current DTSC registration certificate and documentation of compliance with the CA Highway Patrol Basic Inspection of Terminals Program. The hauler must transport the fluorescent light ballasts containing PCBs to a facility permitted for hazardous waste disposal by DTSC.

14-11.15C(4)(d) Damaged Fluorescent Light Ballasts

Damaged fluorescent light ballasts containing PCBs are designated as extremely hazardous waste by DTSC.

When fluorescent light ballasts containing PCBs are damaged by your mishandling you are the generator of the resulting hazardous waste and responsible for cleanup, management, and disposal of this hazardous waste and the associated costs for the work under section 14-11.06.

Fluorescent light ballasts containing PCBs found damaged are Department-generated hazardous waste under section 14-11.07. Management of this Department-generated hazardous waste is change order work.

Use a hazardous waste manifest to transport damaged equipment to an appropriately permitted disposal facility.

14-11.15C(5) Lead Acid Batteries

Removed lead acid batteries are Department-generated hazardous waste. Manage hazardous waste lead acid batteries under 22 CA Code Regs § 66266.80 and 66266.81. Do not dispose of or attempt to dispose of, a lead-acid battery on or in any land, including dumpsters, landfills, lakes, streams, or the ocean.

Upon removal immediately place batteries upright in non-reactive, structurally-secure, closed containers such as polyethylene buckets or drums for transport. Package the batteries under 49 CFR 172.101 and 49 CFR 173.59. Prevent accidental contact between batteries by:

1. Covering terminal ends to prevent them from touching each other
2. Placing batteries in a sealed plastic bag packed with loose fill, such as vermiculite

Label the container with the date the first battery is placed in it and identify the contents as "Lead-acid Batteries."

Use a:

1 Bill of lading under 13 CCR § 1161 for shipments of 9 or less batteries.
2. Hazardous waste manifest for shipments of 10 batteries or more. The Engineer provides the Department's EPA Generator Identification Number for hazardous waste shipment. The Engineer signs the hazardous waste manifests. Notify the Engineer 5 business days before the manifests are to be signed.

Outer packaging must comply with 49 CFR 173.24. Transport batteries to a DTSC permitted recycling facility.

14-11.15C(6) Photovoltaic Panels

Removed photovoltaic panels are Department-generated hazardous waste due to heavy metals content. Manage and dispose of photovoltaic panels under section 14-11.07.

^^

DIVISION III EARTHWORK AND LANDSCAPE

19 EARTHWORK

04-17-20

Replace section 19-3.01C(4) with:

04-17-20

19-3.01C(4) Ground Anchor and Soil Nail Walls

Submit shop drawings for earthwork for each ground anchor wall and soil nail wall under section 46-1.01C(2).

Replace the 1st paragraph of section 19-3.03E(1) with:

10-19-18

Place structure backfill in uniform layers. Bring backfill up uniformly on all sides of structures or drainage facilities. Backfill layer thickness must not exceed 0.67 foot before compacting. If you perform compaction by ponding and jetting, the thickness of the backfill layer must not exceed 4 feet.

Replace the 1st sentence in the 3rd paragraph of section 19-3.03E(1) with:

10-19-18

Do not place structure backfill until footings or other parts of structures or drainage facilities are authorized.

^^

20 LANDSCAPE

04-17-20

Add to section 20-1.01D:

04-17-20

20-1.01D(3) Reserved

Replace item 2 in the list in the 1st paragraph of section 20-1.03C(1) with:

10-18-19

2. Controlling weeds and pests

Replace the 2nd paragraph of section 20-2.01A(4)(d) with:

10-19-18

In the presence of the Engineer, perform a functional test for each system that demonstrates:

1. Components of the system are functioning and integrated with one another.

10-18-19

2. Controller programming is complete including external weather, learned flow, and other system data inputs required to operate the system in the automatic mode.

10-19-18

3. Watering schedule is appropriate for the plants, current weather, season, and site conditions.
4. System has complete sprinkler coverage of the site.

Perform the test for each system:

1. Before planting the plants
2. After irrigation system repair work
3. Annually during plant establishment work
4. Not more than 30 days prior to contract acceptance
5. When ordered

10-19-18

Delete section 20-2.01A(4)(e).

Replace the 1st paragraph of section 20-2.01B(5) with:

10-19-18

Pull boxes must comply with section 86-1.02C and be no. 5 or larger. Pull boxes for low voltage conductors must not have side openings.

Replace the 2nd paragraph of section 20-2.01B(5) with:

04-19-19

Pull box covers used for control and neutral conductors for irrigation equipment operated by the irrigation controller must be marked *SPRINKLER CONTROL*.

Add to section 20-2.01B:

04-19-19

20-2.01B(9) Woven Wire Cloth and Gravel

Woven wire cloth must be galvanized and manufactured with a minimum diameter of 19-gauge wire and have square openings from 1/4 to 1/2 inches.

Gravel must be 3/4-inch gravel or crushed rock. Gravel or crushed rock must be clean, washed, dry, and free from clay or organic material.

Replace the 1st paragraph of section 20-2.01C(2) with:

10-19-18

Perform trenching and backfilling under section 87-1.03E(2).

Replace the introductory clause to the list in the 1st paragraph of section 20-2.01C(3) with:

10-19-18

Install pull boxes under section 87-1.03C at the following locations:

Add to section 20-2.01C(4):

04-19-19

Install valve boxes on woven wire cloth and gravel or crushed rock.

Add to the end of section 20-2.01C(4):

04-17-20

Space remote control valve boxes at least 2 feet from the edge of the adjacent valve box.

Replace the 1st paragraph of section 20-2.04A(4) with:

10-19-18

Perform field tests on control and neutral conductors. Field tests must comply with the specifications in section 87-1.01D(2)(a).

Replace the 1st and 2nd paragraphs of section 20-2.04B with:

10-19-18

Control and neutral conductors must comply with the provisions for conductors and cables in section 86-1.02F.

Electrical conduit and fittings must comply with section 86-1.02(B).

Replace the 1st paragraph of section 20-2.04C(4) with:

04-19-19

Splice conductors with a UL-listed connector manufactured for copper wire, direct burial irrigation systems. Connector must be prefilled with a moisture sealing compound that encapsulates and protects the splice in a waterproof housing. Connector must be sized for the number and gauge of the conductors at the splice.

Add to the end of the 4th paragraph of section 20-2.06B(2)(a):

10-18-19

Notify the Engineer at least 10 business days before accessing the network communications to integrate new irrigation controllers into the network.

Replace the introductory clause of the 1st paragraph of section 20-2.06B(3) with:

10-19-18

The irrigation controller enclosure cabinet must comply with section 86-1.02Q and must:

Add to the beginning of section 20-2.06C:

10-19-18

Install the irrigation controller enclosure cabinet under 87-1.03Q(1).

Replace the paragraph of section 20-2.07B(3) with:

10-18-19

Corrugated HDPE pipe must comply with ASTM F667 or be Type S complying with AASHTO M252 or AASHTO M294. Couplings and fitting must be as recommended by the pipe manufacturer.

Replace the 3rd paragraph of section 20-2.09B(1) with:

04-19-19

Threaded nipples for swing joints and risers must be schedule 80, PVC 1120 or PVC 1220 pipe, and comply with ASTM D1785.

Add to the end of section 20-2.10B(6):

10-18-19

Flanged adapters used to connect pipe to gate valves must be metal.

Replace section 20-2.10B(7) with:

04-17-20

Each pressure regulating valve used on the downstream side of the control valves must be:

1. Threaded type with outflow pressure clearly marked on the regulator
2. Plastic body with a working pressure of 125 psi or greater
3. Stainless-steel compression spring

Each pressure regulating valve used on the upstream side of the control valves must be:

1. Flanged or threaded and manufactured of brass or bronze
2. Capable of withstanding a working pressure of 300 psi or greater
3. Adjustable with a stainless-steel spring and seat
4. Tapped and plugged for a pressure gauge and if shown with a gauge installed

Replace the table in the 3rd paragraph of section 20-3.01B(2)(a) with:

10-19-18

Plant group designation	Description	Container size (cu in)
A	No. 1 container	152–251
B	No. 5 container	785–1242
C	Balled and burlapped	--
E	Bulb	--
F	In flats	--
H	Cutting	--
I	Pot	--
K	24-inch box	5775–6861
M	Liner[a]	--
O	Acorn	--
P	Plugs[a, b]	--
S	Seedling[c]	--
U	No. 15 container	2768–3696
Z	Palm Tree	--

[a]Do not use containers made of biodegradable material.
[b]Grown in individual container cells.
[c]Bare root.

Replace the introductory clause of the 1st paragraph of section 20-3.01B(4)(b) with:

10-19-18

Slow-release fertilizer must be a pelleted or granular form with a nutrient release over a 3 to 4 month period and be within the chemical analysis ranges shown in the following table:

Replace section 20-3.01C(3) with:

10-19-18

Water plants as needed to keep the plants in a healthy growing condition.

Replace item 3 in the list in the 2nd paragraph of section 20-4.01A with:

10-18-19

3. Controlling weeds and pests

Replace the 1st paragraph of section 20-4.03G with:

10-18-19

Operate the electric irrigation systems utilizing external weather, learned flow, and other system data inputs required to operate the system in the automatic mode, unless otherwise authorized.

10-19-18

Delete the 3rd paragraph of section 20-4.03G.

Replace the 1st paragraph of section 20-5.03A(2) with:

10-18-19

Preemergent must be granular oxadiazon.

Replace the paragraph of section 20-5.03A(3)(c) with:

10-18-19

After compaction, apply preemergent at the maximum label rate. Do not apply preemergent more than 12 inches beyond the inert ground cover limits. Complete the preemergent application and inert ground cover placement within the same day.

Add to the end of section 20-5.03B(3):

10-19-18

If you are ordered to remove existing concrete below ground within the limits of the rock blanket, saw cut the concrete before removal. This work is change order work.

Replace item 1 in the list in the 1st paragraph of section 20-10.03A(3) with:

10-19-18

1. Transplanting trees. The work plan must include methods of lifting, transporting, storing, planting, guying, watering and maintaining each tree to be transplanted. Include the root ball size, method of root ball containment, and a maintenance program for each tree.

Replace item 2 in the list in the 1st paragraph of section 20-10.03A(3) with:

10-18-19

2. Maintain existing planted areas. The work plan must include controlling the weeds, fertilizing, mowing and trimming of turf areas, watering, and controlling pests.

Replace item 6 in the list in the 2nd paragraph of section 20-10.03A(4) with:

10-18-19

6. Pests

Add to the end of section 20-10.03C(3):

10-19-18

Water transplanted trees immediately after planting and as needed to keep it in a healthy growing condition until contract acceptance.

Add to the end of section 20-10.03C(4):

10-19-18

Water existing plants as needed to keep them in a healthy growing condition until contract acceptance.

^^

21 EROSION CONTROL

04-17-20

Replace section 21-2.01C(3) with:

10-18-19

At least 60 days before seed application, submit proof that the purchase order for seed required for the Contract has been placed and accepted by the seed vendor. Include the seed's botanical names, quantity ordered, and the anticipated date of delivery on the purchase order.

Submit a copy of the supplier's seed analysis report and seed label for each seed species before application.

Seed analysis report must show:

1. Seed variety including botanical name and common name
2. Percent pure live seed
3. Percent by weight inert matter
4. Percent by weight other crop seed
5. Percent by weight weed seed
6. Name of restricted noxious weed seed by number per pound of seed
7. Germination test results
8. Name and address of the supplier or grower
9. Name and address of the seed laboratory
10. Date of the analysis

Seed labels must show:

1. Seed variety including botanical name and common name
2. Lot number or other lot identification
3. Origin
4. Net weight
5. Percent pure live seed
6. Percent total viability
7. Percent by weight inert matter
8. Percent by weight other crop seed
9. Percent by weight weed seed
10. Name of restricted noxious weed seed by number per pound of seed
11. Name and address of the supplier or grower
12. Date the seed was labeled

Replace section 21-2.01D(3) with:

10-18-19

Seed must be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists. Seed test must be performed for germination within 12 months before application.

Replace the 2nd paragraph of section 21-2.03J with:

04-19-19

Do not incorporate materials within 3 feet of the pavement edge.

04-19-19

Delete the 4th paragraph of section 21-2.03J

Replace item 2 in the list in the 2nd paragraph of section 21-2.03Q with:

10-18-19

2. Secure compost sock to soil surface with Type 1 installation. Do not construct a furrow.

Replace the 1st paragraph of section 21-2.04 with:

04-17-20

The payment quantity for bid items paid for by area is the area measured parallel to the ground surface except overlaps and key trenches.

^^

DIVISION IV SUBBASES AND BASES

28 CONCRETE BASES

04-17-20

Replace the 1st paragraph of section 28-2.01D(1)(a) with:

04-19-19

The cylinders for compressive strength testing under ASTM C31 or ASTM C192 must be 6 by 12 inches.

Replace the 1st paragraph of section 28-2.02B with:

04-19-19

The SCM content requirements in the 4th paragraph of section 90-1.02B(3) do not apply to LCB.

Replace the 1st paragraph of section 28-3.02C with:

04-17-20

Asphaltic emulsion must be Grade SS1.

Replace the 1st paragraph of section 28-5.03A with:

04-17-20

The curing seal must be asphaltic emulsion Grade SS1.

^^

DIVISION V SURFACINGS AND PAVEMENTS

37 BITUMINOUS SEALS

04-17-20

Replace the 2nd paragraph of section 37-2.03B(2) with:

04-17-20

A polymer modified asphaltic emulsion must be either Grade PMCRS-2 or PMCRS-2h. Polymer content in percent by weight does not apply.

Replace section 37-3.02B(3) with:

04-17-20

37-3.02B(3) Polymer Modified Asphaltic Emulsions

A polymer modified asphaltic emulsion must be grade PMCQS-1h.

A polymer modified asphaltic emulsion must consist of an elastomeric polymer mixed with an asphaltic material uniformly emulsified with water and an emulsifying or stabilization agent.

A polymer modified asphaltic emulsion must use either neoprene polymer or butadiene and styrene copolymer. The polymer must be homogeneous and milled into the asphaltic emulsion at the colloid mill.

Replace section 37-3.03B(2) with:

04-17-20

37-3.03B(2) Micro-surfacing Emulsions

A micro-surfacing emulsion must be grade MSE.

A micro-surfacing emulsion must be a homogeneous mixture of asphalt, an elastomeric polymer, and an emulsifier solution.

Add an elastomeric polymer modifier to asphalt or emulsifier solution before emulsification. An elastomeric polymer solid must be a minimum of 3 percent by weight of the residual asphalt in the micro-surfacing emulsion.

^^

39 ASPHALT CONCRETE

04-17-20

Replace *AASHTO T 324 (Modified)* at each occurrence in section 39 with:

04-17-20

California Test 389

04-17-20

Delete the row for *AASHTO T 324* in the table in the 5th paragraph of section 39-2.01A(1).

Replace the 1st and 2nd paragraphs of section 39-2.01A(3)(d) with:

04-19-19

If ordered, submit QC test results within 3 business days of a request.

04-17-20

Delete the 1st paragraph of section 39-2.01A(4)(a).

Replace the 1st sentence in the 2nd paragraph of section 39-2.01A(4)(h)(i) with:

04-17-20

Condition each at-the-plant sample of HMA mixture for testing under AASHTO 283 in compliance with sections 7.1.2, 7.1.3, and 7.1.4 of AASHTO R 30.

Add to section 39-2.01A(4)(h)(v):

04-19-19

AASHTO T 324 (modified) and AASHTO T 283 are not required if production start-up evaluation is within 45 days of the date the Hot Mix Asphalt Verification form is signed.

If production stops for more than 60 days, perform a production start-up evaluation. If production stops for more than 30 days but less 60 days, perform a reduced production start-up evaluation. Reduced production start-up evaluation is production start-up evaluation without AASHTO T 324 and AASHTO T 283.

If production start-up evaluation fails, do not begin production.

Add between the 3rd and 4th paragraphs of section 39-2.01A(4)(i)(i):

04-19-19

You must assist in collecting Engineer acceptance samples. Sample in the presence of the Engineer. Split the Engineer acceptance samples into at least 4 parts. Engineer retains 3 parts and you keep 1 part.

Replace the 1st sentence in the 5th paragraph of section 39-2.01A(4)(i)(i) with:

04-17-20

The Engineer conditions each at-the-plant sample of HMA mixture for testing under AASHTO 283 in compliance with sections 7.1.2, 7.1.3, and 7.1.4 of AASHTO R 30.

Replace the 1st through 3rd paragraphs of section 39-2.01A(4)(i)(iv) with:

04-19-19

You and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. You and the Engineer may only dispute each other's test results if one party's test results pass and the other party's test results fail.

If there is a dispute, submit your test results and copies of paperwork including worksheets used to determine the disputed test results within 3 business day of receiving Engineer's test results. An independent third party performs referee testing. Before the third party participates in a dispute resolution, it must be qualified under AASHTO re:source program and the Department's Independent Assurance Program. The independent third party must have no prior direct involvement with this Contract. By mutual agreement, the independent third party is chosen from:

1. Department laboratory in a district or region not in the district or region the project is located
2. Transportation Laboratory
3. Laboratory not currently employed by you or your HMA producer

If the Department's portion of the split acceptance samples are not available, the independent third party uses any available material agreed by you and the Engineer as representing the disputed HMA for evaluation.

Replace the 1st paragraph of section 39-2.01B(2)(b) with:

04-17-20

If the proposed JMF indicates that the aggregate is being treated with dry lime or lime slurry with marination, or the HMA with liquid antistrip, then testing the untreated aggregate under AASHTO T 283 and California Test 389 is not required.

Replace the table in the 3rd paragraph of section 39-2.01C(3)(f) with:

Tack Coat Application Rates for HMA

04-17-20

HMA over:	Minimum residual rates (gal/sq yd)		
	CSS-1/CSS-1h, SS-1/SS-1h, and QS-1h/CQS-1h asphaltic emulsion	CRS-1/CRS-2 and QS-1/CQS-1 asphaltic emulsion	Asphalt binder and PMCRS-2/PMCRS-2h asphaltic emulsion
New HMA (between layers)	0.02	0.03	0.02
Concrete pavement and existing asphalt concrete surfacing	0.03	0.04	0.03
Planed pavement	0.05	0.06	0.04

Replace the 2nd paragraph of section 39-2.02A(4)(b)(iii) with:

10-18-19

When tested under AASHTO T 308, the uncorrected binder content of the combined RAP sample must be within ±2.00 percent of the average uncorrected asphalt binder content reported on page 4 of your Contractor Hot Mix Asphalt Design Data form. If a new processed RAP stockpile is required, the average uncorrected binder content of the new processed RAP stockpile tested under AASHTO T 308 must be within ±2.00 percent of the average uncorrected binder content reported on page 4 of your Contractor Hot Mix Asphalt Design Data form. You must use the same ignition oven used to determine the uncorrected asphalt binder content reported on page 4 of your Contractor Hot Mix Asphalt Design Data form.

Replace item 2 in the 4th paragraph of section 39-2.02A(4)(b)(iii) with:

10-18-19

2. Moisture content at least once a day

04-17-20

Replace footnote a in the table in item 1 in the list in the paragraph of section 39-2.02A(4)(e) with:

10-18-19

[a]The Engineer determines combined aggregate gradations containing RAP under California Test 384. The Engineer uses the correlation factor from Contractor Hot Mix Asphalt Design Data form and mathematically combines the virgin and corrected RAP aggregate gradations at the correct proportions to obtain the combined gradation.

Replace the table in item 2 in the list in the paragraph of section 39-2.02A(4)(e) with:

10-18-19

Reclaimed Asphalt Pavement Quality

Quality characteristic	Test method	Requirement
Uncorrected binder content (% within the average value reported[a])	AASHTO T 308	±2.00
Specific gravity (within the average value reported[b])	AASHTO T 209	±0.06

[a]Average uncorrected binder content of three ignition oven tests performed at JMF verification. Engineer must use the same ignition oven used to determine the average uncorrected binder content at JMF verification.

[b]Average maximum specific gravity reported on page 4 of Contractor Hot Mix Asphalt Design Data form.

Replace the row for *Moisture susceptibility (min, psi, dry strength)* in the table in item 3 in the list in the paragraph of section 39-2.02A(4)(e) with:

04-19-19

For RAP substitution equal to or less than 15% moisture susceptibility (min, psi, dry strength)	AASHTO T 283	100
For RAP substitution greater than 15% moisture susceptibility (psi, dry strength)	AASHTO T 283	100-300[h]

Replace the row for *Hamburg wheel track (min number of passes at inflection point)* in the table in item 3 in the paragraph of section 39-2.02A(4)(e) with:

04-17-20

Hamburg wheel track (number of passes at inflection point)	California Test 389	Report only

Add a footnote to the table in item 3 in the list in the paragraph of section 39-2.02A(4)(e):

04-19-19

[h]Not required in the following areas:

1. Southern San Luis Obispo or Santa Barbara County in District 5.
2. Kern County in District 6.
3. Kings County in District 6: route 5, post mile 0 to 17; route 33, post mile 0 to 19; route 41, post mile 0 to 16.
4. Tulare County in District 6: route 65, post mile 0 to 10; route 99, post mile 0 to 10; route 43, post mile 0 to 15.

Replace the row for *Hamburg wheel track (min number of passes at inflection point)* in the 1st paragraph of section 39-2.02B(2) with:

04-17-20

Hamburg wheel track (number of passes at inflection point)	California Test 389[c]	Report only

Replace the row for *Moisture susceptibility, dry strength* in the table in the 1st paragraph of section 39-2.02B(2) with:

04-19-19

For RAP substitution equal to or less than 15% moisture susceptibility (min, psi, dry strength)	AASHTO T 283	100
For RAP substitution greater than 15% moisture susceptibility (psi, dry strength)	AASHTO T 283	100-300[e]

Add a footnote to the table in the 1st paragraph of section 39-2.02B(2):

04-19-19

[e]Not required in the following areas:

1. Southern San Luis Obispo or Santa Barbara County in District 5.
2. Kern County in District 6.
3. Kings County in District 6: route 5, post mile 0 to 17; route 33, post mile 0 to 19; route 41, post mile 0 to 16.
4. Tulare County in District 6: route 65, post mile 0 to 10; route 99, post mile 0 to 10; route 43, post mile 0 to 15.

Replace the 3rd and 4th paragraphs of section 39-2.02B(2) with:

04-19-19

For RAP substitution of 15 percent or less, the grade of the virgin binder must be the specified grade of asphalt binder for Type A HMA.

For RAP substitution greater than 15 percent and not exceeding 25 percent, the grade of the virgin binder must be the specified grade of asphalt binder for Type A HMA with the upper and lower temperature classification reduced by 6 degrees C. Hamburg wheel track requirements are based on the grade of asphalt binder specified for Type A HMA.

Replace the 2nd sentence in the 2nd paragraph of section 39-2.02B(11) with:

04-19-19

For RAP substitution of 15 percent or less, RAP must be within ±3 of RAP percentage shown in your Contractor Job Mix Formula Proposal form without exceeding 15 percent. For RAP substitution of greater than 15 percent, RAP must be within ±3 of RAP percentage shown in your Contractor Job Mix Formula Proposal form without exceeding 25 percent.

Replace the row for *Hamburg wheel track (min number of passes at 0.5-inch rut depth)* in the table in item 2 in the paragraph of section 39-2.03A(4)(e)(i) with:

04-17-20

Hamburg wheel track (min number of passes at 0.5-inch rut depth) Base binder grade: PG 64 or lower PG 70	California Test 389	 15,000 20,000

Replace the row for *Hamburg wheel track (min number of passes at inflection point)* in the table in item 2 in the paragraph of section 39-2.03A(4)(e)(i) with:

04-17-20

Hamburg wheel track (number of passes at inflection point)	California Test 389	Report only

Replace the row for *Hamburg wheel track (min number of passes at 0.5-inch rut depth)* in the table in 1st paragraph of section 39-2.03B(2) with:

04-17-20

Hamburg wheel track (min number of passes at 0.5-inch rut depth) Base binder grade: PG 64 or lower PG 70	California Test 389[d]	 15,000 20,000

Replace the row for *Hamburg wheel track (min number of passes at inflection point)* in the table in 1st paragraph of section 39-2.03B(2) with:

04-17-20

Hamburg wheel track (number of passes at inflection point)	California Test 389[d]	Report only

Replace the table in the 3rd paragraph of section 39-2.04C with:
Tack Coat Application Rates for OGFC

04-17-20

OGFC over:	Minimum residual rates (gal/sq yd)		
	CSS-1/CSS-1h, SS-1/SS-1h, and QS-1h/CQS-1h asphaltic emulsion	CRS-1/CRS-2 and QS-1/CQS-1 asphaltic emulsion	Asphalt binder and PMCRS-2/PMCRS-2h asphaltic emulsion
New HMA	0.03	0.04	0.03
Concrete pavement and existing asphalt concrete surfacing	0.05	0.06	0.04
Planed pavement	0.06	0.07	0.05

Replace the 8th and 9th paragraphs of section 39-2.04C with:

04-19-19

For RHMA-O and RHMA-O produced with WMA water injection technology, and RHMA-O-HB and RHMA-O-HB produced with WMA water injection technology:

1. Spread and compact if the ambient air temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 280 degrees F
3. Complete compaction before the surface temperature drops below 250 degrees F

For RHMA-O produced with WMA additive technology and RHMA-O-HB produced with WMA additives technology:

1. Spread and compact if the ambient air temperature is at least 45 degrees F and the surface temperature is at least 50 degrees F
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 270 degrees F
3. Complete compaction before the surface temperature drops below 240 degrees F

Spread sand at a rate from 1 to 2 lb/sq yd on RHMA-O and RHMA-O-HB with or without WMA technology pavement after finish rolling activities are complete. Keep traffic off the pavement until spreading of the sand is complete.

Replace the 2nd paragraph of section 39-2.05A(1)(a) with:

04-17-20

Placing a BWC consists of applying a bonded wearing course asphaltic emulsion and placing the specified HMA in a single pass with an integrated paving machine.

Replace the row for *Penetration at 25 °C* in the table in the 1st paragraph of section 39-2.05A(1)(d)(iii) with:

04-17-20

Penetration at 25 °C (dmm)	AASHTO T 49	70–150

Replace the paragraph of section 39-2.05A(2)(b) with:

04-17-20

The asphaltic emulsion must be bonded wearing course asphaltic emulsion.

^^

40 CONCRETE PAVEMENT

04-17-20

Replace the 2nd paragraph of section 40-1.01C(4) with:

04-17-20

At least 15 days before starting field qualification, submit the proposed concrete mix proportions, the corresponding mix identifications, and laboratory test reports, including measurements of the modulus of rupture and compressive strength, for each trial mixture at 3, 7, 10, 21, 28, and 42 days.

Replace the 2nd paragraph of section 40-1.01C(9) with:

10-19-18

Submit your coefficient of thermal expansion test data at:

https://dime.dot.ca.gov/

Replace the 3rd paragraph of section 40-1.01D(1) with:

04-17-20

Provide material, labor and equipment that meets initial curing requirement to assist the Engineer in fabricating, curing and handling test beams for the Department's modulus of rupture testing. Failure to maintain the proper curing environment during initial cure will not be basis for rejection of samples, dispute resolution, or claim against the Department. The initial curing equipment must be capable of being locked, using a Department provided padlock. Ensure that the initial curing equipment is secured at all times and protected against theft and damage.

Replace the row for *Density* in the table in the 1st paragraph of section 40-1.01D(7)(a) with:

04-17-20

Unit weight	California Test 518	1 per 4 hours

Add to the list in the 4th paragraph of section 40-1.01D(7)(a):

04-17-20

6. Unit weight

Replace item 2 in the list in the 8th paragraph of section 40-1.01D(7)(a) with:

04-17-20

2. 1 point falls outside the suspension limit line for individual penetration, unit weight or air content measurements

Replace n_v in the 1st paragraph of section 40-1.01D(8)(b)(ii) with:

04-17-20

n_v = number of Department's tests (minimum of 3 required)

Replace the 4th paragraph of section 40-1.01D(8)(b)(ii) with:

04-17-20

If your QC test results are not verified, core at least 3 specimens from the concrete pavement under section 40-1.03M. For dispute resolution, the Engineer selects the core locations and the Department contracts with an independent testing laboratory or uses the Department's laboratory to test these specimens for air content under ASTM C457. The Engineer compares these test results with your QC test results using the t-test method. If your QC test results are verified based on this comparison, the Engineer uses your QC test results for acceptance of concrete pavement for air content, otherwise, the Engineer uses the test results from the dispute resolution process and you pay for the independent testing.

Replace the note *b* in the table in the 1st paragraph of section 40-1.01D(8)(c)(i) with:

04-17-20

[b]Average of the individual test results of 3 test beams.

Replace the 1st sentence of section 40-1.01D(8)(c)(iii) with:

04-17-20

The Department verifies and accepts pavement smoothness based on the results of your inertial profiler testing under Section 36-3.

Replace section 40-1.01D(8)(c)(v) with:

04-17-20

40-1.01D(8)(c)(v) Determining Modulus of Rupture from Pavement Cores

For each approved mix design, a correlation between flexural beam strength and compressive core strength may be developed to evaluate low modulus of rupture results from projects. If the average 28-day modulus of rupture is below 570 psi, you may use compressive strength results from pavement cores to determine the equivalent 28-day modulus of rupture.

In the presence of engineer:

1. From the test strip, fabricate an additional 3 beams, and take a total of 15 cores under ASTM C42 to test 3 cores at each age of 28, 42, 56, 70, and 91 days.
2. If test strip is not constructed, fabricate additional 3 beams on the first day of production and placement of concrete pavement, and take total 15 cores under ASTM C42 to test 3 cores at each age of 28, 42, 56, 70, and 91 days.

3. Break 3 beams at 28 days and take the average.
4. Break 3 cores at each age of 28, 42, 56, 70, and 91 days under ASTM C 39 and take the average at each age.

Use the following formula to calculate the equivalent 28-day modulus of rupture:

$MOR = MORs \times [Cp(t)/Cs(t)]^{1/2}$

where:

MOR = equivalent 28-day modulus of rupture in psi
MORs = average modulus of rupture in psi of 3 beams taken from the test strip at 28 days
Cs(t) = average compressive strength in psi of 3 cores taken from the test strip at (t): 28, 42, 56, 70, or 91 days under ASTM C39
Cp(t) = average compressive strength in psi of 3 cores taken from the pavement project at (t): 28, 42, 56, 70, or 91 days under ASTM C39

Submit all test results to engineer on the same date of completion of testing.

If the 28-day modulus of rupture is below 570 psi, select an age equal to one of the test ages from the test strip and drill 3 concrete cores under ASTM C42 of same diameter as the test strip from the area not complying to the acceptance strength requirement and test in presence of engineer for compressive strength under ASTM C39. The average compressive strength of 3 concrete cores will be used to determine the equivalent 28-day modulus of rupture.

Replace introductory clause in the 4th paragraph of section 40-1.03J with:

04-17-20

Do not allow traffic or use equipment on concrete pavement before the concrete has attained a modulus of rupture of 550 psi based on the Department's testing unless:

Add to the list in the 4th paragraph of section 40-1.03J:

04-17-20

2.5 You must monitor for damage and immediately discontinue access and suspend operations if any damage becomes apparent

Replace section 40-2 with:

10-18-19

40-2 CONTINUOUSLY REINFORCED CONCRETE PAVEMENT

40-2.01 GENERAL

40-2.01A Summary

Section 40-2 includes specifications for constructing continuously reinforced concrete pavement.

Constructing continuously reinforced concrete pavement includes terminal joints and expansion joints.

40-2.01B Definitions

Reserved

40-2.01C Submittals

For field qualification, submit the test data for the coefficient of thermal expansion of the concrete.

If you request to use plastic chairs to support the transverse bars, submit a sample of the plastic chair, including:

1. Manufacturer's instructions for the applicable use and load capacity
2. Chair spacing
3. Your calculation for the load on a chair for the area of bar reinforcement it supports

During production, submit the test data for the coefficient of thermal expansion as an informational submittal.

40-2.01D Quality Assurance

For field qualification, test the coefficient of thermal expansion of the concrete under AASHTO T 336. The coefficient of thermal expansion must not exceed 6.0 microstrain/degree F.

During the evaluation of the test strip, the Engineer visually checks the reinforcement and dowel and tie bar placement.

During production, test the coefficient of thermal expansion of the concrete at a frequency of 1 test for each 5,000 cu yd of paving but not less than 1 test for a project with less than 5,000 cu yd of concrete.

40-2.02 MATERIALS

40-2.02A General

Reserved

40-2.02B Transverse Bar Assembly

Transverse bar assemblies may be used to support longitudinal bars instead of transverse bars and other support devices.

40-2.02C Intermediate Transverse Bars

Intermediate transverse bars do not need to be epoxy-coated for a project not shown to be in a high desert or any mountain climate region.

40-2.02D Joints

Joint seals for transverse expansion joints must comply with section 51-2.02.

Geosynthetic bond breaker for expansion joint support slabs must comply with section 36-2.

40-2.03 CONSTRUCTION

40-2.03A General

Reserved

40-2.03B Bar Reinforcement

Place bar reinforcement under section 52-1.03D except you may request to use plastic chairs. Plastic chairs will be considered only for support directly under the transverse bars. You must demonstrate the vertical and lateral stability of the bar reinforcement and plastic chairs during the construction of the test strip.

For a transverse bar in a curve with a radius under 2,500 feet, place the reinforcement in a single continuous straight line across the lanes and aligned with the radius point as shown.

Lap splice bar reinforcement under section 52-6. For low carbon, chromium-steel bar reinforcement, the length of lap splice must be at least 30 inches.

40-2.03C Construction Joints

Transverse construction joints must be perpendicular to the lane line. Construct the joints so that the nearest longitudinal bar splice is at least 42 inches away from each side of the joint.

Clean joint surfaces before placing concrete against the surfaces. Remove laitance, curing compound, and other foreign materials.

40-2.03D Correcting Noncompliant Pavement Work

40-2.03D(1) General

The specifications for repairing cracks in section 40-1.03N do not apply to CRCP. Do not apply high-molecular-weight methacrylate to cracks in CRCP.

CRCP that develops raveling areas of 6 by 6 inches or greater requires partial depth repair.

40-2.03D(2) Partial Depth Repair

Partial depth repair must comply with section 41-4 except:

1. Determine a rectangular boundary which extends 6 inches beyond the damaged area. The depth of the saw cut must be between 2 inches from the surface to 1/2 inch above the longitudinal bars.
2. Provide additional reinforcement if each length of the repair boundaries is equal to or greater than 3 feet.

40-2.03D(3) Full-Depth Repair

40-2.03D(3)(a) General

Remove the full-depth of CRCP except for the portion of reinforcement to remain in place. Provide continuity of the reinforcement. For low carbon, chromium-steel bar reinforcement, the length of lap splice must be at least 30 inches. Splicing must comply with section 52-6. Do not damage the base, concrete, and reinforcement to remain in place. Place concrete in the area where you removed CRCP.

40-2.03D(3)(b) Transverse Cracks

Make initial full-depth transverse saw cuts normal to the lane line a distance of 3 feet on each side of the transverse crack.

40-2.03D(3)(c) Longitudinal Cracks

Remove the cracked area normal to the lane line for the full width of the lane a distance of 1 foot beyond each end of the crack. You may propose alternate limits with your repair plan.

40-2.03E Reserved

40-2.04 PAYMENT

Not Used

^^

41 EXISTING CONCRETE PAVEMENT

04-17-20

Replace the 2nd paragraph of section 41-10.01C with:

04-17-20

At least 15 days before delivery of the chemical adhesive to the job site, submit the SDS and the manufacturer's instructions for:

1. Handling and storage
2. Installation procedures
3. Minimum cure time
4. Use of chemical adhesive

Replace the 3rd paragraph of section 41-10.02A with:

04-17-20

Each chemical adhesive system container must clearly and permanently show the:

1. Manufacturer's name

2. Material name
3. Lot or batch number
4. Expiration date
5. Evaluation report number
6. Directions for use
7. Storage requirement
8. Warnings or precautions required by State and federal laws and regulations

Replace section 41-10.03A with:

04-17-20

41-10.03A General

Drill holes for bars as shown without damaging the adjacent concrete. Clean drilled holes under the chemical adhesive manufacturer's installation instructions. Holes must be dry at the time of placing the chemical adhesive and bars. Immediately after inserting the bar into the chemical adhesive, support the bar to prevent movement until chemical adhesive has cured the minimum time recommended by the manufacturer.

Use a grout retention ring when drilling and bonding dowel bars. Apply dowel bar lubricant to the entire exposed portion of the dowel bar.

If the Engineer rejects a bar installation: stop paving, drilling, and bonding activities. Adjust your procedures and obtain the verbal authorization before resuming paving, drilling, and bonding.

Cut the rejected bar flush with the pavement joint surface and coat the exposed end of the bar with chemical adhesive. Offset the new hole 3 inches horizontally from the rejected hole's center.

^^

DIVISION VI STRUCTURES

46 GROUND ANCHORS AND SOIL NAILS

04-17-20

Replace section 46-1.01C(2) with:

04-17-20

46-1.01C(2) Shop Drawings

46-1.01C(2)(a) General

Submit shop drawings and supporting calculations to OSD, Documents Unit for initial review. Notify the Engineer of the submittal. Include in the notification the date and contents of the submittal.

Submit 6 copies of the general project information, 5 copies of the fabricators plan, and 3 copies of the construction plan.

Shop drawings and calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

Allow 30 days for the Department's review.

After review, submit from 6 to 12 copies of final shop drawings and supporting calculations, as requested, for authorization and use during construction.

46-1.01C(2)(b) General Project Information Plan

General project information plan must include:

1. Name, address, email address, and phone number of the contractor or subcontractor performing the work.

2. Wall construction schedule with construction sequence.
3. Wall construction staging schedule.
4. Table of lengths, tendon sizes, centralizers, and drilled-hole diameters.
5. For ground anchors, calculations for determining the bonded length and assumed bonded strength. Do not rely on any capacity from the grout-to-ground bond within the unbonded length.
6. Procedures for installing verification and proof test nails.
7. Bench width requirements for installation equipment.
8. Excavation lift height and maximum duration of exposure for each wall zone, including:
   8.1. Methods to stabilize the exposed excavated face if face is not maintaining its integrity
   8.2. Supporting calculations

46-1.01C(2)(c) Fabrication Plan

Fabrication plan must include:

1. Details and specifications for:
   1.1. Ground anchors and anchorage system
   1.2. Production and test soil nails
2. Corrosion protection details and repair procedure for:
   2.1. Damaged sheathing
   2.2. Couplers
3. Testing equipment including jacking frame and appurtenant bracing.
4. For ground anchors, details for the transition between the corrugated plastic sheathing and the anchorage assembly. If shims are used during lock-off, include:
   4.1. Shim thickness
   4.2. Supporting calculations

You may start fabrication early by requesting an authorization of the fabrication plan portion before the complete shop drawings submittal is authorized. If the early fabrication plan is authorized, you are fully responsible for any changes that may occur after starting fabrication.

46-1.01C(2)(d) Construction Plan

Construction plan must include:

1. Methods of excavation for the staged lifts and types of excavation equipment.
2. Details for measuring the movement of the excavated face and the wall during stability testing and construction.
3. Measures to ensure wall and slope stability during construction.
4. Details for providing the bonded and unbonded length. If packers or other similar devices are used, include the type.
5. For soil nails, details for isolating installed proof test soil nails during shotcrete application.
6. Dewatering plan to divert, control, and dispose of surface and groundwater during construction
7. Drilling methods and equipment, including:
   7.1. Size of drilled hole
   7.2. Space requirements
8. Grout mix design and testing procedures.
9. Grout placement equipment and procedures, including minimum required cure time.
10. Testing equipment including method and equipment for measuring movement during testing.
11. For soil nails, include procedure for extracting grouted soil nails.

Add to the list in the 1st paragraph of section 46-1.01C(3):

10-19-18

12. Digital photo logs of extracted test soil nails

Replace the 2nd paragraph of section 46-1.01C(3) with:

10-19-18

Submit the test data in electronic and hard copy format within 1 business day after testing is complete. Upon completion of the wall, send an email of the soil nail test results as a tabulated spreadsheet to the Engineer and Geotechnical.Data@dot.ca.gov. Include the contract number and Department's structure number of the wall in the subject line of the email.

Replace *Not Used* in section 46-1.01D(1) with:

10-19-18

Welding must comply with AWS D1.1.

Add to the end of section 46-1.03A:

10-19-18

Shotcrete must comply with section 53-2.

10-19-18

Delete the 3rd paragraph of section 46-1.03B.

Replace the 1st paragraph of 46-2.02B with:

04-17-20

Strand tendons, bar tendons, and bar couplers must comply with section 50-1.02B and must be on the Authorized Material List for post-tensioning systems.

Replace the 1st sentence in the 2nd paragraph of section 46-2.02B with:

10-19-18

The anchorage enclosure and the steel tube and bearing plate of the anchorage assembly must be galvanized steel and comply with sections 55-1.02D(1) and 55-1.02E(1).

Replace item 9 in the list in the 3rd paragraph of section 46-2.02D with:

10-19-18

9. Have the physical properties shown in Table 4.1 of *Recommendations for Prestressed Rock and Soil Anchors* published by the Post-Tensioning Institute

Replace the 4th paragraph of section 46-2.03D with:

10-19-18

Immediately after lock-off, perform a lift-off test to verify that the lock-off load has been attained. The lift-off load must be within 10 percent of the specified lock-off load. If necessary adjust the shim thickness to achieve the lock-off load. If the load is not within 10 percent of the specified lock-off load, the anchorage must be reset and another lift-off load reading must be made. Repeat the process until the specified lock-off load is obtained.

Replace the 2nd paragraph of section 46-3.01A with:

10-19-18

A soil nail consists of a solid steel bar with an anchorage assembly that is placed in a drilled hole and then grouted.

Replace section 46-3.01D(2)(b)(ii)(1) with:

10-19-18

46-3.01D(2)(b)(ii)(1) General

Determine the test load using the following equation:

$T = Lb \times Qb$

where:
T = test load, pounds
Lb = soil nail bonded length, feet, 10 feet minimum
Qb = test load per unit length of bond, pounds/foot

Replace the 8th paragraph of section 46-3.01D(2)(b)(ii)(2) with:

04-19-19

If the Engineer revises soil nail lengths or test load per unit length of bond values, any additional verification test soil nails are change order work.

Replace section 46-3.02A with:

04-19-19

46-3.02A General

Each production soil nail must be either a solid steel bar encapsulated full length in a grouted corrugated plastic sheathing or an epoxy-coated prefabricated solid steel bar partially encapsulated in a grouted corrugated plastic sheathing as shown.

Epoxy-coated prefabricated solid steel bars must comply with the specifications for epoxy-coated prefabricated reinforcement in section 52-2.03, except the average coating thickness after curing must be from 10 to 15 mils.

Solid steel bar for test soil nails is not required to be epoxy coated or encapsulated in grouted plastic sheathing.

Replace the heading of section 46-3.02B with:

10-19-18

Anchorage Assemblies

Replace section 46-3.02C with:

10-19-18

46-3.02C Solid Steel Bars

Solid steel bars must be either:

1. Threaded bars with spirally-deformed, ribbed threads continuous along the entire length of the bar.
2. Deformed reinforcing bars with at least a 6-inch length of thread cut into the bar on the anchorage end. Use coarse threading and the next larger reinforcing bar size.

Solid steel bars must comply with ASTM A615/A615M or A706/A706M, Grade 60 or ASTM A615/A615M, Grade 75.

Splicing must be authorized.

Epoxy coating at the anchorage end of epoxy-coated bars may be omitted for a maximum of 6 inches. Metal surfaces of assembled splices of epoxy-coated bars must be epoxy coated.

Choose the solid steel bar size and grade for test soil nails. Test soil nail bars must not be smaller than the production soil nails they represent.

Replace the 1st paragraph of section 46-3.03A with:

10-19-18

Determine the drilled-hole diameter and installation method required to achieve the test load per unit length of bond values shown.

Replace the introductory clause to the list in the 3rd paragraph of section 46-3.03B with:

10-19-18

Install verification test soil nails by any of the following means:

Replace the 7th and 8th paragraphs of section 46-3.03B with:

10-19-18

Remove each verification and proof test soil nail to 6 inches behind the front face of the shotcrete after testing is complete. Fill the voids with grout.

If ordered, extract verification and proof test soil nails selected by the Engineer. Fill the voids with grout. Photograph the extracted test nails in 5-foot section intervals.

Replace the 3rd paragraph of section 46-3.03C with:

10-19-18

Splice the solid steel bar only where shown on the authorized shop drawings or at the end of a soil nail that is ordered to be lengthened.

Replace the 1st sentence in the 7th paragraph of section 46-3.03C with:

10-19-18

Hand tighten the nut on the end of the production soil nail bar before shotcrete hardening begins. Ensure the bearing plate is fully seated on the shotcrete.

^^

48 TEMPORARY STRUCTURES

04-17-20

Replace *signed* at each occurrence in section 48 with:

04-17-20

sealed and signed

Replace section 48-1.01 with:

04-17-20

48-1.01 GENERAL

48-1.01A Summary

Section 48-1 includes general specifications for constructing temporary structures.

If a railroad company is involved, falsework, temporary supports, and jacking support systems must comply with any additional requirements of the railroad company.

48-1.01B Definitions

frame: Portion of a bridge between expansion joints.

jacking: Positioning of new or existing structures or portions thereof, by jacks or other mechanical methods.

previously welded splice: Splice made in a temporary-structure member in compliance with AWS D1.1 or other recognized welding standard, before contract award.

temporary-structure adjustment: Grading or adjusting of temporary structures.

48-1.01C Submittals

48-1.01C(1) General

Submit 6 copies of shop drawings and 2 copies of calculations for:

1. Falsework
2. Temporary supports
3. Temporary decking
4. Jacking
5 Adjustment

48-1.01C(2) Temporary-Structure Inspection Report

Temporary-structure inspection reports must be:
1. Prepared daily during jacking and temporary-structure adjustment activities. Reports must be submitted:
   1.1. By close of business the following business day
   1.2. Before opening the roadway on or under the temporary structure to traffic
2. Prepared before placing concrete

The temporary-structure inspection report must be prepared, sealed, and signed by the temporary-structure engineer.

The temporary-structure inspection report must include:

1. Description of the progress of the jacking and adjustment activities
2. Description and evaluation of the condition of the temporary structure and supported structure
3. Inspection findings and the certifications listed in section 48-1.01D(2) that are completed by the temporary-structure engineer

48-1.01C(3) Adjustment Plan Shop Drawings

Submit adjustment plan shop drawings if the falsework or temporary supports are to be adjusted more than 1/2 inch.

The adjustment plan shop drawings and calculations must be sealed and signed by the temporary-structure engineer.

Adjustment plan shop drawings and calculations must include:

1. Methods and sequencing for the adjustment.
2. Descriptions of equipment to be used.

3. Location of jacks or other adjustment equipment.
4. Detailed sequence for releasing of bracing.
5. Details and calculations for the stability and adjustment of the falsework or temporary supports during all stages of the adjustment including any additional required temporary bracing.
6. Calculations that include stresses, deflections, and loads in all load carrying members, bracing, and equipment as well as any redistributed loads resulting from the adjustment. Calculations must also include the effect of the adjustment sequence.

48-1.01D Quality Assurance

48-1.01D(1) General

Reserved

48-1.01D(2) Temporary-Structure Engineer

The temporary-structure engineer must:

1. Be registered as a civil engineer in the State.
2. Have experience in temporary structure design or temporary structure construction inspection.
3. Seal and sign the shop drawings.
4. Be present during all jacking and adjustment activities.
5. Prepare, seal, and sign a daily temporary-structure inspection report during jacking and temporary-structure adjustment activities.
6. The temporary-structure engineer must inspect and certify that:
   6.1. Temporary structure is stable before jacking activities or adjustments and before concrete is placed.
   6.2. Temporary structure complies with the authorized shop drawings.
   6.3. Materials and workmanship are satisfactory for the work.
7. Stop activity if any unanticipated issues occur.
8. Propose revisions to the authorized shop drawings to address any issues. Do not resume temporary structure activities until the proposed revisions are authorized.

The temporary-structure engineer may assign a representative to perform the temporary structure activities specified in section 48-1.01D. The temporary-structure engineer must submit a letter that is sealed and signed certifying that the representative:

1. Is registered as a civil engineer in the State
2. Has experience in temporary structure design or temporary structure construction inspection
3. Is familiar with the authorized shop drawings and the stresses the members are required to sustain
4. Will attend at least 1 job site visit with the Engineer and your temporary-structure superintendent to discuss the authorized shop drawings

Add to list in the 2nd paragraph of section 48-2.01A:

04-17-20

5. Includes illumination for vehicular and pedestrian traffic

Add to the end of section 48-2.01A:

04-17-20

Falsework used as temporary supports must comply with section 48-3.

Replace section 48-2.01B with:

04-17-20

48-2.01B Definitions

independent support system: Support system that is in addition to a falsework removal system that employs methods of holding falsework from above by winches, hydraulic jacks with prestressing steel, HS steel rods, or cranes.

falsework release: Lowering of falsework to the point that it no longer supports the loads imposed by the permanent structure, or any element, that the falsework was designed to support during construction. Falsework release includes blowing sand from sand jacks, turning screws on screw jacks, and removing wedges.

falsework removal: Releasing, lowering, and disposing of the falsework.

Replace the last paragraph of section 48-2.01C(1) with:

04-17-20

Submit a falsework lighting plan at least 10 days before starting construction on falsework containing openings for vehicular traffic, pedestrians, or railroad.

The plan must include:

1. Location, spacing, and mounting heights of luminaires
2. Types of luminaires
3. Calculations of illumination levels used to determine placement of luminaries
4. Plot of illumination points used to demonstrate compliance with the illumination levels requirements
5. Lighting circuit diagrams

Replace section 48-2.01C(2) with:

04-17-20

48-2.01C(2) Shop Drawings

Submit shop drawings and calculations for falsework.

The falsework shop drawings and calculations must be sealed and signed by the temporary-structure engineer for any of the following conditions:

1. Height of any portion of the falsework measured from the ground line to the soffit of the superstructure is more than 14 feet
2. Any individual falsework clear span is more than 16 feet
3. Falsework contains openings for vehicular, pedestrian, or railroad traffic
4. Falsework removal systems support falsework from above by winches, hydraulic jacks with prestressing steel, HS rods or cranes

Shop drawings and calculations for falsework piles with a calculated loading capacity greater than 100 tons must be sealed and signed by an engineer who is registered as a civil or geotechnical engineer in the State.

Falsework shop drawings and calculations must include:

1. Details of erection and removal activities.
2. Methods and sequences of erection and removal, including equipment.
3. Maximum falsework adjustment height.
4. Details for the stability of falsework during all stages of erection and removal activities.
5. Superstructure placing diagram showing concrete placing sequence and construction joint locations. If a schedule for placing concrete is shown, no deviation is allowed.
6. Assumed soil bearing values for falsework footings.
7. Maximum horizontal distance falsework piles may be pulled for placement under caps.

8. Maximum deviation of falsework piles from vertical.
9. Anticipated total falsework and formwork settlements, including footing settlement and joint take-up.
10. Grade, species, and type of any timber or structural composite lumber. Include manufacturer's tabulated working stress values for composite lumber.
11. Design calculations that include stresses and deflections in load carrying members.
12. Provisions for complying with temporary bracing requirements.
13. Welding standard used for welded members, including previously welded splices.
14. The following information for falsework removal systems employing methods of holding falsework from above by winches, hydraulic jacks with prestressing steel, HS steel rods, or cranes:
    - 14.1. Design code used for the analysis of the structural members of the independent support system
    - 14.2. Provisions for complying with current Cal/OSHA requirements
    - 14.3. Load tests and ratings within 1 year of intended use of hydraulic jacks and winches
    - 14.4. Location of the winches, hydraulic jacks with prestressing steel, HS steel rods, or cranes
    - 14.5. Analysis showing that the bridge deck and overhang are capable of supporting all loads at all time
    - 14.6. Analysis showing that winches will not overturn or slide during all stages of loading
    - 14.7. Location of deck and soffit openings if openings are needed
    - 14.8. Details of repair for the deck and soffit openings after falsework removal

Submit separate falsework shop drawings and calculations for each:

1. Single bridge or portion of bridge
2. Frame for multi-frame bridges

Add to section 48-2.01D:

04-17-20

48-2.01D(3) Falsework Lighting

After the installation of falsework lighting, measure the illumination levels in the presence of the Engineer, during the hours of darkness. For pavement and pedestrian walkway lighting, the measurements must be taken at ground level with the meter sensor pointing upward. For portal lighting, measurements must be taken at the face of the surface areas specified with the meter sensor perpendicular to the surface areas.

Falsework lighting must comply with the illumination levels shown in the following table:

Illumination Levels

Illumination Area	Average Illuminance (fc) (E_{avg})	Uniformity (E_{avg}/E_{min})
Pavement	0.6	4.0
Portal	1.0	4.0
Pedestrian Walkway	2.0	4.0

Replace the 1st paragraph of section 48-2.01D(2) with:

04-17-20

Except for previously welded splices, welding must comply with AWS D1.1. Welding of bar reinforcement must comply with AWS D1.4.

Replace *Reserved* in section 48-2.02A with:

04-17-20

Wood must comply with the NDS. Timber used for falsework construction must be seasoned with moisture content not to exceed 19 percent.

Add to the end of section 48-2.02B(1):

04-17-20

Where falsework for multiple level bridges is supported on the deck of a structure:

1. Falsework must bear directly on either:
   1.1. Girder stems, bent caps, or end diaphragms of the supporting structure.
   1.2. Falsework sills that transmit the load to the girder stems, bent caps, or end diaphragms without applying any stress to the deck slab.
2. Additional falsework must be in place beneath the supporting structure when construction loads are imposed on the supporting structure. Design and construct additional falsework to support all construction loads imposed on the supporting structure from the upper structure.

Design the falsework lighting, for pavement, portals, and pedestrian walkways at or under falsework openings, to illuminate:

1. Falsework portals during the hours of darkness
2. Pavement, with portals less than 150 feet apart, during the hours of darkness
3. Pavement, with portals 150 feet or more apart, 24 hours a day
4. Pedestrian walkways 24 hours a day

Lighting branch circuits must not exceed 20 A.

Replace the 2nd sentence in the 1st paragraph of section 48-2.02B(2) with:

04-17-20

The minimum total design load for any falsework for combined live and dead load is 100 psf, including members that support walkways.

Replace the 4th paragraph of section 48-2.02B(2) with:

10-19-18

The assumed horizontal load the falsework bracing system must resist must be the sum of the actual horizontal loads due to equipment, construction sequence or other causes, and a wind loading. The assumed horizontal load in any direction must be at least 2 percent of the total dead load.

Replace the table in the 7th paragraph of section 48-2.02B(2) with:

04-17-20

Height zone, H (feet above ground)	Wind pressure value	
	Shores or columns adjacent to traffic (psf)	At other locations (psf)
H≤30	20	15
30<H≤50	25	20
50<H≤100	30	25
H>100	35	30

Replace the table in the 8th paragraph of section 48-2.02B(2) with:

04-17-20

Height zone, H (feet above ground)	Wind pressure value	
	For members over and bents adjacent to traffic opening (psf)	At other locations (psf)
H≤30	2.0 *Q*	1.5 *Q*
30<H≤50	2.5 *Q*	2.0 *Q*
50<H≤100	3.0 *Q*	2.5 *Q*
H>100	3.5 *Q*	3.0 *Q*

NOTE:

Q = 1 + 0.2*W*, but not more than 10

where:

W = width of the falsework system in feet, measured in the direction of the wind force

Replace section 48-2.02B(3)(b) with:

04-17-20

48-2.02B(3)(b) Timber

Design stresses for timber and timber connections must not exceed stresses specified in the current NDS.

Adjustment factors used to determine allowable stresses for timber members and connections must comply with NDS for the appropriate condition of use and species.

Deflection due to concrete loading only must not exceed 1/240 of the span length.

Pile design load for timber piles must not exceed 45 tons.

Replace the 1st and 2nd paragraphs of section 48-2.02B(3)(c) with:

04-17-20

Except for flexural compressive stresses, the design load for identified grades of steel must not exceed the allowable strength specified in the AISC *Steel Construction Manual*.

Except for flexural compressive stresses, the design load for unidentified steel must not exceed the allowable strength specified for steel complying with ASTM A36/A36M in the AISC *Steel Construction Manual* or as shown in the following table:

Quality characteristic	Requirement
Tension, axial and flexural (psi)	22,000
Compression, axial (psi)	$16{,}000 - 0.38(L/r)^{2a}$
Shear on gross section of web of rolled shapes (psi)	14,500
Web yielding for rolled shapes (psi)	27,000
Modulus of elasticity (E) (psi)	30×10^6

NOTES:

L = unsupported length, inches

r = radius of gyration of the member, inches

[a] *L*/*r* must not exceed 120

Replace the table in the 3rd paragraph of section 48-2.02B(3)(c) with:

10-19-18

Quality characteristic	Requirement
Compression, flexural (psi)	12,000,000/[(L x d)/(b x t)][a]
Deflection due to concrete loading only	1/240 of the span
Modulus of elasticity (E) (psi)	30 x 10^6

NOTES:

L = unsupported length, inches
d = least dimension of rectangular columns or the width of a square of equivalent cross-sectional area for round columns, or the depth of beams, inches
b = width of the compression flange, inches
t = thickness of the compression flange, inches
F_y = specified minimum yield stress in psi

[a]Not to exceed (1) 22,000 psi for unidentified steel, (2) 22,000 psi for steel complying with ASTM A36/A36M, or (3) 0.6F_y for other identified steel

Add to section 48-2.02:

04-17-20

48-2.02C Falsework Lighting

48-2.02C(1) General

A falsework luminaire must:

1. Be commercially available
2. Include brackets and locking screws

48-2.02C(2) Pavement Illumination

Not Used

48-2.02C(3) Portal Illumination

Portal illumination includes plywood clearance guides 4 feet wide by 8 feet high and luminaires.

48-2.02C(4) Pedestrian Walkway Illumination

Not Used

04-17-20

Delete the 3rd paragraph of section 48-2.03A.

Add to section 48-2.03A:

04-17-20

During concrete placement, if (1) events occur that the Engineer determines will result in a structure that does not comply with the structure as described or (2) settlement variance is greater than 3/8-inch from the values shown on shop drawings, stop concrete placement and apply corrective measures. If the measures are not provided before initial concrete set occurs, stop concrete placement at the location ordered.

Detour traffic from the lanes over which falsework is being erected, released, adjusted, or removed.

Replace the 3rd paragraph of the section 48-2.03B with:

04-17-20

Falsework piles must be driven and assessed under section 49. The actual nominal driving resistance must be at least twice the falsework pile design load. For pile acceptance, the required number of hammer blows in the last foot of driving is determined using the formula in 49-2.01A(4)(c).

Add between the 2nd and 3rd paragraphs of section 48-2.03C:

10-19-18

Falsework erection includes adjustments or removal of components that contribute to the horizontal stability of the falsework system.

04-17-20

Delete the 8th paragraph of section 48-2.03C.

Replace section 48-2.03D with:

04-17-20

48-2.03D Removal

Release and remove falsework such that portions of falsework to be removed remain stable.

Falsework release includes blowing sand from sand jacks, turning screws on screw jacks, and removing wedges.

Except for concrete above the deck, do not release falsework supporting any span of a:

1. Simple span bridge before 10 days after the last concrete has been placed
2. Continuous or rigid frame bridge before 10 days after the last concrete has been placed:
   2.1. In that span
   2.2. In adjacent portions of each adjoining span for a length equal to one-half of the span where falsework is to be released
3. Simple span, continuous, or rigid frame bridge until the supported concrete has attained a compressive strength of 2,880 psi or 80 percent of the specified strength, whichever is greater

Do not release falsework for prestressed portions of structures until prestressing steel has been tensioned.

Do not release falsework supporting any span of a continuous or rigid frame bridge until all required prestressing is complete (1) in that span and (2) in adjacent portions of each adjoining span for a length equal to at least one half of the span where falsework is to be released.

Release falsework supporting spans of CIP girders, slab bridges, or culverts before constructing or installing railings or barriers on the spans, unless authorized.

Release falsework for arch bridges uniformly and gradually. Start at the crown and work toward the springing. Release falsework for adjacent arch spans concurrently.

Do not release falsework that supports overhangs, deck slabs between girders, or girder stems that slope 45 degrees or more from vertical before 7 days after deck concrete has been placed.

You may release falsework supporting the sides of girder stems that slope less than 45 degrees from vertical before placing deck concrete if you install lateral supports. Lateral supports must be:

1. Designed to resist rotational forces on the girder stem, including forces due to concrete deck placement
2. Installed immediately after each form panel is removed
3. Installed before releasing supports for the adjacent form panel

Do not release falsework for bent caps supporting steel or PC concrete girders before 7 days after placing bent cap concrete.

Release falsework for structural members subject to bending as specified for simple span bridges.

Do not release falsework for box culverts and other structures with decks lower than the roadway pavement and span lengths of 14 feet or less until the last placed concrete has attained a compressive strength of 1,600 psi. Curing of the concrete must not be interrupted. Falsework release for other box culverts must comply with the specifications for the release of bridge falsework.

Do not release falsework for arch culverts sooner than 40 hours after concrete has been placed.

Remove falsework piling to at least 2 feet below the original ground or streambed. Remove falsework piling driven within ditch or channel excavation limits to at least 2 feet below the bottom and side slopes of the excavated areas.

Falsework removal systems employing methods of holding falsework by winches, hydraulic jacks with prestressing steel, HS steel rods, or cranes must also be supported by an independent support system when the falsework is over vehicular, pedestrian, or railroad traffic openings open to traffic.

Bridge deck and soffit openings used to facilitate falsework removal activities must:

1. Have a 6-inch maximum diameter opening.
2. Be located away from the wheel paths for deck openings.
3. Be formed with corrugated HDPE pipe complying with section 20-2.07B(3).

Before filling the bridge deck and soffit openings with concrete:

1. Trim HDPE pipes 1 inch from the exposed surface of the top of deck, bottom overhand, and soffit
2. Clean and roughen concrete surfaces of opening. Fill the opening with rapid setting concrete complying with section 60-3.02B(2) or with a concrete mix of equal or higher strength than the deck. Finish surface must comply with section 51-10.3F(2).

Falsework removal over roadways with a vertical traffic opening of less than 20 feet must start within 14 days after the falsework is eligible to be released and must be completed within 45 days after it is eligible to be released.

Replace section 48-2.03E with:

04-17-20

48-2.03E Falsework Lighting

48-2.03E(1) General

Notify the Engineer at least 5 business days before the installation of the falsework lighting.

Fasten power cables to the supporting structure at a minimum 3-foot intervals and within 12 inches from every box. Encase cables within 8 feet of the ground in a minimum 1/2-inch Type 1 conduit.

Enclose splices in junction boxes.

Provide power for the falsework lighting under section 87-20.

Energize lighting circuits immediately after supporting structures have been erected.

48-2.03E(2) Pavement Illumination

Provide pavement illumination on roadways beneath falsework structures.

Install luminaires:

1. Along the sides of the opening not more than 4 feet behind or 2 feet in front of the roadway face of the temporary railing
2. 12 to 16 feet above the roadway surface without obstructing the light pattern on the pavement

3. Aimed to avoid glare to motorists
4. Spaced to comply with the illumination levels table
5. At the ends no more than 10 feet inside portal faces

Measure the illumination levels at a minimum two points per lane, one on each side within one-quarter of the lane width from the lane stripe. Use this pattern to start the measurements at both ends of the falsework and then at 15-foot intervals through the length of the pavement under the falsework.

48-2.03E(3) Portal Illumination

Provide portal illumination on the sides facing traffic. Install luminaires and clearance guides immediately after falsework vertical members are erected.

Fasten clearance guides:

1. To the vertical support adjacent to the traveled way, facing traffic
2. Vertically with the bottom of the clearance guide from 3 to 4 feet above the roadway
3. With the center located approximately 3 feet horizontally behind the railing face on the roadway side

Paint clearance guides before each installation with not less than 2 applications of flat white paint.

If ordered, repainting is change order work.

Install luminaires on the structure directly over the vertical support, approximately 16 feet above the pavement and 6 feet in front of the guides. Aim the luminaires to illuminate the exterior falsework beam, the clearance guides, and the overhead clearance sign and comply with the illumination levels table.

Measure the illumination levels at the center and four corners of the clearance guides, at the exterior falsework beam, and at the overhead clearance sign.

48-2.03E(4) Pedestrian Walkway Illumination

Provide pedestrian walkway illumination immediately after the protective overhead covering is erected.

Install the luminaires a minimum 8 feet clearance in the protective overhead covering and center them over the pedestrian walkway. Space the luminaires through the pedestrian walkway as needed to comply with the illumination levels table. Install luminaires at the ends no more than 7 feet inside the pedestrian walkway openings.

Measure the illumination levels at a minimum two points, one on each side within one-quarter of the walkway width from the edge. Use this pattern to start the measurements at both ends of the falsework and then at 10-foot intervals through the length of the pedestrian walkway.

Replace item 11 in the list in the 1st paragraph of section 48-3.01C(2) with:

04-17-20

11. Mitigation plan for jacking the structure if settlement occurs in the temporary supports.

10-19-18

Delete the 4th paragraph of section 48-3.01C(2).

Replace the 1st paragraph of section 48-3.01D(1) with:

04-17-20

Welding, welder qualification, and welding inspection for temporary supports must comply with AWS D1.1 and section 48-2.

Replace section 48-3.02B with:

04-17-20

48-3.02B Design Criteria

The Engineer does not authorize temporary support designs based on allowable stresses or design load greater than those specified in section 48-2.02B(3).

If falsework loads are imposed on temporary supports, the temporary supports must also satisfy the deflection criteria in section 48-2.02B(3).

The temporary support system must support the initial jacking loads and the minimum temporary support design loads and forces shown. As a minimum, the horizontal load to be resisted in any direction by the temporary support system must be (1) the sum of actual horizontal loads due to equipment, construction sequence, or other causes plus an allowance for wind and (2) not less than 5 percent of the total supported dead load at the location being considered. Adjust vertical design loads for the weight of the temporary supports and jacking system, construction equipment loads, and additional loads imposed by jacking activities. Construction equipment loads must be at least 20 psf of deck surface area of the frame involved.

Temporary supports must resist the described lateral design forces applied at the point where the column to be removed meets the superstructure. If the temporary support lateral stiffness exceeds the described minimum stiffness, increase the lateral design forces to be compatible with the temporary support stiffness.

Place temporary supports, that are resisting transverse lateral loads, within 1/2 of the span length from the existing bent. Place temporary supports, that are resisting longitudinal lateral loads, within the frame where columns are to be removed.

You may use the permanent piles as part of the temporary support foundation. Do not move or adjust permanent piles from the locations shown. If you install permanent piles longer than described to support the temporary supports above the top of the footing and later cut off the piles at their final elevation, you must use shear devices adequate to transfer all pile reactions into the footing.

Design temporary support footings to carry the loads imposed without exceeding the estimated soil bearing values or anticipated settlements. You must determine soil bearing values.

Where temporary supports are placed on the deck of an existing structure:

1. Temporary supports must bear either:
   1.1. Directly on girder stems, bent caps, or end diaphragms of the supporting structure
   1.2. On falsework sills that transmit the load to the stems, bent cap, or end diaphragms without overstressing any member of the new or existing structure
2. Temporary supports must not induce permanent forces into the completed structure or produce cracking.
3. Place additional temporary supports beneath the existing structure where temporary support loads are imposed on the existing structure. Design and construct the additional temporary supports to support all loads from the upper structure and construction activities.

Provide additional bracing as required to withstand all imposed loads during each phase of temporary support erection and removal. Include wind loads complying with section 48-2.02B(2) in the design of additional bracing.

Mechanically connect (1) the structure to the temporary supports and (2) the temporary supports to their foundations. Mechanical connections must be capable of resisting the lateral design forces. Friction forces developed between the structure and temporary supports (1) are not considered an effective mechanical connection and (2) must not be used to reduce lateral forces.

Design mechanical connections to accommodate movement resulting from adjustments made to the temporary supports.

If the concrete is to be prestressed, design temporary supports to support changes to the loads caused by prestressing forces.

Temporary supports must comply with the specifications for falsework in section 48-2.02B(4).

Replace section 48-4.01 with:

04-17-20

48-4.01 GENERAL

48-4.01A Summary

Section 48-4 includes specifications for temporary decking for joint or deck reconstruction.

Temporary decking must consist of a steel plate system that spans the incomplete work.

Concrete anchorage devices and nonskid surface must comply with section 75-3.

48-4.01B Definitions

Reserved

48-4.01C Submittals

Submit shop drawings and calculations for temporary decking.

Shop drawings and calculations for temporary decking must be sealed and signed by an engineer who is registered as a civil engineer in the State.

Temporary decking shop drawings and calculations must include:

1. Storage location of equipment and materials that allows for 1 shift of work and placement of temporary decking within the time allowed
2. Construction sequence and schedule details
3. Cure time for concrete to be placed under temporary decking
4. Details for removing temporary decking and restoring the existing structure

If temporary decking is not shown, shop drawings and calculations must also include:

1. Design calculations, including the description, location, and value, of all loads
2. Details of the connection between the temporary decking and the existing or new structure

Submit a certificate of compliance for temporary decking materials.

Sections 48-1.01C(2), 48-1.01C(3), and 48-1.01D(2) do not apply for temporary decking.

48-4.01D Quality Assurance

Reserved

Replace *Not Used* in section 48-4.02 with:

04-17-20

48-4.02A General

Yield strength of steel plate must be greater than or equal to 36 ksi.

Bolts must comply with ASTM F3125, Grade A325.

Nuts must comply with ASTM A563/563M.

Material for temporary tapers must be rapid setting concrete or polyester concrete complying with section 60-3.02B(2) or 60-3.04B(2).

48-4.02B Design Criteria

If temporary decking is not shown, the temporary decking design must:

1. Comply with the unfactored permit loads, braking force, and HL93 loads except lane load from the current *AASHTO LRFD Bridge Design Specifications* with *California Amendments*.
2. Not exceed the allowable stresses or design loads specified in section 48-2.02B(3).
3. Have live load deflection not exceeding 1/300 of the temporary decking span for the design load.
4. Provide for temporary decking with a uniform surface with a coefficient of friction of at least 0.35 when measured under California Test 342.
5. Provide for temporary decking that is mechanically connected to the existing structure and adjacent approaches. If a steel plate spans a joint, the mechanical connection must accommodate at least 50 percent of the movement rating shown for that joint.
6. Not overstress, induce permanent forces into, or produce cracking in the existing structure.

Replace section 48-4.03 with:

04-17-20

48-4.03 CONSTRUCTION

For bolted connections, drill the holes without damaging the adjacent concrete. Do not damage existing reinforcement.

If the temporary decking does not extend the entire width of the roadway, taper the sides of the temporary decking at a 12:1 (horizontal: vertical) ratio.

Cure temporary tapers at least 3 hours before allowing traffic on the temporary decking.

If unanticipated displacements, cracking, or other damage occurs to the existing structure or to any new components installed in or adjacent to the deck, stop work on the deck and perform corrective measures.

Edges of steel plate systems must be in full contact with the existing deck and the adjacent approach slab. If used, shims must be securely attached to the plate.

Do not allow traffic on deck concrete until it has attained the compressive strength shown.

When temporary decking is no longer needed, immediately remove temporary decking materials and connections from the existing structure. Patch holes with rapid setting concrete complying with section 60-3.02. Remove modifications to the existing structure except where permanent alterations are shown.

10-19-18

Delete the 4th paragraph of section 48-5.01C.

Replace the 1st paragraph of section 48-5.02B with:

10-19-18

The jacking support system must resist the structure dead load and lateral design forces shown, plus any additional loads from jacking equipment and activities. As a minimum, the horizontal load to be resisted in any direction for the jacking support system and temporary bracing must be (1) the sum of actual horizontal loads due to equipment, construction sequence, or other causes plus an allowance for wind as specified in Section 48-2.02B(2) and (2) not less than 2 percent of the total dead load of the structure being jacked. You must determine soil bearing values for support footings. If the jacking support stiffness exceeds the described minimum stiffness, increase the lateral design forces to be compatible with the jacking support lateral stiffness.

Replace the 1st paragraph of section 48-5.03 with:

10-19-18

Construct the jacking support system under the specifications for falsework in section 48-2.03.

Add to the end of section 48-6.01C(1):

04-17-20

Sections 48-1.01C(2), 48-1.01C(3), and 48-1.01D(2) do not apply for temporary wood poles.

Replace Reserved in section 48-6.01D(1) with:

04-17-20

A temporary-structure engineer is not required.

04-17-20

Delete the 3rd paragraph of section 48-6.02B.

^^

49 PILING

04-19-19

Replace the 6th paragraph of section 49-1.01D(4) with:

10-19-18

Except for load test piles and anchor piles, drive the 1st production pile in the control zone. Do not install any additional production piles until dynamic monitoring has been performed, and the Engineer provides you with the bearing acceptance criteria curves for any piles represented by the dynamically monitored piles.

Replace the 3rd paragraph of section 49-2.01D with:

10-19-18

The payment quantity for furnish piling is the length measured along the longest side of the pile from the specified tip elevation shown to the plane of pile cutoff, except for dynamically monitored piles. For dynamically monitored piles, the payment quantity for furnish piling includes an additional length of 2 times the largest cross-sectional dimension of the pile plus 2 feet.

Add to the end of section 49-2.02A(2):

10-19-18

longitudinal weld length: The length of a continuous longitudinal weld.

circumferential weld length: The length of a continuous weld around the circumference of the pipe pile.

spiral weld length: The length of one full 360-degree spiral weld revolution around the circumference of the pipe pile.

Replace the 3rd paragraph of section 49-2.02A(4)(b)(iii)(B) with:

10-19-18

For welding performed under AWS D1.1:

1. Perform NDT on 25 percent of each longitudinal, circumferential, or spiral weld length using RT or UT.
2. If repairs are required in a portion of the tested weld:
   2.1. Perform additional NDT on untested areas on each end of the initial portion tested. The length of additional NDT on each end must equal 10 percent of the weld length. If it is not possible to

perform 10 percent of the weld length on one end, perform the remaining percentage on the other end.

2.2. After this additional 20 percent of NDT is performed, determine and record the total cumulative repair lengths from all NDT for each weld length. If the cumulative weld repair length is equal to or more than 10 percent of the weld length, then perform NDT on the entire weld length.

2.3. Perform NDT on the repaired portion plus 2 inches on each end of the repaired weld excavation.

Replace the 2nd paragraph of section 49-2.02A(4)(b)(iii)(C) with:

10-19-18

Perform NDT on 25 percent of the weld length performed by each welder, using RT or UT at locations selected by the Engineer. The Engineer may select several locations on a given splice. The cover pass must be ground smooth at locations to be tested.

Replace the 4th paragraph of section 49-2.02A(4)(b)(iii)(C) with:

10-19-18

If repairs are required in a portion of the tested weld:

1. Perform additional NDT on untested areas on each end of the initial portion tested. The length of additional NDT on each end must equal 10 percent of the pipe's outside circumference. If it is not possible to perform 10 percent of the weld length on one end, perform the remaining percentage on the other end.
2. After this additional 20 percent of NDT is performed, determine and record the total cumulative repair lengths from all NDT for each weld length. If the cumulative weld repair length is equal to or more than 10 percent of the pipe's outside circumference, then perform NDT on the entire weld length.
3. Perform NDT on the repaired portion plus 2 inches on each end of the repaired weld excavation.

Replace the 5th paragraph of section 49-2.02B(1)(b) with:

04-19-19

If splicing steel pipe piles using a circumferential weld, the piles must comply with the fit-up requirements of clause 9.24.1 of AWS D1.1.

Replace section 49-3.01B(2) with:

04-19-19

49-3.01B(2) Mass Concrete

Section 49-3.01B(2) applies to CIP concrete piles with a diameter greater than 8 feet.

For piles with a diameter greater than 8 feet and less than or equal to 14 feet:

1. The specifications for SCM content in the 4th paragraph of section 90-1.02B(3) do not apply.
2. The SCM content of the concrete must comply with the following:
   2.1. Any combination of portland cement and fly ash satisfying:

   Equation 1:

   $(12 \times FM)/MC \geq X$

   where:
   FM = fly ash complying with AASHTO M 295, Class F, with a CaO content of up to 10 percent, including the quantity in blended cement, lb/cu yd
   MC = minimum quantity of cementitious material specified, lb/cu yd

X = 3.0 for 8 < D ≤ 10, where D = pile diameter in feet
X = 4.0 for 10 < D ≤ 14, where D = pile diameter in feet

Equation 2:

$MC - MSCM - PC \geq 0$

where:
MC = minimum quantity of cementitious material specified, lb/cu yd
MSCM = minimum sum of SCMs that satisfies equation 1, lb/cu yd
PC = quantity of portland cement, including the quantity in blended cement, lb/cu yd

2.2. You may replace any portion of the portland cement with any SCM complying with section 90-1.02B(3) if equations 1 and 2 are satisfied as specified above.

For piles with a diameter greater than 14 feet, the concrete must comply with the specifications for mass concrete in section 51-6.

Add to the end of section 49-3.02C(1):

04-19-19

You may construct CIDH concrete piles 24 inches in diameter or larger by excavating and depositing concrete under slurry.

04-19-19

Delete the 2nd paragraph of section 49-3.02C(8).

Replace section 49-4.01 with:

04-19-19

49-4.01 GENERAL

49-4.01A Summary

Section 49-4 includes specifications for drilling holes and installing steel soldier piles in the holes.

Steel soldier piles must comply with section 49-2.03.

49-4.01B Definitions

Reserved

49-4.01C Submittals

Reserved

49-4.01D Quality Assurance

Reserved

^^

51 CONCRETE STRUCTURES

04-17-20

Add to the beginning of section 51-1.01C(1):

04-19-19

If ordered, submit concrete form design and materials data for each forming system.

Replace section 51-1.01C(5) with:

04-17-20

51-1.01C(5) Drill and Bond Dowel—Chemical Adhesive

For each lot or batch of chemical adhesive used for drill and bond dowel chemical-adhesive systems, submit the following:

1. Certificate of compliance, including the material name and lot or batch number
2. Manufacturer's installation procedures, including the minimum cure time
3. SDS

For each chemical adhesive, submit 1 test sample for every 100 cartridges or fraction thereof to be used. The test sample must consist of 1 cartridge of chemical adhesive, 1 mixing nozzle, and 1 retaining nut. Submit test samples to METS at least 25 days before use.

Each test sample must clearly and permanently show the following:

1. Manufacturer's name
2. Material name
3. Lot or batch number
4. Expiration date
5. Evaluation report number
6. Directions for use
7. Storage requirements
8. Warnings or precautions required by State and federal laws and regulations

Add to the end of section 51-1.01D(3):

04-17-20

51-1.01D(3)(c) Drill and Bond Dowel—Chemical Adhesive

The Department will verify the chemical adhesive used in the drill and bond dowel chemical adhesive system is chemically consistent with the chemical adhesive material on the Authorized Materials List.

Add to the end of section 51-1.02B:

10-18-19

Concrete for concrete bridge decks or PCC deck overlays must contain:

1. Polymer fibers. Each cubic yard of concrete must contain at least 1 pound of microfibers and at least 3 pounds of macrofibers.
2. Shrinkage reducing admixture. Each cubic yard of concrete must contain at least 3/4 gallon of a shrinkage reducing admixture. If you use the maximum dosage rate shown on the Authorized Material List for the shrinkage reducing admixture, your submitted shrinkage test data does not need to meet the shrinkage limitation specified in section 90-1.02A.

Replace section 51-1.02D with:

04-17-20

51-1.02D Rapid Strength Concrete

For bridge decks or PCC deck overlays:

1. RSC must have a minimum 28-day compressive strength of 4,500 psi
2. RSC must contain at least 675 pounds of cementitious material per cubic yard
3. If your RSC shrinkage test results are 0.24 percent or less without the use of a shrinkage reducing admixture:

3.1 Use of shrinkage reducing admixture is not required
3.2 Fibers are not required

4. If you use the maximum dosage rate shown on the Authorized Material List for shrinkage reducing admixture, your shrinkage test results must be 0.032 percent or less

RSC must have a minimum 28-day compressive strength of 4,000 psi.

If you use chemical admixtures or SCMs, the same proportions must be used when testing.

If you use aggregate that is not on the Authorized Material List for innocuous aggregate, the cement in your proposed mix design must comply with one of the following:

1. Any hydraulic cement, with or without any proposed SCM, must have an expansion ratio of less than 0.10 percent when tested with glass aggregate under ASTM C1260. Test specimens must be prepared using proportions of ingredients under ASTM C441.
2. For Portland cement, the quantity of SCM in your proposed mix design must satisfy equation 1 of section 90-1.02B(3).

The specifications for a reduction in the operating range and contract compliance for cleanness value and sand equivalent specified in section 90-1.02C(2) and section 90-1.02C(3) for aggregate, do not apply to RSC used for a bridge element.

Replace the 1st paragraph of section 51-1.02H with:

04-17-20

Chemical adhesives for bonding dowels must be on the Authorized Material List for chemical adhesives and must be appropriate for the installation conditions of the project.

10-18-19

Delete the 5th paragraph of section 51-1.03C(2)(b).

Add to the end of section 51-1.03E(1):

04-17-20

Repair rejected holes, that will not be encased in concrete, with bonding material complying with section 51-1.02C.

Replace the 2nd paragraph of section 51-1.03E(3) with:

04-17-20

If reinforcement is encountered during drilling before the specified depth is attained, notify the Engineer. Unless coring through the reinforcement is authorized. Drill a new hole adjacent to the rejected hole to the depth shown.

Replace section 51-1.03E(5) with:

04-17-20

51-1.03E(5) Drill and Bond Dowel—Chemical Adhesive

Install dowels for the drill and bond dowel chemical adhesive system under the manufacturer's instructions. When installing dowels in new concrete, install after the concrete has cured for at least 28 days.

Drill the holes without damaging the adjacent concrete. Remove all loose dust and concrete particles from the hole and protect the hole from deleterious materials until the anchor is installed.

If reinforcement is encountered during drilling before the specified depth is attained, notify the Engineer. Unless coring through the reinforcement is authorized. Drill a new hole adjacent to the rejected hole to the depth shown.

Immediately after inserting the dowel into the chemical adhesive, support the dowel as necessary to prevent movement until the chemical adhesive has cured the minimum time specified in the manufacturer's instructions. Dowels must not be adjusted by bending. The adhesive must be fully cured before the dowel is put into service.

Replace dowels that fail to bond or are damaged.

Replace the 2nd paragraph of section 51-1.03H with:

10-18-19

Cure the top surface of bridge decks by (1) misting and (2) the water method using a curing medium under section 90-1.03B(2). After strike-off, immediately and continuously mist the deck with an atomizing nozzle that forms a mist and not a spray. Continue misting until the curing medium has been placed and the application of water for the water method has started. At the end of the curing period, remove the curing medium and apply curing compound on the top surface of the bridge deck during the same work shift under section 90-1.03B(3). The curing compound must be curing compound no. 1.

10-18-19

Delete the 4th paragraph of section 51-1.03H.

Add to section 51-1.03:

10-19-18

51-1.03J Temporary Decking

If you are unable to complete bridge reconstruction activities before the bridge is to be opened to traffic, furnish and maintain temporary decking under section 48-4 until that portion of the work is complete.

Add to the end of section 51-2.01A(1):

10-18-19

The specifications for (1) shrinkage in section 90-1.02A, (2) shrinkage reducing chemical admixture in section 51-1.02B, and (3) polymer fibers in section 51-1.02B do not apply to concrete used to fill blocked-out recesses for joint seal assemblies.

Replace the 2nd paragraph of section 51-4.01C(1) with:

04-19-19

For PC PS concrete girders and deck panels, submit an erection work plan. The work plan must be signed by an engineer who is registered as a civil engineer in the State and include procedures, details, and sequences for:

1. Unloading
2. Lifting
3. Erecting
4. Temporary bracing installation

Replace the 1st paragraph of section 51-4.01C(2)(a) with:

04-19-19

Submit shop drawings for PC concrete members to the OSD Documents Unit unless otherwise specified.

Replace *Reserved* in section 51-4.01C(2)(e) with:

04-19-19

For PC deck panels, shop drawings must include:

1. Panel materials, shapes, and dimensions.
2. Deck panel layout identifying the locations of each panel.
3. Reinforcing, joint, and connection details.
4. Complete details of the methods, materials, and equipment used in prestressing and precasting work.
5. Type of texture and method of forming the textured finish.
6. Methods and details for lifting, bracing, and erection.
7. Method of support and grade adjustment.
8. Methods of sealing against concrete leaks.

Replace the 2nd paragraph of section 51-4.02B with:

04-19-19

Handle, store, transport, and erect PC members in a position such that the points of support and directions of the reactions with respect to the member are approximately the same as when the member is in its final position.

Replace *Reserved* in section 51-4.02D(7) with:

04-19-19

Clearly label the top surface of each panel with the word *TOP* as shown on the deck panel layout using waterproof paint or other authorized means.

Apply a coarse texture to at least 90 percent of the deck panel top surface area by brooming with a stiff bristled broom or by other suitable devices that results in uniform scoring parallel with the prestressing strands. The top surface texture must have a maximum 1/8-inch texture.

Each camber strip must:

1. Consist of high density expanded polystyrene with a minimum compressive strength of 55 psi.
2. Consist of a single layer and extend continuously under each deck panel.
3. Achieve a height that accounts for roadway profile, cross slope, and girder camber.
4. Have 1/4-inch v-notches or 1/2 by 1/2-inch slots cut into the top surface on 4-foot centers.

Camber strip dimensions must comply with the following table:

Polystyrene Camber Strip Dimensions

Height (H) (inches)	Width (W) (inches)
1 to 2.5	1.5
Greater than 2.5 and less than or equal to 3.5	1.75
Greater than 3.5 and less than or equal to 4	2

Chemical adhesive must be suitable for use with concrete and polystyrene.

For the concrete deck pour, the aggregate must comply with the 1/2-inch maximum or the 3/8-inch maximum combined aggregate gradation specified in section 90-1.02C(4)(d).

Add between the 5th and 6th paragraphs of section 51-4.03B:

10-19-18

Erect steel or PC girders onto the supporting concrete, such as bent caps or abutments, after the concrete attains a compressive strength of 2,880 psi or 80 percent of the specified strength, whichever is greater.

Replace *Reserved* in section 51-4.03G with:

04-19-19

Construct the deck panel system in the following sequence:

1. After girders and diaphragms are in place, place each polystyrene camber strip along the top of each girder. Apply a continuous bead of chemical adhesive to the top and bottom of each camber strip to prevent gaps between the camber strip and concrete members.
2. Place each deck panel as shown on the deck panel layout such that each panel bears uniformly on the camber strips.
3. Abrasive blast clean deck panel and girder surfaces before placing deck reinforcement. Remove all surface laitance, curing compound, and other foreign materials. Thoroughly clean under the edges of each panel to ensure removal of construction debris before the stage 1 deck pour.
4. Place deck reinforcement.
5. Place deck concrete in a two-stage continuous pour:
   5.1. Place and vibrate stage 1 concrete over the girders by completely filling the area between the camber strips in from 15 to 30 feet longitudinal sections ahead of the stage 2 concrete deck pour. Check slots or holes in camber strips to ensure removal of air voids and full consolidation during concrete placement.
   5.2. Place stage 2 concrete deck over stage 1 concrete and deck panels as to not result in a cold joint between the two stages.

If required, install temporary bracing between the ends of each deck panel to prevent transverse panel movement that could lead to loss of bearing on the camber strips.

Loads placed on deck panels during construction must not exceed 50 psf.

Replace the row for *Apparent elongation* in the table in the 2nd paragraph of section 51-5.02B with:

04-19-19

Apparent elongation (max, percent)	ASTM D4632	35

^^

52 REINFORCEMENT

04-17-20

Replace section 52-1.02E with:

04-17-20

52-1.02E Dowels

52-1.02E(1) General

Reinforcing steel dowels must be deformed bars complying with section 52-1.02B.

Threaded rods used as dowels must comply with section 75-1.02A.

52-1.02E(2) Dowels for Drill and Bond Dowel—Chemical Adhesive

Dowels for drill and bond dowel chemical-adhesive systems must be one of the following:

1. Threaded rods complying with ASTM F1554, Grade 36
2. Deformed bar reinforcement complying with section 52-1.02B
3. Stainless steel reinforcement complying with ASTM A955/A955M, Grade 60, UNS Designation S31653, S32304, S32205, or S31803

^^

53 SHOTCRETE

10-18-19

Replace the 1st paragraph of section 53-1.01A with:

10-18-19

Section 53-1 includes general specifications for applying shotcrete.

Replace section 53-1.01B with:

10-18-19

53-1.01B Definitions

shotcrete: Concrete pneumatically projected at high velocity onto a surface to achieve compaction.

dry-mix shotcrete: Dry aggregates and cementitious materials are mixed before entering the delivery hose. Mixing water is added at the nozzle.

wet-mix shotcrete: Dry aggregates, cementitious materials, and water are mixed before entering the delivery hose. If used, accelerator may be added at the nozzle.

rebound: Aggregate coated with cement paste that ricochets away from the surface against which the shotcrete is being applied.

Replace *Reserved* in section 53-1.01D with:

10-18-19

Air pressure and shotcrete supply at the nozzle must be uniform and provide a steady, continuous flow of shotcrete. Inspect nozzles and nozzle body components before each work shift. Replace nozzles and components under the manufacturer's instructions.

Replace the introductory clause to the list in the 2nd paragraph of section 53-1.02 with:

10-18-19

For dry-mix shotcrete:

Replace the introductory clause to the list in the 3rd paragraph of section 53-1.02 with:

10-18-19

For wet-mix shotcrete:

Replace the 1st sentence in item 2 in the list in the 3rd paragraph of section 53-1.02 with:

10-18-19

2. You may substitute a maximum of 40 percent coarse aggregate for the fine aggregate.

Replace section 53-1.03B with:

10-18-19

53-1.03B Preparing Receiving Surfaces

Evenly grade the receiving surface before applying shotcrete. No point on the graded slope may be above the slope plane shown.

Thoroughly compact the receiving surface. The receiving surface must contain enough moisture to provide a firm foundation and prevent excess absorption of water from the shotcrete. The receiving surface must be free of surface water.

Forms must comply with section 51-1.03C(2). Reinforce, secure, and brace forms to maintain form alignment against distortion from shotcrete operations. Install and maintain alignment control means at corners or offsets not established by forms or shotcrete operations.

Use ground wires to establish thickness, surface planes, and finish lines. Use temporary coverings to protect adjacent surfaces from the nozzle stream.

Replace section 53-1.03C with:

10-18-19

53-1.03C Applying Shotcrete

Dry-mix or wet-mix shotcrete must be applied by the nozzle.

Apply shotcrete using small circular motions of the nozzle while building the required thickness. Direct the nozzle perpendicular to the receiving surface with the nozzle held at such a distance to produce maximum consolidation and full encapsulation of the reinforcement. Shotcrete must completely encase reinforcement and other obstructions.

Apply shotcrete first in corners, voids, and areas where rebound or overspray cannot easily escape. Do not incorporate rebound or overspray in the work.

Before applying subsequent layers of shotcrete:

1. Allow shotcrete to stiffen sufficiently. Remove hardened overspray and rebound from adjacent surfaces, including exposed reinforcement.
2. Use a cutting rod, compressed air blowpipe, or other authorized methods to remove all loose material, overspray, laitance, or other deleterious materials that may compromise the bond of the subsequent layers of shotcrete.
3. Bring the receiving surface to a saturated surface-dry condition immediately before applying subsequent layer.

For dry-mix shotcrete:

1. Adjust air volume, material feed volume, and distance of the nozzle from the work as necessary to encase reinforcement.
2. Maintain uniform water pressure at the nozzle of at least 15 psi greater than the air pressure at the machine.
3. Do not use aggregate and cementitious materials that have been mixed for more than 45 minutes.

For wet-mix shotcrete:

1. Transport shotcrete under section 90-1.02G(3).
2. Apply ground wires at approximately 7-foot centers.
3. Select a slump range that will effectively encapsulate reinforcement within the work but not cause shotcrete to sag or slough during application.

Replace section 53-1.03D with:

10-18-19

53-1.03D Finishing Shotcrete

Apply shotcrete to the line and grade shown. Leave finished shotcrete surface as gun finish unless otherwise described.

Do not initiate cutting or finishing until the shotcrete has set sufficiently to avoid sloughing or sagging. The finished surface must be smooth and uniform for the type of work involved.

Remove and replace loose areas of shotcrete.

Cure shotcrete for at least 7 days by any of the methods specified in section 90-1.03B. If the curing compound method is used for a gun or roughened surface, apply the curing compound at twice the specified rate. If you add a coloring agent to the shotcrete and you use the curing compound method for curing the shotcrete, use curing compound no. 6.

Protect shotcrete under section 90-1.03C.

Replace the 2nd paragraph of section 53-1.04 with:

10-18-19

The Department does not pay for shotcrete applied outside the dimensions shown or to fill low areas of receiving surfaces.

Replace the paragraph of section 53-2.01A with:

10-18-19

Section 53-2 includes specifications for applying structural shotcrete. Structural shotcrete must be applied using wet-mix shotcrete.

Replace *qualifications* in item 1.1 in the list in the 1st paragraph of section 53-2.01C with:

10-18-19

certifications

Replace the paragraph of section 53-2.01D(2) with:

10-18-19

Nozzlemen performing the work must hold current ACI CPP 660.1-17 certification as a nozzleman for wet-mix shotcrete. Nozzlemen performing overhead shotcrete work must hold current qualifying ACI CPP 660.1-17 certification in the overhead shooting orientation for wet-mix shotcrete.

Replace the 2nd paragraph of section 53-2.01D(3) with:

10-18-19

Each nozzleman performing the work must construct 1 unreinforced test panel and 1 reinforced test panel for each proposed mix design. The test panel orientation must match the orientation of the work.

Replace the 1st sentence in the 1st paragraph of section 53-2.01D(4)(b) with:

10-18-19

Obtain at least four 3-inch-diameter test cores from each 50 cu yd, or portion thereof, of shotcrete applied.

Add between the 1st and 2nd paragraphs of section 53-2.01D(4)(b):

10-19-18

For soil nail walls, do not core through waler bars.

Replace section 53-2.02 with:

10-18-19

53-2.02 MATERIALS

Shotcrete must comply with the specifications for concrete in section 90-1.

Shotcrete must have a minimum compressive strength of 3,600 psi, unless otherwise described.

Mortar and alternative filler material must comply with section 60-3.05B(2).

10-18-19

Delete the 2nd paragraph of section 53-2.03.

Add between the 3rd and 4th paragraphs of section 53-2.03:

10-18-19

Before applying shotcrete, reinforcement must be:

1. Free from loose rust, oil, curing compound, overspray, or other material deleterious to the bond between concrete and steel.
2. Lapped separated by one of the following:
   2.1. Three times the diameter of the largest reinforcing bar.
   2.2. Three times the maximum size aggregate.
   2.3. Two inches, whichever is least, unless otherwise specified. Lapped bars must be in the same plane and parallel to the shooting direction.
3. Securely tied to minimize movement or vibration.

The temperature of reinforcement and receiving surfaces must be below 90 degrees F before applying shotcrete.

Apply the wet-mix shotcrete continuously removing accumulations of rebound and overspray using a compressed air blowpipe. Ensure the nozzleman and the blowpipe operator work together and the nozzleman does not get ahead of the blowpipe operator.

10-18-19

Delete the 4th paragraph of section 53-2.03.

Replace the 7th paragraph of section 53-2.03 with:

10-18-19

If a finish coat is used, clean the surface before applying the finish coat. Wash receiving surface with an air-water blast to remove all loose material, laitance, overspray, or other material that may compromise the bond of subsequent layers of shotcrete.

10-18-19

Delete the 8th paragraph of section 53-2.03.

Replace the 12th paragraph of section 53-2.03 with:

10-18-19

After removing field QC test cores, fill the holes with mortar or alternative filler material. If using mortar, apply mortar under section 51-1.03E(2). If using an alternative filler material, apply a bonding epoxy before placing the filler material. Apply the alternative filler material under the manufacturer's instructions.

^^

55 STEEL STRUCTURES

04-19-19

Replace the 3rd paragraph of section 55-1.02E(7)(a) with:

04-19-19

Dimensional details and workmanship for welded joints in tubular and pipe connections must comply with clause 9 of AWS D1.1.

^^

56 OVERHEAD SIGN STRUCTURES, STANDARDS, AND POLES

04-17-20

Replace section 56-1.01D(2)(b)(i) with:

04-19-19

56-1.01D(2)(b)(i) General

Perform NDT of steel members under AWS D1.1 and the requirements shown in the following tables:

Nondestructive Testing for Steel Standards and Poles

Weld location	Weld type	Minimum required NDT
Circumferential splices around the perimeter of tubular sections, poles, and arms	CJP groove weld with backing ring	100% UT or RT
Longitudinal seam	CJP or PJP groove weld	Random 25% MT
Longitudinal seam within 6 inches of a circumferential weld	CJP groove weld	100% UT or RT
Welds attaching base plates, flange plates, pole plates, or mast arm plates to poles or arm tubes	CJP groove weld with backing ring and reinforcing fillet	t≥ 1/4 inch: 100% UT and 100% MT t< 1/4 inch: 100% MT after final weld pass
	External (top) fillet weld for socket-type connections	100% MT
Hand holes and other appurtenances	Fillet and PJP welds	MT full length on random 25% of all standards and poles
Longitudinal seam on the telescopic female end, designated slip-fit length plus 6 inches	CJP groove weld	100% UT or RT

NOTE: t = pole or arm thickness

Nondestructive Testing for Overhead Sign Structures

Weld location	Weld type	Minimum required NDT
Base plate to post	CJP groove weld with backing ring and reinforcing fillet	100% UT and 100% MT
Base plate to gusset plate	CJP groove weld	100% UT
Circumferential splices of pipe or tubular sections	CJP groove weld with backing ring	100% UT or RT
Split post filler plate welds	CJP groove weld with backing bar	100% UT or RT
Longitudinal seam weld for pipe posts	CJP groove weld	t < 1/4 inch: 25% MT t ≥ 1/4 inch: 25% UT or RT
	PJP groove weld	Random 25% MT
Chord angle splice weld	CJP groove weld with backing bar	100% UT or RT
Truss vertical, diagonal, and wind angles to chord angles	Fillet weld	Random 25% MT
Upper junction plate to chord (cantilever type truss)	Fillet weld	Random 25% MT
Bolted field splice plates (tubular frame type)	CJP groove weld	100% UT and 100% MT
Cross beam connection plates (lightweight extinguishable message sign)	Fillet weld	Random 25% MT
Arm connection angles (lightweight extinguishable message sign)	Fillet weld	100% MT
Mast arm to arm plate (lightweight extinguishable message sign)	CJP groove weld with backing ring	t ≥ 1/4 inch: 100% UT and 100% MT t < 1/4 inch: 100% MT after final weld pass
Post angle to post (lightweight extinguishable message sign)	Fillet weld	100% MT
Hand holes and other appurtenances	Fillet and PJP welds	MT full length on random 25% of all sign structures

NOTE: t = pole or arm thickness

Replace section 56-1.01D(2)(b)(ii) with:

04-19-19

56-1.01D(2)(b)(ii) Ultrasonic Testing

For UT of welded joints with any members less than 5/16-inch thick or tubular sections less than 24 inches in diameter, the acceptance and repair criteria must comply with Clause 9.27.1.1 of AWS D1.1.

When performing UT, use an authorized procedure under AWS D1.1, Annex S.

For UT of other welded joints, the acceptance and repair criteria must comply with Table 6.3 of AWS D1.1 for cyclically loaded nontubular connections.

After galvanization, perform additional inspection for toe cracks along the full length of all CJP groove welds at tube-to-transverse base plate connections using UT.

Replace section 56-2.02F with:

04-17-20

56-2.02F Pipe Posts

Pipe posts must be welded or seamless steel pipes. The maximum ultimate tensile strength of pipe posts must not exceed 90 ksi. Manufactured pipe posts must comply with one of the following:

1. ASTM A53/A53M, Grade B
2. ASTM A106/A106M, Grade B
3. ASTM A1085, Grade A
4. API Specification 5L PSL2 Grades B, X42R, X42M, X52M or Grade X52N, using nominal pipe sizes for threaded end pipe

You may fabricate pipe posts from structural steel complying with ASTM A36/A36M, ASTM A709/A709M, Grade 36, or ASTM A572/A572M, Grades 42 or 50.

Spiral seam welds are not allowed.

^^

57 WOOD AND PLASTIC LUMBER STRUCTURES

10-18-19

Add to section 57-2.02B:

04-19-19

HDPE shims must be commercial quality.

Replace section 57-2.02C with:

10-18-19

57-2.02C Construction

Install lagging members 4 inches thick or less with a 3/8-inch gap between members. Install lagging members greater than 4 inches thick with a 1/2-inch gap between members.

Replace the table in the 4th paragraph of section 57-3.02C with:

10-19-18

Quality characteristic	Test method	Requirement
Density of concrete core (kg/m^3, min)	ASTM D792	1,762
28-day compressive strength of concrete core (psi, min)	ASTM C579	5,000
Structural strength of shell: Tensile strength, tensile modulus (percent loss) Flexural strength, flexural modulus (percent loss)	 ASTM D638 ASTM D790	 Less than 10 after UV deterioration test specified for plastic lumber
Dry film thickness of coating (mils, min)	--	15
Color change of coating	ASTM D4587, Test Cycle 2	No visible color change when tested for 800 hours
Initial adhesion of coating (psi, min)	ASTM D4541, Test Method D, E, or F and Protocol 2	150
Decrease in initial adhesion of coating, decrease (percent)	ASTM D4541, Test Method D, E, or F and Protocol 2 ASTM D1183, Test Condition D[a]	No more than 10 following 2 exposure cycles

[a]Use a low temperature phase at 4 ± 5 °F and high temperature phase at 140 ± 5 °F.

^^

59 STRUCTURAL STEEL COATINGS

10-19-18

Replace the 2nd paragraph in section 59-1.01D with:

10-19-18

Measure coating adhesion strength with a self-aligning adhesion tester under ASTM D4541, Test Method D, E, or F and Protocol 2.

Replace the 2nd paragraph of section 59-1.02C with:

10-19-18

Coatings selected for use must comply with the volatile organic compound concentration limits specified for the air quality district where the coating is applied. The undercoats and finish or final coats selected for use must be compatible with each other.

Add after the paragraph of section 59-2.01A(3)(a):

10-19-18

If requested by the Engineer, submit documentation from the coating manufacturer verifying the compatibility of the undercoats and finish or final coats selected for use.

^^

60 EXISTING STRUCTURES

10-18-19

Replace section 60-2.02B with:

04-19-19

60-2.02B Materials

Design criteria for temporary support shoring and temporary bracing must comply with section 48-3.02B.

Add to section 60-3.01A:

10-19-18

If you are unable to complete bridge reconstruction activities before the bridge is to be opened to traffic, furnish and maintain temporary decking under section 48-4 until that portion of the work is complete.

Replace the 3rd and 4th paragraphs of section 60-3.02C(3) with:

04-19-19

Remove asphalt concrete surfacing by cold milling under the following conditions:

1. If a membrane seal is shown:
   1.1. Remove the seal by cold milling
   1.2. Do not remove more than 1/2 inch of the existing concrete slab

2. If a membrane seal is not shown:
   2.1. Remove asphalt concrete surfacing until a 1/2-inch minimum of surfacing remains on top of existing concrete slab
   2.2. Use other authorized means to remove the remaining asphalt concrete without damage to the concrete slab

Add to section 60-3.02C(3):

04-19-19

Where a portion of the asphalt concrete surfacing is to remain, saw cut a 2-inch-deep true line along the edge to remain in place before removing asphalt concrete. Remove the asphalt concrete without damaging the surfacing to remain in place.

04-19-19

Delete the 3rd paragraph of section 60-3.04B(3)(a).

Replace the 9th paragraph of section 60-3.04B(3)(c) with:

04-19-19

Protect the overlay from moisture and do not allow traffic or equipment on the overlay (1) for a minimum of 4 hours cure time after final finishing and (2) until each rebound test result for the final finish shows a reading of at least 28 when tested under ASTM C805. The cure time must be extended if ordered. The rebound test may not be used to reduce the 4-hour cure time of the overlay.

Replace the 10th paragraph of section 60-4.09B(2)(a) with:

10-19-18

Steel parts must comply with ASTM A36/A36M or A576, Grade 1030 and must not be rimmed or capped steel.

Replace section 60-4.10 with:

10-18-19

60-4.10 BRIDGE SEAT EXTENDERS FOR RETROFITS

60-4.10A General

60-4.10A(1) Summary

Section 60-4.10 includes specifications for fabricating and installing bridge seat extenders.

Bridge seat extenders must comply with the specifications for miscellaneous bridge metal in section 75-3.

60-4.10A(2) Definitions

Reserved

60-4.10A(3) Submittals

Submit a work plan showing the method of grouting pipe seat extenders to prevent grout from entering the hinge area.

60-4.10A(4) Quality Assurance

Inspect bridge seat extender materials at the fabrication site.

Notify the Engineer:

1. When materials have been delivered to the fabrication site
2. At least 10 days before starting fabrication

60-4.10B Materials

60-4.10B(1) General

Reserved

60-4.10B(2) Pipe Seat Extenders

Pipe seat extenders must consist of double extra-strong steel pipes, HS threaded rods, nuts, and washers.

Double-extra strong steel pipe must comply with ASTM A53/A53M, Grade B. HS threaded rods, nuts, and washers must comply with section 55-1.02D(1).

Galvanize double-extra strong steel pipe under section 75-1.02B. After galvanizing, any alterations resulting in new exposed surfaces, including holes or cut ends, must be coated as specified for repairing damaged galvanized surfaces under section 75-1.02B.

Grout for bonding the pipe to the cored hole must comply with section 60-4.06B(2). Any filler materials or seals must not restrict joint movement.

60-4.09B(3) Slab Bridge Seat Extenders

Slab bridge seat extenders must consist of steel plates, support tubes, bolts, bars, nuts, washers, pins, and elastomeric bearing pads.

Slab bridge seat extender must comply with section 55. Elastomeric bearing pads must comply with section 51-3.02. The support tubes must comply with ASTM A500/A500M, Grade B.

Galvanize seat extender under section 75-1.02B. After galvanizing, any alterations resulting in new exposed surfaces, including holes or cut ends, must be coated as specified for repairing damaged galvanized surfaces under section 75-1.02B.

Epoxy mortar must consist of a mixture of epoxy binder and aggregate. The epoxy mortar must comply with section 95-1.02C. The mix proportions of epoxy mortar must be 1-part binder to 1-part aggregate by volume. Aggregate must consist of a combination of 1-part material passing the no. 30 sieve and 3-parts material passing the no. 20 sieve.

60-4.10C Construction

60-4.10C(1) General

Reserved.

60-4.10C(2) Pipe Seat Extenders

Reserved

60-4.10C(3) Slab Bridge Seat Extenders

Place epoxy mortar under section 95-1.03.

Place elastomeric bearing pads under section 51-3.02C. Bond elastomeric bearing pads to steel support tubes with adhesive complying with Federal Specification MMM-A-121.

60-4.10D Payment

The payment quantity for seat extender does not include the weight of nonmetallic materials used in constructing the seat extenders.

^^

DIVISION VII DRAINAGE FACILITIES

Replace section 62 with:

04-17-20

62 STORMWATER TREATMENT

04-17-20

62-1 GENERAL

62-1.01 GENERAL

62-1.01A Summary

Section 62-1 includes general specifications for constructing permanent stormwater treatment best management practices.

Earthwork must comply with section 19.

Concrete and joint seals must comply with section 51.

Sealant must comply with section 41-5.

Reinforcement must comply with section 52.

Underdrain must comply with section 68-2.

Miscellaneous metal must comply with section 75.

Cable railing must comply with section 83-2.07.

62-1.01B Definitions

Reserved

62-1.01C Submittals

At least 5 business days before placing permeable material, submit a certificate of compliance for the gradation of the material from the source.

No more than 5 business days after placing permeable material, submit:

1. At least one ASTM D6913 test on permeable material sampled at:
   1.1. Job site
   1.2. Authorized location
2. Verification that the permeable materials testing results meet the gradation requirements

62-1.01D Quality Assurance

Submit verification that the placed material complies with the gradation for the Class 4 and Class 5 permeable materials.

Submit verification of the uniformity coefficient for Class 5 permeable material.

For Department acceptance, the depth of the permeable material will be measured after the in-place washing is complete.

62-1.02 MATERIALS

62-1.02A General

Not Used

62-1.02B Class 4 Permeable Material

Class 4 permeable material must consist of sand, gravel, or crushed stone that is hard, durable, and clean. The material must be free from organic material, clay balls, or other deleterious substances.

The percentage composition by weight of Class 4 permeable material in place must comply with the gradation requirements shown in the following table:

Class 4 Permeable Material Gradation Requirements

Sieve size	Percentage passing
2"	100
1-1/2"	95–100
3/4"	50–100
3/8"	15–55
No. 4	0–25
No. 8	0–5
No. 100	0

Class 4 permeable material must have a durability index of not less than 40.

62-1.02C Class 5 Permeable Material

Reserved

62-1.02D Miscellaneous Metal

Fabricate the parts shown in the table below from the corresponding materials shown:

Miscellaneous Metal Parts

Part	Material
Ladders	Steel
Handrails	Steel
Trash screen	Steel
Components of riser support brackets	Stainless steel complying with ASTM A276, Grade 304 CIP inserts must be ferrule loop type

62-1.02E Filter Fabric

Class D filter fabric must comply with the requirements shown in the following table:

Class D Filter Fabric

Quality characteristic	Test method	Requirement
Permittivity (min and max, sec^{-1})	ASTM D4491	1.6–1.8
Apparent opening size, average roll value (min and max, US standard sieve size)	ASTM D4751	60–80
Grab breaking load, 1-inch grip, in each direction (min, lb)	ASTM D4632	120
Apparent elongation, in each direction (min, %)	ASTM D4632	50
UV resistance, retained grab breaking load, 500 hours (min, %)	ASTM D4355	70

62-1.02F–62-1.02I Reserved

62-1.03 CONSTRUCTION

62-1.03A General

Placing filter fabric must comply with section 68-1.03B.

62-1.03B Permeable Material

62-1.03B(1) General

Before placement, wash permeable material:

1. To remove silt and clay particles
2. With potable water equal to at least 4 times the volume of the material being placed

After placement, wash permeable material:

1. With potable water
2. Until the discharged water has a turbidity reading of:
   2.1. 30 NTU or less for a project within the Tahoe Hydrologic Unit
   2.2. 200 NTU or less for a project outside the Tahoe Hydrologic Unit

Capture the wash water. Handle the wash water by any of the following means:

1. Dispose of
2. Use as dust control
3. Disperse onsite in an authorized location other than the BMP

62-1.03B(2) Class 5 Permeable Material

Place Class 5 permeable material:

1. In a way that does not damage or displace the filter fabric
2. Using methods that produce a finished surface as shown

62-1.03C–62-1.03H Reserved

62-1.04 Payment

Not Used

62-2 DESIGN POLLUTION PREVENTION INFILTRATION AREA

Reserved

62-3 INFILTRATION TRENCH

Reserved

62-4 INFILTRATION BASIN

Reserved

62-5 INFILTRATION GALLERY

Reserved

62-6 RESERVED

62-7 BIORETENTION

Reserved

62-8 DETENTION BASIN

Reserved

62-9 AUSTIN EARTH BERM

Reserved

62-10 AUSTIN VAULT SAND FILTER

Reserved

62-11 DELAWARE SAND FILTER

Reserved

62-12 GROSS SOLIDS REMOVAL DEVICE

Reserved

62-13 MULTI-CHAMBER TREATMENT TRAIN

Reserved

62-14 TRACTION SAND TRAP

Reserved

62-15–62-24 RESERVED

62-25 EXISTING STORMWATER TREATMENT

Reserved

^^^

64 PLASTIC PIPE

04-17-20

Add to section 64-2.01C:

04-17-20

If recycled resin is used for corrugated polyethylene pipe, submit the percent of recycled resin.

Replace the 2nd and 3rd paragraphs of section 64-2.02C with:

04-17-20

Type C and Type S corrugated polyethylene pipe must comply with AASHTO M 294.

HDPE compounds used in the manufacture of corrugated polyethylene pipe and fittings must comply with AASHTO M 294 except the mix must contain from 2 to 4 percent well-dispersed carbon black and at least 49 percent virgin resin.

^^^

66 CORRUGATED METAL PIPE

10-19-18

Replace the 1st paragraph in section 66-1.02D with:

10-19-18

Coupling bands for corrugated metal pipe must comply with either section 66-1.02D or section 61-2.01D(2)(b).

Replace the 6th paragraph in section 66-1.02D with:

10-19-18

Joints for siphons and joints for pipes shown as watertight must be watertight under pressure and all conditions of expansion, contraction, and settlement, and must comply with section 61-2.01D(2)(a) for watertightness.

Replace the 4th paragraph of section 66-2.03 with:

10-19-18

Place cement treated structure backfill for slotted corrugated steel pipe as shown and under section 19-3.02F(3) for soil cement beddings. Cover the completed cement treated structure backfill with a curing seal of asphaltic emulsion, Grade SS1 or CSS1.

^^

71 EXISTING DRAINAGE FACILITIES

04-17-20

Replace section 71-3.01A(4)(b) with:

04-17-20

71-3.01A(4)(b) Preconstruction Meetings

71-3.01A(4)(b)(i) General

Reserved

71-3.01A(4)(b)(ii) Prerehabilitation Meeting

Before starting cleaning and preparation work, you must schedule and attend a prerehabilitation meeting with the Engineer. Include any subcontractors, manufacturers and other parties involved in the culvert work. Provide a meeting facility that is within 5 miles of the job site or at another location accepted by the Engineer.

71-3.01A(4)(b)(iii) Pregrouting Meeting

Before starting grouting work, you must schedule and conduct a grouting meeting with the Engineer and your personnel involved in the grouting work, including your:

1. Project superintendent
2. Supervisory personnel
3. Grouting foreman
4. Grouting subcontractors

Provide a meeting facility that is within 5 miles of the job site or at another location accepted by the Engineer.

Replace section 71-3.01A(4)(c) with:

04-17-20

71-3.01A(4)(c) Quality Control

71-3.01A(4)(c)(i) General

Reserved

71-3.01A(4)(c)(ii) Annular Space Grouting

The grout cast density at the point of placement must be from 53 to 68 lb/cu ft and the minimum compressive strength must be 300 psi at 28 days.

Test the grout for compressive strength under ASTM C495 except that specimens must be moist cured before the 28-day compressive strength test and not be oven dried. If the grouting plan shows multiple stages, the grouting plan must include test results that verify that the grout stiffness is adequate for placement of multiple lifts.

For each batch of grout, perform density and viscosity tests under ASTM C138 and ASTM C939 in the presence of the Engineer. Grout density must be within 3 lb/cu ft of the density in the authorized grout plan with mix design. The time of efflux (outflow) must not exceed 20 seconds as specified in ASTM C939 unless otherwise authorized.

For pipeliners with a stiffness of less than 29 psi, the grout pump's pressure measured at the point of injection must not exceed either of the following:

1. 5 psi
2. Manufacturer's instruction

For pipeliners with a stiffness of at least 29 psi, the grout pump's pressure measured at the point of injection must not exceed 7.25 psi.

The pipeliner must be able to withstand a static head of grout that is 6 inches above the highest crown elevation. The maximum grout pressure for a static grout head must not exceed the grout pump's maximum allowable pressure.

Install a grout pressure gauge and recorder immediately adjacent to each injection port. Continuously record on paper with ink the actual grouting pressure versus time. Record grout pressure to an accuracy of ±0.5 psi. Attach a gauge to a saddle-type diaphragm seal to prevent clogging with grout.

71-3.01A(4)(c)(iii) CCTV Recording

CCTV recordings must be made and submitted in high quality electronic media such as CD or DVD.

The CCTV equipment must include:

1. CCTV camera with articulating head
2. Transporter adapted for conditions of the culvert
3. Television monitor
4. Lighting
5. Cables and power sources

CCTV equipment must:

1. Be specifically designed and constructed for pipe inspection
2. Have camera lighting for minimizing reflective glare
3. Have an adjustable focal-distance range from 6 inches to infinity
4. Produce a minimum resolution of 356 lines per inch for both the camera and monitor
5. Have a remote-reading meter counter accurate to 1 percent over the length of the particular section being inspected

Verify the accuracy of the distance meter in the CCTV with a walking meter, roll-a-tape, or other authorized device.

Where human entry is possible for the entire length of the culvert, you may use a handheld video camera with lighting as an alternative to CCTV. Video and audio content must comply with the requirements for CCTV. Inspect at a rate that is not more than 30 feet per minute.

71-3.01A(4)(c)(iv) Photographs

Use a digital camera and lighting. Lighting and photo quality must be suitable to provide clear and focused photographs of the entire culvert surface under all conditions.

71-3.01A(4)(c)(v) Monitoring of Annular Space Grouting

Wherever a pipeliner with annular space grouting is described, monitor the grouting and record pressures throughout the grouting process. Verify compliance with the manufacturer's instructions for each phase of the grouting process. Gauges must comply with ANSI B40, Grade 2A. The pressure gauges, recorder, and field equipment must be calibrated by an independent testing agency.

71-3.01A(4)(c)(vi) Pipeliners

Pipeliners must be continuous over the entire length of the culvert and must have no visual defect such as foreign inclusions, concentrated ridges, discoloration, pitting, pin holes, cracking or other deformities. The pipeliner must not be over-deflected. There must not be segregation or voids in the grout.

71-3.01A(4)(c)(vii) Deflection Testing of Pipeliners

If a pipeliner with annular space grouting is described, test the pipeliner for deflection. Test after grouting and in the presence of the Engineer.

For pipeliners with a nominal inside diameter of 36 inches or less, either pull a mandrel through the pipeliner by hand or use another authorized method. The mandrel must be:

1. Rigid and nonadjustable
2. Comprised of at least 9 legs and have an odd number of total legs
3. Longer than it is wide
4. Made of steel
5. Fitted with pulling rings at each end
6. Stamped or engraved on some segment other than a runner indicating pipeliner material specification, nominal size, and mandrel outside diameter (e.g., HDPE F 714-SDR 26- 36" – 31.569")
7. Furnished in a suitable carrying case labeled with the same data as stamped on the mandrel
8. Authorized before use

For pipeliners with a nominal inside diameter greater than 36 inches, determine the deflection using a 1-inch diameter, rigid, nonadjustable metal bar; a minimum-radius rigid template; or other authorized method.

The pipeliner must not be over-deflected. For pipeliners 36 inches or less in nominal diameter, the mandrel must pass through the entire pipeliner. For pipeliners greater than 36 inches in nominal diameter, the deflection must be the lesser of either of the following:

1. 5 percent greater than the actual dimension of the pipeliner in place. This actual dimension includes the pipe joint system.
2. 6-1/2 percent of the nominal pipeliner dimension.

If more than 8 percent of the nominal pipeliner dimension is over-deflected, the pipeliner is rejected. If 8 percent or less of the nominal pipeliner dimension is over-deflected, the pipeliner may remain in place and the Department deducts 20 percent of the bid amount for that pipeliner.

Replace item 2 in the list in the first paragraph of section 71-3.01B(2) with:

04-17-20

2. Not less than 590 lb of cementitious material per cubic yard

Replace section 71-5.03B with:

04-17-20

71-5.03B Frames, Covers, and Grates

Adjust frames, covers, and grates must comply with section 78-23.03.

04-17-20

Delete the 2nd through 5th paragraphs of section 71-5.04.

^^

DIVISION VIII MISCELLANEOUS CONSTRUCTION

73 CONCRETE CURBS AND SIDEWALKS

04-17-20

Replace the 3rd paragraph of section 73-1.02A with:

04-17-20

Preformed expansion joint filler must comply with ASTM D1751. As an alternative, a semi-rigid, closed-cell polypropylene foam, preformed joint filler that complies with ASTM D8139 may be used.

Replace the paragraph of section 73-1.02B with:

04-17-20

Detectable warning surface must be on the Authorized Material List for detectable warning surfaces and must match yellow color no. 33538 of AMS-STD-595.

^^

75 MISCELLANEOUS METAL

04-17-20

Replace the last paragraph in section 75-3.02B with:

10-18-19

Thread-locking systems must (1) consist of a cleaner, primer, and anaerobic thread-locking adhesive and (2) be on the Authorized Material List for anaerobic thread-locking systems. Apply all components of the system under the manufacturer's instructions.

04-17-20

Delete the 3rd paragraph of section 75-3.02C(2).

Replace section 75-3.02C(3) with:

04-17-20

75-3.02C(3) Resin Capsule Anchors

Reserved

04-17-20

Delete the 3rd paragraph of section 75-3.02C(4).

^^

78 INCIDENTAL CONSTRUCTION

04-17-20

Replace section 78-4.03 with:

04-19-19

78-4.03 PAINTING CONCRETE

78-4.03A General

78-4.03A(1) Summary

Section 78-4.03 includes specifications for preparing and painting concrete surfaces.

78-4.03A(2) Definitions

Reserved

78-4.03A(3) Submittals

Submit the coating manufacturer's application instructions at least 7 days before use.

78-4.03A(4) Quality Assurance

Reserved

78-4.03B Materials

Coatings for concrete must comply with the specifications for acrylic emulsion paint for exterior masonry in section 91-4.02B.

Coatings must be white.

78-4.03C Construction

78-4.03C(1) General

Reserved

78-4.03C(2) Surface Preparation

Before painting, surfaces must be:

1. At least 28 days old.
2. Prepared under SSPC-SP 13/NACE no. 6. Pressure rinse the prepared surfaces before applying the paint.
3. Thoroughly dry. You may use artificial drying methods if authorized.

78-4.03C(3) Application

Apply at least 2 coats under the manufacturer's instructions and SSPC-PA 7. Protect adjacent surfaces during painting using an authorized method.

78-4.03D Payment

Not Used

Replace section 78-4.04 with:

04-19-19

78-4.04 STAINING CONCRETE AND SHOTCRETE

78-4.04A General

78-4.04A(1) Summary

Section 78-4.04 includes specifications for preparing and staining concrete and shotcrete surfaces.

78-4.04A(2) Definitions

acid stain: non-tintable, transparent stain that contains dilute acid.

water-based stain: semi-transparent or solid water-based coating in an acrylic emulsion vehicle, that can be tinted to match an AMS-STD-595 color.

78-4.04A(3) Submittals

78-4.04A(3)(a) General

Submit the stain and sealer manufacturer's product data and application instructions at least 7 days before starting staining activities.

78-4.04A(3)(b) Contractor Qualifications

Submit the following documentation at least 10 days before the prestaining meeting:

1. Summary of the staining contractor's experience that demonstrates compliance with section 78-4.04A(4)(c).
2. List of at least 3 projects completed in the last 5 years that demonstrate the staining contractor's ability to stain surfaces similar to the surfaces for this project. For each project include:
   2.1. Project description
   2.2. Name and phone number of the owner
   2.3. Staining completion date
   2.4. Color photos of the completed stained surface

78-4.04A(3)(c) Staining Quality Work Plan

Submit a staining quality work plan at least 10 days before the prestaining meeting. The work plan must include details for preparing and staining the surfaces to achieve the required color, and for sealing the surfaces, including:

1. Number of applications that will be used to apply the stain
2. For each application of the stain, a description of:
   2.1. Manufacturer, color, finish, and percentage strength mixture of the stain that will be applied
   2.2. Proposed methods and tools for applying the stain
3. Proposed methods for protecting adjacent surfaces during staining
4. Proposed methods and tools for applying the sealer

For acid stains, the work plan must also include a rinse water collection plan for containing all liquid, effluent, and residue resulting from preparing and staining the surfaces.

78-4.04A(4) Quality Assurance

78-4.04A(4)(a) General

Reserved

78-4.04A(4)(b) Test Panels

Stain the authorized test panel complying with section 51-1.01D(2)(c) or section 53-3.01D(3).

The test panel must be:

1. Stained using the same personnel, materials, equipment, and methods to be used in the work
2. Accessible for viewing
3. Displayed in an upright position near the work

4. Authorized for staining before starting the staining work

If ordered, construct additional test panels until a satisfactory color is attained. The preparing and staining of additional test panels is change order work.

The Engineer uses the authorized stained test panel to determine the acceptability of the stained surface.

Dispose of the test panels after the staining work is complete and authorized. Notify the Engineer before disposing of the test panels.

78-4.04A(4)(c) Contractor Qualifications

The staining contractor must have experience staining surfaces to simulate the appearance of natural rock formations or stone masonry, and must have completed at least 3 projects in the past 5 years involving staining of surfaces similar to the surfaces for this project.

78-4.04A(4)(d) Prestaining Meeting

Before starting staining activities, conduct a meeting to discuss the staining quality work plan. Meeting attendees must include the Engineer and all staining contractors.

78-4.04B Materials

78-4.04B(1) General

Reserved

78-4.04B(2) Stain

78-4.04B(2)(a) General

The stain must be:

1. Commercially available product designed specifically for exterior applications
2. Specifically manufactured for staining concrete surfaces

78-4.04B(2)(b) Acid Stain

Acid stain must:

1. Contain dilute acid that penetrates and etches the surfaces
2. Be a water-based solution of inorganic metallic salts
3. Produce abrasion-resistant color deposits

78-4.04B(2)(c) Water-based Stain

Water-based stain must be:

1. Acrylic emulsion
2. Non-fading and UV resistant
3. Capable of producing irregular, mottled tones

78-4.04B(3) Sealer

The sealer must be as recommended by the stain manufacturer, clear and colorless, and have a matte finish when dry.

78-4.04B(4) Joint Sealing Compound

Reserved

78-4.04C Construction

78-4.04C(1) General

At locations where there is exposed metal adjacent to the surfaces to be stained, seal the joint between the surfaces to be stained and the exposed metal with a joint sealing compound before applying the stain.

78-4.04C(2) Surface Preparation

Test surfaces for acceptance of the stain before applying the stain. Clean surfaces that resist accepting the stain and retest until passing.

Before staining, the surfaces must be:

1. At least 28 days old
2. Prepared under SSPC-SP 13/NACE no. 6
3. Thoroughly dry

78-4.04C(3) Application

78-4.04C(3)(a) General

Apply the stain under the manufacturer's instructions. Protect adjacent surfaces during staining. Drips, puddles, or other irregularities must be worked into the surface.

Apply the sealer under the manufacturer's instructions.

78-4.04C(3)(b) Acid Stain

Work the acid stain into the concrete using a nylon bristle brush in a circular motion.

After the last coat of stain has dried, rinse the stained surfaces with water and wet scrub them with a stiff-bristle nylon brush until the rinse water runs clear. Collect all rinse water.

78-4.04D Payment

Not Used

Replace section 78-23 with:

04-17-20

78-23 ADJUST UTILITY FRAMES, COVERS, AND MANHOLES

78-23.01 GENERAL

Section 78-23 includes specifications for adjusting utility access box frames, covers, and manholes.

Work performed on existing utility frames, covers, grates and manholes must comply with section 15.

78-23.02 MATERIALS

Not Used

78-23.03 CONSTRUCTION

Lower and raise utility frames, covers, grates and manholes by lowering before cold planing and raising after paving or surfacing. Before opening the lane to traffic, either (1) complete permanent paving or surfacing or (2) temporarily fill any depressions with HMA.

Do not adjust to final grade until the adjacent pavement or surfacing is complete.

For a structure that is to be raised, remove the cover or frame and trim the top of the structure to provide a suitable foundation for the new material.

Instead of using new materials similar in character to those in the existing structure, you may use raising devices to adjust a manhole to grade. Before starting paving work, measure and fabricate raising devices. Raising devices must:

1. Comply with the specifications for section 75 except that galvanizing is not required
2 Have a shape and size that matches the existing frame
3. Be match marked by painting identification numbers on the device and corresponding structure
4. Result in an installation that is equal to or better than the existing one in stability, support, and nonrocking characteristics
5. Be fastened securely to the existing frame without projections above the surface of the road or into the clear opening

Where manholes are to be lowered, remove the top portion to 3.5 feet below finished grade or to an authorized depth. Adjust the manhole using the taper needed to match the finished grade.

If a manhole cover is unstable or noisy under traffic, place a coil of asphalt-saturated rope, a plastic washer, or asphaltic compound on the cover seat. Before placement, obtain authorization for use of the material.

78-23.04 PAYMENT

Not Used

^^

80 FENCES

10-18-19

Replace the 1st paragraph of section 80-2.02B with:

10-18-19

Line posts must comply with ASTM A702 except packaging of posts is not required. You may omit the anchor plate if the post is set in a concrete footing with a minimum cross-sectional dimension of 6 inches and a depth equal to the full penetration of the post.

Replace item 3 in the list in the 1st paragraph of section 80-2.02D with:

10-18-19

3. Be one of the following:
   - 3.1. 12-1/2 gauge, Class 3
   - 3.2. 13-1/2 gauge, Class 3
   - 3.3. 14 gauge, Class 3
   - 3.4. 15-1/2 gauge, Class 3

Replace the 2nd paragraph of section 80-3.02B with:

10-19-18

Posts and braces must comply with the strength requirements in ASTM F1043 for one of the following:

1. Group IA, regular grade, for round pipes
2. Group IC, 50,000 psi yield, for round pipes
3. Group II-L for roll-formed posts and braces

Replace the list in section 80-4.02B(1)(b) with:

10-19-18

1. Comply with ASTM A1064 and have a Class 1 zinc coating complying with ASTM A641
2. Be welded or woven galvanized steel wire fabric
3. Be made of at least 16-gauge wire
4. Be 36 inches wide

Replace the paragraph in section 80-4.02B(2) with:

10-19-18

The materials for a temporary desert tortoise fence must comply with section 80-4.02B(1).

Replace the 2nd sentence in the 1st paragraph of section 80-4.02C(2) with:

10-19-18

Embed the posts at maximum 10-foot intervals into the ground.

^^

DIVISION IX TRAFFIC CONTROL DEVICES

82 SIGNS AND MARKERS

04-17-20

Replace the list in the 1st paragraph of section 82-2.01C with:

04-19-19

1. Aluminum sheeting
2. Retroreflective sheeting
3. Color imaging methods and film
4. Protective-overlay film

Replace section 82-2.02C with:

04-17-20

82-2.02C Retroreflective Sheeting

Retroreflective sheeting used for the background and legend must comply with ASTM D4956-13 and must be on the Authorized Material List for signing and delineation materials.

Retroreflective sheeting must be Type XI, except for white background signs, it must be Type VIII or IX.

Warning sign plaques and panels must be retroreflective fluorescent orange or fluorescent yellow background.

Type VIII, IX, and XI retroreflective sheeting must have Class 1, 3, or 4 adhesive backing. Adhesive backing must be pressure sensitive and fungus resistant.

Retroreflective sheeting must be applied to sign panels at the fabrication plant under the retroreflective sheeting manufacturer's instructions without appreciable stretching, tearing, or other damage.

Orientation of the legend must comply with the retroreflective sheeting manufacturer's instructions.

Retroreflective sheeting on a sign panel with a minor dimension of 48 inches or less must be a single, contiguous sheet without splices except for the splices produced during the manufacture of the retroreflective sheeting. Sign panel with a minor dimension greater than 48 inches may have 1 horizontal splice in the retroreflective sheeting other than the splices produced during the manufacture of the retroreflective sheeting.

Unless the retroreflective sheeting manufacturer's instructions require a different method, splices in the retroreflective sheeting must overlap by at least 1 inch. The retroreflective sheeting on either side of a splice must not exhibit a color difference under incident and reflected light.

Replace section 82-2.02D with:

04-19-19

82-2.02D Color Imaging Methods and Film

The material used for color imaging methods, film, and protective-overlay must be recommended by the retroreflective sheeting manufacturer.

Colored retroreflective sheeting must be used for the background.

Signs with green, red, blue, or brown backgrounds may use reverse-screened-process color on white retroreflective sheeting for the background color. The coefficient of retroreflection must be at least 70 percent of the coefficient of retroreflection specified in ASTM D4956 for the corresponding color of retroreflective sheeting.

The sign must have outdoor weatherability characteristics equivalent to those specified for the corresponding color of retroreflective sheeting in ASTM D4956.

Replace the 2nd paragraph of section 82-3.01A with:

04-17-20

Roadside signs include ground-mounted signs and Type N (CA), Type P (CA), and Type R (CA) marker panels.

Add to section 82-3.01B:

04-17-20

ground-mounted sign: Roadside sign or signs with a wide-flange metal post.

Add to section 82-3.02B:

04-17-20

Mounting for a ground-mounted sign must be a wide-flange metal post fabricated from structural steel complying with ASTM A36/A36M. Nuts, bolts, and washers for the breakaway connections of a wide-flange steel post must comply with ASTM A325.

Replace section 82-5.01A with:

10-19-18

Section 82-5 includes specifications for fabricating and installing markers, including milepost markers.

Replace the 2nd paragraph in section 82-5.02E with:

10-19-18

A target plate for milepost marker or Type L-1 (CA) or Type L-2 (CA) object marker installed on a metal post must be manufactured from an aluminum sheet or zinc-coated steel sheet.

Replace section 82-5.02H with:

10-19-18

82-5.02H Milepost Markers

Letters and numerals on a milepost marker must be made with opaque black paint or film. The paint and film must have an equivalent outdoor weatherability as the retroreflective sheeting specified in ASTM D4956. Nonreflective, opaque, black film must be vinyl or acrylic material.

Film for letters and numerals must be computer cut and have pressure-sensitive adhesive.

Replace the 5th paragraph of section 82-5.03 with:

10-19-18

Use stencils to paint letters and numerals on milepost markers.

Add to the end of section 82-9.03:

04-17-20

82-9.03F Installation of Sign Panels on Existing Posts

Install roadside sign panels on existing posts with fastening hardware under section 82-2.03A.

Replace the 1st paragraph of section 82-9.04 with:

04-17-20

Payment for furnishing sign panels of any type is not included in the payment for install sign panel on existing frame and post.

Payment for removing existing sign panel is included in the payment for install roadside sign panel on existing post.

^^

83 RAILINGS AND BARRIERS

04-19-19

Replace section 83-2.01A(3) with:

04-19-19

For midwest guardrail systems and thrie beam barrier, install steel foundation tubes and soil plates in soil.

Replace the 4th paragraph of section 83-2.03C with:

04-19-19

If median barrier delineation is shown, match the barrier marker spacing to the raised pavement marker spacing on the adjacent median edge line pavement delineation.

Replace the paragraph of section 83-3.03A(11) with:

04-19-19

Where concrete barrier markers are shown, cement the markers to the barrier under the manufacturer's instructions. Match the barrier marker spacing to the raised pavement marker spacing on the adjacent median edge line pavement delineation.

^^

84 MARKINGS

10-18-19

Replace section 84-2 with:

10-19-18

84-2 TRAFFIC STRIPES AND PAVEMENT MARKINGS

84-2.01 GENERAL

84-2.01A Summary

Section 84-2 includes specifications for applying traffic stripes and pavement markings.

Traffic stripes and pavement markings must comply with ASTM D6628 for daytime and nighttime color.

Retroreflectivity must be measured under ASTM E1710 and the sampling protocol specified in ASTM D7585.

84-2.01B Definitions

10-18-19

pavement marking: Transverse marking which includes shoulder or gore marking, traffic island marking, word or numeral or symbol marking, arrow, limit line, stop line, yield line, crosswalk marking, speed measurement marking, speed reduction marking, speed hump marking, parking space marking, and route shield marking.

10-19-18

traffic stripe: Longitudinal centerline or lane line used for separating traffic lanes in the same direction of travel or in the opposing direction of travel or a longitudinal edge line marking the edge of the traveled way or the edge of a lane at a gore area separating traffic at an exit or entrance ramp. A traffic stripe is shown as a traffic line.

84-2.01C Submittals

For each lot or batch of traffic stripe material, primer, and glass beads, submit:

1. Certificate of compliance, including the material name, lot or batch number, and manufacture date
2. METS notification letter stating that the material is authorized for use, except for thermoplastic and primer
3. SDS
4. Manufacturer's Instructions

For each lot or batch of thermoplastic, submit a manufacturer's certificate of compliance and the following test results from the California Test 423:

1. Brookfield Thermosel viscosity
2. Hardness
3. Yellowness index, white only
4. Daytime luminance factor
5. Yellow color, yellow only
6. Glass bead content
7. Binder content

The date of the test must be within 1 year of use.

Submit test results for each lot of beads specifying the EPA test methods used and tracing the lot to the specific test sample. The testing for lead and arsenic content must be performed by an independent testing laboratory.

Submit the thermoplastic test stripe to the Engineer.

Submit the retroreflectivity test result within 5 days of testing the traffic stripes and pavement markings. The data must include the retroreflectivity, time, date, and GPS coordinates for each measurement.

84-2.01D Quality Assurance

84-2.01D(1) General

Reserved

84-2.01D(2) Quality Control

Before starting permanent application of methyl methacrylate and two component paint traffic stripes and pavement markings, apply a test stripe on roofing felt or other suitable material in the presence of the Engineer. The test stripe section must be at least 50 feet in length.

Upon request, apply a thermoplastic test stripe on suitable material in the presence of the Engineer during the application of thermoplastic traffic stripes or markings. The test stripe must be at least 1 foot in length.

Remove loose glass beads before measuring the retroreflectivity. Obtain authorization to proceed with the application of traffic stripes and pavement markings.

Within 30 days of application, test the traffic stripes and pavement markings under the test methods and frequencies shown in the following table:

Traffic Stripe Testing Frequency

Quality characteristic	Test method	Minimum sampling and testing frequency
Initial retroreflectivity (min, $mcd \cdot m^{-2} \cdot lx^{-1}$) White Yellow	ASTM E1710	ASTM D7585[a]

[a]Use the referee evaluation protocol for project length less than 10 miles. For project lengths greater than or equal to 10 miles, add one evaluation for every additional mile.

Verify the glass bead application rate by stabbing the glass bead tank with a calibrated rod.

84-2.01D(3) Department Acceptance

The Engineer will perform a nighttime, drive-through, visual inspection of the retroreflectivity of the traffic stripes and pavement markings and notify you of any locations with deficient retroreflectivity. Test the retroreflectivity of the deficient areas to confirm striping and pavement markings meets the requirements.

The thermoplastic test stripe will be tested for yellow color, daytime luminance factor, and yellowness index requirements by METS.

84-2.02 MATERIALS

84-2.02A General

Reserved

84-2.02B Glass Beads

Each lot of glass beads must comply with EPA Test Method 3052 and 6010B or 6010C. Glass beads must contain less than 200 ppm each of arsenic and lead.

Type 1 glass beads must comply with AASHTO M 247.

Type 2 glass beads must comply with AASHTO M 247. At least 75 percent of the beads by count must be true spheres that are colorless and do not exhibit dark spots, air inclusions, or surface scratches when viewed under 20X magnification.

High-performance glass beads must be on the Authorized Material List for high-performance glass beads.

Large-gradation glass beads must be on the Authorized Material List for two component traffic paint.

Glass beads for methyl methacrylate must be on the Authorized Material List for methyl methacrylate traffic striping and pavement marking.

Glass beads for paint must comply with State Specification 8010-004.

Glass beads must be surface treated, according to the bead and the material manufacturer's instructions, to promote adhesion with the specified material.

84-2.02C Thermoplastic

Thermoplastic must comply with State Specification PTH-02HYDRO, or PTH-02ALKYD.

Sprayable thermoplastic must comply with State Specification PTH-02SPRAY.

Each lot or batch of thermoplastic must be tested under California Test 423.

84-2.02D Methyl Methacrylate

Methyl methacrylate traffic paint must:

1. Be on the Authorized Material List for methyl methacrylate traffic striping and pavement marking

2. Be Category 2

84-2.02E Traffic Striping and Pavement Marking Tape

Traffic striping and pavement marking tape must be on the Authorized Material List for signing and delineation materials.

04-19-19

White tape must have an initial retroreflectivity of a minimum 700 mcd/m2.

Yellow tape must have an initial retroreflectivity of a minimum 500 mcd/m2.

10-19-18

When contrast is required for traffic stripping and pavement marking tape, the tape must be pre-formed and retroreflective, consisting of a white film with retroreflective beads and a contrasting black film border. The contrasting black border must be a nonreflective film bonded on each side of the white film to form a continuous roll. Each black border must be a minimum of 2 inches wide. The width of the tape must be at least 4 inches wider than the stripe width.

84-2.02F Two-Component Paint

Two-component traffic paint must be on the Authorized Material List for two component traffic paint.

84-2.02G Paint

Paint must comply with the requirements shown in following table:

Paint Specifications

Paint type	Color	Specification
Waterborne traffic line	White, yellow, and black	State Specification PTWB-01R2
Waterborne traffic line for the international symbol of accessibility and other curb markings	Blue, red, and green	Federal Specification TT-P-1952E

84-2.02H–84-2.02L Reserved

84-2.03 CONSTRUCTION

84-2.03A General

Establish the alignment for traffic stripes and the layouts for pavement markings with a device or method that will not conflict with other traffic control devices.

Protect existing retroreflective pavement markers during work activities.

Remove existing pavement markers that are coated or damaged by work activities and replace with an equivalent marker on the Authorized Material List for signing and delineation materials.

A completed traffic stripe or pavement marking must:

1. Have well defined edges
2. Be uniform
3. Be free from runs, bubbles, craters, drag marks, stretch marks, and debris

A completed traffic stripe must:

1. Be straight on a tangent alignment
2. Be a true arc on a curved alignment
3. Not deviate from the width shown by more than:
   3.1. 1/4 inch on a tangent alignment
   3.2. 1/2 inch on a curved alignment

The length of the gaps and individual stripes that form a broken traffic stripe must not deviate by more than 2 inches from the lengths shown. The gaps and stripes must be uniform throughout the entire length of the traffic stripe.

Protect newly placed traffic stripes and pavement markings from traffic and work activities until the traffic stripes and pavement markings are dry or hard enough to bear traffic.

Use mechanical methods to remove dirt, contaminants, and loose material from the pavement surface before applying the traffic stripe or pavement marking.

Use abrasive blast cleaning to remove laitance and curing compound from the surface of new concrete pavement before applying the traffic stripe or pavement marking.

Construct recesses as shown in the following table:

Recess Depth Requirements

Material	Requirement	
	Depth (mils)	Depth (in)
Thermoplastic	375	3/8
Two component traffic paint	250	1/4
Methyl methacrylate traffic paint	250	1/4

Construct recesses for double traffic stripes in a single pass.

Before applying the traffic stripes and pavement markings:

1. Allow wet ground recesses to dry a minimum of 24 hours
2. Remove all powdery residue from dry recess
3. Keep the recesses dry and free from debris

Apply traffic stripes and pavement markings before the end of the same work shift.

84-2.03B Application of Traffic Stripes and Pavement Markings

84-2.03B(1) General

Apply material for a pavement marking with a stencil or a preformed marking.

Immediately remove drips, overspray, improper markings, or material tracked by traffic, using an authorized method.

Apply a traffic stripe or a pavement marking only to a clean, dry surface during a period when the pavement surface temperature is above 50 degrees F.

Apply traffic stripe or pavement marking and glass beads in a single pass. You may apply the glass beads by hand on pavement markings.

Embed glass beads to a depth of 1/2 their diameters.

Distribute glass beads uniformly on traffic stripe and pavement markings.

Glass beads with integral color must match the color of the stripe or pavement marking.

Apply glass beads with two separate applicator guns when two gradations are specified.

Allow enough overlap distance between new and existing striping patterns to ensure continuity at the start and end of the transition.

The retroreflectivity of applied traffic stripes and pavement markings must comply with the requirements shown in the following table:

Retroreflectivity Requirements

Traffic stripe material	White (min, mcd·m^{-2}·lx^{-1})	Yellow (min, mcd·m^{-2}·lx^{-1})
Paint	250	125
Thermoplastic	250	125
Thermoplastic with wet night enhanced visibility	700	500
Two component	250	125
Methyl methacrylate	500	300
Tape	700	500

84-2.03B(2) Thermoplastic

84-2.03B(2)(a) General

Apply primer or surface preparation adhesive under the manufacturer's instructions:

1. To all roadway surfaces except for asphaltic surfaces less than 6 months old
2. At a minimum rate of 1 gallon per 300 square feet
3. To allow time for the thermoplastic primer to dry and become tacky before application of the thermoplastic

Do not thin the primer.

Preheat thermoplastic using preheaters with mixers having a 360-degree rotation.

Apply thermoplastic in a single uniform layer by spray or extrusion methods.

Completely coat and fill voids in the pavement surface with the thermoplastic.

Apply recessed thermoplastic at a thickness so that the top is 0 to 1/16 inch below the pavement surface.

84-2.03B(2)(b) Extruded Thermoplastic

Apply extruded thermoplastic at a temperature of 400 to 425 degrees F or as recommended by the manufacturer.

Apply extruded thermoplastic for a traffic stripe at a rate of at least 0.36 lb of thermoplastic per foot of 6-inch-wide solid stripe. The applied traffic stripe must be at least 0.060 inch thick.

Apply extruded thermoplastic pavement markings at a thickness from 0.100 to 0.150 inch.

Apply Type 2 glass beads to the surface of the molten thermoplastic at a rate of at least 8 lb of beads per 100 sq ft.

84-2.03B(2)(c) Sprayable Thermoplastic

Apply sprayable thermoplastic at a temperature of 350 to 400 degrees F.

Apply sprayable thermoplastic for a traffic stripe at a rate of at least 0.24 lb of thermoplastic per foot of 6-inch-wide solid stripe. The applied stripe must be at least 0.040 inch thick.

84-2.03B(2)(d) Thermoplastic with Enhanced Wet-Night Visibility

Apply a thermoplastic traffic stripe or pavement marking with enhanced wet-night visibility in a single pass and in the following order:

1. Uniform layer of extruded thermoplastic
2. Layer of high-performance glass beads
3. Layer of Type 2 glass beads

Apply thermoplastic with enhanced wet-night visibility at a maximum speed of 8 mph.

Apply thermoplastic with enhanced wet-night visibility for a traffic stripe at a rate of at least 0.47 lb of thermoplastic per foot of 6-inch-wide solid stripe. The applied stripe must be at least 0.090 inch thick.

Apply thermoplastic with enhanced wet-night visibility for a pavement marking at a rate of at least 1.06 lb of thermoplastic per square foot of marking. The applied pavement marking must be at least 0.100 inch thick.

Apply high-performance glass beads at a rate of at least 6 lb of glass beads per 100 sq ft of stripe or marking. Apply Type 2, glass beads at a rate of at least 8 lb of glass beads per 100 sq ft of stripe or marking.

84-2.03B(3) Methyl Methacrylate

Apply the methyl methacrylate when the pavement surface and atmospheric temperatures are from 40 to 104 degrees F.

Apply methyl methacrylate paint at a minimum thickness of 0.090 inch.

Apply recessed methyl methacrylate paint at a minimum thickness of 0.200 inch.

Apply the glass beads recommended by the methyl methacrylate manufacturer.

84-2.03B(4) Traffic Striping and Pavement Marking Tape

Do not use traffic stripe and pavement marking tape on existing open graded friction course or chip seal.

Prepare pavement surface and use primer under the traffic tape manufacturer's written instructions. Apply tape to clean and dry pavement surface. Roll or tamp the traffic tape in place.

84-2.03B(5) Two-Component Paint

Apply a two-component painted traffic stripe or pavement marking in a single pass and in the following order:

1. Coat of two-component paint
2. Application of large gradation glass beads recommended by the two-component paint manufacturer
3. Application of Type 1 glass beads

Apply two-component paint when the pavement surface temperature is above 39 degrees F and the atmospheric temperature is above 36 degrees F. The temperature of the paint must comply with the paint manufacturer's instructions.

Apply two-component paint and glass beads at a maximum speed of 10 mph.

Apply large-gradation glass beads at a minimum rate of 11.7 lb of beads per gallon of paint.

Apply Type 1 glass beads at a minimum rate of 8.3 lb of beads per gallon of paint.

Apply two-component paint for the traffic stripes and pavement markings at the thickness and application rates shown in the following table:

Type of pavement	Stripe thickness (min, inch)	Application rate (min, sq ft/gal)
HMA open graded/chip seal	0.025	64
HMA dense graded	0.020	80
Concrete	0.020	80

Apply recessed two-component paint at a thickness between 0.020 and 0.025 inch.

84-2.03B(6) Paint

Do not apply paint if:

1. Fresh paint could become damaged by rain, fog, or condensation
2. Atmospheric temperature could drop below 50 degrees F during the drying period

Do not thin paint.

Use mechanical means to paint traffic stripes and pavement markings and to apply glass beads for traffic stripes.

The striping machine must be capable of superimposing successive coats of paint on the 1st coat and on existing stripes at a minimum speed of 5 mph.

Where the configuration or location of a traffic stripe is such that the use of a striping machine is not practicable, you may apply the traffic paint and glass beads by other methods and equipment if authorized.

Apply traffic stripes and pavement markings in 1 coat on existing pavement surfaces, at an approximate rate of 107 sq ft/gal.

Apply traffic stripes and pavement markings in 2 coats on a new pavement surface. The 1st coat of paint must be dry before applying the 2nd coat.

Apply 2-coat paint at the approximate rate of 215 sq ft/gal for each coat.

Paint a 1-coat, 3-inch-wide black stripe between the two 6-inch-wide yellow stripes of a double traffic stripe. If the two 6-inch-wide yellow stripes are applied in 2 coats, apply the black stripe concurrently with the 2nd coat of the yellow stripes.

On 2-lane highways:

1. If the 1st coat of the centerline stripe is applied in the same direction as increasing post miles, use the right-hand spray gun of the 3 spray guns to apply a single yellow stripe
2. If the 1st coat of the centerline stripe is applied in the same direction as decreasing post miles, use the left-hand spray gun of the 3 spray guns to apply a single yellow stripe
3. Apply the 2nd coat of centerline striping in the opposite direction of the 1st coat

Apply glass beads at an approximate rate of 5 lb of beads per gallon of paint.

Verify the application rate of paint by stabbing the paint tank with a calibrated rod. If the striping machine has paint gauges, the Engineer may measure the volume of paint using the gauges instead of stabbing the paint tank with a calibrated rod.

84-2.03B(7) Contrast Striping

04-19-19

Contrast striping consists of black striping placed on each side of a white stripe.

10-19-18

You may use permanent tape instead of paint or thermoplastic.

Apply contrast stripe paint in one coat.

Do not use glass beads or other reflective elements in contrast striping material.

04-19-19

84-2.03B(8)–84-2.03B(10) Reserved

10-19-18

84-2.04 PAYMENT

The payment quantity for a traffic stripe is the length measured along the line of the traffic stripe without deductions for gaps in the broken traffic stripe.

The payment quantity for a pavement marking is the area covered.

A double traffic stripe consisting of two-6-inch-wide yellow stripes are measured as 2 traffic stripes except for painted traffic stripes and sprayable thermoplastic traffic stripes.

A double sprayable thermoplastic traffic stripe consisting of two 6-inch-wide yellow stripes are measured as single traffic stripe.

A double painted traffic stripe consisting of two 6-inch-wide yellow stripes separated by a 3-inch-wide black stripe is measured as a single traffic stripe.

The payment quantity for contrast striping is the length measured along the line of the traffic stripe without deductions for gaps in the broken traffic stripe.

Replace section 84-9 with:

10-19-18

84-9 EXISTING MARKINGS

84-9.01 GENERAL

84-9.01A Summary

Section 84-9 includes specifications for removing existing markings.

Work performed on existing markings must comply with section 15.

84-9.01B Definitions

Reserved

04-19-19

84-9.01C Submittals

10-19-18

Submit your proposed method for removing traffic stripes and pavement markings at least 7 days before starting the removal work. Allow 2 business days for the review.

84-9.02 MATERIALS

Not Used

84-9.03 CONSTRUCTION

84-9.03A General

Remove existing traffic stripes before making any changes to the traffic pattern.

Remove existing traffic stripes and pavement markings before applying the following materials:

1. Traffic stripe and pavement marking tape
2. Two component traffic stripes and pavement markings
3. Methyl methacrylate traffic stripes and pavement markings

04-19-19

Remove contrast stripes, traffic stripes and pavement markings, including any paint in the gaps, by methods that do not remove pavement to a depth of more than 1/8 inch.

10-19-18

Remove pavement markings such that the old message cannot be identified. Make any area removed by grinding rectangular. Water must not puddle in the ground areas. Fog seal ground areas on asphalt concrete pavement.

Sweep up or vacuum any residue before it can (1) be blown by traffic or wind, (2) migrate across lanes or shoulders, or (3) enter a drainage facility.

84-9.03B Remove Traffic Stripes and Pavement Markings Containing Lead

Reserved

84-9.03C–84-9.03J Reserved

84-9.04 PAYMENT

The payment quantity for remove traffic stripe is the measured length multiplied by:

1. 0.67 for a single 4-inch-wide traffic stripe

2 1.34 for a single 8-inch-wide traffic stripe
3. 2 for a double traffic stripe

The payment quantity for remove traffic stripe does not include the gaps in broken traffic stripes. Payment for removal of paint evident in a gap is included in the payment for remove traffic stripe of the type involved.

10-18-19

If no bid item is shown on the Bid Item List for remove pavement marking, remove pavement marking is paid for as remove traffic stripe of the types shown in the Bid Item List and the payment quantity for 1 square foot of pavement marking is 2 linear feet.

^^

DIVISION X ELECTRICAL WORK

86 GENERAL

04-17-20

Replace section 86-1.01B with:

10-19-18

86-1.01B Definitions

accessible pedestrian signal: Accessible pedestrian signal as defined in the *California MUTCD*.

accessible walk indication: Activated audible and vibrotactile action during the walk interval.

actuation: Actuation as defined in the *California MUTCD*.

ambient sound level: Background sound level in dB at a given location.

ambient sound sensing microphone: Microphone that measures the ambient sound level in dB and automatically adjusts the accessible pedestrian signal speaker's volume.

audible speech walk message: Audible prerecorded message that communicates to pedestrians which street has the walk interval.

CALiPER: Commercially Available LED Product Evaluation and Reporting. A U.S. Department of Energy program that individually tests and provides unbiased information on the performance of commercially available LED luminaires and lights.

controller assembly: Assembly for controlling a system's operations, consisting of a controller unit and auxiliary equipment housed in a waterproof cabinet.

controller unit: Part of the controller assembly performing the basic timing and logic functions.

correlated color temperature: Absolute temperature in kelvin of a blackbody whose chromaticity most nearly resembles that of the light source.

detector: Detector as defined in the *California MUTCD*.

electrolier: Assembly of a lighting standard and luminaire.

flasher: Device for opening and closing signal circuits at a repetitive rate.

illuminance gradient: Ratio of the minimum illuminance on a 1-foot square of sign panel to that on an adjacent 1-foot square of sign panel.

inductive loop detector: Detector capable of being actuated by an inductance change caused by a vehicle passing or standing over the loop. An inductive loop detector includes a loop or group of loops installed in the roadway and a lead-in cable installed and connected inside a controller cabinet.

junction temperature: Temperature of the electronic junction of the LED device. The junction temperature is critical in determining photometric performance, estimating operational life, and preventing catastrophic failure of the LED.

L70: Extrapolated life in hours of the luminaire when the luminous output depreciates 30 percent from the initial values.

lighting standard: Pole and mast arm supporting the luminaire.

link: Part of a system which provides a data connection between a transmitter and receiver.

LM-79: Test method from the Illumination Engineering Society of North America specifying the test conditions, measurements, and report format for testing solid state lighting devices, including LED luminaires.

LM-80: Test method from the Illumination Engineering Society of North America specifying the test conditions, measurements, and report format for testing and estimating the long-term performance of LEDs for general lighting purposes.

luminaire: Assembly that houses the light source and controls the light emitted from the light source.

mid-span access method: Procedure in which fibers from a single buffer tube are accessed and spliced to a multi buffer tube cable without cutting the unused fibers in the buffer tube, or disturbing the remaining buffer tubes in the cable.

National Voluntary Laboratory Accreditation Program: U.S. Department of Energy program that accredits independent testing laboratories.

optical time domain reflectometer: Fiber optic test equipment that is used to measure the total amount of power loss between two points and over the corresponding distance. It provides a visual and printed display of the relative location of system components such as fiber sections, splices and connectors as well as the losses that are attributed to each component and or defects in the fiber.

pedestrian change interval: Pedestrian change interval as defined in the *California MUTCD*.

powder coating: Coating applied electrostatically using exterior-grade, UV-stable, polymer powder.

power factor: Ratio of the real power component to the complex power component.

power meter: Portable fiber optic test equipment that, when coupled with a light source, is used to perform end-to-end attenuation testing. Its display indicates the amount of power injected by the light source at the designed wavelength of the system under testing that arrives at the receiving end of the link.

pretimed controller assembly: Assembly operating traffic signals under a predetermined cycle length.

programming mechanism: Device to program the accessible pedestrian signal operation.

pull box: Box with a cover that is installed in an accessible place in a conduit run to facilitate the pulling in of wires or cables.

push button information message: Push button information message as defined in the *California MUTCD.*

push button locator tone: Push button locator tone as defined in the *California MUTCD*.

segment: Continuous cable terminated by 2 splices, 2 connectors or 1 splice and 1 connector.

signal face: Signal face as defined in the *California MUTCD*.

signal head: Signal head as defined in the *California MUTCD*.

signal indication: Signal indication as defined in the *California MUTCD*.

signal section: Signal section as defined in the *California MUTCD*.

signal standard: Pole with or without mast arms carrying 1 or more signal faces.

street side lumens: Lumens from a luminaire directed to light up areas between the fixture and the roadway, such as traveled ways and freeway lanes.

surge protection device: Subsystem or component that protects equipment against short-duration voltage transients in power line.

total harmonic distortion: Ratio of the rms value of the sum of the squared individual harmonic amplitudes to the rms value of the fundamental frequency of a complex waveform.

traffic-actuated controller assembly: Assembly for operating traffic signals under the varying demands of traffic as registered by detector actuation.

traffic phase: Traffic phase as defined in the *California MUTCD*.

vehicle: Vehicle as defined in the *California Vehicle Code*.

vibrotactile pedestrian device: Vibrotactile pedestrian device as defined in the *California MUTCD*.

10-19-18

Delete the 9th and 10th paragraphs of section 86-1.01C(1).

Replace section 86-1.01C(3) with:

10-19-18

86-1.01C(3) Luminaires

Submit for a luminaire:

1. Maximum power in watts
2. Maximum designed junction temperature
3. Heat sink area in square inches
4. Designed junction-to-ambient thermal resistance calculation with thermal resistance components clearly defined
5. L70 in hours when extrapolated for the average nighttime operating temperature
6. Life expectancy based on the junction temperature
7. Manufacturer's data sheet for the power supply, including the rated life

Submit the manufacturer's QC test data for luminaires as an informational submittal.

Replace section 86-1.01C(4) with:

10-19-18

86-1.01C(4) Reserved

Replace the 3rd paragraph of section 86-1.02B(1) with:

04-19-19

Conduit used for horizontal directional drilling must be high density polyethylene Type IPS, SDR 9 and comply with ASTM F2160.

Replace the 8th paragraph of section 86-1.02B(1) with:

10-19-18

High density polyethylene for innerduct must:

1. Comply with ASTM D3485, D3035, D2239, and D2447, and NEMA TC7 and TC2

2. Have a minimum tensile yield strength of 3300 psi under ASTM D638

04-19-19

3. Have a density of 59.6187 lb/ft^3 ± 0.3121 lb/ft^3 under ASTM D1505

Replace the 9th paragraph of section 86-1.02B(1) with:

04-19-19

Tracer wire must be a minimum no. 12 solid copper conductor with orange insulation Type TW, THW, RHW, or USE. For direct burial, the tracer wire insulation must be Type UF.

Replace section 86-1.02C with:

10-18-19

86-1.02C Pull Boxes

86-1.02C(1) General

A pull box cover must have a marking on the top that is:

1. Clearly defined
2. Uniform in depth
3. Parallel to the longer side
4. From 1 to 3 inches in height

The cover marking must include *CALTRANS* and one of the following:

1. *SERVICE* for service circuits from a service equipment enclosure to a subpanel
2. *SERVICE IRRIGATION* for circuits from a service equipment enclosure to an irrigation controller
3. *SERVICE BOOSTER PUMP* for circuits from a service equipment enclosure to the booster pump
4. *TDC POWER* for circuits from a service equipment enclosure to telephone demarcation cabinet
5. *LIGHTING* for a lighting system
6. *SIGN ILLUMINATION* for a sign illumination system
7. *SIGNAL AND LIGHTING* for a signal and lighting system
8. *RAMP METER* for a ramp metering system
9. *TMS* for a traffic monitoring station
10. *FLASHING BEACON* for a flashing beacon system
11. *CMS* for a changeable message sign system
12. *INTERCONNECT* for an interconnect conduit and cable system
13. *FIBER OPTIC* for fiber optic cable system
14. *ELECTRICAL SYSTEMS* if more than one system is shared in the same pull box

The cover marking must not include *CALTRANS*, only the following:

1. *ELECTRICAL SERVICE* for circuits from an electrical utility to a service equipment enclosure
2. *TELEPHONE* SERVICE for circuits from a telephone utility to a telephone demarcation cabinet

A metal pull box cover must include a fitting for a bonding conductor.

The hardware must be stainless steel containing 18 percent chromium and 8 percent nickel.

86-1.02C(2) Roadway Pull Boxes

86-1.02C(2)(a) General

A pull box cover must have a nonskid surface.

The pull boxes and covers must not have exposed fibers or reinforcement on the finish surfaces that are exposed.

The load rating must be:

1. Stenciled or stamped on the inside and outside of the pull box
2. Stamped on the outside of the cover

If a transformer or other device is to be placed in the pull box, include recesses for a hanger.

Hold-down bolts must:

1. Be a Penta Head 1/2-13UNC
2. Have a thread lock material
3. Withstand a torque from 55 to 60 ft-lb
4. Withstand a minimum pull-out strength of 750 lb

The opening in which the cover sets must have length and width dimensions 1/8 inch greater than the cover.

86-1.02C(2)(b) Nontraffic Pull Boxes

A nontraffic pull box and cover must comply with ANSI/SCTE 77, "Specification for Underground Enclosure Integrity," for Tier 22 load rating and must be gray or brown.

An extended pull box must be a minimum 22 inches deep and may be a single box or a box with an extension made of the same material as the pull box. The extension may be another pull box if the bottom edge of the pull box fits into the opening for the cover.

The hold down bolts, nuts, and washers must be a captive design.

The pull box must have a 1/2-13 coarse-thread insert with drainage hole, to secure the hold down bolts.

The cover must have a 1/2 inches by 4 inches pull slot with a 3/16-inch center pin.

The cover markings must be cast in the mold of the cover or be engraved on a metal or UV resistant ABS plate secured to the cover with stainless steel screws.

86-1.02C(2)(c) Traffic Pull Boxes

A traffic pull box and cover must comply with AASHTO HS20-44 and load tested under AASHTO M 306.

A traffic pull box must be reinforced with a galvanized steel Z bar welded frame. The frame must be anchored to the box with 2-1/4-inch-long concrete anchors with a 1/4-inch diameter. The pull box must have 4 concrete anchors, one in each corner, and two near the middle one on each of the longer sides, except for a no. 3-1/2(T) pull box.

The frame must have nuts fabricated with the frame or spot welded to the underside of the frame, to secure the hold down bolts.

The nuts must be zinc-plated carbon steel, vibration-resistant, and have a wedge ramp at the root of the thread.

The cover must:

1. Be steel, reinforced and galvanized post fabrication.
2. Be countersunk approximately 1/4 inch to accommodate the bolt head. When tightened, the hold down bolt head must be no more than 1/8 inch above the top of the cover.
3. Have a 1/2-inch by 2-inch pull slot with a guard under the cover to prevent entry of more than 3 inches below the bottom surface of the cover without deflection.

Before galvanizing a steel cover, the manufacturer must apply the cover marking by one of the following methods:

1. Use a cast iron strip at least 1/4-inch thick with letters raised a minimum of 1/16 inch. Fasten the strip to the cover with 1/4-inch, flathead, stainless steel machine bolts and nuts. Peen the bolts after tightening.

2. Use a sheet steel strip at least 0.027-inch thick with letters raised a minimum of 1/16 inch. Fasten the strip to the cover by spot welding, tack welding, or brazing with 1/4-inch stainless steel rivets or 1/4-inch, roundhead, stainless steel machine bolts and nuts. Peen the bolts after tightening.
3. Bead weld the letters on the cover such that the letters are raised a minimum of 3/32 inch.

86-1.02C(2)(d) Tamper Resistant Pull Boxes

86-1.02C(2)(d)(i) General

Not Used

86-1.02C(2)(d)(ii) Tamper-Resistant Nontraffic Pull Box

86-1.02C(2)(d)(ii)(A) General

A tamper resistant nontraffic pull box must include a pull box with one of the following:

1. Anchored cover
2. Lockable cover
3. Pull box insert

86-1.02C(2)(d)(ii)(B) Anchored Cover

The anchored cover must:

1. Be of 1/2-inch-thick mild steel, hot dip galvanized, post fabrication.
2. Have spikes removed from the galvanized surfaces.
3. Have a center space for a top lock nut that must be torqued to 200 ft-lb.
4. Have a center opening for a stainless-steel threaded cap to cover the lock nut.
5. Weigh a minimum of 85 lb.
6. Include an all-around security skirt of 1/4-inch thick steel. The skirt must be sized to encase a nontraffic pull box or sized to fit within a traffic pull box.
7. Be welded to the skirt.

86-1.02C(2)(d)(ii)(C) Lockable Cover

The lockable cover must:

1. Be manufactured from minimum 3/16-inch-thick galvanized steel or a polymer of minimum strength equal to 3/16-inch steel.
2. Be secured to the pull box with a locking mechanism of equal or greater strength than the manufactured material.
3. Have 1/2-by-2-inch slot holes for lifting.
4. Have dimensions complying with one of the following:
   4.1. Department's standards for pull box covers as shown if the lockable cover is secured to the inside lip of the pull box.
   4.2. Department's standards for the length and width as shown for pull box covers if the lockable cover is secured to the top of the pull box.

86-1.02C(2)(d)(ii)(D) Pull Box Insert

The pull box insert must:

1. Be made of minimum 3/16-inch-thick or 10 gauge mild hot-dipped galvanized steel
2. Have a minimum of 2 mounting brackets that rest under the side or end wall
3. Be lockable with a padlock having a minimum 3/8-inch shackle
4. Have dimensions complying with the Department's standards for the length and width as shown for pull box covers

86-1.02C(2)(d)(iii) Tamper Resistant Traffic Pull Box

A tamper resistant traffic pull box must include a pull box with an anchored cover.

86-1.02C(3) Structure Pull Boxes

A no. 7 pull box must:

1 Be 12 by 12 by 12 inches.
2. Be manufactured with 0.075-inch sheet steel.
3, Have 3/4-inch flanges on the top and bottom.
4. Have one 1-inch and one 1-1/2-inch knockouts on each side, except for the covers
5. Have drilled and taped holes on the top and the bottom flanges for the cover screws. The hole pattern and spacing must be the same on the top and bottom.
6. Have covers that secure to the box with eight 1/4-inch diameter, 20NC brass machine screws.

A no. 8 pull box must:

1 Be 12 by 12 by 12 inches.
2. Be manufactured with 0.135-inch sheet steel.
3. Mount to the structure with three 3/8-inch diameter machine screws per side.
4. Have 1-1/2-inch knockouts on each side, except the cover.
5. Have drilled and taped holes on the sides and the bottom for the cover screws. The holes must be reinforced with a 1-by-1-by-0.135-inch bar inside the box.
6. Have a cover with 3/4-inch flanges on the sides and bottom with the corners welded at the bottom. The cover must secure to the box with, three 1/4-inch diameter by 1/2-inch long cadmium plated brass or stainless steel, machine screws.

A no. 9 pull box must:

1 Be 24 by 9-1/2 by 6-1/4 inches.
2. Be manufactured with 0.075-inch sheet steel.
3. Have a rain tight hood.
4, Have a 1-1/2-by-4-1/2-by-0.135-inch strap welded to the back of the box at each corner, parallel to the long side. The strap must have a 1/4-inch hole on the exposed end.
5. Have a 1-inch lip around the opening.
6. Have drilled and taped holes with a minimum 1/4-inch thread length, on the ends of the bottom lip for the cover screws.
7. Have a 3-inch knockout on each side at the bottom and at the center of the bottom.
8. Have a 2-inch knockout on each side at the top and at both ends of the bottom.
9. Have an L 5/8-by-7/8-by-0.075-inch formed angle spot welded to the inside of the top on both sides and on the bottom.
10. Have a cover manufactured with 0.125-inch steel, that secures to the box with two 3/8-inch diameter by 3/4-inch long stainless-steel flathead screws with 11/16-inch diameter countersink holes. The cover must include a 1/16-inch neoprene gasket.

A no. 9A pull box must:

1 Be 20 by 8 by 8-1/2 inches.
2. Be manufactured with 0.075-inch sheet steel.
3. Have 3/4-inch flanges on the top.
4, Have drilled holes on the short sides for the cover screws. The holes must have a stainless-steel hex nut or a 1/4-by-5/8-by-8-inch bar spot welded to the bottom of the flange.
5. Have a 3-inch knockout on each side at the top and at the center of the bottom.
6. Have a 2-inch knockout on each side at the bottom and at both ends of the bottom.
7. Have a cover manufactured with 0.105-inch steel, that secures to the box with four 3/8-inch diameter stainless steel hex head cap screws, two on each short side. The cover must have a rain tight hood and include a 1/16-inch neoprene gasket.

Pull box corner joints must be lapped and spot welded or riveted.

Concentric and eccentric multiple size knockouts are not be allowed.

Replace section 86-1.02D(3) with:

10-19-18

86-1.02D(3) Warning Tape

Warning tape must be orange color polyolefin film, minimum elongation of 500 percent before breakage, water and corrosion resistant, and comply with requirements shown in the following table:

Warning Tape Requirements

Quality characteristic	Requirement
Thickness (min, mil)	4
Width (in)	4
Tensile strength of material (min, psi)	2800
Message spacing intervals (ft)	3

The warning tape must have a printed message that reads: *CAUTION: CALTRANS FACILITIES BELOW*.

The printed text height and color must be 1 inch, black color text over bright orange background.

Replace the 2nd paragraph of section 86-1.02E with:

10-19-18

Each sensor must:

1. Have a dissipation factor less than 0.04 nF when measured in the 20 nF range
2. Have resistance greater than 20 Megaohms
3. Be 1/4 inch wide by 6 feet long by 1/16 inch thick
4. Have a RG-58C/U coaxial screen transmission cable, jacketed with high-density polyethylene, rated for direct burial and resistant to nicks and cuts
5. Operate over a temperature range from -40 to 160 degrees F
6. Have a signal to noise ratio equal to or greater than 10 to 1
7. Have an output signal of a minimum 250 mV ± 20 percent for a wheel load of 400 lb at 55 mph and 70 degrees F
8. Have an insulation resistance greater than 500 MΩ
9. Have a life cycle of a minimum 25 million equivalent single axle loadings

Replace section 86-1.02F(1) with:

10-19-18

86-1.02F(1) General

Conductors and cables must be clearly and permanently marked the entire length of their outer surface with:

1. Manufacturer's name or trademark
2. Insulation-type letter designation
3. Conductor size
4. Voltage
5. Number of conductors for a cable

The minimum insulation thickness and color code requirements must comply with NEC.

Replace the 2nd paragraph of section 86-1.02F(2)(a) with:

10-19-18

Conductors must be identified as shown in the following table:

Conductor Identification

04-17-20

Circuit	Signal phase or function	Identification			Copper size
		Insulation color		Band symbols	
		Base	Stripe[a]		

Signals (vehicle)[a,b]	2, 6	Red, yellow, brown	Black	2, 6	14
	4, 8	Red, yellow, brown	Orange	4, 8	14
	1, 5	Red, yellow, brown	None	1, 5	14
	3, 7	Red, yellow, brown	Purple	3, 7	14
	Ramp meter 1	Red, yellow, brown	None	No band required	14
	Ramp meter 2	Red, yellow, brown	Black	No band required	14
Pedestrian signals	2p, 6p	Red, brown	Black	2p, 6p	14
	4p, 8p	Red, brown	Orange	4p, 8p	14
	1p, 5p	Red, brown	None	1p, 5p	14
	3p, 7p	Red, brown	Purple	3p, 7p	14
Push button assembly or accessible pedestrian signal	2p, 6p	Blue	Black	P-2, P-6	14
	4p, 8p	Blue	Orange	P-4, P-8	14
	1p, 5p	Blue	None	P-1, P-5	14
	3p, 7p	Blue	Purple	P-3, P-7	14
Traffic signal controller cabinet	Ungrounded circuit conductor	Black	None	CON-1	6
	Grounded circuit conductor	White	None	CON-2	6
Highway lighting pull box to luminaire	Ungrounded - line 1	Black	None	No band required	14
	Ungrounded - line 2	Red	None	No band required	14
	Grounded	White	None	No band required	14
Multiple highway lighting	Ungrounded - line 1	Black	None	ML1	10
	Ungrounded - line 2	Red	None	ML2	10
	Ungrounded - line 3	White	None	ML3	10
Lighting control	Ungrounded - Photoelectric unit	Black	None	C1	14
	Switching leg from Photoelectric unit or SM transformer	Red	None	C2	14
Service	Ungrounded - line 1 (signals)	Black	None	No band required	6
	Ungrounded - line 2 (lighting)	Red	None	No band required	8
Sign lighting	Ungrounded - line 1	Black	None	SL-1	10
	Ungrounded - line 2	Red	None	SL-2	10
Flashing beacons	Ungrounded between flasher and beacons	Red or yellow	None	FB-Location.[c]	14
Grounded circuit conductor	Push button assembly or accessible pedestrian signal	White	Black	No band required	14
	Signals and multiple lighting	White	None	No band required	10
	Flashing beacons and sign lighting	White	None	No band required	12
	Lighting control	White	None	C-3	14
	Service	White	None	No band	14

				required	
Spares		Black	None	No band required	14

Notes:
[a]On overlaps, the insulation is striped for the 1st phase in the designation, e.g., phase (2+3) conductor is striped as for phase 2.
[b]Band for overlap and special phases as required
[c]Flashing beacons having separate service do not require banding.

10-19-18

Delete the 4th paragraph of section 86-1.02F(2)(a).

Replace the 2nd paragraph of section 86-1.02F(2)(c)(ii) with:

10-19-18

An equipment grounding conductor must be insulated.

Replace the 3rd paragraph of section 86-1.02F(3)(d)(ii) with:

10-19-18

Cable must comply with the requirements shown in the following table:

Cable type	Conductor quantity and type	Cable jacket thickness (mils)		Maximum nominal outside diameter (inch)	Conductor color code
		Average	Minimum		

3CSC	3 no. 14	44	36	0.40	Blue/black stripe, blue/orange stripe, white/black stripe
5CSC	5 no. 14	44	36	0.50	Red, yellow, brown, black, white
9CSC	1 no. 12 8 no. 14	60	48	0.65	No. 12 - white, No. 14 - red, yellow, brown, black, red/black stripe, yellow/black stripe, brown/black stripe, white/black stripe
12CSC	1 no. 12 11 no. 14	60	48	0.80	No. 12 - white No. 14 - red, yellow, brown, black, red/black stripe, yellow/black stripe, brown/black stripe, black/red stripe, black/white stripe, red/white stripe, brown/white stripe
28CSC	1 no. 10 27 no. 14	80	64	0.90	No. 10 - white No. 14 - red/black stripe, yellow/black stripe, brown/black stripe, red/orange stripe, yellow/orange stripe, brown/orange stripe, red/silver stripe, yellow/silver stripe, brown/silver stripe, red/purple stripe, yellow/purple stripe, brown/purple stripe, red/2 black stripes, brown/2 black stripes, red/2 orange stripes, brown/2 orange stripes, red/2 silver stripes, brown/2 silver stripes, red/2 purple stripes, brown/2 purple stripes, blue/black stripe, blue/orange stripe, blue/silver stripe, blue/purple stripe, white/black stripe, black/red stripe, black

Replace section 86-1.02F(3)(d)(iv) with:

04-17-20

86-1.02F(3)(d)(iv) Railroad Preemption Cables

A railroad preemption cable must be a 19-conductor cable having a polyvinyl chloride or polyethylene jacket. The cable jacket must be rated for 600 V(ac) and 75 degrees C.

The railroad preemption cable color code must be as shown in the following table:

Railroad Preemption Cable Color Code

Conductor no.	Color Code
1	Black
2	White
3	Red
4	Green
5	Orange
6	Blue
7	White/black stripe
8	Red/black stripe
9	Green/black stripe
10	Orange/black stripe
11	Blue/black stripe
12	Black/white stripe
13	Red/white stripe
14	Green/white stripe
15	Blue/white stripe
16	Black/red stripe
17	White/red stripe
18	Orange/red stripe
19	Blue/red stripe

The individual conductors in the cable must:

1. Be stranded and comply with ASTM B286
2. Have Type THW insulation
3. Be 16 AWG

Replace the 3rd paragraph of section 86-1.02G with:

10-19-18

The self-adhesive reflective labels must:

1. Be from 3 to 5 mils thick
2. Have all black capital characters on a white background
3. Extend beyond the character by a minimum of 1/4 inch

Replace the 4th paragraph of section 86-1.02H with:

10-19-18

PVC electrical tape must have a minimum thickness of 6 mils.

Replace section 86-1.02K with:

04-17-20

86-1.02K Luminaires

86-1.02K(1) General

A luminaire must:

1. Be self-contained, not requiring assembly.
2. Comply with UL 1598 for luminaires in wet locations.
3. Have a power supply with ANSI/IEC 60529 rating of at least IP65.
4. Weigh less than 35 lb.
5. Have a minimum 60,000 hours L70 rating under LM-80 and TM-21 at an ambient temperature of 25 degrees C.
6. Operate over a temperature range from -40 to 130 degrees F.
7. Be operationally compatible with photoelectric controls.
8. Have a nominal correlated color temperature of 3000 K under ANSI C78.377 and a color rendering index of 70 or greater.
9. Have a maximum effective projected area of 1.4 sq ft when viewed from either side or end.
10. Comply with ANSI C136.31.
11. Have a power factor of 0.90 or greater. The total harmonic distortion, current, and voltage induced into a power line by a luminaire must not exceed 20 percent. Test voltage will be at 120 V(ac), 240 V(ac), or 480 V(ac).
12. Comply with the maximum power consumption and isofootcandle curves as shown.
13. Be on the Authorized Material List for LED luminaires or must be submitted and passed testing for addition to the AML.

A luminaire must include a surge protection device to withstand high-repetition noise transients caused by utility line switching, lightning strikes, and other interferences. The device must protect the luminaire from damage and failure due to transient voltages and currents as defined in Tables 1 and 4 of ANSI/IEEE C64.41.2 for location category C-High. The surge protection device must comply with UL 1449 and ANSI/IEEE C62.45 based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C-High.

The luminaire must operate over the voltage range:

1. From 95 to 277 V(ac) for luminaires rated 120, 240, or 277 V(ac)
2. From 347 to 480 V(ac) for luminaires rated 480 V(ac)

The fluctuations of line voltage must have no visible effect on the luminous output.

The luminaire's housing, external bolts, screws, hinges, hinge pins, and door closure devices must withstand a 1008 hour cyclic salt fog spray/UV test under ASTM D5894 and an evaluation under ASTM D714 with a blister rating of 8 or greater and no more than medium density.

The luminaire's housing must be marine-grade alloy with less than 0.2 percent copper or die cast aluminum.

The housing must be designed to prevent the buildup of water on its top surface. Exposed heat sink fins must be oriented to allow water to run off the luminaire and carry dust and other accumulated debris away from the unit. The optical assembly of the luminaire must be protected against dust and moisture intrusion to at least an ANSI/IEC 60529 rating of IP66. The power supply enclosure must be protected to at least an ANSI/IEC 60529 rating of IP43.

If the components are mounted on a down-opening door, the door must be hinged and secured to the luminaire's housing separately from other components. The door must be secured to the housing to prevent accidental opening. A safety cable must mechanically connect the door to the housing.

A luminaire must have a barrier-type terminal block secured to the housing to connect field wires. The terminal screws must be captive and equipped with wire grips for conductors up to no. 6.

Terminals must be identified and marked.

If needed, each refractor or lens must be made of UV-inhibiting high-impact plastic, such as acrylic or polycarbonate, or heat and impact-resistant glass. The refractor or lens must be resistant to scratching. Polymeric materials, except for the lenses of enclosures containing either the power supply or electronic components of the luminaire, must be made of UL94 V-0 flame-retardant materials.

The luminaire must be permanently marked inside the unit and outside of its packaging box. Marking consists of:

1. Manufacturer's name or trademark
2. Month and year of manufacture
3. Model, serial, and lot numbers
4. Rated voltage, wattage, and power in VA

An LED luminaire must:

1. Comply with Class A emission limits under 47 CFR 15(B) for unintentional radiators.
2. Have a power supply with:
   2.1. 2 leads to accept standard 0-10 V(dc) control.
   2.2. Dimming control compatible with IEC 60929, Annex E. If the control leads are open or the analog control signal is lost, the circuit must default to 100-percent power.
   2.3. Case temperature self-rise of 77 degrees F or less above ambient temperature in free air with no additional heat sinks.
3. Not be cooled by fans or other menchanical devices.

86-1.02K(2) Roadway Luminaires

A roadway luminaire must:

1. Have a housing color that matches a color no. 26152 to 26440, 36231 to 36375, or 36440 of AMS-STD-595
2. Have an ANSI C136.41-compliant, locking-type, photocontrol receptacle with dimming connections and a watertight shorting cap
3. Have an uplight rating of "U0" per IES TM-15-11
4. Have equipment identification character labels outside the unit on the side that will face the road. Equipment identification characters consist of:
   4.1. R1 for Roadway 1, R2 for Roadway 2, R3 for Roadway 3, and R4 for Roadway 4
   4.2. Rated wattage

The luminaire's housing must have a slip fitter that must:

1. Fit on mast arms with outside diameters from 1-5/8 to 2-3/8 inches
2. Be adjustable to a minimum of ±5 degrees from the axis of the tenon in a minimum of 5 steps: +5, +2.5, 0, -2.5, -5
3. Have clamping brackets that:
   3.1. Are made of corrosion-resistant materials or treated to prevent galvanic reactions
   3.2. Do not bottom out on the housing bosses when adjusted within the designed angular range
   3.3. Do not permanently set more than 1/32 inch when tightened

86-1.02K(3) Overhead Sign Luminaires

An overhead sign luminaire must:

1. Have a uniformity average to minimum ratio of 10:1 for the distribution of light reflected on a 16' wide by 12' high sign panel
2. Not allow more than 2.5 percent of the rated lumens to project above 65 degrees measured up from the horizontal plane in the direction of the sign panel
3. Mount at a maximum height of 12 inches above the top of the mounting rails
4. Mount directly to the sign structure as shown or with a mounting adapter that meets the material requirements of the luminaire's housing

Replace section 86-1.02M with:

10-19-18

86-1.02M Photoelectric Controls

Photoelectric control types are as shown in the following table:

Photoelectric Control Types

Control type	Description
I	Pole-mounted photoelectric unit. Test switch and a 15-A circuit breaker per ungrounded conductor, housed in an enclosure.
II	Pole-mounted photoelectric unit. Contactor, a 15-A circuit breaker per ungrounded conductor, and test switch located in a service equipment enclosure.
III	Pole-mounted photoelectric unit. Contactor, a 15-A circuit breaker per ungrounded conductor, and a test switch housed in an enclosure.
IV	A photoelectric unit that plugs into a NEMA twist-lock receptacle, integral with the luminaire.
V	A photoelectric unit, contactor, a 15-A circuit breaker per ungrounded conductor, and test switch located in a service equipment enclosure.

The pole-mounted adaptor for Type I, II, and III photoelectric controls must include a terminal block and cable supports or clamps to support the wires.

Photoelectric unit must:

1. Have a screen to prevent artificial light from causing cycling.
2. Have a rating of 60 Hz, 105-130 V(ac), 210-240 V(ac), or 105-240 V(ac).
3. Operate at a temperature range from -20 to 55 degrees C.
4. Consume less than 10 W.
5. Be a 3-prong, twist-lock type with a NEMA IP 65 rating, ANSI C136.10-compliant.
6. Have a fail-on state.
7. Fit into a NEMA-type receptacle.
8. Turn on from 1 to 5 footcandles and turn off from 1.5 to 5 times the turn-on level. Measurements must be made by procedures in *EEI-NEMA Standards for Physical and Electrical Interchangeability of Light-Sensitive Control Devices Used in the Control of Roadway Lighting.*

Type I, II, III, and V photoelectric controls must have a test switch to allow manual operation of the lighting circuit. Switch must be:

1. Single-hole mounting, toggle type
2. 15 A, single pole and single throw
3. Labeled *Auto-Test* on a nameplate

Photoelectric control's contactor must be:

1. Normally open
2. Mechanical-armature type with contacts of fine silver, silver alloy, or equal or better material
3. Installed to provide a minimum space of 2-1/2 inches between the contactor terminals and the enclosure's sides

The terminal blocks must be rated at 25 A, 600 V(ac), molded from phenolic or nylon material, and be the barrier type with plated-brass screw terminals and integral marking strips.

Replace section 86-1.02N with:

10-19-18

86-1.02N Fused Splice Connectors

The fused splice connector for 240 and 480 V(ac) circuits must simultaneously disconnect both ungrounded conductors. The connector must not have exposed metal parts except for the head of the

stainless steel assembly screw. The head of the assembly screw must be recessed a minimum of 1/32 inch below the top of the plastic boss that surrounds the head.

The connector must protect the fuse from water or weather damage. Contact between the fuse and fuse holder must be spring loaded.

Fuses must:

1. Be standard, midget, ferrule type
2. Have a nontime-delay feature
3. Be 13/32 by 1-1/2 inches

Fuse ratings for luminaires are shown in the following table:

Fuse Current Rating Requirements

Circuit voltage	Fuse voltage rating	Soffit and roadway luminaires
120 V(ac)	250 V(ac)	5 A
240 V(ac)	250 V(ac)	5 A
480 V(ac)	500-600 V(ac)	5 A

Fuse ratings for transformers are shown in the following table:

Fuse Current Rating Requirements

Circuit voltage	Fuse voltage rating	Fuse current rating for Single phase (two wires) Transformers (primary side)		
		1 kVA	2 kVA	3 kVA
120 V(ac)	250 V(ac)	10 A	20 A	30 A
240 V(ac)	250 V(ac)	6 A	10 A	20 A
480 V(ac)	500-600 V(ac)	3 A	6 A	10 A

Replace section 86-1.02P(1) with:

10-19-18

86-1.02P(1) General

The enclosures must be rated NEMA 3R and include a dead front panel and a hasp with a 7/16-inch-diameter hole for a padlock.

Except for a service equipment enclosure, an enclosure must:

1. Be manufactured from steel and either galvanized, cadmium plated, or powder coated
2. Mount to a standard, pole, post, or sign structural frame
3. Provide a minimum space of 2-1/2 inches between the internal components and the enclosure's sides

The enclosure's machine screws and bolts must not protrude outside the cabinet wall.

The fasteners on the exterior of an enclosure must be vandal resistant and not be removable. The exterior screws, nuts, bolts, and washers must be stainless steel.

Replace the 1st paragraph of section 86-1.02P(2) with:

04-19-19

Service equipment enclosure must:

1. Comply with the Electric Utility Service Equipment Requirements Committee
2. Meet the requirements of the service utility

3. Be watertight
4. Be factory wired and manufactured from steel and galvanized or have factory-applied, rust-resistant prime and finish coats, except Types II and III
5. Be marked as specified in NEC to warn of potential electric-arc flash hazards

04-19-19

Delete the 5th paragraph of 86-1.02P(2).

Add between 6th and 7th paragraphs of section 86-1.02P(2):

10-19-18

Service equipment enclosure must have the meter view windows located on the front side of the enclosure for Types III-AF, BF, CF and DF.

Service equipment enclosure must have the meter view windows located on the back side of the enclosure for Types III-AR, BR, CR and DR.

Replace the 7th paragraph of section 86-1.02P(2) with:

04-19-19

The meter area must have a sealable, lockable, weather-tight cover that can be removed without the use of tools.

04-19-19

Delete the 2nd sentence of the 9th paragraph of section 86-1.02P(2).

10-19-18

Delete section 86-1.02P(3).

Replace the 1st paragraph of section 86-1.02Q(2) with:

04-17-20

A Department-furnished controller assembly consists of a controller cabinet with a controller unit and all auxiliary equipment required to operate the system. The Department does not furnish anchor bolts.

Replace section 86-1.02Q(4)(a) with:

10-19-18

86-1.02Q(4)(a) General

The doors of a telephone demarcation cabinet must be attached using continuous aluminum steel piano hinges.

Add between the 2nd and 3rd paragraphs of section 86-1.02R(2):

10-19-18

Bracket arms must be long enough to allow proper alignment of signals and backplate installation.

Add to the end of section 86-1.02R(3):

04-17-20

Backplates for signal and lighting systems must have a 2-inch retroreflective strip on the face around the perimeter. The strip must be Type XI fluorescent yellow retroreflective sheeting on the Authorized Material List for signing and delineation materials.

Replace item 2 in the list in the 5th paragraph of section 86-1.02R(4)(a)(iii) with:

10-19-18

2. Be a black color throughout, including the door, matching color no. 17038, 27038, or 37038 of AMS-STD-595

Replace section 86-1.02S(3)(c) with:

04-17-20

86-1.02S(3)(c) LED Countdown Pedestrian Signal Face Modules

An LED countdown PSF module must:

1. Comply with ITE publication ST-055-E, Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules.
2. Be manufactured with materials that comply with ASTM D3935.
3. Have circuit boards that comply with TEES, chapter 1, section 6.
4. Have symbols that are at least 9 inches high and 5-1/4 inches wide each. The 2-digit countdown display, *Upraised Hand*, and *Walking Person* indications must be electronically isolated from each other. The 3 indications must not share a power supply or interconnect circuitry.
5. Use ultra-bright-type LED rated for 60,000 hours of continuous operation. Individual LEDs must be wired such that a loss or failure of 1 LED will not result in a loss of more than 5 percent of the module's light output. Failure of an individual LED in a string must not result in a loss of an entire string or other indication.
6. Have a manual control to turn on and off the 2-digit countdown display.
7. Have the lot number, month, and year of manufacture permanently marked on the back.
8. Have prominent and permanent vertical markings for accurate indexing and orientation within the pedestrian signal housing. Markings must be a minimum of 1 inch in height and include an up arrow and the word *up* or *top*.

Upon initial testing at 25 degrees C, the module must have at least the luminance values shown in the following table:

Luminance Values

PSF module symbol	Luminance (fL)
Upraised hand and 2-digit countdown timer	1,094
Walking person	1,547

The module must not exceed the power consumption requirements shown in the following table:

Maximum Power Consumption Requirements

PSF module display	At 24 ºC	At 74 ºC
Upraised Hand	10.0 W	12.0 W
Walking Person	9.0 W	12.0 W
2-digit countdown timer	6.0 W	8.0 W

If the pedestrian change interval is interrupted, then the 2-digit countdown timer and display must reset to the full pedestrian change interval before being initiated the next time. The 2-digit countdown display on the PSF module must go dark within a second after displaying "0".

Add to the beginning of section 86-1.02T:

04-19-19

Accessible pedestrian signal must be on the Authorized Material List for Accessible Pedestrian Signals.

04-17-20

Delete the 2nd paragraph of section 86-1.02T.

Replace the 5th and 6th paragraphs of section 86-1.02T with:

10-19-18

The color of a metallic housing must match color no. 33538 of AMS-STD-595.

The color of a plastic housing must match color no. 17038, 27038, or 37038 of AMS-STD-595.

Replace the 7th paragraph of section 86-1.02T with:

04-19-19

Accessible pedestrian signal must:

1. Have controllable and programmable volume level and messaging
2. Be weatherproof and shockproof

Replace the 11th paragraph of section 86-1.02T with:

10-19-18

The cable between the accessible pedestrian signal assembly and the pedestrian signal head must be rated for outdoor use and have a:

1. Minimum four no. 18 stranded or larger tinned copper conductors with a minimum insulation thickness of 15 mils
2. Cable jacket with a minimum thickness of 20 mils and rated for a minimum:
   2.1. 300 V(ac)
   2.2. 80 degrees C
3. Nominal outside diameter less than 350 mils
4. Conductor color code of black, white, red and green

Replace the 1st paragraph of section 86-1.02U with:

10-19-18

The housing for a push button assembly must be made of die-cast aluminum, permanent mold-cast aluminum, or UV-stabilized self-extinguishing structural plastic.

The housing must have a uniform color that matches color no. 17038, 27038, or 37038 of AMS-STD-595.

Replace the 2nd paragraph of section 86-1.02W(4) with:

10-19-18

The cured hot-melt rubberized asphalt sealant must comply with the requirements shown in the following table:

Cured Hot-Melt Rubberized Asphalt Sealant Requirements

Quality characteristic	Test method	Requirement
Cone penetration, 25 °C, 150 g, 5 s (max, 1/10 mm)	ASTM D5329	35
Flow, 60 °C, 5 hr (max, mm)		5
Resilience, 25 °C (min, %)		25
Softening point (min, °C)	ASTM D36	82
Ductility, 25 °C, 5 cm/min (min, cm)	ASTM D113	30
Flash point, Cleveland Open Cup (min, °C)	ASTM D92	288
Viscosity, no. 27 spindle, 20 rpm, 190 °C (Pa•s)	ASTM D4402	2.5–3.5

Replace the 2nd paragraph of section 86-1.02Y with:

10-19-18

A transformer must be a dry type designed for operation on a 60 Hz supply. The transformer must have a decal showing a connection diagram. The diagram must show either color coding or wire tagging with primary (H1, H2) or secondary (X1, X2) markers and the primary and secondary voltage and volt-ampere rating. A transformer must comply with the electrical requirements shown in the following table:

Transformer Electrical Requirements

Quality characteristic	Requirement
Rating (V(ac))	120/240, 120/480, 240/120, 240/480, 480/120, or 480/240
Efficiency (%)	> 95
Secondary voltage regulation and tolerance from half load to full load (%)	±3

^^

87 ELECTRICAL SYSTEMS

04-17-20

Replace *Reserved* in section 87-1.01C with:

10-19-18

Submit a digital file for geographic information system mapping for:

1. Conduit
2. Pull boxes
3. Cabinets
4. Service equipment enclosures
5. Standards

The digital file must consist of:

1. Longitudinal and latitude coordinates, under the WGS84 reference coordinate system. The coordinates must be in decimal format having 6 significant figures after the decimal point. Coordinates must be read at the center of pull boxes, cabinet, standards, and service equipment enclosures; and on top of conduit at 20-foot intervals before backfill.
2. Type, depth and size for conduits.
3. Type for pull boxes, standards, cabinets, and service equipment enclosures.

Replace item 4 in the list in the 1st paragraph of section 87-1.01D(2)(a) with:

10-19-18

4. Luminaires

Replace the 2nd paragraph of section 87-1.01D(2)(a) with:

10-18-19

Submit a sample size as shown in the following table:

Electrical Material Sampling

Contract quantity	Test sample size
1–8	1
9–15	2
16–25	3
26–90	5
91–150	8
151–280	13
281–500	20
501–1200	32

Replace section 87-1.01D(2)(d) with:

10-19-18

87-1.01D(2)(d) Piezoelectric Axle Sensors

Piezoelectric axle sensors test consists of:

1. Demonstrating for each sensor:
   1.1. Capacitance is within 20 percent of the value shown on the sensor's data sheet
   1.2. Dissipation factor is less than 0.04 nF when measured in the 20 nF range
   1.3. Resistance is greater than 20 Megaohms
2. Collecting a minimum of 100 vehicle records for each lane and demonstrating:
   2.1. Volume is within ±3 percent accuracy
   2.2. Vehicle classification is within 95 percent accuracy by type

Replace the 7th paragraph of section 87-1.03A with:

10-19-18

Notify the Engineer immediately if an existing facility is damaged by your activities:

1. Damaged existing traffic signal systems must be repaired or replaced within 24 hours. If the system cannot be fixed within 24 hours or it is located on a structure, provide a temporary system until the system can be fixed.
2. Damaged existing lighting systems must be repaired or replaced by nightfall. If the system cannot be fixed by nightfall, provide a temporary system until the system can be fixed.

Add to the end of section 87-1.03A:

10-19-18

Collect the geographic information system mapping data.

Replace the 12th paragraph of section 87-1.03B(1) with:

10-19-18

For Type 1, 2, and 5 conduits, use threaded bushings and bond them using a jumper. For other types of conduit, use nonmetallic bushings or end bell.

Replace the 3rd paragraph of section 87-1.03B(3)(a) with:

10-19-18

Place a minimum of 2 inches of sand bedding in a trench before installing the conduit and 18 inches of slurry cement over the conduit before placing additional backfill material.

10-18-19

The slurry must be pigmented to match color no. 21105 of AMS-STD-595.

Replace the 1st sentence in the 6th paragraph of section 87-1.03B(3)(c) with:

10-19-18

Backfill trench with slurry concrete under section 19-3.02E.

Replace the 9th paragraph of section 87-1.03B(3)(c) with:

10-19-18

Install innerducts as one continuous unit between vaults. Innerducts may be interrupted inside pull boxes located between vaults and cabinets.

Replace section 87-1.03C with:

10-18-19

87-1.03C Installation of Pull Boxes

87-1.03C(1) General

Install pull boxes no more than 200 feet apart.

Place the cover on the box when not working in it.

87-1.03C(2) Roadway Pull Boxes

87-1.03C(2)(a) General

You may install larger pull boxes than specified or shown and additional pull boxes to facilitate the work except in structures.

Install a pull box on a minimum 6-inch deep bed of crushed rock and grout it before installing conductors. The grout must be from 0.5 to 1 inch thick and sloped toward the drain hole. Place a layer of roofing paper between the grout and the crushed rock sump. Make a 1-inch drain hole through the grout at the center of the pull box.

Set the pull box such that the top is 1-1/4 inches above the surrounding grade in unpaved areas and leveled with the finished grade in sidewalks and other paved areas.

Grout around conduits that are installed through the sides of the pull box.

Bond and ground the metallic conduit before installing conductors and cables in the conduit.

Bond metallic conduits in a nonmetallic pull box using bonding bushings and bonding jumpers.

Do not install pull boxes in concrete pads, curb ramps, or driveways.

Reconstruct the sump of a pull box if disturbed by your activities. If the sump was grouted, remove and replace the grout.

87-1.03C(2)(b) Nontraffic Pull Boxes

For a buried nontraffic pull box, install the electronic marker and set the box such that the top is from 6 to 8 inches below the surrounding grade. Place a 20-mil-thick plastic sheet made of HDPE or PVC virgin compounds to prevent water from entering the box.

When a pull box is in a structure, modify the base as required.

Place mortar between a nontraffic pull box and a pull box extension.

Where a nontraffic pull box is in the vicinity of a curb in an unpaved area, place the box adjacent to the back of the curb if practical.

Where a nontraffic pull box is adjacent to a post or standard, place the box within 5 feet downstream from traffic if practical.

If you replace the cover on a nontraffic pull box, anchor it to the box.

Perform the electronic marker test.

87-1.03C(2)(c) Traffic Pull Boxes

Place minor concrete around and under a traffic pull box as shown.

Bolt the steel cover to the box when not working in it.

Bond the steel cover to the conduit with a minimum 3-foot-long jumper and bolt it down after installing the conductors and cables.

87-1.03C(2)(d) Tamper-Resistant Pull Boxes

Install the tamper-resistant pull boxes under the manufacturer's instructions.

87-1.03C(3) Structure Pull Boxes

Install structure pull boxes parallel to the structure.

After removing the knockouts, flatten the surrounding area.

Bond conduit to a structure pull box using locknuts on the inside and outside of the box.

Cover pull boxes with a 1/4-inch plywood during pouring of PCC. For a no. 9 pull box, the upper edge of the plywood must fit against the lower edge of the rain tight hood.

Install no. 7 pull box with bottom flanges flush with the bottom of the box girder. Place top and bottom covers and seal the pull box during PCC pouring.

For no. 9 and 9A pull boxes:

1. Form a 1:1 chamfer around the cover
2. Use the drain hole in the center if the box is horizontal and the low end drain hole if the box is inclined
3. Mounted in a sloping parapet, drill a 1/2-inch elongated drain hole in the center if the box is horizontal or the low end if the box is inclined

Replace section 87-1.03D with:

10-19-18

87-1.03D Reserved

Replace section 87-1.03E(2) with:

04-19-19

Dig a trench for the electrical conduits or direct burial cables. Do not excavate until the installation of the conduit or direct burial cables.

Place excavated material in a location that will not interfere with traffic or surface drainage.

After placing the conduit or direct burial cable, backfill the trench.

Compact the backfill to a minimum relative compaction of:

1. 95 percent when placed within the hinge points and in areas where pavement is to be constructed
2. 90 percent when placed outside the hinge points and not under pavement

Restore the sidewalks, pavement, and landscaping at a location before starting excavation at another location.

Replace section 87-1.03E(3) with:

10-19-18

87-1.03E(3) Concrete Pads, Foundations, and Pedestals

Construct foundations for standards, poles, metal pedestals, and posts under section 56-3.

Construct concrete pads, foundations, and pedestals for controller cabinets, telephone demarcation cabinets, and service equipment enclosures on firm ground.

Install anchor bolts using a template to provide proper spacing and alignment. Moisten the forms and ground before placing the concrete. Keep the forms in place until the concrete sets for at least 24 hours to prevent damage to the surface.

Use minor concrete for pads, foundations, and pedestals.

Construct a pad in front of a Type III service equipment enclosure. The pad must be 24 inches in length, 4 inches in thickness, and must match the width of the foundation.

In unpaved areas, place the top of the foundation 6 inches above the surrounding grade, except place the top:

1. 1 foot 6 inches above the grade for 336L cabinets
2. 1 foot 8 inches above the grade for Type C telephone demarcation cabinets
3. 2 inches above the grade for Type III service equipment enclosures

The pad must be 2 inches above the surrounding grade in unpaved areas.

In and adjacent to the sidewalk and other paved areas, place the top of the foundation 4 inches above the surrounding grade, except place the top:

1. 1 foot 6 inches above the grade for 336L cabinets
2. 1 foot 8 inches above the grade for Type C telephone demarcation cabinets
3. Level with the finished grade for Type G and Type A cabinets and Type III service equipment enclosures

The pad must be level with the finished grade in paved areas.

Apply an ordinary surface finish under section 51-1.03F.

Allow the foundation to cure for at least 7 days before installing any equipment.

Add between the 3rd and 4th paragraphs of section 87-1.03F(1):

04-17-20

Provide conductor and cable slack to comply with the requirements shown in the following table:

Conductor and Cable Slack Requirements

Location	Slack (feet)
Signal standard	1
Lighting standard	1
Signal and lighting standard	1
Pull box	3
Splice	3
Controller cabinet	6
Standards with slip base	0

Replace the last paragraph of section 87-1.03F(1) with:

04-19-19

Install a tracer wire.

Replace section 87-1.03F(2) with:

04-17-20

87-1.03F(2) Cables

87-1.03F(2)(a) General

Reserved

87-1.03F(2)(b) Communication Cables

87-1.03F(2)(b)(i) General

Terminate the ends of the communication cables as shown.

87-1.03F(2)(b)(ii) Category 5E and 6 Cables

Do not splice category 5E and 6 cables.

87-1.03F(2)(b)(iii) Telephone Cables

Do not splice telephone cables between the telephone demarcation point and the controller cabinet.

87-1.03F(2)(c) Copper Cables

87-1.03F(2)(c)(i) General

Reserved

87-1.03F(2)(c)(ii) Detector Lead-in Cables

Install a Type B or C detector lead-in cable in conduit.

Seal the ends of the lead-in cable before installing it in the conduit to prevent moisture from entering the cable.

Splice loop conductors for each direction of travel for the same phase, terminating in the same pull box, to a separate lead-in cable running from the pull box adjacent to the loop detector to a sensor unit mounted in the controller cabinet. Install the lead-in cable without splices except at the pull box when connecting to loop wire.

Verify in the presence of the Engineer that the loops are operational before making the final splices between loop conductors and the lead-in cable.

Identify and tag each lead-in cable with the detector designation at the cabinet and pull box adjacent to the loops.

87-1.03F(2)(c)(iii) Conductors Signal Cables

Do not splice signal cables except for a 28-conductor cable.

Provide identification at the ends of terminated conductors in a cable as shown.

Provide identification for each cable in each pull box showing the signal standard to which it is connected except for the 28-conductor cable.

Connect conductors in a 12-conductor cable as shown in the following table:

12CSC Color Code and Functional Connection

Color code	Termination	Phase
Red	Red signal	2, 4, 6, or 8
Yellow	Yellow signal	2, 4, 6, or 8
Brown	Green signal	2, 4, 6, or 8
Red/black stripe	Red signal	1, 3, 5, or 7
Yellow/black stripe	Yellow signal	1, 3, 5, or 7
Brown/black stripe	Green signal	1, 3, 5, or 7
Black/red stripe	Spare or as required for red or *DONT WALK*	--
Black/white stripe	Spare or as required for yellow	--
Black	Spare or as required for green or *WALK*	--
Red/white stripe	Pedestrian signal *DONT WALK*	--
Brown/white stripe	Pedestrian signal *WALK*	--
White	Terminal block	Neutral

Provide identification for each 28-conductor cable C1 or C2 in each pull box. The cable labeled *C1* must be used for signal phases 1, 2, 3, and 4. The cable labeled *C2* must be used for signal phases 5, 6, 7, and 8.

Connect conductors in a 28-conductor cable as shown in the following table:

28CSC Color Code and Functional Connection

Color code	Termination	Phase
Red/black stripe	Red signal	2 or 6
Yellow/black stripe	Yellow signal	2 or 6
Brown/black stripe	Green signal	2 or 6
Red/orange stripe	Red signal	4 or 8
Yellow/orange stripe	Yellow signal	4 or 8
Brown/orange stripe	Green signal	4 or 8
Red/silver stripe	Red signal	1 or 5
Yellow/silver stripe	Yellow signal	1 or 5
Brown/silver stripe	Green signal	1 or 5
Red/purple stripe	Red signal	3 or 7
Yellow/purple stripe	Yellow signal	3 or 7
Brown/purple stripe	Green signal	3 or 7
Red/2 black stripes	Pedestrian signal *DONT WALK*	2 or 6
Brown/2 black stripes	Pedestrian signal *WALK*	2 or 6
Red/2 orange stripes	Pedestrian signal *DONT WALK*	4 or 8
Brown/2 orange stripes	Pedestrian signal *WALK*	4 or 8
Red/2 silver stripes	Overlap A, C	OLA[a], OLC[a]
Brown/2 silver stripes	Overlap A, C	OLA[c], OLC[c]
Red/2 purple stripes	Overlap B, D	OLB[a], OLD[a]
Brown/2 purple stripes	Overlap B, D	OLB[c], OLD[c]
Blue/black stripe	Pedestrian push button	2 or 6
Blue/orange stripe	Pedestrian push button	4 or 8
Blue/silver stripe	Overlap A, C	OLA[b], OLC[b]
Blue/purple stripe	Overlap B, D	OLB[b], OLD[b]
White/black stripe	Pedestrian push button common	--
Black/red stripe	Spare	--
Black	Spare	--
White	Terminal block	Neutral

OL = Overlap; A, B, C, and D = Overlapping phase designation
[a]For red phase designation
[b]For yellow phase designation
[c]For green phase designation

Use the neutral conductor only with the phases associated with that cable. Do not intermix neutral conductors from different cables except at the signal controller.

87-1.03F(2)(c)(iv) Signal Interconnect Cable

Do not splice the cable unless authorized.

If splices are authorized, insulate the conductor splices with heat-shrink tubing and overlap the insulation at least 0.6 inch. Cover the splice area of the cable with heat-shrink tubing and overlap the cable jacket at least 1-1/2 inches. Provide a minimum of 3 feet of slack at each splice.

87-1.03F(2)(c)(v) Railroad Preemption Cables

Do not splice railroad preemption cable from controller cabinet to railroad cabinet.

Terminate individual conductors with ferrule connectors in the controller cabinet.

Provide identification on both ends of the cable and connect the cable end in the controller cabinet as shown in the following table:

Color Code and Functional Connection

Conductor no.	Color Code	Controller Cabinet Field Terminal Connections	Conductor Identification
1	Black	Not Used	Spare
2	White	Not Used	Spare
3	Red	FT8-A145	Health Status DC+
4	Green	Not Used	Spare
5	Orange	FT7-A134	Simultaneous DC-
6	Blue	FT7-A131	Advance DC-
7	White/black stripe	Not Used	Spare
8	Red/black stripe	FT8-A144	Gate Down/Island
9	Green/black stripe	Feld Terminal FT8-A142	Advance Pedestrian Preemption
10	Orange/black stripe	FT7-A135	Simultaneous Primary
11	Blue/black stripe	FT7-A132	Advance Primary
12	Black/white stripe	Not Used	Spare
13	Red/white stripe	FT8-A143	Gate Down/Island DC-
14	Green/white stripe	FT8-A141	Advance Pedestrian Preemption DC-
15	Blue/white stripe	FT7-A133	Advance Secondary
16	Black/red stripe	Not Used	Spare
17	White/red stripe	FT8-A146	Health Status DC-
18	Orange/red stripe	FT7-A136	Simultaneous Secondary
19	Blue/red stripe	Not Used	Spare

Keep all exposed conductors the same length and individually insulate spare conductors against each other.

Provide a minimum 6 feet of slack in the pull box adjacent to the railroad cabinet.

Connect the cable end in the railroad cabinet as directed by the railroad agency representative.

04-17-20

Delete the 4th paragraph of 87-1.03F(3)(a).

Replace the 1st paragraph of section 87-1.03F(3)(c)(ii) with:

10-19-18

Install a Type 1 or 2 inductive loop conductor except use Type 2 for Type E and F loop detectors.

10-19-18

Delete the last paragraph of section 87-1.03G.

Replace the 4th paragraph of section 87-1.03H(2) with:

10-19-18

Use Method B as follows:

1. Cover the splice area completely with an electrical insulating coating and allow it to dry.
2. Apply 3 layers of half-lapped, PVC electrical tape.
3. Apply 2 layers of butyl-rubber, stretchable tape with liner.
4. Apply 3 layers of half-lapped, PVC, pressure-sensitive, adhesive tape.
5. Cover the entire splice with an electrical insulating coating and allow it to dry.

Replace section 87-1.03N with:

10-19-18

87-1.03N Fused Splice Connectors

Install a fuse splice connector with a fuse in each ungrounded conductor for luminaires, except for overhead sign luminaires. The connector must be located in the pull box adjacent to the luminaires.

If the pull box for the roadway luminaire is tamper resistant, install a fuse splice connector with 10 A fuse in the pull box and an additional fuse splice connector with a 5 A fuse in the handhole.

Install a fuse splice connector with a fuse on primary side of transformer.

Crimp the connector terminals onto the ungrounded conductors using a tool under the manufacturer's instructions. Insulate the terminals and make them watertight.

Add to the end of section 87-1.03T:

10-19-18

When replacing an existing accessible pedestrian signal, the housing color must match the color of the existing housing.

Add to the end of section 87-1.03U:

10-19-18

When replacing an existing push button assembly, the housing color must match the color of the existing housing.

04-17-20

Delete the 9th paragraph for section 87-1.03V(2).

Add between the 1st and 2nd paragraphs of section 87-1.03Y:

04-19-19

Use a submersible type transformer inside pull boxes.

Replace the 2nd paragraph of section 87-2.03A with:

10-19-18

Tighten the cap screws of the luminaire's clamping bracket to 10 ft-lb for roadway luminaires.

Replace section 87-3 with:

10-19-18

87-3 SIGN ILLUMINATION SYSTEMS

87-3.01 GENERAL

Section 87-3 includes specifications for constructing sign illumination systems.

Sign illumination system includes:

1. Foundations
2. Pull boxes
3. Conduit

4. Conductors
5. Overhead sign luminaires
6. Service equipment enclosure
7. Photoelectric control

The components of a sign illumination system are shown on the project plans.

87-3.02 MATERIALS

Reserved

87-3.03 CONSTRUCTION

Perform the conductor test.

Install overhead sign luminaires under the manufacturer's instructions.

Do not modify the sign structure or mounting channels.

Perform the operational tests for the system.

87-3.04 PAYMENT

Not Used

Replace section 87-4 with:

04-17-20

87-4 SIGNAL AND LIGHTING SYSTEMS

87-4.01 GENERAL

Section 87-4 includes specifications for constructing signal and lighting systems.

Signal and lighting system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors and cables
5. Standards
6. Signal heads
7. Service equipment enclosure
8. Department-furnished controller assembly
9. Detectors
10. Telephone demarcation cabinet
11. Accessible pedestrian signals
12. Push button assemblies
13. Pedestrian signal heads
14. Luminaires
15. Photoelectric control
16. Fuse splice connectors
17. Battery backup system
18. Flashing beacons
19. Flashing beacon control assembly

The components of a signal and lighting system are shown on the project plans.

87-4.02 MATERIALS

87-4.02A General

Not used

87-4.02B Railroad Preemption

A wire jumper for railroad preemption must be:

1. Stranded
2. 14 AWG
3. White with red stripes

87-4.03 CONSTRUCTION

87-4.03A General

Set the foundation for a standard such that the mast arm is perpendicular to the centerline of the roadway.

Tighten the cap screws of the roadway luminaire's clamping bracket to 10 ft-lb.

Label the month and year of the installation inside the luminaire housing's door.

Perform the conductor and operational tests for the system.

87-4.03B Railroad Preemption

Connect the C16 harness plug to the C16 socket on the Output File no. 2LX in the controller cabinet.

Connect the terminated conductors of the C16 harness to terminal block TB9 on input panel no.1 in the controller cabinet as shown in the following table:

Input Panel No. 1 Connections

Pin	Label	TB9
1	J-12D	4
2	J-12J	5
3	J-13D	7
4	J-13J	8
5	J-14D	10
6	J-14J	11

Terminate wire jumpers with spade connectors on both ends.

Connect three wire jumpers approximately 4 feet in length as show in the following table:

Jumper Connections

Jumper	Bus	TB9
1	DC-	6
2	DC-	9
3	DC-	12

Connect three wire jumpers approximately 2 inches in length as show in the following table:

Jumper Connections

Jumper	Terminal Block	Pin	Pin
1	TB-12	5	7
2	TB-13	5	7
3	TB-14	5	7

87-4.04 PAYMENT

Not Used

Replace section 87-7.02 with:

10-19-18

87-7.02 MATERIALS

Flashing beacon control assembly includes:

1. Enclosure.
2. Barrier-type terminal blocks rated for 25 A, 600 V(ac), made of molded phenolic or nylon material and have plated-brass screw terminals and integral marking strips.
3. Solid state flasher complying with section 8 of NEMA standards publication no. TS 1 for 10 A, dual circuits.
4. 15-A, circuit breaker per ungrounded conductor.
5. Single-hole-mounting toggle type, single-pole, single-throw switches rated at 12-A, 120 V(ac). Switches must be furnished with an indicating nameplate reading *Auto - Test*. A 15-A circuit breaker may be used in place of the toggle switch.

Replace 87-8 with:

10-19-18

87-8 PEDESTRIAN HYBRID BEACON SYSTEMS

87-8.01 GENERAL

87-8.01A Summary

Section 87-8 includes specifications for constructing pedestrian hybrid beacon system.

A pedestrian hybrid beacon system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors and cables
5. Standards
6. Pedestrian hybrid beacon face
7. Pedestrian signal heads
8. Service equipment enclosure
9. Department-furnished controller assembly
10. Accessible pedestrian signals
11. Push button assemblies
12. Luminaires
13. Fuse splice connectors
14. Battery backup system

The components of a pedestrian hybrid beacon system are shown on the project plans.

87-8.01B Definitions

Reserved

87-8.01C Submittals

Reserved

87-8.01D Quality Assurance

87-8.01D(1) General

Reserved

87-8.01D(2) Quality Control

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Verify the sequence for the pedestrian hybrid beacon system per California *MUTCD*, Chapter 4F, Figure 4F-3 "Sequence for a Pedestrian Hybrid Beacon" during the operational test.

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Test the battery backup system under section 87-1.01D(2)(c).

87-8.02 MATERIALS

87-8.02A General

The system must comply with California *MUTCD*, Chapter 4F.

The battery backup system must comply with section 87-4.02B.

87-8.02B Pedestrian Hybrid Beacon Face

A pedestrian hybrid beacon face consists of three 12-inch signal heads.

87-8.03 CONSTRUCTION

Install pedestrian hybrid beacon system under sections 87-4.03A and 87-4.03B.

87-8.04 PAYMENT

Not Used

Replace the 1st paragraph of section 87-12.03 with:

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Install changeable message sign on sign structure under section 56-2.

Replace section 87-14.02 with:

10-19-18

87-14.02 MATERIALS

87-14.02A General

Vehicle speed feedback sign consists of a housing, display window, and radar unit.

Sign must:

1. Comply with the California MUTCD, Chapter 2B
2. Have an operating voltage of 120 V(ac) for permanent installations
3. Have a maximum weight of 45 lb
4. Have a wind load rating of 90 mph
5. Have an operating temperature range from -34 to 165 degrees F
6. Have a retroreflective white sheeting background

87-14.02B Housings

Housing must:

1. Be weatherproof (NEMA 3R or better) and vandal resistant
2. Be made of 0.09-inch-gauge welded aluminum with the outer surfaces being UV resistant
3. Have the manufacturer's name, model number, serial number, date of manufacture, rated voltage and rated current marked inside
4. Have the internal components easily accessible for field repair without removal of the sign

87-14.02C Display Windows

Display window consists of a cover, LED character display, and dimming control. Character display and cover must deflect together without damage to the internal electronics and speed detection components.

Cover must be:

1. Vandal resistant and shock absorbent
2. Field replaceable with the removal of external stainless-steel, tamper proof fasteners

Cover must be made of a minimum 0.25-inch-thick, shatter-resistant polycarbonate.

LED character display must:

04-17-20

1. Consist of two 7-segment, solid-state, numeric characters, which must:
   1.1. Be a minimum 15 inches in height
   1.2. Be visible from a minimum distance of 1500 feet and legible from a minimum distance of 750 feet
   1.3. Consist of a minimum 16 LEDs, which must:
      1.3.1. Be amber and have a wavelength from 590 to 600 nm and rated for minimum 60,000 hours
      1.3.2. Maintain a minimum 85 percent of the initial light output after 48 months of continuous use over the temperature range

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2. Be capable of displaying the detected vehicle speed within 1 second
3. Remain blank when no vehicles are detected within the radar detection zone
4. Have the option to flash the pre-set speed limit when the detected vehicle speed is 5 miles higher than the pre-set speed
5. Be viewable only by the approaching traffic

Dimming control must:

1. Automatically adjust the character light intensity to provide optimum character visibility and legibility under all ambient lighting conditions
2. Have minimum 3 manual dimming modes of different intensities

87-14.02D Radar Units

Radar unit must:

1. Be able to detect up to 3 lanes of approaching traffic
2. Operate with an internal, low power, 24.159 GHz (K-band)
3. Be FCC approved Part 15 certified
4. Have a speed accuracy of ±1 mph
5 Have a maximum 15 W power consumption

Add to the list in the 2nd paragraph of section 87-18.01:

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4. 12 position terminal block

Replace section 87-18.02 with:

10-18-19

87-18.02 MATERIALS

Terminal block must comply with TEES, chapter 1, section 3.

Replace the 2nd paragraph of section 87-18.03 with:

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Install the terminal block on the input panel in the controller cabinet.

Connect the signal interconnect cable to the terminal block as shown on the following table:

Signal Interconnect Termination

Terminal Block	Color
1	BLUE
2	BLACK
3	RED
4	BLACK
5	BROWN
6	BLACK
7	GREEN
8	BLACK
9	YELLOW
10	BLACK
11	WHITE
12	BLACK

Replace 87-19 with:

10-19-18

87-19 FIBER OPTIC CABLE SYSTEMS

87-19.01 GENERAL

87-19.01A Summary

Section 87-19 includes specifications for constructing fiber optic cable systems.

A fiber optic cable system includes:

1. Conduit and accessories
2. Vaults
3. Warning tape
4. Fiber optic cables
5. Fiber optic splice enclosures
6. Fiber distribution units
7. Fiber optic markers
8. Fiber optic connectors and couplers

The components of a fiber optic system are shown on the project plans.

87-19.01B Definitions

Reserved

87-19.01C Submittals

At least 15 days before cable installation, submit:

1. Manufacturer's procedures for pulling fiber optic cable
2. Test reports from a laboratory accredited to International Standards Organization/International Electrotechnical Commission 17025 by the American Association for Laboratory Accreditation (A2LA) or the ANSI-ASQ National Accreditation Board (ANAB) for:
   - 2.1. Water penetration
   - 2.2. Cable temperature cycling
   - 2.3. Cable impact
   - 2.4. Cable tensile loading and fiber strain
   - 2.5. Cable compressive loading
   - 2.6. Compound flow
   - 2.7. Cyclic flexing
3. Proof of calibration for the test equipment including:
   - 3.1. Name of calibration facility

3.2. Date of calibration
3.3. Type of equipment, model number and serial number
3.4. Calibration result

Submit optical time-domain reflectometer data files for each test in a Microsoft Excel format.

After performing the optical time-domain reflectometer test and the power meter and light source test, submit within 4 business days a hard copy and electronic format:

1. Cable Verification Worksheet
2. Segment Verification Worksheet
3. Link Loss Budget Worksheet

The worksheets are available at the Division of Construction website.

87-19.01D Quality Assurance

87-19.01D(1) General

Reserved

87-19.01D(2) Quality Control

Notify the Engineer 4 business days before performing field tests. Include exact location of the system or components to be tested. Do not proceed with the testing until authorized. Perform each test in the presence of the Engineer.

The optical time-domain reflectometer test consists of:

1. Inspecting the cable segment for physical damage.
2. Measuring the attenuation levels for wavelengths of 1310 and 1550 nm in both directions for each fiber using the optical time-domain reflectometer.
3. Comparing the test results with the data sheet provided with the shipment. If there are attenuation deviations greater than 5 percent, the test will be considered unsatisfactory and the cable segment will be rejected. The failure of any single fiber is a cause for rejection of the entire segment. Replace any rejected cable segments and repeat the test.

The power meter and light source test consists of:

1. Testing each fiber in a link using a light source at one end of the link and a power meter at the other end
2. Measuring and recording the power loss for wavelengths of 1310 and 1550 nm in both directions

Index matching gel is not allowed.

Installation and splicing of the fiber optic cable system must be performed by a certified fiber optic installer.

The optical time-domain reflectometer test and the power meter and light source test must be performed by a certified fiber optic technician.

The certification for the fiber optic installer and fiber optic technician must be from an organization recognized by the International Certification Accreditations Council and must be current throughout the duration of the project.

87-19.02 MATERIALS

87-19.02A General

All metal components of the fiber optic cable system must be corrosion resistant.

All connectors must be factory-installed and tested.

Patch cords, pigtails, and connectors must comply with ANSI/TIA-568.

Pigtails must have a minimum 80 N pull out strength.

A splice cassette may be used in place of a pigtail and a splice tray.

Each cable reel must have a weatherproof label or tag with information specified in ANSI/ICEA S-87-640 including:

1. Contractor's name
2. Contract number
3. Number of fibers
4. Cable attenuation loss per fiber at 1310 and 1550 nm

The labeled or tagged information must also be in a shipping record in a weatherproof envelope. The envelope must be removed only by the Engineer.

87-19.02B Vaults

A vault must:

1. Comply with section 86-1.02C and AASHTO HS 20-44, and load tested under AASHTO M 306.
2. Be a minimum:
   2.1. 4 feet wide by 4 feet high by 4 feet long nominal inside dimensions for box type.
   2.2. 4 feet high by 4 feet outside diameter for round type.
3. Have a minimum access of:
   3.1. 30 inches diameter for round type.
   3.2. 3 feet wide by 3 feet long for box type.
4. Be precast either modular or monolithic.
5. Have cable racks installed on the interior sides. A rack must:
   5.1. Be fabricated from ASTM A36 steel plate.
   5.2. Support a minimum of 100 pounds per rack arm.
   5.3. Support a minimum of 4 splice enclosures and a minimum of 4 cables with a minimum slack of 50 feet each.
   5.4. Be hot-dip galvanized after manufacturing.
   5.5. Be bonded and grounded.
6. Have a minimum:
   6.1. Two 4-inch diameter knockouts on each side for box type.
   6.2. Two 4-inch diameter knockouts placed every 90 degrees for round type.
7. Have a minimum 2-inch-diameter drain hole at the center of base.

Entry points for knockouts must not cause the cable to exceed its maximum bend radius.

The access cover must:

1. Be a two-piece torsion-assisted sections or a minimum 30-inch-diameter cast iron.
2. Have inset lifting pull slots.
3. Have markings *CALTRANS* and *FIBER OPTIC*.

87-19.02C Fiber Optic Cable

The fiber optic cable must:

1. Comply with 7 CFR parts 1755.900, 1755.901, and 1755.902, and ANSI/ICEA S-87-640
2. Be a singlemode, zero-dispersion, and have non-gel loose type buffer tubes
3. Have no splices
4. Have a Type H or Type M outer jacket
5. Be shipped on a reel
6. Have 10 feet of length on each end of the cable accessible for testing

87-19.02D Fiber Optic Splice Enclosures

A fiber optic splice enclosure must:

1. Not exceed 36 inches in length, 8 inches in width, and 8 inches in height
2. Be made of thermoplastic material, weather proof, chemical and UV resistant, and re-sealable

3. Accommodate a minimum of 8 internal splice trays
4. Have from 1/4 to 1 inch in diameter cable entry ports
5. Have brackets, clips and cable ties
6. Have means to anchor the dielectric member of the fiber optic cable
7. Include grounding hardware

87-19.02E Fiber Distribution Units

The fiber distribution unit consists of a housing, a patch panel, a 12-multicolor pigtail, and a splice tray.

The fiber distribution unit must be self-contained and pre-assembled.

The housing must:

1. Be a 19-inch rack-mountable modular-metal enclosure
2. Be a one rack unit
3. Have cable clamps to secure buffer tube to the chassis
4. Have cable accesses with rubber grommets or similar material to prevent the cable from coming in contact with the bare metal
5. Be weatherproof
6. Have a hinged top door with a latch or thumbscrew to hold it in the closed position

A patch panel must have a minimum of 12-singlefiber type connector sleeves.

A pigtail must:

1. Be a simplex single mode fiber in a 900 µm tight buffer with a 12-inch-outer-diameter PVC jacket
2. Have a fiber optic connector attached on one end and bare fiber on the other end
3. Be at least 3 feet in length
4. Have the manufacturer's part number on the jacket

Pigtails must be single-fiber or ribbon type.

87-19.02F Patch Cords

Patch cords must:

1. Be a singlemode fiber in a 900 µm tight buffer with a 0.12-inch-outer-diameter PVC jacket
2. Have fiber optic connectors attached on both ends
3. Be at least 6 feet in length
4. Have manufacturer's part number on the jacket

Duplex patch cords must be of round cable structure, and not have zip-cord structure.

87-19.02G Splice Trays

Splice trays must:

1. Have brackets to spool incoming fibers a minimum of 2 turns.
2. Have means to secure and protect incoming buffer tubes, pigtails, and a minimum of 12 heat shrink fusion splices.
3. Be stackable.
4. Have a snap-on or hinged cover. The cover may be transparent.

87-19.02H Fiber Optic Markers

Fiber optic markers must be:

1. Type K-2 (CA) object markers for vaults or pull boxes.
2. Disk markers for paved areas and transition points from unpaved to paved areas. The disk marker must be metallic, lead free and 4 inches in diameter, and must have a mounting stem at the center of the disk. The mounting stem must be a minimum 3 inches long and a minimum 0.70 inch in diameter.
3. Non-reflective Class 1, Type F, flexible post delineators for unpaved areas.

87-19.02I Fiber Optic Connectors and Couplers

Connectors must be:

1. 0.1-inch ceramic ferrule pre-radiused type
2. Capped when not used

Couplers must be made of the same material as the connector's housing and have ceramic sleeves.

Singlemode fiber optic connectors must have a yellow strain relief boot or a yellow base.

87-19.03 CONSTRUCTION

87-19.03A General

Perform the optical time-domain reflectometer test:

1. On the fiber optic cable upon its arrival to the job site and before its installation. Complete the Cable Verification Worksheet. Do not install the fiber optic cable until the Engineer's written approval is received.
2. After the fiber optic cable segments have been pulled, but before breakout and termination. Complete the Segment Verification Worksheet.
3. Once the passive cabling system has been installed and is ready for activation. If the measured individual fusion splice losses exceed -0.30 dB, re-splice and retest. At the conclusion of the optical time-domain reflectometer test, perform the power meter and light source test. If the measured link loss exceeds the calculated link loss, replace the unsatisfactory cable segments or splices and retest. Complete the Link Loss Budget Worksheet.

87-19.03B Vaults Installation

Install a vault as shown and with the side facing the roadway a minimum of 2 feet from the edge of pavement or back of dike, away from traffic.

Install the top of the vault flush with surrounding grade in paved areas and 2 inches above the surrounding grade in unpaved areas.

Place 6 inches of minor concrete around vaults. In unpaved areas, finish top of concrete at a 2 percent slope away from cover. In paved areas, finish top of concrete to match existing slope.

Bolt the steel cover to the vault when not working in it.

87-19.03C Fiber Optic Cable Installation

Install fiber optic cable by a certified installer or a representative from the fiber optic cable manufacturer during installation.

When using mechanical aids to install fiber optic cable:

1. Maintain a cable bend radius at least twenty times the outside diameter of the cable
2. Use cable grips having a ball bearing swivel
3. Use a pulling force on a cable not to exceed 500 pound-foot or manufacturer's recommended pulling tension, whichever is less

When installing the cable using the air blown method, the cable must withstand a static air pressure of 110 psi.

Lubricate the cable using a lubricant recommended by the cable manufacturer.

Install fiber optic cable without splices except where shown.

Provide a minimum of 65 feet of slack for each fiber optic cable at each vault. Divide the slack equally on each side of the splice enclosure.

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Install tracer wires in the fiber optic conduits and innerducts as shown. Provide a minimum 3 feet of slack tracer wire in each pull box and splice vault from each direction. You may splice tracer wire at intervals of not less than 500 feet and only inside splice vaults or pull boxes.

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If a fiber optic cable and tracer wire is installed in an innerduct, pulling a separate fiber optic cable into a spare duct to replace damaged fiber will not be allowed.

Apply a non-hygroscopic filling compound to fiber optic cable openings.

Seal the ends of conduit and innerducts after cables are installed.

Install strain relief for fiber optic cable entering a fiber optic enclosure.

Identify fibers and cables by direct labeling, metal tags, or bands fastened in such a way that they will not move. Use mechanical methods for labeling.

Provide identification on each fiber optic cable or each group of fiber optic cables in each vault and at the end of terminated fibers. Fiber optic cable must be identified as shown in the following table:

Cable Identification[a]

Sequence order	Description	Code	Numbers of characters
1	Fiber type	S: Singlemode	1
2	Fiber count	###: Example 048	3
3	Begin point	T: TMC H: Hub V: Video Node D: Data Node C: Cable Node TV: Camera CM: CMS E: Traffic Signal RM: Ramp Meter TM: Traffic Monitoring/ Count Station/Vehicle Count Station (VDS, TMS) HA: Highway Advisory Radio EM: Extinguishable Message Sign RW: Roadway Weather Information System WM: Weigh In Motion WS: Weigh-Station Bypass System SV: Vault SC: Splice Cabinet	1 or 2
4	Begin point county abbreviation	AA or AAA: Examples: Orange (ORA), San Mateo (SM)	2 or 3
5	Begin point route number	###: Examples: 005, 082, 114	3
6	Begin point post mile	#####: 02470 (example 024.70): Actual PM value to the 1/100 value	5
7	End Point	In the same way as for Begin Point	1 or 2
8	End point county abbreviation	In the same way as for Begin Point County Abbreviation	2 or 3
9	End point route number	In the same way as Begin Point Route Number	3
10	End point post mile	In the same way as Begin Point Post Mile	5

[a]Cable identification example: The cable code S 048 SV SM 084 02470 SV SC 082 02510 describes a singlemode, 48 strand, cable starting at a fiber optic vault in San Mateo County on Route 84 at post mile 24.70, and ending at another fiber optic vault in Santa Clara County on Route 82 at post mile 25.10.

Place labels on the cables at the following points:

1. Fiber optic vault and pull box entrances and exits
2. Splice enclosures entrance and exit
3. Fiber distribution unit entrance

Lace fiber optic cable inside controller cabinets and secure to the cage.

Support the fiber optic cable within 6 inches from a termination and every 2 feet.

Secure fiber optic cables to the cable racks. Store excess cable in a figure 8 fashion.

87-19.03D Fiber Optic Cable Splices

Use fusion splicing for fiber optic cables.

Splice single-buffer tube cable to multi-buffer tube cable using the mid-span access method under manufacturer's instructions. Any mid-span access splice or fiber distribution unit termination must involve only those fibers being spliced as shown.

Place fiber splices in the splice enclosures installed in the vaults.

87-19.03E Splice Enclosures Installation

Maintain an equal amount of slack on each side of the splice enclosure.

Secure the fiber optic splices in splice tray.

Secure the splice trays to the inner enclosure.

Label cables and buffer tubes.

Do not seal fiber splice enclosure until authorized and the power meter and light source test is performed. Seal the enclosure under manufacturer's instructions.

Flash test the outer enclosure under manufacturer's instructions in the presence of the Engineer. Visually inspect the enclosure. If bubbles are present, identify the locations where the bubbles are present, take corrective actions and repeat the flash test until no bubbles are present.

Attach the splice enclosure to the side wall of a vault or hub with a minimum 2 feet distance between the ground and the bottom of the enclosure.

Secure fiber optic cables to the chassis using cable clamps for fiber optic units.

Connect a minimum of one bonding conductor to a grounding electrode after mounting the fiber optic enclosure to the wall. If there are multiple bonding conductors, organize the conductors in a neat way.

87-19.03F Fiber Optic Distribution Unit Installation

Spool incoming buffer tubes 2 feet in the splice tray and expose 1 foot of individual fibers.

Maintain a minimum 2-inch-bend radius during and after installation in the splice tray.

Splice incoming fibers in the splice tray.

Restrain each fiber in the splice tray. Do not apply stress on the fiber when located in its final position.

Secure buffer tubes near the entrance of the splice tray.

Secure splice trays under manufacturer's instructions.

Label splice tray after splicing is completed.

Install patch cords in fiber distribution units and patch panels. Permanently label each cord and each connector in the panel with the system as shown.

87-19.03G Fiber Optic Markers Installation

Install fiber optic markers at 12-inch offset on the side furthest away from the edge of travel way:

1. For fiber optic cable at 500 feet apart in areas where the distance between vaults or pull boxes is greater than 500 feet
2. Adjacent to vaults and pull boxes
3. For fiber optic cable turns at:
    3.1. Beginning of the turn
    3.2. Middle of the arc

3.3. End of the turn

When a fiber optic cable crosses a roadway or ramp, install a disk marker over the conduit trench on:

1. Every shoulder within 6 inches from the edge of pavement
2. Delineated median
3. Each side of a barrier

Install markers under section 81 except each retroreflective face must be parallel to the road centerline and facing away from traffic.

87-19.04 PAYMENT

Not Used

Replace section 87-20 with:

04-17-20

87-20 TEMPORARY ELECTRICAL SYSTEMS

87-20.01 GENERAL

Section 87-20 includes specifications for providing, maintaining, and removing temporary electrical systems.

Temporary systems may be mounted on wood posts or trailers.

Obtain the Department's authorization for the type of temporary electrical system and its installation method.

A temporary system must operate on a continuous, 24-hour basis.

A temporary electrical system must have a primary power source and a back-up power source from:

1. Commercial utility company
2. Generator system
3. Photovoltaic system

87-20.02 MATERIALS

87-20.02A General

Temporary wood poles must comply with section 48-6.

The components of a temporary system are shown on the project plans.

If you use Type UF-B cable, the minimum conductor size must be no. 12.

A back-up power source must:

1. Have an automatic transfer switch
2. Start automatically and transfer the system load upon reaching the operating voltage in the event of a power source failure

A trailer must be equipped with devices to level and plumb the temporary system.

87-20.02B Generators

A generator must:

1. Be 120 V(ac) or 120/240 V(ac), 60 Hz, 2.5 kW minimum, continuous-duty type
2. Be powered by a gasoline, LPG, or diesel engine operating at approximately 1,800 rpm with an automatic oil feed
3. Be equipped to provide automatic start-stop operation with a 12 V starting system
4. Have generator output circuits that have overcurrent protection with a maximum setting of 15 A

5. Have a spark arrester complying with Pub Cont Code § 4442

87-20.02C Automatic Transfer Switches

An automatic transfer switch must provide:

1. Line voltage monitoring in the event of a power outage that signals the back-up power source to start
2. Start delay, adjustable from 0 to 6 seconds, to prevent starting if the power outage is only momentary and a stop delay, adjustable from 0 to 8 minutes, to allow the back-up power source to unload
3. Transfer delay from 0 to 120 seconds to allow the back-up power source to stabilize before connecting to the load and retransfer delay from 0 to 32 minutes to allow the line voltage to stabilize
4. Mechanical interlock to prevent an application of power to the load from both sources and to prevent backfeeding from the back-up power source to the primary power source

87-20.02D–87-20.02G Reserved

87-20.02H Temporary Flashing Beacon Systems

A temporary flashing beacon system consists of a flashing beacon system, wood pole, and a power source.

The system must comply with the specifications for flashing beacon systems in section 87-7.

87-20.02I Temporary Lighting Systems

A temporary lighting system consists of a lighting system, a power source, and wood poles.

The system must comply with the specifications for lighting systems in section 87-2.

87-20.02J Temporary Signal Systems

A temporary signal system consists of a signal and lighting system, wood poles and posts, and a power source.

The system must comply with the specifications for signal and lighting systems in section 87-4, except signal heads may be mounted on a wood pole, mast arm, tether wire, or a trailer.

87-20.02K Temporary Radar Speed Feedback Sign Systems

A temporary radar speed feedback sign system must comply with the specifications for a radar speed feedback sign system in section 87-14, except, the LED character display must remain blank when no vehicles are detected or when the detected vehicle speed is 10 miles less than the preset speed.

87-20.03 CONSTRUCTION

87-20.03A General

Provide electrical and telecommunication services for temporary systems. Do not use existing services unless authorized.

Provide power for the temporary electrical systems.

Commercial power must be 120 V(ac) or 120/240 V(ac) single phase. Make arrangements with the utility company for providing service. Protect the power source in a locked enclosure. Provide keys to all locks to the Engineer.

Install conductors and cables in a conduit, suspended from wood poles at least 25 feet above the roadway, or use direct burial conductors and cables.

Install conduit outside the paved area at a minimum of 12 inches below grade for Type 1 and 2 conduit and at a minimum of 18 inches below grade for Type 3 conduit.

Install direct burial conductors and cables outside the paved area at a minimum depth of 24 inches below grade.

Place the portions of the conductors installed on the face of wood poles in either Type 1, 2, or 3 conduit between the point 10 feet above grade at the pole and the pull box. The conduit between the pole and the pull box must be buried at a depth of at least 18 inches below grade.

Place conductors across structures in a Type 1, 2, or 3 conduit. Attach the conduit to the outside face of the railing.

Mount the photoelectric unit at the top of the standard or wood post.

You may abandon in place conductors and cables in sawed slots or in conduit installed below the ground surface.

87-20.03B–87-20.03G Reserved

87-20.03H Temporary Flashing Beacon Systems

Protect each flashing beacon with a fused splice connector on the line side. Wherever conductors are run overhead, install the fused splice connector in the line side outside of the control assembly.

87-20.03I Temporary Lighting Systems

Protect each luminaire with a fused splice connector on the line side. Wherever conductors are run overhead, install the fused splice connectors in the line side before entering the mast arm.

87-20.03J Temporary Signal Systems

You may splice conductors that run to a terminal compartment or a signal head on a pole to the through conductors of the same phase in a pull box adjacent to the pole. Do not splice conductors or cables except in a pull box or in a NEMA 3R enclosure.

The Department provides the timing for the temporary signal.

Maintain the temporary signal except for the Department-furnished controller assembly.

87-20.03K Reserved

87-20.04 PAYMENT

Not Used

Add between the 1st and 2nd paragraphs of section 87-21.03A:

04-17-20

Remove foundation under section 56-3.01C(2)(a).

Add to section 87-21.03A:

04-17-20

Remove electrical equipment, designated as a hazardous waste.

Replace item 7 in the list in the 2nd paragraph of section 87-21.03B(2) with:

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7. Camera system

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DIVISION XI MATERIALS

90 CONCRETE

10-18-19

Add to section 90-1.01B:

10-18-19

CIP structural concrete members: CIP components of bridge structures, piling, retaining walls, sound walls, box culverts, drainage inlets, approach slabs, bridge railing, and bridge barriers.

Replace section 90-1.01C(6) with:

10-18-19

90-1.01C(6) Mix Design

90-1.01C(6)(a) General

Submit the concrete mix design before using the concrete in the work and before changing the mix proportions or an aggregate source.

90-1.01C(6)(b) Cast-In-Place Structural Concrete Members

For CIP structural concrete members, submit with your mix design results from the tests specified in 90-1.01D(10)(d) and the results from the tests shown in the following table:

Quality characteristic	Test method
Specific gravity and absorption of coarse aggregate	ASTM C127
Specific gravity and absorption of fine aggregate	ASTM C128
Durability index for fine aggregate	California Test 229
Soundness	California Test 214
Resistance to degradation	ASTM C131
Organic impurities	California Test 213
Chloride concentration of water for washing aggregates and mixing concrete	California Test 422
Sulfate concentration of water for washing aggregates and mixing concrete	California Test 417
Impurities in water for washing aggregates and mixing concrete	ASTM C191 or ASTM C266 and ASTM C109

Replace section 90-1.01C(8) with:

10-18-19

90-1.01C(8) Testing

90-1.01C(8)(a) General

If the concrete is tested for shrinkage, submit the test data with the mix design.

If prequalification is specified, submit certified test data or trial batch test reports under section 90-1.01D(5)(b).

If 56 days are allowed for the concrete to attain the compressive strength described, submit test results under section 90-1.01D(5)(a).

90-1.01C(8)(b) Cast-In-Place Structural Concrete Members

For CIP structural concrete members, submit test results within 3 business days after completing each QC test. For submittal of test results, go to:

http://dime.dot.ca.gov/

For CIP structural concrete members, include the following with the test results:

1. Contract number
2. Mix design number
3. Test sample identification number
4. Date and time of test
5. Batch plant
6. Batch number
7. Bridge number and description of element
8. Supporting data and calculations
9. Name, certification number, and signature of the QC tester

If additional compressive strength test results are needed for CIP structural concrete members to facilitate your schedule, submit a plot of the strength projection curve.

Add to the end of section 90-1.01C:

10-18-19

90-1.01C(11) Quality Control Plan for Cast-In-Place Structural Concrete Members

Section 90-1.01C(11) applies to CIP structural concrete members.

Submit 3 copies of the QC plan for review.

Submit an amended QC plan or an addendum to the QC plan when there are any changes to:

1. Concrete plants
2. Testing laboratories
3. Plant certification or laboratory accreditation status
4. Tester or inspector qualification status
5. QC personnel
6. Procedures and equipment
7. Material sources
8. Material testing

Allow the Department 5 business days to review an amended QC plan or an addendum to the QC plan.

90-1.01C(12) Concrete Materials Quality Control Summary Report for Cast-In-Place Structural Concrete Members

Section 90-1.01C(12) applies to CIP structural concrete members.

During concrete production for CIP structural concrete members, submit a concrete materials QC summary report at least once a month. The report must include:

1. Inspection reports.
2. Test results.
3. Documentation of:
   3.1. Test result evaluation by the QC manager
   3.2. Any discovered problems or deficiencies and the corrective actions taken
   3.3. Any testing of repair work performed
   3.4. Any deviations from the specifications or regular practices with explanation
4. Certificate of compliance for the structural concrete material signed by the QC manager. The certificate must state that the information contained in the report is accurate, the minimum testing frequencies specified in section 90-1.01D(10)(d) are met, and the materials comply with the Contract.

90-1.01C(13) Polymer Fibers

For concrete used in concrete bridge decks or PCC deck overlays, submit:

1. Fiber manufacturer's product data and application instructions
2. Certificate of compliance for each shipment and type of fiber

Replace the 3rd paragraph of section 90-1.01D(5)(a) with:

10-18-19

If the concrete is designated by compressive strength, the strength of concrete that is not steam cured is determined from cylinders cured under Method 1 of California Test 540.

Add to the end of section 90-1.01D:

10-18-19

90-1.01D(7) Qualifications for Cast-In-Place Structural Concrete Members

Section 90-1.01D(7) applies to CIP structural concrete members.

QC laboratory testing personnel must have an ACI Concrete Laboratory Testing Technician, Level 1 certification or an ACI Aggregate Testing Technician, Level 2 certification, whichever certification includes the test being performed.

QC field testing personnel and field and plant inspection personnel must have an ACI Concrete Field Testing Technician, Grade I certification.

90-1.01D(8) Certifications for Cast-In-Place Structural Concrete Members

Each concrete plant used for CIP structural concrete members must have a current:

1. Certification for ready mixed concrete production facilities from the National Ready Mixed Concrete Association. Plant Certification Checklist and supporting documentation must be available upon request.
2. Authorization under the Department's MPQP.

Each QC testing laboratory must be an authorized laboratory with current accreditation from the AASHTO Accreditation Program for the tests performed.

90-1.01D(9) Preconstruction Meeting for Cast-In-Place Structural Concrete Members

Section 90-1.01D(9) applies to CIP structural concrete members.

Before concrete placement, hold a meeting to discuss the requirements for structural concrete QC. The meeting attendees must include the Engineer, the QC manager, and at least 1 representative from each concrete plant performing CIP structural concrete activities for the Contract.

90-1.01D(10) Quality Control

90-1.01D(10)(a) General

Reserved

90-1.01D(10)(b) Cast-In-Place Structural Concrete Members

90-1.01D(10)(b)(i) General

Section 90-1.01D(10)(b) applies to CIP structural concrete members.

Develop, implement, and maintain a QC program that includes inspection, sampling, and testing of structural concrete materials for CIP structural concrete members.

Perform all sampling, testing, and inspecting required to control the process and to demonstrate compliance with the Contract and the authorized QC plan.

Provide a QC field inspector at the concrete delivery point while placement activities are in progress.

Provide a testing laboratory and the testing personnel for QC testing.

The QC inspector and the QC manager must be fully authorized by the Contractor to reject material.

QC testers and inspectors must be your employees or must be hired by a subcontractor providing only QC services. QC testers and inspectors must not be employed or compensated by a subcontractor or by other persons or entities hired by subcontractors who will provide other services or materials for the project.

If lightweight concrete, RSC, or SCC is used as structural concrete, you must also comply with the sampling and testing specifications of that section.

90-1.01D(10)(b)(ii) Quality Control Plan

The QC plan must detail the methods used to ensure the quality of the work and provide the controls to produce concrete. The QC plan must include:

1. Names and documentation of certification or accreditation of the concrete plants and testing laboratories to be used
2. Names, qualifications, and copies of certifications for the QC manager and all QC testing and inspection personnel to be used
3. Organization chart showing QC personnel and their assigned QC responsibilities
4. Example forms, including forms for certificates of compliance, hard copy test result submittals, and inspection reports
5. Methods and frequencies for performing QC procedures, including inspections and material testing
6. Procedures to control quality characteristics, including standard procedures to address properties outside of the specified operating range or limits, and example reports to document nonconformances and corrective actions taken
7. Procedures for verifying:
    7.1. Materials are properly stored during concrete batching operations
    7.2. Batch plants have the ability to maintain the concrete consistency during periods of extreme heat and cold
    7.3. Admixture dispensers deliver the correct dosage within the accuracy requirements specified
    7.4. Delivery trucks have a valid National Ready Mixed Concrete Association certification card
8. Procedures for verifying that the weighmaster certificate for each load of concrete shows:
    8.1. Concrete as batched complies with the authorized concrete mix design weights
    8.2. Moisture corrections are being accurately applied to the aggregates
    8.3. Cementitious materials are from authorized sources
    8.4. Any water that is added after batching at the plant
9. Procedures for visually inspecting the concrete during discharge operations

Allow the Department 5 business days to review an amended QC plan or an addendum to the QC plan.

90-1.01D(10)(b)(iii) Quality Control Manager

Assign a QC manager. The QC manager must have one of the following qualifications:

1. Civil engineering license in the State
2. ACI Concrete Laboratory Testing Technician, Level 1 certification
3. NICET Level II concrete certification
4. ICC Reinforced Concrete Special Inspector certification
5. ASQ Certified Manager of Quality/Organizational Excellence with the qualifying 10 years of experience and body of knowledge in the field of concrete

During concrete placement, the QC manager must be at the plant or job site within 3 hours of receiving notification from the Engineer.

90-1.01D(10)(b)(iv) Quality Control Testing Frequencies

For each mix design used to produce CIP structural concrete, perform sampling and testing in compliance with the following tables:

Aggregate QC Tests

Quality characteristic	Test method	Minimum testing frequency
Aggregate gradation	California Test 202	Once per each day of pour
Sand equivalent	California Test 217	
Cleanness value	California Test 227	
Moisture content of fine aggregate	California Test 226	1–2 times per each day of pour, depending on conditions

Concrete QC Tests

Quality characteristic	Test method	Minimum testing frequency
Slump	ASTM C143/C143M	Once per 100 cu yd or each day of pour, whichever is more frequent, and when requested by the Engineer
Uniformity[a]	ASTM C143/C143M, California Test 533, and California Test 529	When ordered by the Engineer
Air content, (freeze-thaw area)	California Test 504[b]	If concrete is air entrained, once per 30 cu yd or each day of pour, whichever is more frequent
Air content, (non-freeze-thaw area)	California Test 504[b]	If concrete is air entrained, once per 100 cu yd or each day of pour, whichever is more frequent
Temperature	California Test 557	Once per 100 cu yd or each day of pour, whichever is more frequent
Density	California Test 518	
Compressive strength[c,d]	California Test 521	

[a]As specified in section 90-1.01D(4).
[b]Use ASTM C173/C173M for lightweight concrete.
[c]Mark each cylinder with the Contract number, the date and time of sampling, and the weighmaster certificate number.
[d]You may need additional test samples to facilitate your schedule.

90-1.01D(10)(b)(v) Inspection Reports

Document each inspection performed by a QC inspector in an inspection report that includes:

1. Contract number
2. Mix design number
3. Date and time of inspection
4. Plant location
5. Concrete placement location
6. Batch number
7. Reviewed copies of weighmaster certificates
8. Description of the inspection performed
9. Name, certification number, and signature of the QC inspector

90-1.01D(10)(b)(vi) Rejection of Material

If any of the QC concrete test results fail to comply with the specified requirements, the batch of concrete must not be incorporated in the work. Notify the Engineer. Repeat the QC concrete tests on each subsequent batch until the test results comply with the specified requirements.

If 3 consecutive batches fail to comply with the specified requirements, (1) revise concrete operations as necessary to bring the concrete into compliance and (2) increase the frequency of QC testing. The revisions must be authorized before resuming production. After production resumes, you must receive authorization before returning to the QC testing frequency authorized in the QC plan.

90-1.01D(11) Department Acceptance

90-1.01D(11)(a) General

Reserved

90-1.01D(11)(b) Cast-In-Place Structural Concrete Members

The Department accepts concrete incorporated into CIP structural concrete members based on only the Department's test results. QC test results will not be used for Department acceptance.

Replace the table in the 1st paragraph of section 90-1.02A with:

10-18-19

Type of work	Maximum length change of laboratory cast specimens at 28 days drying (average of 3) (percent)
Paving and approach slab concrete	0.050
Bridge deck concrete	0.032

Add to the end of section 90-1.02A:

10-18-19

For new bridge decks or PCC deck overlays, fibers must comply with ASTM D7508. Microfibers must be from 1/2 to 2 inches long. Macrofibers must be from 1 to 2-1/2 inches long.

Replace the table in section 90-1.02G(6) with:

04-19-19

Type of work	Nominal		Maximum	
	Penetration (in)	Slump (in)	Penetration (in)	Slump (in)
Concrete pavement	0–1	--	1.5	--
Nonreinforced concrete members	0–1.5	--	2	--
Reinforced concrete structures with:				
Sections over 12 inches thick	0–1.5	1–3	2.5	5
Sections 12 inches thick or less	0–2	1–4	3	6
Concrete placed under water	--	6–8	--	9
CIP concrete piles	2.5–3.5	5–7	4	8

Replace the introductory clause of the 6th paragraph of section 90-1.02H with:

04-19-19

For pavement, the total cementitious material must be composed of one of the following options, by weight:

Add after the 6th paragraph of section 90-1.02H:

04-19-19

For structures, the total cementitious material must be composed of one of the following options, by weight:

1. 25 percent natural pozzolan or fly ash with a CaO content of up to 10 percent and 75 percent portland cement.

2. 20 percent natural pozzolan or fly ash with a CaO content of up to 10 percent, 5 percent silica fume, and 75 percent portland cement.
3. 12 percent silica fume, metakaolin, or UFFA, and 88 percent portland cement.
4. 50 percent GGBFS and 50 percent portland cement.
5. 25 to 50 percent fly ash with a CaO content of up to 10 percent, and no natural pozzolan. The remaining portion of the cementitious material must be portland cement or a combination of portland cement and UFFA, metakaolin, GGBFS, or silica fume.

Replace section 90-1.03B(2) with:

04-19-19

90-1.03B(2) Water Method

The water method must consist of keeping the concrete continuously wet by applying water for a curing period of at least 7 days after the concrete is placed.

Keep the concrete surface wet by applying water with an atomizing nozzle that forms a mist until the surface is covered with curing media. Do not allow the water to flow over or wash the concrete surface. At the end of the curing period, remove curing media.

Use any of the following curing media to retain moisture:

1. Mats, rugs, or carpets
2. Earth or sand blankets
3. Sheeting materials complying with the durability and water vapor transmission rate specified in section 5 of ASTM C171

To ensure proper coverage during curing:

1. Cover the entire concrete surface with the curing media
2. Secure the curing media joints to retain moisture
3. Keep the curing media within 3 inches of the concrete at all points along the surface being cured

Monitor concrete surface temperature during curing. Ensure that surface temperature is maintained at 140 degrees F or below. If the surface temperature exceeds 140 degrees F, determine cause and provide alternative curing methods to the Engineer for authorization.

10-19-18

Delete the 2nd paragraph of section 90-3.02A.

Replace the 2nd paragraph of section 90-4.01A with:

10-18-19

The specifications for (1) shrinkage in section 90-1.02A, (2) shrinkage reducing chemical admixture in section 51-1.02B, and (3) polymer fibers in section 51-1.02B do not apply to PC concrete members.

Add to section 90-4.01C(1):

04-19-19

Submit your QC test results for the tests performed under section 90-4.01D as an informational submittal. The QC test results must be submitted electronically through the Data Interchange for Materials Engineering website within 3 business days of completion of each QC test and must include the concrete mix design number.

^^

94 ASPHALTIC EMULSIONS

04-17-20

Replace section 94 with:

04-17-20

94-1.01 GENERAL

94-1.01A Summary

Section 94 includes specifications for furnishing asphaltic emulsions.

94-1.01B Definitions

Reserved

94-1.01C Submittals

Submit an SDS for each shipment of asphaltic emulsion to the job site.

If you use the asphaltic emulsion before the Department's sampling and testing is complete, submit a certificate of compliance for each shipment to the job site. The certificate of compliance must include:

1. Shipment number and date
2. Source asphalt emulsion plant, consignee, and destination
3. Type and description of material with specific gravity and quantity
4. Contract or purchase order number
5. Signature by the manufacturer of the material
6. Certified test results

If no certificate of compliance is submitted, do not use asphaltic emulsion until authorized.

94-1.01D Quality Assurance

Sample asphaltic emulsion under AASHTO T 40.

Store samples in clean and airtight sealed containers. Samples taken must be placed in wide mouth plastic containers and taken in the presence of the Engineer. Samples must be stored at temperatures from 40 to 120 degrees F until submitted for testing.

94-1.02 MATERIALS

94-1.02A General

Asphaltic emulsions must be composed of a bituminous material uniformly emulsified with water and an emulsifying or a stabilizing agent. Polymer-modified asphaltic emulsion must contain a polymer.

Rapid-setting asphaltic emulsions must be tested within 7 days after delivery to job site. All other asphaltic emulsions must be tested within 14 days of delivery to job site. The asphaltic emulsion must be homogeneous after thorough mixing and not separated by freezing. Asphaltic emulsion separated by freezing will not be tested.

94-1.02B Slow-Setting Anionic Asphaltic Emulsions

Slow-setting anionic asphaltic emulsion must comply with the requirements shown in the following table:

Slow-Setting Anionic Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement	
		Grade SS-1	Grade SS-1h
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	20–100	
Storage stability test, 1 day (max, %)		1	
Cement mixing test (max, %)		2.0	
Sieve test (max, %)		0.10	
Residue from distillation or evaporation test (min, %)[a]		57	
Tests on residue:			
Penetration, 25 °C (dmm)	AASHTO T 49	100–200	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400	400
Solubility in trichloroethylene (min, %)	AASHTO T 44	97.5	97.5

[a]Distillation is the defining test if there is a conflict with evaporation.

94-1.02C Slow-Setting Cationic Asphaltic Emulsions

Slow-setting cationic asphaltic emulsion must comply with the requirements shown in the following table:

Slow-Setting Cationic Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement	
		Grade CSS-1	Grade CSS-1h
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	20–100	
Storage stability test, 1 day (max, %)		1	
Particle charge[a]		Positive	
Cement mixing test (max, %)		2.0	
Sieve test (max, %)		0.10	
Residue from distillation or evaporation test (min, %)[b]		57	
Tests on residue:			
Penetration, 25 °C (dmm)	AASHTO T 49	100–250	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400	400
Solubility in trichloroethylene (min, %)	AASHTO T 44	97.5	97.5

[a]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[b]Distillation is the defining test if there is a conflict with evaporation.

94-1.02D Rapid-Setting Cationic Asphaltic Emulsions

Rapid-setting cationic asphaltic emulsion must comply with the requirements shown in the following table:

Rapid-Setting Cationic Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement			
		Grade CRS-1	Grade CRS-2	Grade CRS-1h	Grade CRS-2h
Saybolt Furol viscosity, at 50 °C (Saybolt Furol seconds)	AASHTO T 59	20–100	100–400	20–100	100–400
Storage stability test, 1 day (max, %)		1			
Demulsibility (min, %)[a]		40			
Particle charge[b]		Positive			
Sieve test (max, %)		0.10			
Residue from distillation or evaporation test (min, %)[c]		60	65	60	65
Tests on residue:					
Penetration, 25 °C (dmm)	AASHTO T 49	100–250		40–90	
Ductility, 25 °C, 50 mm/minute (min, mm)	AASHTO T 51	400		400	
Solubility in trichloroethylene (min, %)	AASHTO T 44	97.5		97.5	

[a]Use 35 ml of 0.8% sodium dioctyl sulfosuccinate solution.
[b]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[c]Distillation is the defining test if there is a conflict with evaporation.

94-1.02E Cationic Emulsified Recycling Agent

Cationic emulsified recycling agent for cold-in-place recycling must comply with the requirements shown in the following table:

Cationic Emulsified Asphalt Requirements

Quality characteristic	Test method	Requirement Emulsified recycling agent
Sieve test (max, %)	AASHTO T 59	0.10
Residue from distillation or evaporation test (min, %)[a]		63
Sieve test (max, %)		Positive
Tests on residue:		
Penetration, 25 °C (dmm)	AASHTO T 49	40–120
Ductility, 25 °C (min, mm)	AASHTO T 51	400
Creep stiffness:	AASHTO T 313	
Test temperature (°C)		-12
S-value (max, MPa)		300
M-value (min)		0.300

[a]Distillation is the defining test if there is a conflict with evaporation.
[b]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.

94-1.02F Rapid-Setting Polymer-Modified Asphaltic Emulsions

Rapid-setting polymer-modified asphaltic emulsion must comply with the requirements shown in the following table:

Rapid-Setting Polymer-Modified Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement	
		Grade PMCRS-2	Grade PMCRS-2h
Saybolt Furol viscosity, at 50 °C (Saybolt Furol seconds)	AASHTO T 59[e]	100–400	
Storage stability test, 1 day (max, %)		1	
Sieve test (max, %)		0.30	
Demulsibility (min, %)[a]		40[b]	
Particle charge[b]		Positive	
Residue from distillation or evaporation test (min, %)[c]		65	
Tests on residue:			
Penetration, 25 °C (dmm)	AASHTO T 49	100–200	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400	400
Torsional recovery (min, %)[d] or Elastic recovery, 25 °C (min, %)[d]	California Test 332 AASHTO T 301	20 65	20 65
Penetration, 4 °C, 200 g for 60 seconds (min, dmm)	AASHTO T 49	6	6
Ring and Ball Softening Point (min,°C)	AASHTO T 53	57	57

[a]Use 35 ml of 0.8% sodium dioctyl sulfosuccinate solution.
[b]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[c]Distillation is the defining test if there is a conflict with evaporation.
[d]Elastic recovery is the defining test if there is a conflict with torsional recovery.
[e]Distillation temperature of 350 °F.

94-1.02G Bonded Wearing Course Asphaltic Emulsions

Bonded wearing course asphaltic emulsion must comply with the requirements shown in the following table:

Bonded Wearing Course Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59[c]	20–100
Storage stability test, 1 day (max, %)		1
Sieve test (max, %)		0.05
Particle charge[a]		Positive
Residue from distillation or evaporation test (min, %)[b]		63
Tests on residue: Penetration, 25 °C (dmm) Torsional recovery (min, %)[d]	 AASHTO T 49 California Test 332	 70–150 40

[a]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[b]Distillation is the defining test if there is a conflict with evaporation.
[c]Distillation temperature of 350 °F.
[d]Measure the entire arc of recovery at 25 °C.

94-1.02H Rapid-Setting Polymer-Modified Rejuvenating Asphaltic Emulsions

Rapid-setting polymer-modified rejuvenating asphaltic emulsion must comply with the requirements shown in the following table:

Rapid-Setting Polymer-Modified Rejuvenating Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement Grade PMRE
Saybolt Furol viscosity, at 50 °C (Saybolt Furol seconds)	AASHTO T 59[d]	50–350
Storage stability test, 1 day (max, %)		1
Sieve (max, %)		0.30
Oil distillate (max, %)		0.5
Particle charge[a]		Positive
Demulsibility (min, %)[b]		40
Residue from distillation or evaporation test (min, %)[c]		65
pH	ASTM E70	2.0–5.0
Tests on residue:		
Viscosity, at 60 °C (max, Pa-s)	AASHTO T 202[e, f]	5000
Penetration, 4 °C (dmm)	AASHTO T 49	40–70
Elastic recovery, 25 °C (min, %)	AASHTO T 301[g]	60

[a]Must comply with a pH requirement of 6.7 maximum under ASTM E70 if the particle charge test result is inconclusive.
[b]If the product is to be diluted, demulsibility is waived.
[c]Distillation is the defining test if there is a conflict with evaporation.
[d]Distillation temperature of 350 °F.
[e]If it is suspected that a sample may contain solid material, strain the melted sample into the container through a No. 50 (300-µm) sieve conforming to Specification E 11.
[f]Use an AI- 200 glass capillary tube to run the test. If the viscosity is 4000 or above, use an AI 400 instead.
[g]Elastic recovery, hour glass sides, pull to 20 cm, hold 5 minutes then cut, let sit 1 hour.

Rejuvenating agent for rapid-setting polymer-modified rejuvenating asphaltic emulsion must comply with the requirements shown in the following table:

Rejuvenating Agent Requirements

Quality characteristic	Test method	Requirement
Tests on rejuvenating agent:		
Viscosity, at 60 °C (cSt)	AASHTO T 201	50–175
Flash point (min, °C)	AASHTO T 48	193
Saturate (max, % by weight)	ASTM D2007	30
Asphaltenes (max)	ASTM D2007	1.0
Tests on rejuvenating agent Rolling Thin-Film Oven Test residue:		
Weight change (max, %)	AASHTO T 240	6.5
Viscosity ratio (max)[a]		3

[a]Rolling Thin-Film Oven Test (RTFOT) viscosity divided by the original viscosity.

94-1.02I Quick-Setting Asphaltic Emulsions

Quick-setting asphaltic emulsion must comply with the requirements shown in the following table:

Quick-Setting Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement			
		Anionic		Cationic	
		Grade QS-1	Grade QS-1h	Grade CQS-1	Grade CQS-1h
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	15–90			
Storage stability test, 1 day (max, %)		1			
Particle charge[a]		--		Positive	
Sieve test (max, %)		0.30			
Residue from distillation or evaporation test (min, %)[b]		57			
Tests on residue:					
Penetration, 25 °C (dmm)	AASHTO T 49	100–200	40–90	100–200	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400	400	400	400
Solubility in trichloroethylene (min, %)	AASHTO T 44	97.5	97.5	97.5	97.5

[a]If the result of the particle charge test is inconclusive; the asphaltic emulsion must be tested for pH under ASTM E70. Grade QS-1h asphaltic emulsion must have a minimum pH of 7.3. Grade CQS-1h asphaltic emulsion must have a maximum pH of 6.7.
[b]Distillation is the defining test if there is a conflict with evaporation.

94-1.02J Quick-Setting Polymer-Modified Cationic Asphaltic Emulsions

Quick-setting polymer-modified cationic asphaltic emulsion must comply with the requirements shown in the following table:

Quick-Setting Polymer-Modified Cationic Asphaltic Emulsions

Quality characteristic	Test method	Requirement Grade PMCQS-1h
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59[d]	15–90
Storage stability test, 1 day (max, %)		1
Sieve test (max, %)		0.30
Particle charge[a]		Positive
Residue from distillation or evaporation test (min, %)[b]		60
Tests on residue:		
Penetration, 25 °C (dmm)	AASHTO T 49	40–90
Ductility, 25 °C (min, mm)	AASHTO T 51	400
Torsional recovery (min, %)[c]	California Test 332	18
or		
Elastic recovery, 25 °C (min, %)[c]	AASHTO T 301	60

[a]If the result of the particle charge test is inconclusive; the asphaltic emulsion must be tested for pH under ASTM E70.
[b]Distillation is the defining test if there is a conflict with evaporation.
[c]Elastic recovery is the defining test if there is a conflict with torsional recovery.
[d]Distillation temperature of 350 °F.

94-1.02K Micro Surfacing Emulsions

Micro surfacing emulsion must comply with the requirements shown in the following table:

Micro Surfacing Emulsion Requirements

Quality characteristic	Test method	Requirement Grade MSE
Saybolt Furol viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59[c]	15–90
Storage stability test, 1 day (max, %)		1
Sieve test (max, %)		0.30
Particle charge[a]		Positive
Residue from distillation or evaporation test (min, %)[b]		62
Tests on residue:		
Penetration, 25 °C (dmm)	AASHTO T 49	40–90
Softening point (min, °C)	AASHTO T 53	57
Torsional recovery (min, %)[d]	California Test 332	20
or		
Elastic recovery, 25 °C (min, %)[d]	AASHTO T 301	65

[a]If the result of the particle charge test is inconclusive; the asphaltic emulsion must be tested for pH under ASTM E70.
[b]Distillation is the defining test if there is a conflict with evaporation.
[c]Distillation temperature of 350 °F.
[d]Elastic recovery is the defining test if there is a conflict with torsional recovery.

94-1.03 CONSTRUCTION

Not Used

94-1.04 PAYMENT

The quantity of asphaltic emulsion is the weight determined before the addition of any water.

The weight of asphaltic emulsion is determined from volumetric measurements if:

1. Partial loads are used
2. Scale is not available within 20 miles
3. Asphaltic emulsion is delivered in:
   3.1. Trucks with each tank calibrated and accompanied by its measuring stick and calibration card
   3.2. Trucks equipped with a vehicle tank meter and a calibrated thermometer that determines the asphalt temperature at delivery

For volumetric measurements, the measured volume of asphaltic emulsion is reduced to the volume the material would occupy at 60 degrees F. One ton of asphaltic emulsion at 60 degrees F equals 240 gal. One gallon of asphaltic emulsion at 60 degrees F equals 8.33 lb.

Convert volume to weight using the factors shown in the following table:

Conversion Table

t	M	t	M	t	M	t	M
60	1.00000	83	0.99425	106	0.98850	129	0.98275
61	0.99975	84	0.99400	107	0.98825	130	0.98250
62	0.99950	85	0.99375	108	0.98800	131	0.98225
63	0.99925	86	0.99350	109	0.98775	132	0.98200
64	0.99900	87	0.99325	110	0.98750	133	0.98175
65	0.99875	88	0.99300	111	0.98725	134	0.98150
66	0.99850	89	0.99275	112	0.98700	135	0.98125
67	0.99825	90	0.99250	113	0.98675	136	0.98100
68	0.99800	91	0.99225	114	0.98650	137	0.98075
69	0.99775	92	0.99200	115	0.98625	138	0.98050
70	0.99750	93	0.99175	116	0.98600	139	0.98025
71	0.99725	94	0.99150	117	0.98575	140	0.98000
72	0.99700	95	0.99125	118	0.98550	141	0.97975
73	0.99675	96	0.99100	119	0.98525	142	0.97950
74	0.99650	97	0.99075	120	0.98500	143	0.97925
75	0.99625	98	0.99050	121	0.98475	144	0.97900
76	0.99600	99	0.99025	122	0.98450	145	0.97875
77	0.99575	100	0.99000	123	0.98425	146	0.97850
78	0.99550	101	0.98975	124	0.98400	147	0.97825
79	0.99525	102	0.98950	125	0.98375	148	0.97800
80	0.99500	103	0.98925	126	0.98350	149	0.97775
81	0.99475	104	0.98900	127	0.98325	150	0.97750
82	0.99450	105	0.98875	128	0.98300	151	0.97725

t = observed temperature in degrees F
M = multiplier for reducing volumes to the basis of 60 °F

^^

95 EPOXY

04-17-20

Replace section 95-1.02E with:

04-17-20

95-1.02E Epoxy Adhesive for Pavement Markers

Epoxy adhesive for bonding pavement markers to concrete and HMA must comply with ASTM C881/C881M, Type IV, Grade 3, Class B or C except the gel time for epoxy adhesive may be less than 30 minutes.

Use Class B whenever the surface temperature is from 40 to 60 degrees F. Use Class C whenever the surface temperature is above 60 degrees F.

Replace section 95-1.02F with:

04-17-20

95-1.02F Reserved

04-17-20

Delete the 2nd paragraph of section 95-1.02G.

Replace section 95-1.02H with:

04-17-20

95-1.02H Epoxy Resin Adhesive for Pressure Injection Grouting of Concrete Pavement

Epoxy resin pressure injected into concrete must comply with ASTM C881/C881M, Type IV, Grade 1 except the epoxy must have a minimum bond strength of 3000 psi at 14 days.

^^

96 GEOSYNTHETICS

04-17-20

Replace the row for *Apparent opening size* in the table in the 2nd paragraph of section 96-1.02B with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	425(40)	250(60)	212(70)

Replace the row for *Apparent opening size* in the table in the 1st paragraph of section 96-1.02E with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	600(30)	300(50)

Replace the row for *Apparent opening size* in the table in the 1st paragraph of section 96-1.02F with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	425(40)

Replace the row for *Apparent opening size* in the table in the 1st paragraph of section 96-1.02G with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	600(30)	300(50)

Replace the row for *Apparent opening size* in the table in the 1st paragraph of section 96-1.02H with:

04-17-20

Apparent opening size, average roll value (max, µm(US Sieve))	ASTM D4751	600(30)	300(50)

Replace the row for *Apparent opening size* in the table in the 3rd paragraph of section 96-1.02I with:

04-17-20

Apparent opening size (min and max, µm(US Sieve))	ASTM D4751	150(100)–212(70)	150(100)–212(70)

Replace the row for *Apparent opening size* in the table in the 2nd paragraph of section 96-1.02O with:

04-17-20

Apparent opening size (max, µm(US Sieve))	ASTM D4751	300(50)	300(50)	600(30)	300(50)	300(50)

Replace the 3rd table in the 3rd paragraph of section 96-1.02R with:

10-19-18

Cushion Fabric

Quality characteristic	Test method	Requirement					
		Class 10	Class 12	Class 16	Class 24	Class 32	Class 60
Mass per unit area (oz/sq yd)	ASTM D5261	10	12	16	24	32	60
Grab tensile break strength (min, lb)	ASTM D4632	230	300	370	450	500	630
Grab tensile break elongation (min, %)	ASTM D4632	50					
Puncture strength (min, lb)	ASTM D6241	700	800	900	1100	1700	2400
Trapezoidal tear strength (min, lb)	ASTM D4533	95	115	145	200	215	290
UV resistance (min, %)	ASTM D7238	70					

EXHIBIT B

PLANS

FOR

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT
OVER PINE CREEK PROJECT
BISHOP, CA

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	1	33

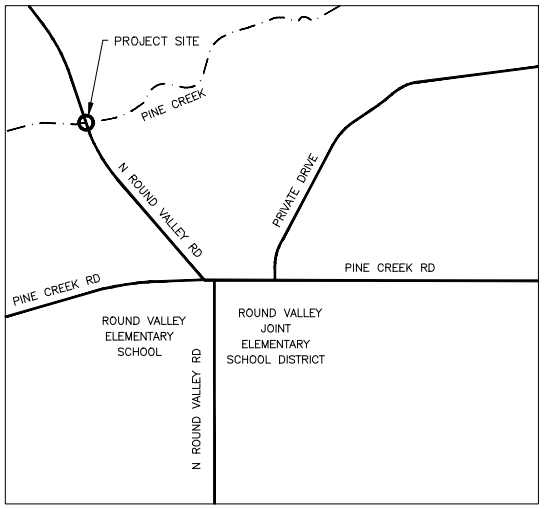
COUNTY OF INYO

DEPARTMENT OF PUBLIC WORKS

PROJECT PLANS FOR CONSTRUCTION OF NORTH ROUND VALLEY ROAD BRIDGE OVER PINE CREEK BRIDGE REPLACEMENT PROJECT

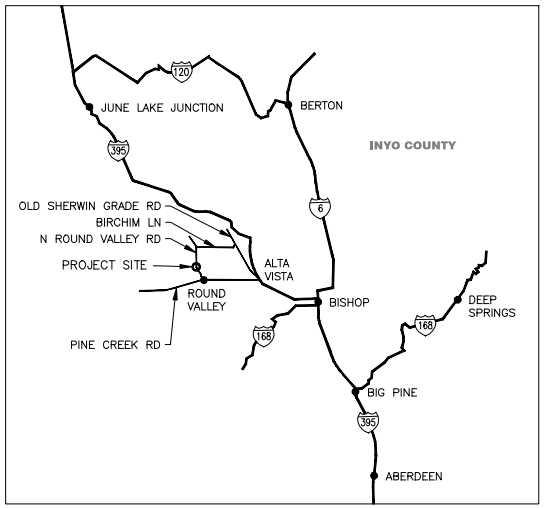
TO BE SUPPLEMENTED BY CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS & SPECIFICATIONS (INCLUDING ALL ISSUED AMENDMENTS) DATED 2018 AND THE MOST RECENT VERSION OF THE CALIFORNIA M.U.T.C.D.

THE CONTRACTOR SHALL POSSESS A CLASS A LICENSE AT THE TIME OF CONTRACT AWARD



VICINITY MAP

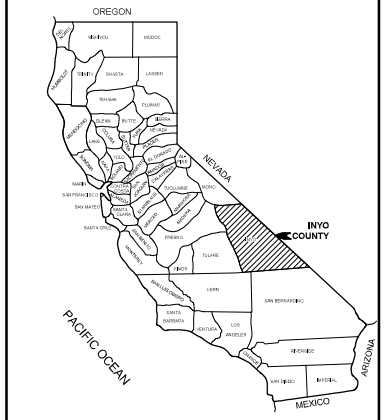
NO SCALE



SITE MAP

NO SCALE

SHEET INDEX



LOCATION MAP

NO SCALE

Michael Errante, P.E. Digitally signed by Michael Errante, P.E. Date: 2020.10.22 13:29:20 -07'00'

DIRECTOR OF PUBLIC WORKS

October 22, 2020

APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CLINT G. QUILLER C 57570 Exp. 12/31/21 CIVIL STATE OF CALIFORNIA

NOTE:
IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO WORK WITH THE LOCAL UTILITY COMPANIES TO LOCATE ALL UNDERGROUND UTILITY SERVICE LINES WITHIN THE PROJECT LIMITS PRIOR TO ANY EXCAVATION WORK. UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA (800) 642-2444.

CALL BEFORE YOU DIG 800-642-2444

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BRADLEY L. REICHERT C80306 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	DATE
J. HELM	8/31/2020
CHECKED	DATE
S. HAWKINS	8/31/2020
RECOMMENDED	DATE
R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

TITLE SHEET

FED PROJ NO.: XXXX(XXX)

SHEET 1 OF 33 SHEETS

Drawing Name: P:\014 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Retrieved\1 Title Sheet.dwg
Last Opened: Aug 31, 2020 - 2:26pm by kkeating

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	2	33

ABBREVIATIONS

BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
BW	BARBED WIRE
CL	CENTERLINE
EX, (E)	EXISTING
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
LVC	LENGTH VERTICAL CURVE
(N)	NEW
PVI	POINT OF VERTICAL INTERSECTION
TC	TOP OF CURB
TG	TOP OF GRADE
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY

CALTRANS STANDARD PLANS - 2018

	A3A	ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 3)
	A3B	ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 3)
	A3C	ACRONYMS AND ABBREVIATIONS (SHEET 3 OF 3)
	A10A	LINES AND SYMBOLS (SHEET 1 OF 5)
	A10B	LINES AND SYMBOLS (SHEET 2 OF 5)
	A10C	LINES AND SYMBOLS (SHEET 3 OF 5)
	A10D	LINES AND SYMBOLS (SHEET 4 OF 5)
	A10E	LINES AND SYMBOLS (SHEET 5 OF 5)
	A20A	PAVEMENT MARKERS & TRAFFIC LINES - TYPICAL DETAILS
	A20B	PAVEMENT MARKERS & TRAFFIC LINES - TYPICAL DETAILS
	A62C	LIMITS OF PAVEMENT FOR EXCAVATION AND BACKFILL BRIDGE
	A73A	OBJECT MARKERS
RSP	A73B	MARKERS
RSP	A77Q1	MIDWEST GUARDRAIL SYSTEM - TYPICAL LAYOUTS FOR STRUCTURE APPROACH
RSP	A77Q4	MIDWEST GUARDRAIL SYSTEM - TYPICAL LAYOUTS FOR STRUCTURE DEPARTURE
	A77U1	MIDWEST GUARDRAIL SYSTEM - CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS NO. 1
	A77U2	MIDWEST GUARDRAIL SYSTEM - CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS NO. 2
RSP	A77U4	MIDWEST GUARDRAIL SYSTEM - TRANSITION RAILING (TYPE WB-31)
	T56	TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLLS)
RSP	BO-1	BRIDGE DETAILS
	B0-13	BRIDGE DETAILS
	B6-21	JOINT SEALS (MAXIMUM MOVEMENT RATING=2")
	B7-5	DECK DRAINS

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

UTILITY NOTES:

LOCATIONS FOR EXISTING UNDERGROUND FACILITIES ARE APPROXIMATE. EXACT DEPTH AND LOCATIONS ARE UNKNOWN. FIELD LOCATE PRIOR TO THE START OF CONSTRUCTION.

**CALL UNDERGROUND SERVICE ALERT (USA) 811

LEGEND

RIGHT OF WAY

CENTERLINE OF ROADWAY

LIMITS OF GRADING

LIMITS OF RSP

ORIGINAL GROUND

180 PROPOSED CONTOUR

180 EXISTING CONTOUR

CP #101 SURVEY CONTROL POINTS

CALTRANS STANDARD PLAN SHEET NO.

DETAIL NO.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BRADLEY T. REICHEL C80306 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

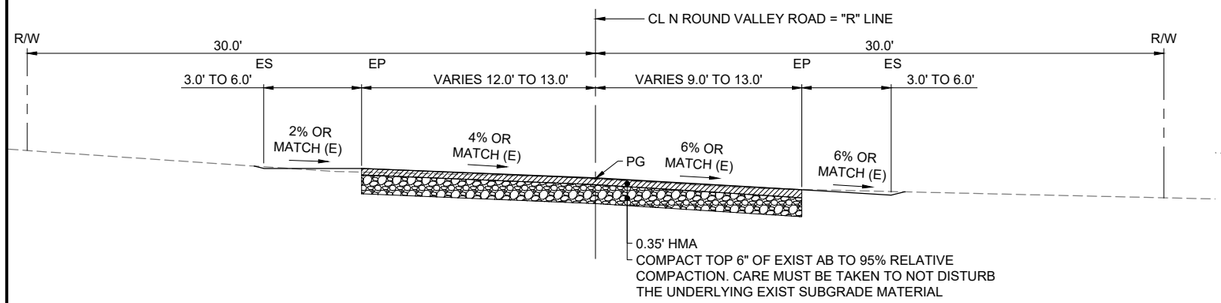
LEGEND AND ABBREVIATIONS

SHEET **2** 0F **33** SHEETS

FED PROJ NO.: XXXX(XXX)

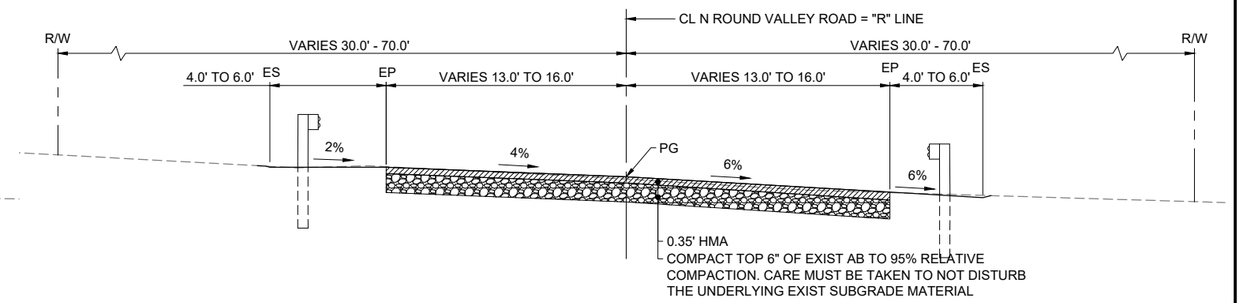
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plsheets\02 Legend & Abbrev.dwg
Last Opened: Aug 31, 2020 - 3:28pm by kaiwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	4	33



STA 12+40 TO STA 12+59 RT
STA 12+40 TO 12+74 LT

SCALE: 1" = 4'



STA 12+59 TO STA 13+34 RT
STA 12+74 TO STA 13+46 LT

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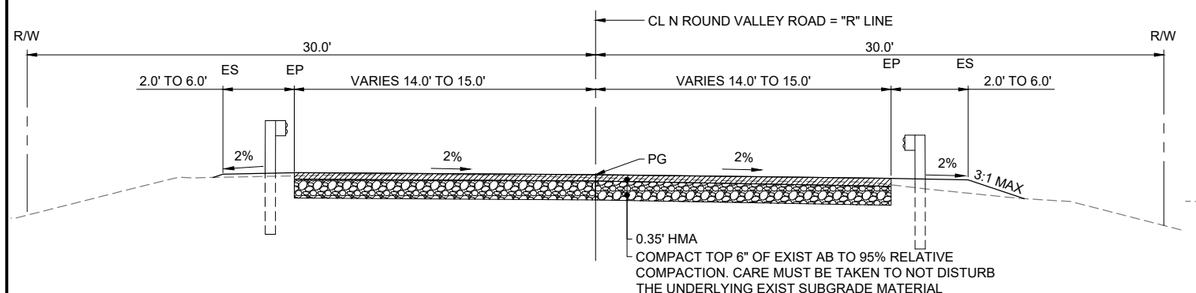
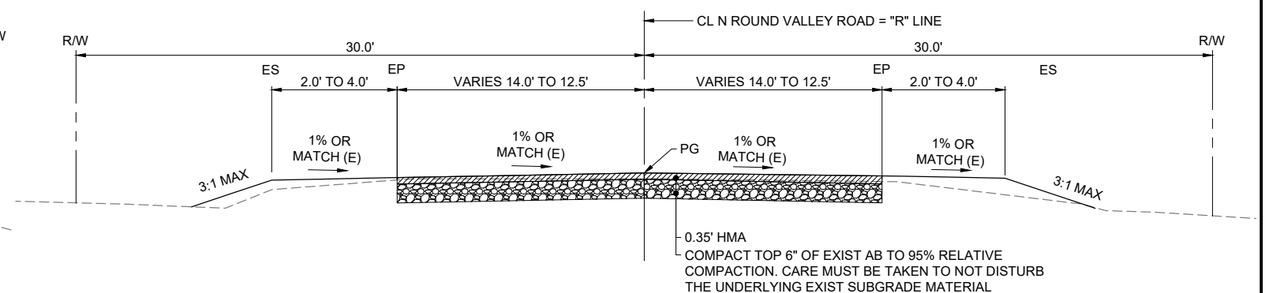


STA 14+54 TO STA 15+29 RT
STA 14+65 TO STA 15+40 LT

SCALE: 1" = 4'



STA 15+29 TO STA 15+93 RT
STA 15+40 TO 15+93 LT

SCALE: 1" = 4'

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000
REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE
REGISTERED PROFESSIONAL ENGINEER BRADLEY T. REICHEL C80306 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	DATE
J. HELM	8/31/2020
CHECKED	DATE
S. HAWKINS	8/31/2020
RECOMMENDED	DATE
R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

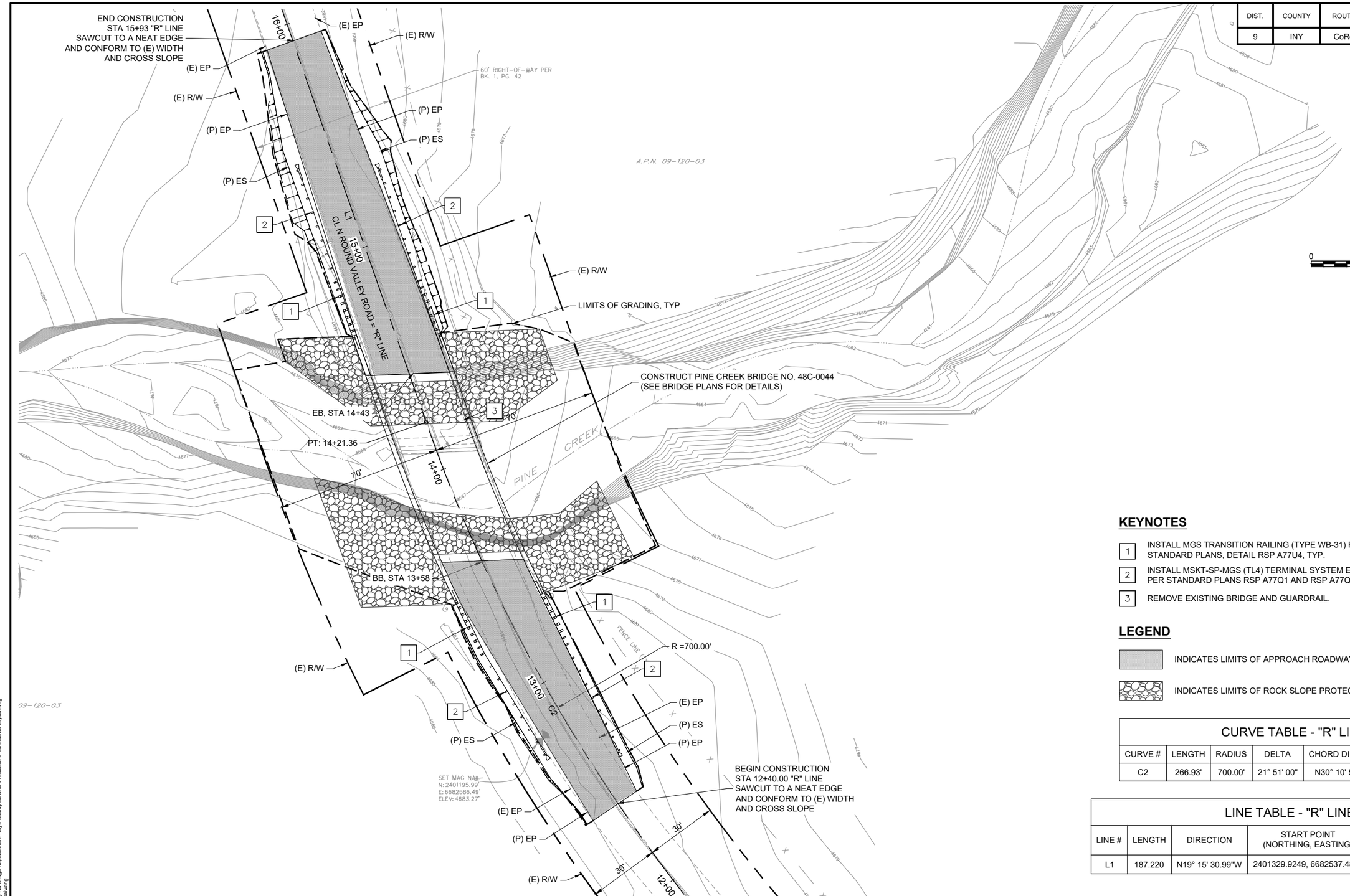
TYPICAL SECTIONS

SHEET 4 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Pltsheets\04 Typical Sections.dwg
Last Opened: Aug 31, 2020 - 3:30pm by kalwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	5	33



KEYNOTES

1. INSTALL MGS TRANSITION RAILING (TYPE WB-31) PER 2018 STANDARD PLANS, DETAIL RSP A77U4, TYP.
2. INSTALL MSKT-SP-MGS (TL4) TERMINAL SYSTEM END TREATMENT PER STANDARD PLANS RSP A77Q1 AND RSP A77Q4, TYP.
3. REMOVE EXISTING BRIDGE AND GUARDRAIL.

LEGEND

INDICATES LIMITS OF APPROACH ROADWAY RECONSTRUCTION

INDICATES LIMITS OF ROCK SLOPE PROTECTION

CURVE TABLE - "R" LINE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C2	266.93'	700.00'	21° 51' 00"	N30° 10' 58.99"W	265.32

LINE TABLE - "R" LINE				
LINE #	LENGTH	DIRECTION	START POINT (NORTHING, EASTING)	END POINT (NORTHING, EASTING)
L1	187.220	N19° 15' 30.99"W	2401329.9249, 6682537.4894	2401506.6680, 6682475.7381

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY L. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

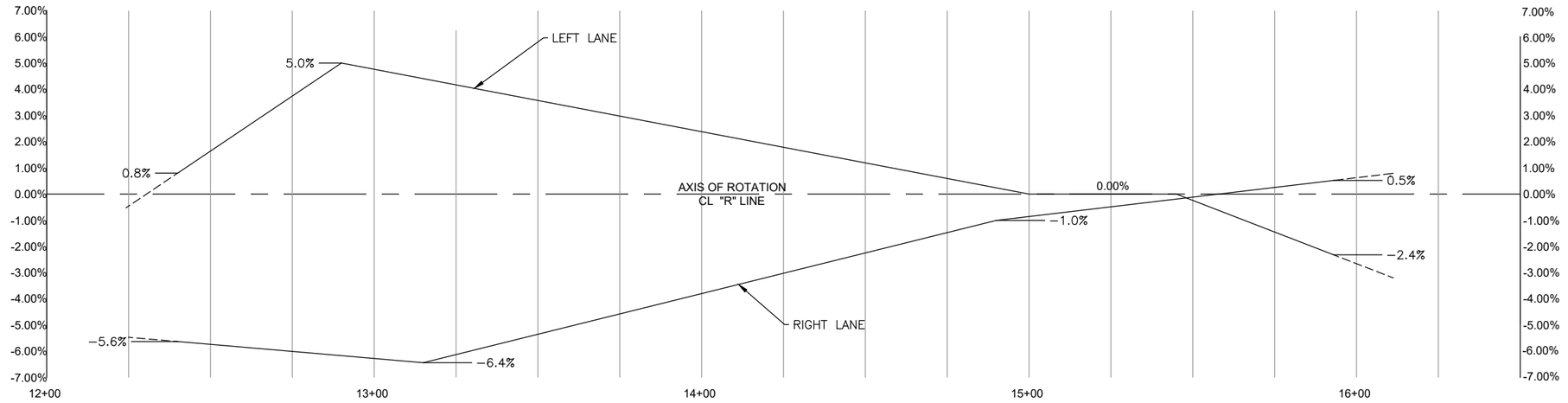
LAYOUT

SHEET 5 OF 33 SHEETS

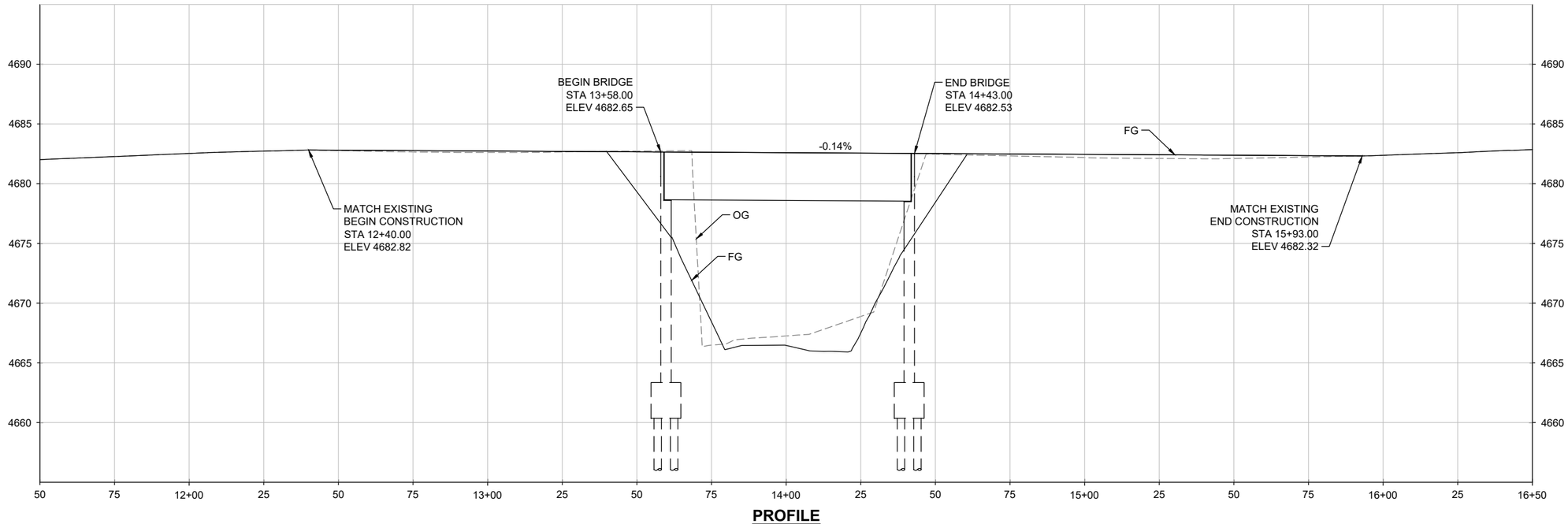
FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\05 Layout.dwg
Last Opened: Aug 31, 2020 - 3:33pm by kaiwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	6	33



SUPERELEVATION DIAGRAM



PROFILE

0 20 40 60

SCALE 1"=20' HORIZONTAL
1"=5' VERTICAL

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY T. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

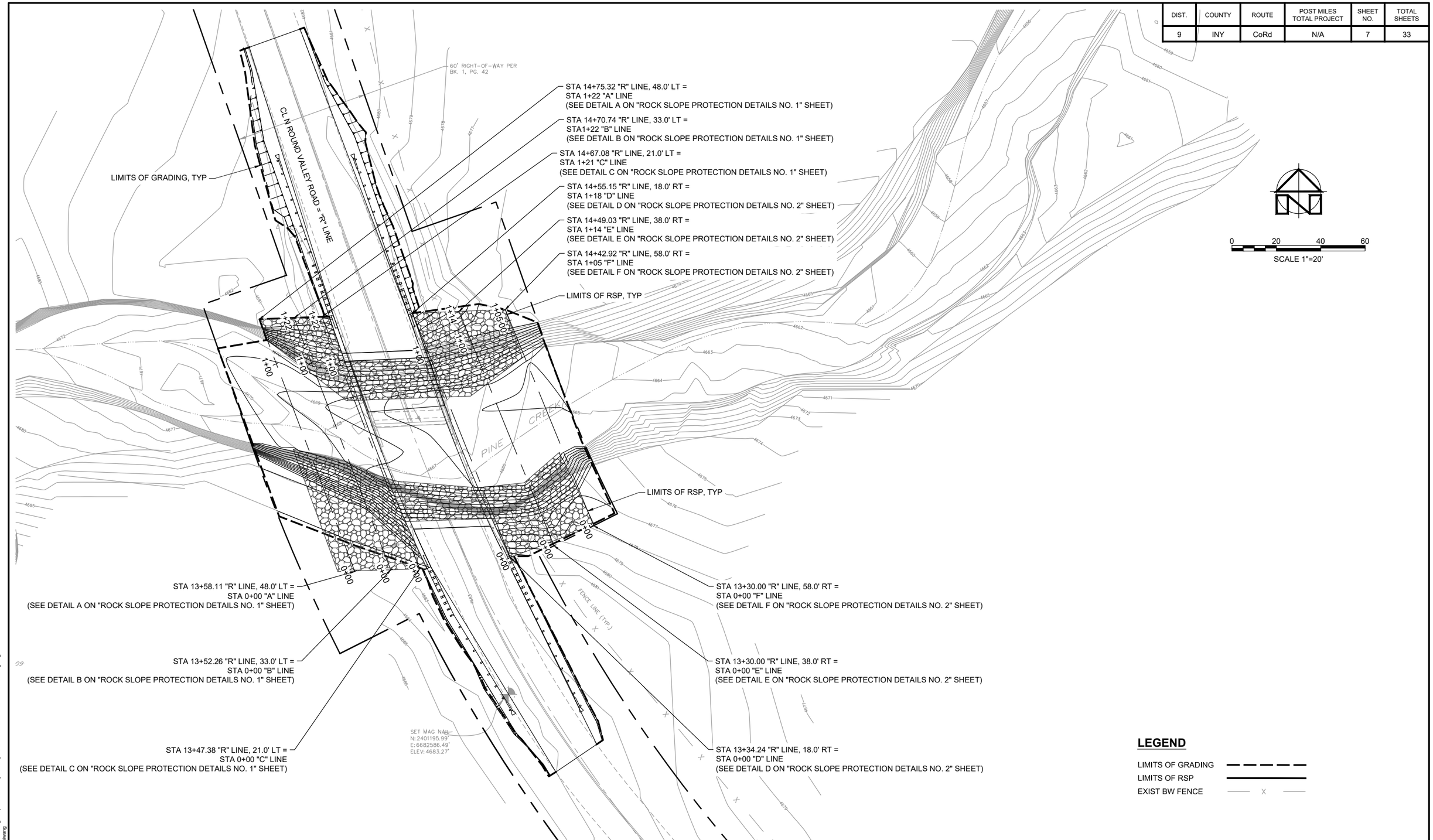
PROFILE

SHEET **6** OF **33** SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plsheets\06 Profile.dwg
Last Opened: Aug 31, 2020 - 3:33pm by kaiwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	7	33



LEGEND

LIMITS OF GRADING
LIMITS OF RSP
EXIST BW FENCE

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY L. RENCHER
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

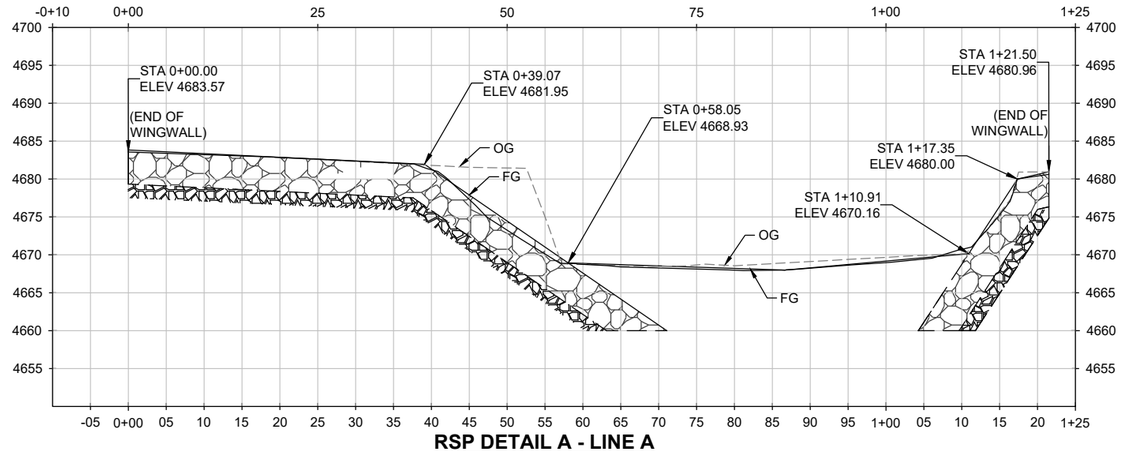
GRADING PLAN

SHEET 7 OF 33 SHEETS

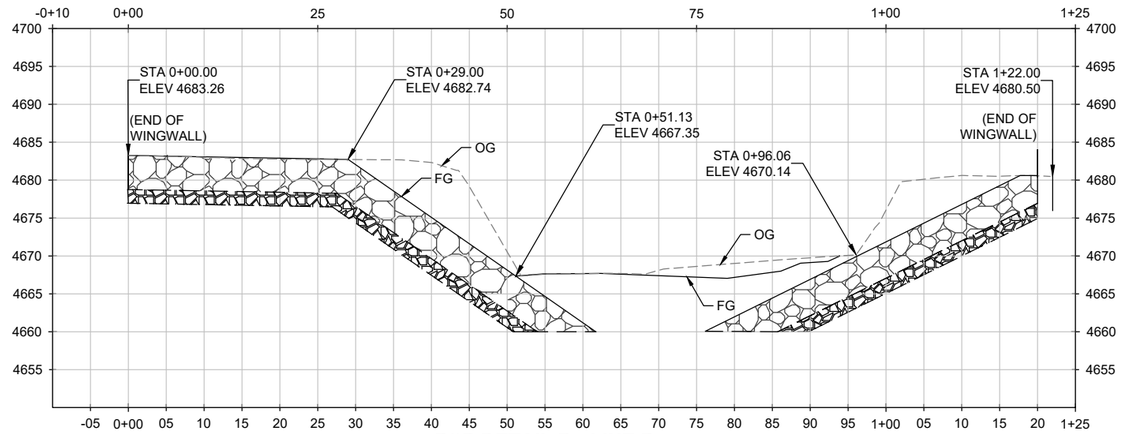
FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\07 Grading.dwg
Last Opened: Aug 31, 2020 - 3:34pm by kaiwang

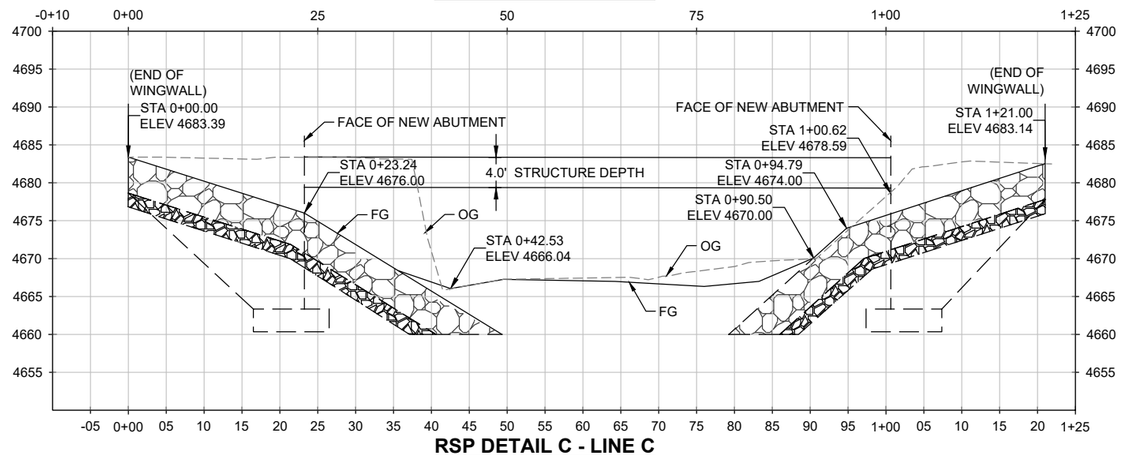
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	8	33



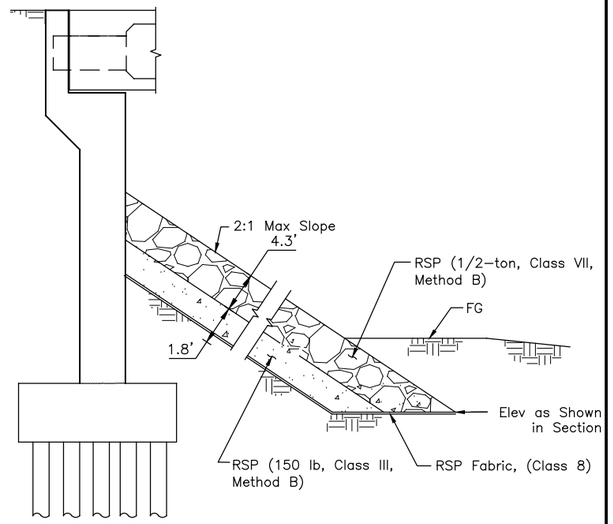
RSP DETAIL A - LINE A



RSP DETAIL B - LINE B



RSP DETAIL C - LINE C



RSP CONSTRUCTION DETAIL

0 10 20 30

SCALE 1"=10' HORIZONTAL
1"=10' VERTICAL

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY I. RENCHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

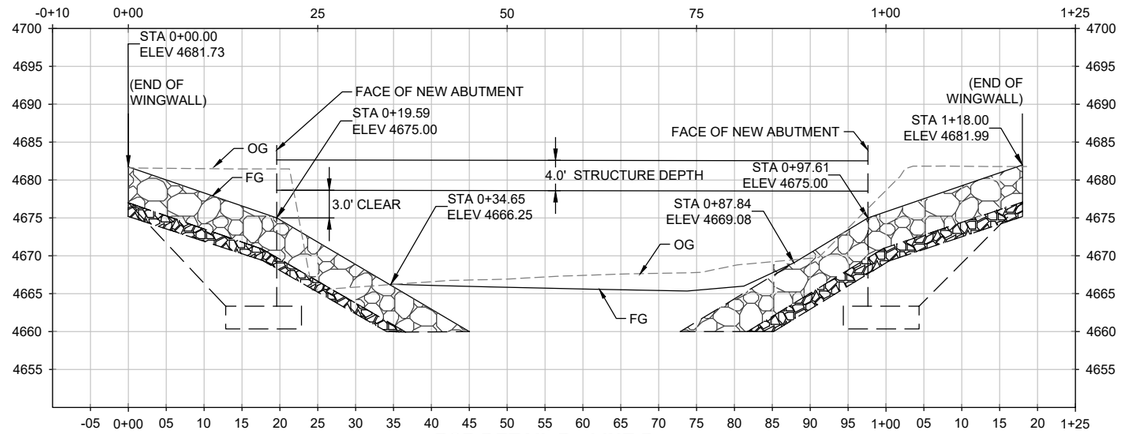
ROCK SLOPE PROTECTION DETAILS NO. 1

SHEET 8 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

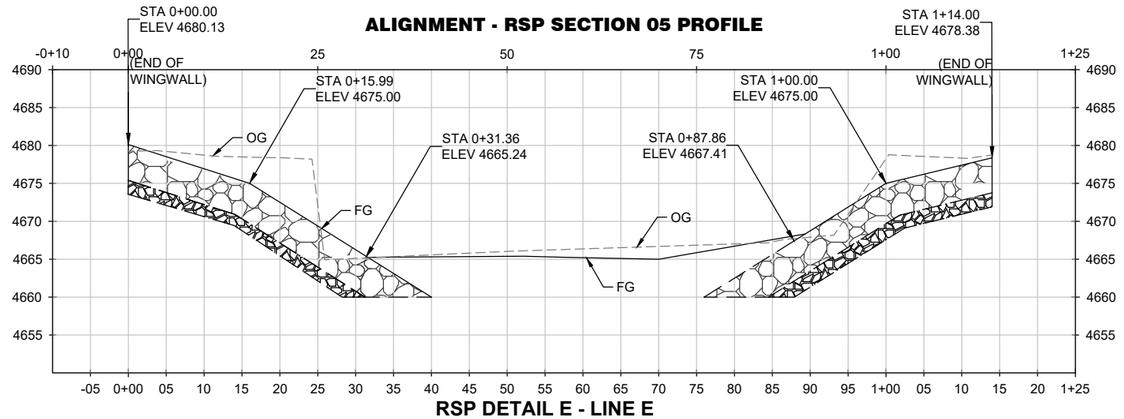
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plsheets\08-09 RSP Details.dwg
Last Opened: Aug 31, 2020 - 3:48pm by kaiwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	9	33

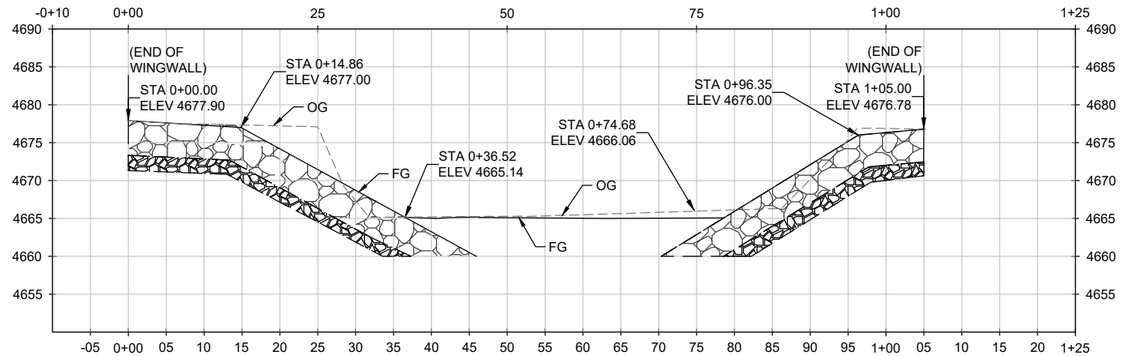


RSP DETAIL D - LINE D

ALIGNMENT - RSP SECTION 05 PROFILE



RSP DETAIL E - LINE E



RSP DETAIL F - LINE F

0 10 20 30

SCALE 1"=10' HORIZONTAL
1"=10' VERTICAL

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
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REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY I. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

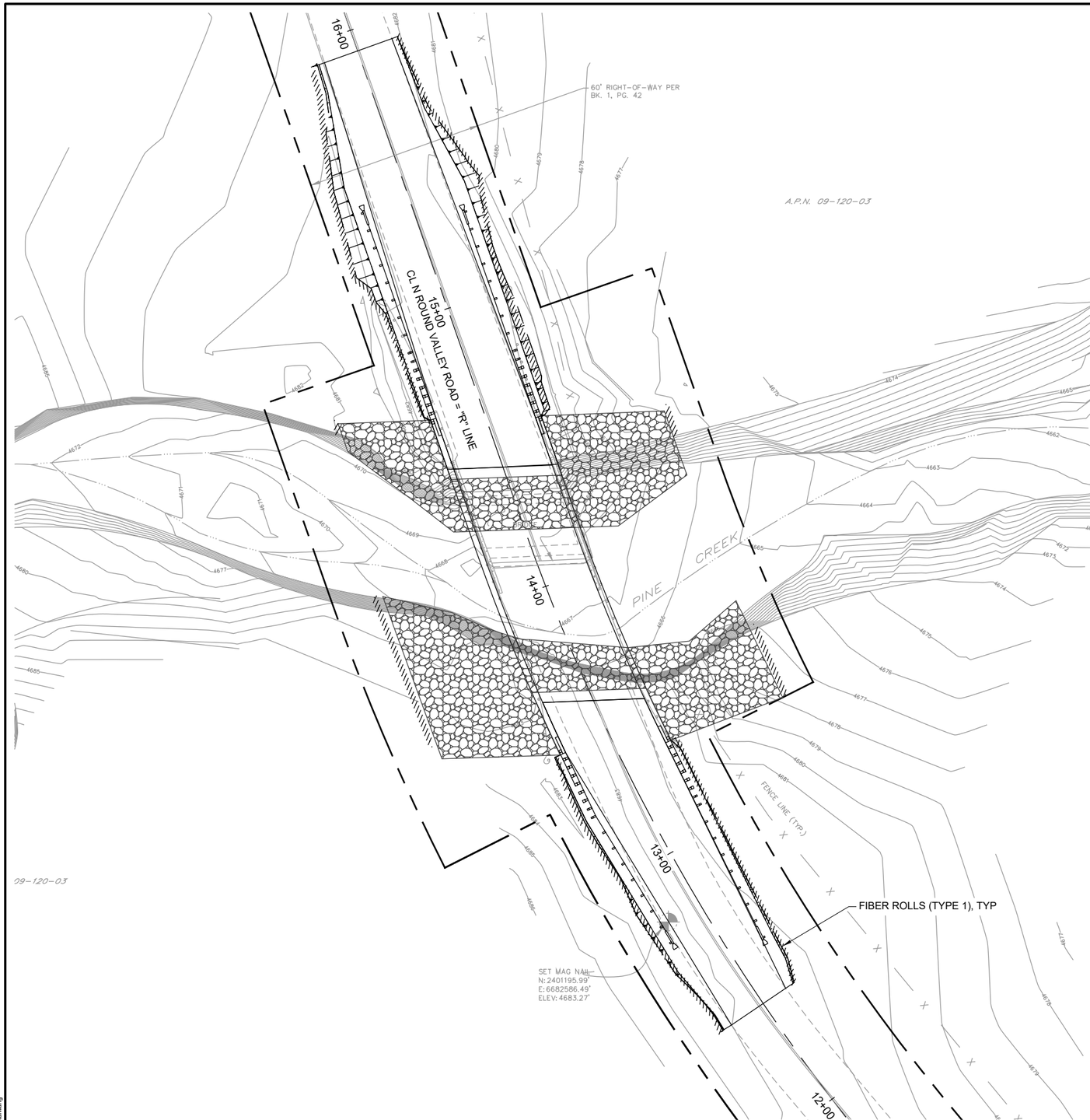
ROCK SLOPE PROTECTION DETAILS NO. 2

SHEET 9 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\PSheets\08-09 RSP Details.dwg
Last Opened: Aug 31, 2020 - 3:47pm by kaiwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	10	33



0 20 40 60

SCALE 1"=20'

LEGEND

FIBER ROLLS (TYPE 1)

NOTE

EROSION CONTROL MEASURES ARE MINIMUM REQUIRED. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY EROSION CONTROL MEASURES REQUIRED BY THE APPROVED CONTRACTOR PREPARED WATER POLLUTION CONTROL PLAN OR SWPPP.

MGE ENGINEERING, INC.
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REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY T. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

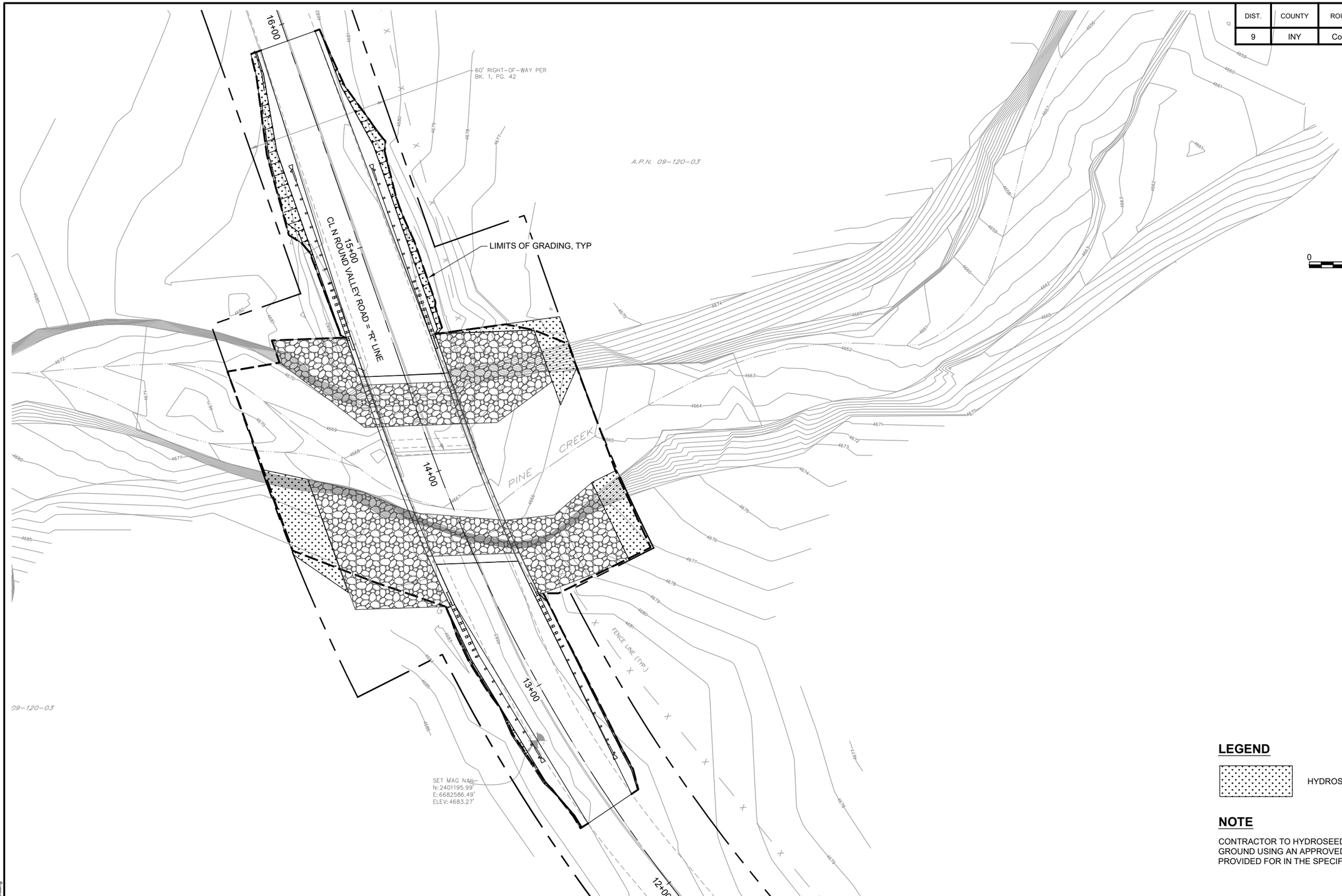
TEMPORARY EROSION CONTROL PLAN

SHEET **10** OF **33** SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\10 Temp EC.dwg
Last Opened: Aug 31, 2020 - 3:48pm by kaiwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	11	33



LEGEND

HYDROSEED - 0.06 AC

NOTE

CONTRACTOR TO HYDROSEED ALL DISTURBED GROUND USING AN APPROVED SEED MIX, AS PROVIDED FOR IN THE SPECIFICATIONS

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BRADLEY T. REICHEL C80306 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

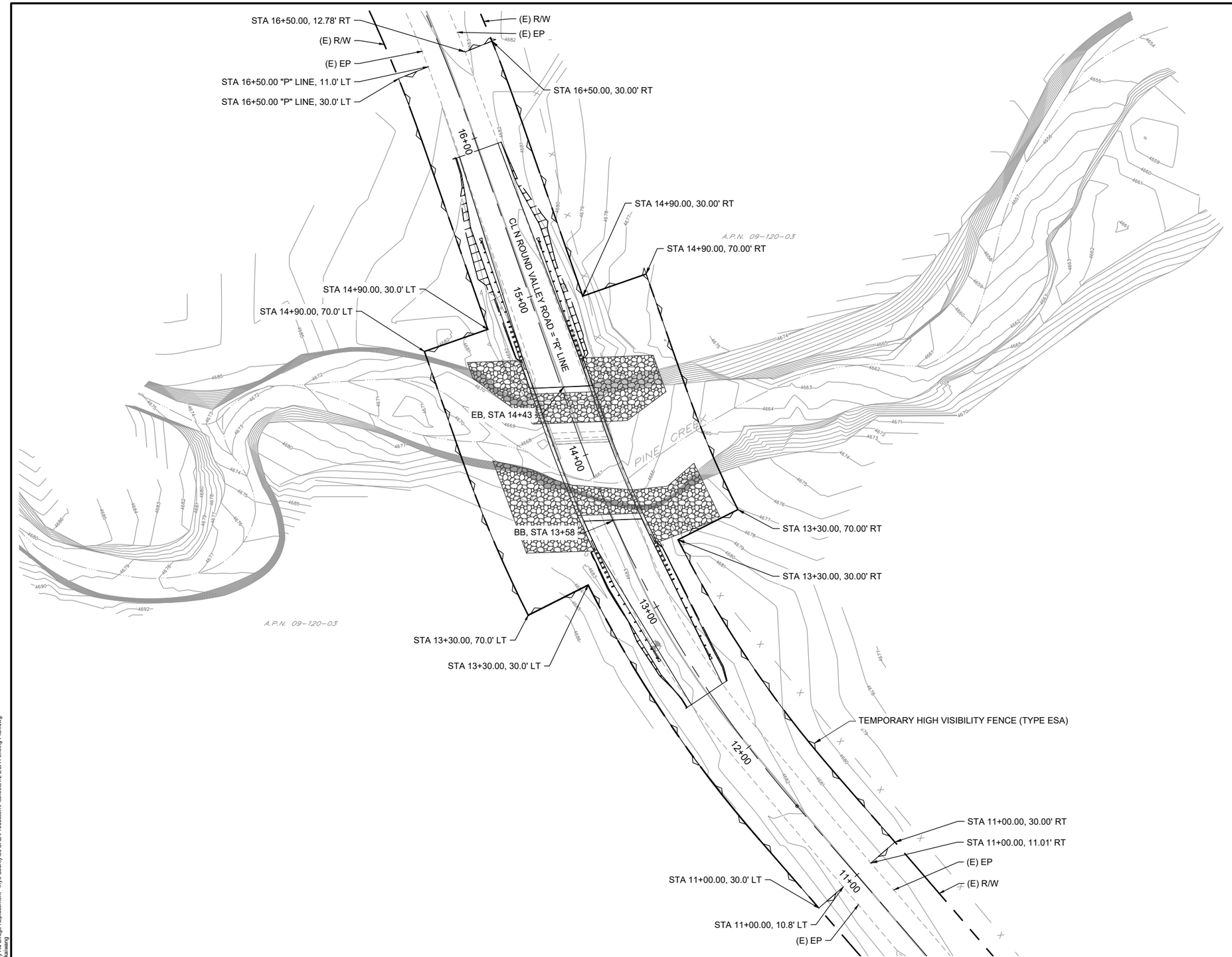
EROSION CONTROL PLAN

SHEET 11 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\11 EC.dwg
Last Opened: Aug 31, 2020 - 3:48pm by kaiwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	12	33



LEGEND

TEMPORARY HIGH-VISIBILITY FENCE (TYPE ESA)

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY T. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

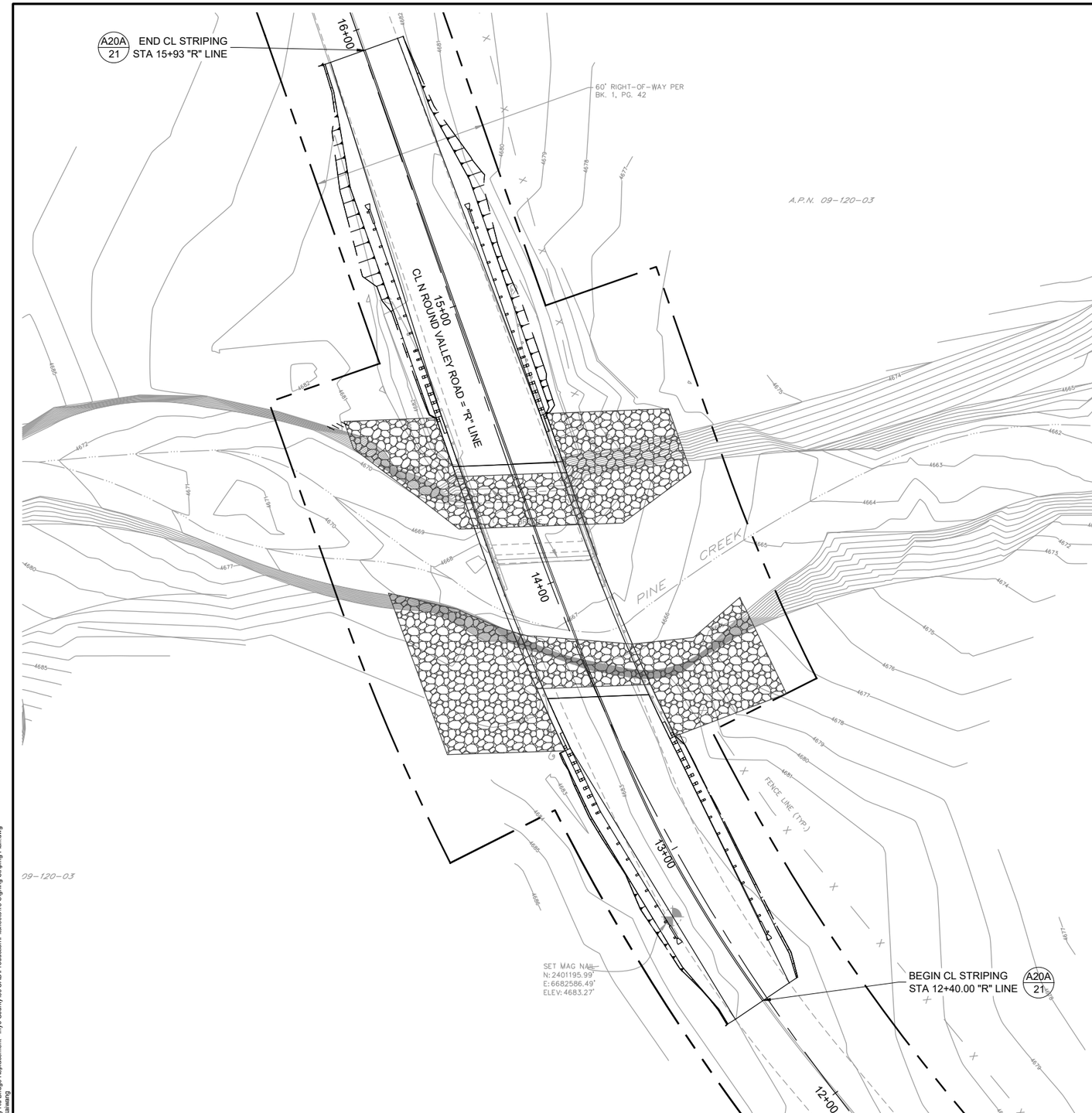
ESA FENCING PLAN

SHEET **12** OF **33** SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plsheets\12 ESA Fencing Plan.dwg
Last Opened: Aug 31, 2020 - 3:49pm by kalwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	13	33



0 20 40 60

SCALE 1"=20'

MGE ENGINEERING, INC.
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SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY T. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

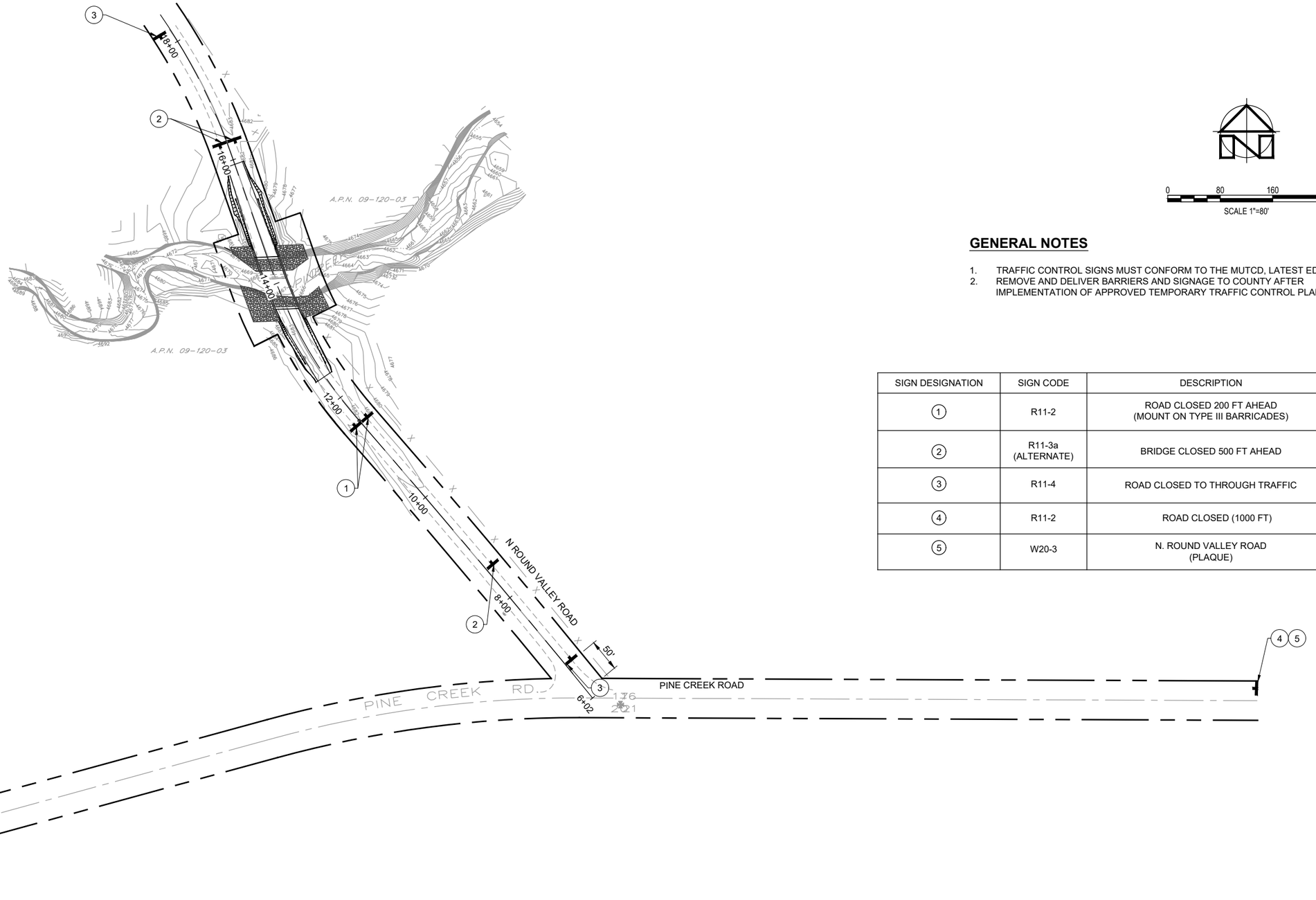
SIGNING AND STRIPING PLAN

SHEET 13 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\13 Signing Striping Plan.dwg
Last Opened: Aug 31, 2020 - 3:49pm by kaiwang

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	14	33



0 80 160 240

SCALE 1"=80'

GENERAL NOTES

1. TRAFFIC CONTROL SIGNS MUST CONFORM TO THE MUTCD, LATEST EDITION.
2. REMOVE AND DELIVER BARRIERS AND SIGNAGE TO COUNTY AFTER IMPLEMENTATION OF APPROVED TEMPORARY TRAFFIC CONTROL PLAN.

SIGN DESIGNATION	SIGN CODE	DESCRIPTION
(1)	R11-2	ROAD CLOSED 200 FT AHEAD (MOUNT ON TYPE III BARRICADES)
(2)	R11-3a (ALTERNATE)	BRIDGE CLOSED 500 FT AHEAD
(3)	R11-4	ROAD CLOSED TO THROUGH TRAFFIC
(4)	R11-2	ROAD CLOSED (1000 FT)
(5)	W20-3	N. ROUND VALLEY ROAD (PLAQUE)

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8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY I. REICHELL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	8/31/2020
CHECKED	S. HAWKINS	8/31/2020
RECOMMENDED	R. SENNETT IV	8/31/2020

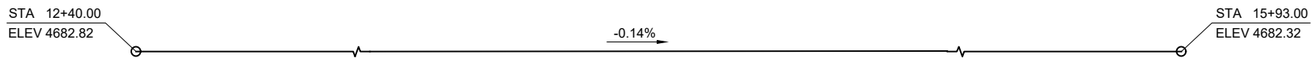
BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

TRAFFIC CONTROL PLAN

FED PROJ NO.: XXXX(XXX)

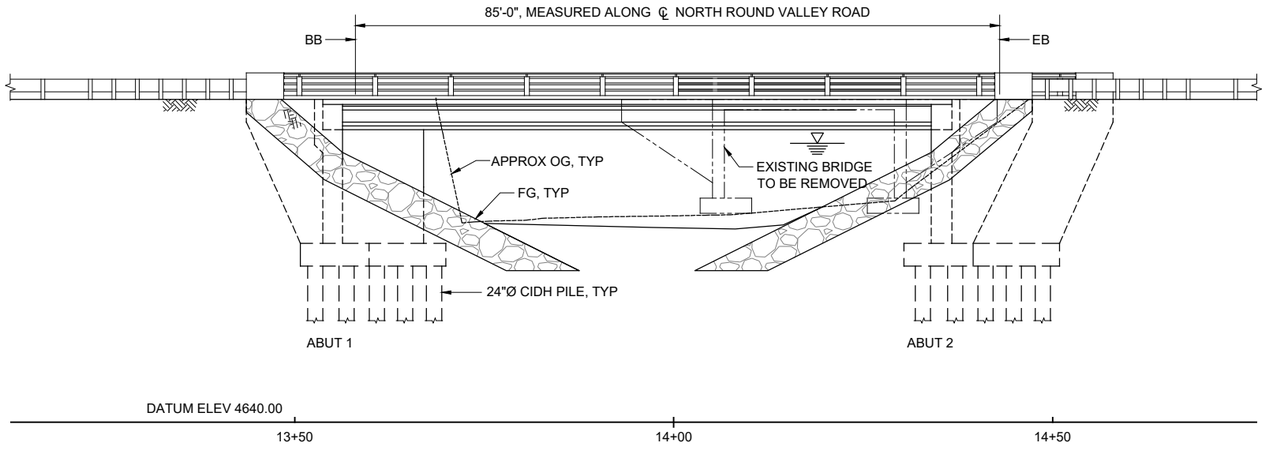
SHEET **14** OF **33** SHEETS

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	15	33



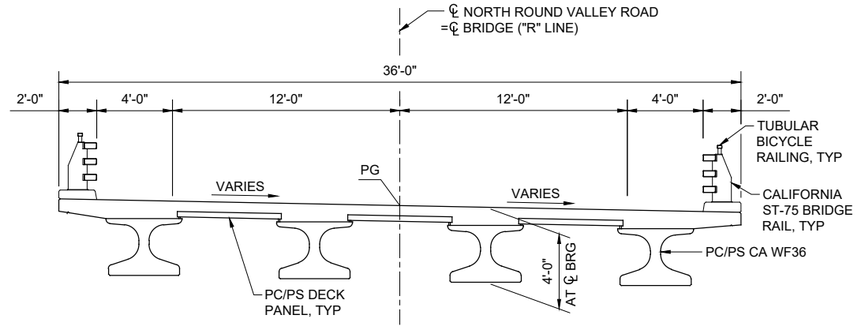
PROFILE GRADE

NO SCALE



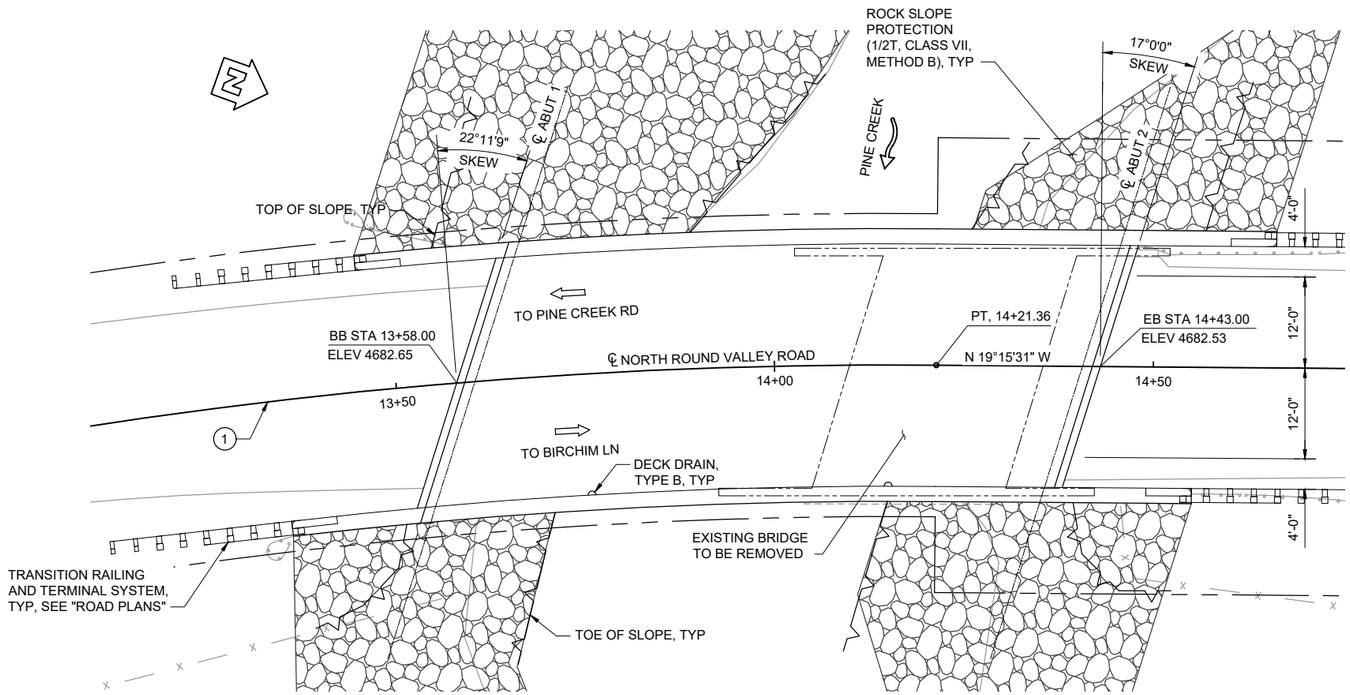
ELEVATION

1" = 10'



TYPICAL SECTION

1/4" = 1'-0'



PLAN

1" = 10'

LEGEND:

- INDICATES NEW CONSTRUCTION
- INDICATES EXISTING STRUCTURE
- INDICATES DIRECTION OF FLOW
- INDICATES DIRECTION OF TRAFFIC
- FOR HYDROLOGIC SUMMARY, SEE "FOUNDATION PLAN" SHEET

CURVE DATA

	RADIUS (FT)	DELTA (°)	LENGTH (FT)	TANGENT (FT)
(1)	700.00	21.849°	266.935	135.109

MGE ENGINEERING, INC.
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SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
WESLEY M. SENNETT
NO. 82031
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE
INYO COUNTY
DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 8/31/2020
CHECKED	Y. DENG	DATE 8/31/2020
RECOMMENDED	W. SENNETT	DATE 8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

GENERAL PLAN

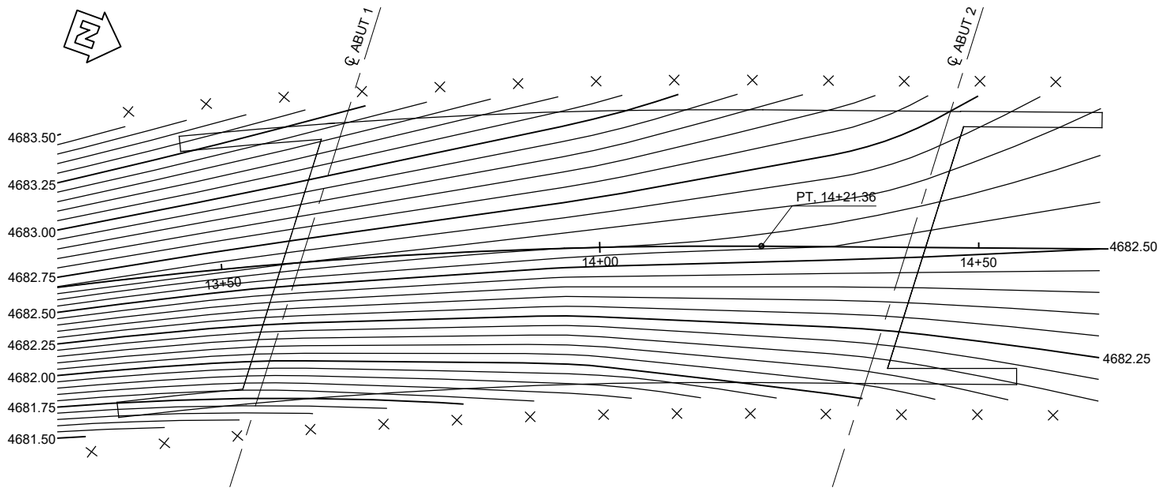
SHEET **15** OF **33** SHEETS

FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

Drawing Name: P:\674 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\GPs.dwg
Last Opened: Aug 31, 2020 - 3:23pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	16	33

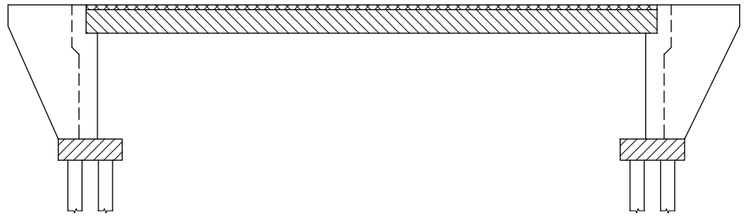


DECK CONTOURS

1" = 10'

NOTES:

1. CONTOUR INTERVAL = 0.05 FT
2. CONTOURS DO NOT INCLUDE CAMBER
3. ✕ INDICATES 10' STATION INTERVALS ALONG CENTER LINE



CONCRETE STRENGTH AND TYPE LIMITS

NO SCALE

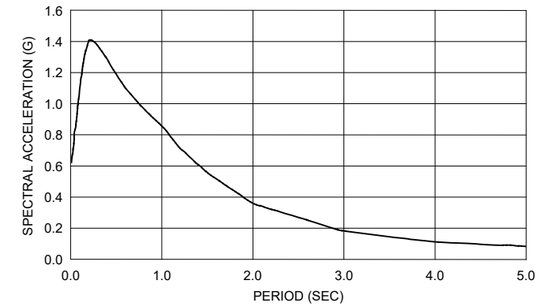
LEGEND

- STRUCTURAL CONCRETE, BRIDGE
  f'_c = 4.0 KSI AT 28 DAYS
- STRUCTURAL CONCRETE, BRIDGE FOOTING
  f'_c = 4.0 KSI AT 28 DAYS
- STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER)
  f'_c = 4.0 KSI AT 28 DAYS
- PRECAST PRESTESSED GIRDER
  f'_c = SEE "GIRDER DETAILS" SHEET

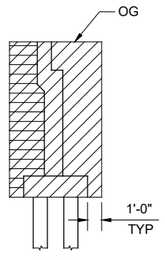
GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN

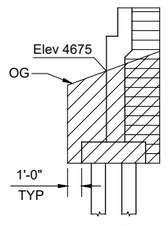
DESIGN:	AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION AND THE CALTRANS AMENDMENTS, PREFACE, DATED MARCH 2014
SEISMIC DESIGN:	CALTRANS SEISMIC DESIGN CRITERIA (SDC) VERSION 1.7, APRIL, 2013
DEAD LOAD:	INCLUDES 35 PSF FOR FUTURE WEARING SURFACE.
LIVE LOAD:	HL93 AND PERMIT DESIGN VEHICLE
SEISMIC LOAD:	SHEAR WAVE VELOCITY, V_{S30} = 400 M/S MAXIMUM MAGNITUDE = 6.89 PEAK GROUND ACCELERATION = 0.678g

REINFORCED CONCRETE:	fy = 60,000 PSI f'c = SEE 'CONCRETE STRENGTH AND TYPE LIMITS' n = VARIES
PRESTRESSING STEEL:	SEE 'PRESTRESSING NOTES' ON "GIRDER DETAILS" SHEET



RESPONSE SPECTRA





LIMITS OF PAYMENT - STRUCTURE EXCAVATION & BACKFILL

NO SCALE

- INDICATES LIMITS OF PAYMENT FOR STRUCTURE EXCAVATION (TYPE D)
- INDICATES LIMITS OF PAYMENT FOR STRUCTURE BACKFILL

STANDARD PLANS DATED 2018

	A3A	ABBREVIATIONS (SHEET 1 OF 3)
	A3B	ABBREVIATIONS (SHEET 2 OF 3)
	A3C	ABBREVIATIONS (SHEET 3 OF 3)
	A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL - BRIDGE
RSP	B0-1	BRIDGE DETAILS
	B0-13	BRIDGE DETAILS
	B6-21	JOINT SEALS (MAXIMUM MOVEMENT RATING = 2")
	B7-5	DECK DRAINS

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REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
WESLEY M. SENNETT
NO. 82031
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE
INYO COUNTY
DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	DATE
P. ZHAO	8/31/2020
CHECKED	DATE
Y. DENG	8/31/2020
RECOMMENDED	DATE
W. SENNETT	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

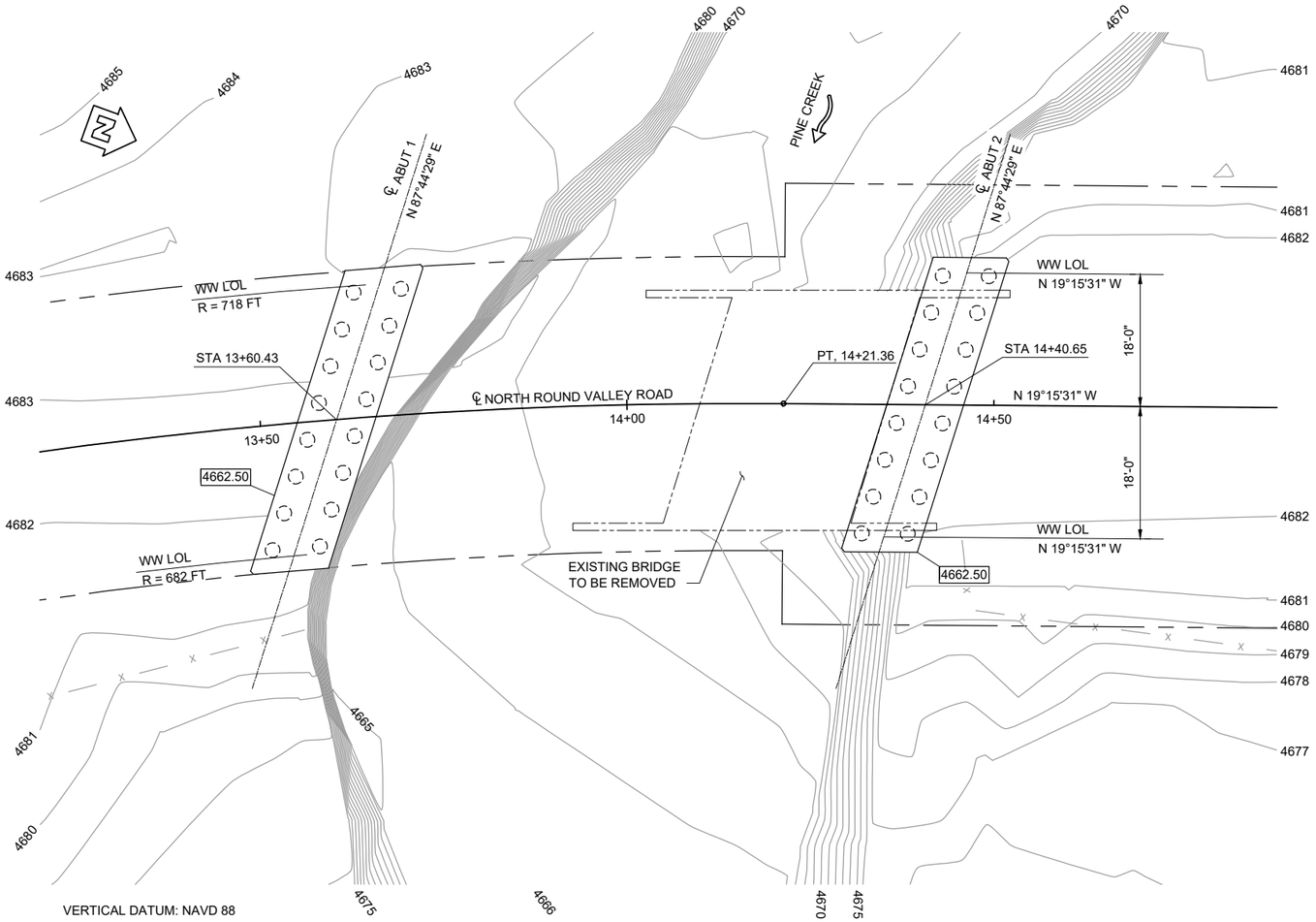
DECK CONTOURS AND GENERAL NOTES

SHEET **16** OF **33** SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\GPs.dwg
Last Opened: Aug 31, 2020 - 3:24pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	17	33



VERTICAL DATUM: NAVD 88

FOUNDATION PLAN

1" = 10'

HYDROLOGIC SUMMARY

DRAINAGE AREA 37 SQUARE MILES

	DESIGN FLOOD	BASE FLOOD
FREQUENCY (YEARS)	50	100
DISCHARGE (CUBIC FEET PER SECOND)	420	460
WATER SURFACE (ELEVATION AT BRIDGE)	4669.40	4669.50

LEGEND

- INDICATES DIRECTION OF FLOW
- INDICATES 24" CIDH PILE
- xxxx.x — INDICATES BOTTOM OF FOOTING ELEVATION
- INDICATES EXISTING STRUCTURE

SCOUR DATA TABLE

LOCATION	LONG TERM (DEGRADATION AND CONTRACTION) SCOUR DEPTH (FT)	SHORT TERM (LOCAL) SCOUR DEPTH (FT)
ABUT 1	-0-	5.11
ABUT 2	-0-	5.28

PILE DATA TABLE

LOCATION	PILE TYPE	CUT-OFF ELEVATION (FT)	SERVICE-I LIMIT STATE LOAD PER SUPPORT (KIPS)		TOTAL PERMISSIBLE SUPPORT SETTLEMENT (IN)	NOMINAL RESISTANCE (KIPS)				DESIGN TIP ELEVATIONS (FT)	SPECIFIED TIP ELEVATIONS (FT)
						STRENGTH		EXTREME			
			TOTAL	PERMANENT		COMPRESSION φ = 0.7	TENSION φ = 0.7	COMPRESSION φ = 1.0	TENSION φ = 1.0		
ABUT 1	24" CIDH	4662.75	1714	1341	1	277	1	228	60	4618 (a-I) 4645 (b-I) 4627 (a-II) 4639 (b-II) 4629 (c) TBD (d)	4618
ABUT 2	24" CIDH	4662.75	1714	1341	1	277	1	228	60	4618 (a-I) 4645 (b-I) 4627 (a-II) 4639 (b-II) 4629 (c) TBD (d)	4618

NOTES:

(1) DESIGN TIP ELEVATIONS ARE CONTROLLED BY: (a-I) COMPRESSION (STRENGTH LIMIT), (b-I) TENSION (STRENGTH LIMIT), (a-II) COMPRESSION (EXTREME EVENT), (b-II) TENSION (EXTREME EVENT), (c) SETTLEMENT, (d) LATERAL LOAD.

(2) THE SPECIFIC TIP ELEVATION SHALL NOT BE RAISED ABOVE THE DESIGN TIP ELEVATIONS OF TENSION, LATERAL, AND TOLERABLE SETTLEMENT.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	P. ZHAO	8/31/2020
CHECKED	Y. DENG	8/31/2020
RECOMMENDED	W. SENNETT	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

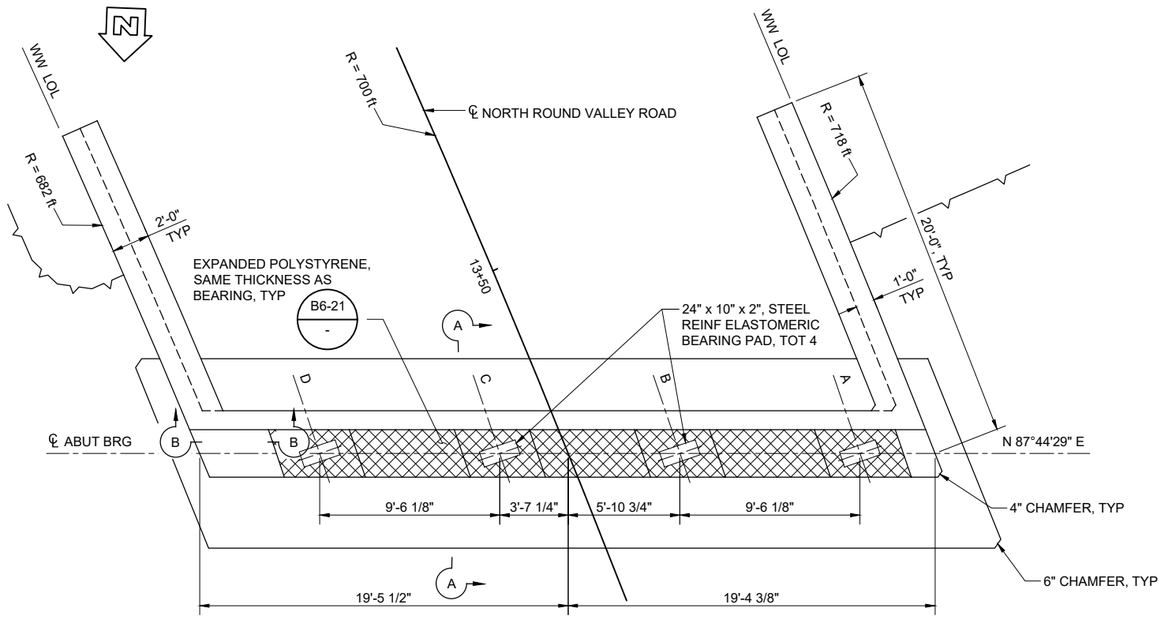
FOUNDATION PLAN

SHEET 17 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\GPs.dwg
Last Opened: Aug 31, 2020 - 3:24pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	18	33

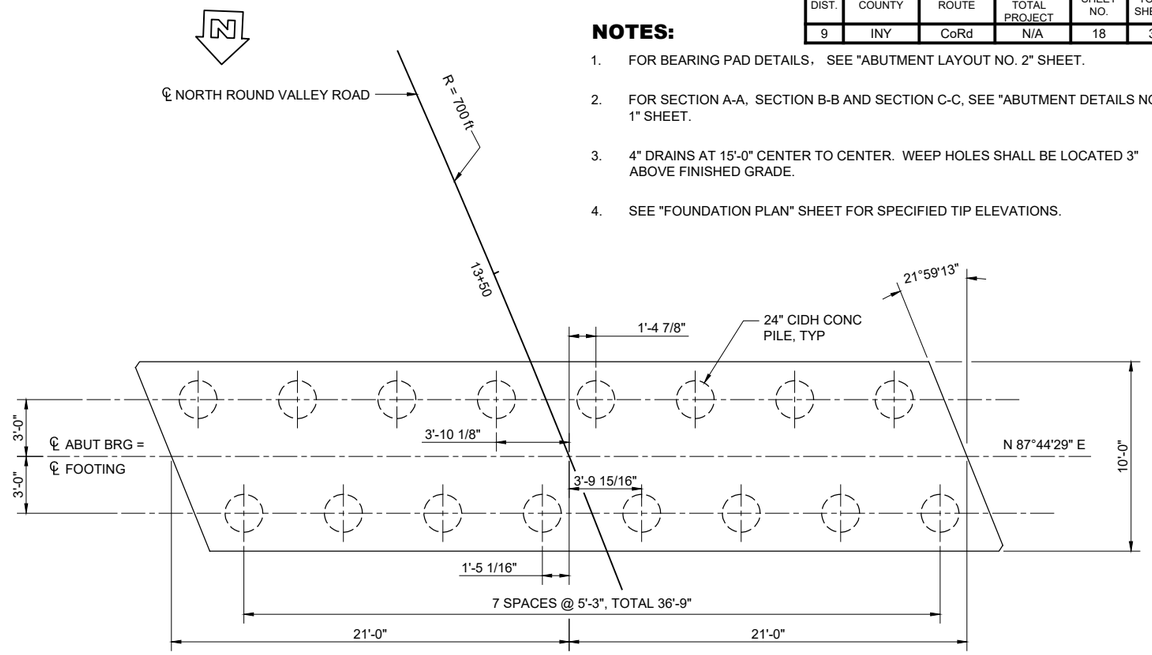


GIRDER	D	C	B	A
TOP OF BRG	4678.03	4678.49	4678.83	4679.09

ALL ELEVATIONS PROVIDED AT ℄ BRG PAD.
CONTRACTOR TO VERIFY TOP OF BRG PAD ELEVATIONS PRIOR TO POURING ABUTMENT CONCRETE.

ABUTMENT 1 PLAN

1/4" = 1'-0'

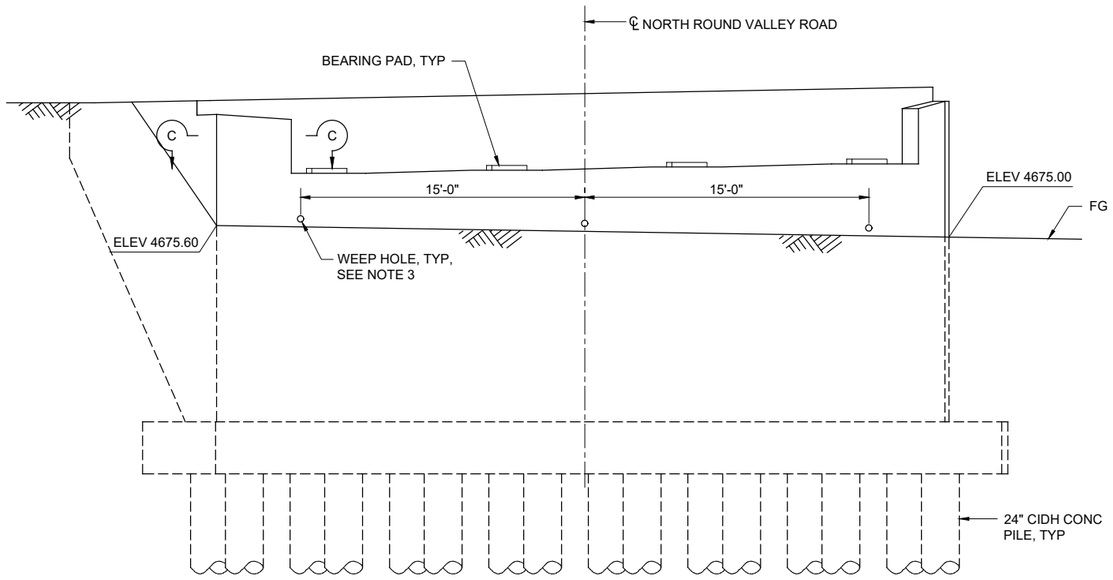


ABUTMENT 1 FOOTING

1/4" = 1'-0'

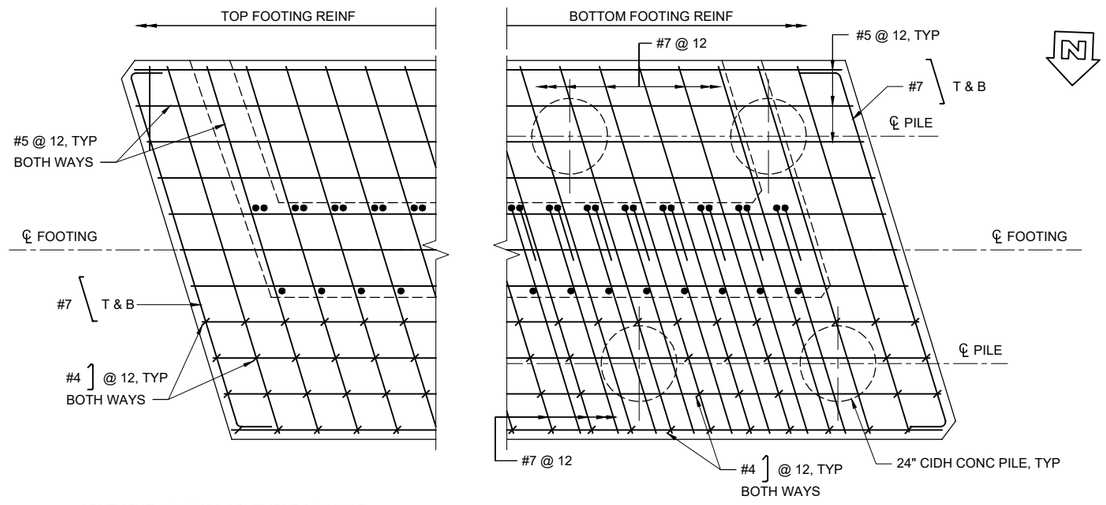
NOTES:

1. FOR BEARING PAD DETAILS， SEE "ABUTMENT LAYOUT NO. 2" SHEET.
2. FOR SECTION A-A, SECTION B-B AND SECTION C-C, SEE "ABUTMENT DETAILS NO. 1" SHEET.
3. 4" DRAINS AT 15'-0" CENTER TO CENTER. WEEP HOLES SHALL BE LOCATED 3" ABOVE FINISHED GRADE.
4. SEE "FOUNDATION PLAN" SHEET FOR SPECIFIED TIP ELEVATIONS.



ABUTMENT 1 ELEVATION

1/4" = 1'-0'



ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.

FOOTING REINFORCEMENT LAYOUT

1/2" = 1'-0'

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
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8/31/2020
PLANS APPROVAL DATE

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PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 8/31/2020
CHECKED	Y. DENG	DATE 8/31/2020
RECOMMENDED	W. SENNETT	DATE 8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ABUTMENT LAYOUT NO. 1

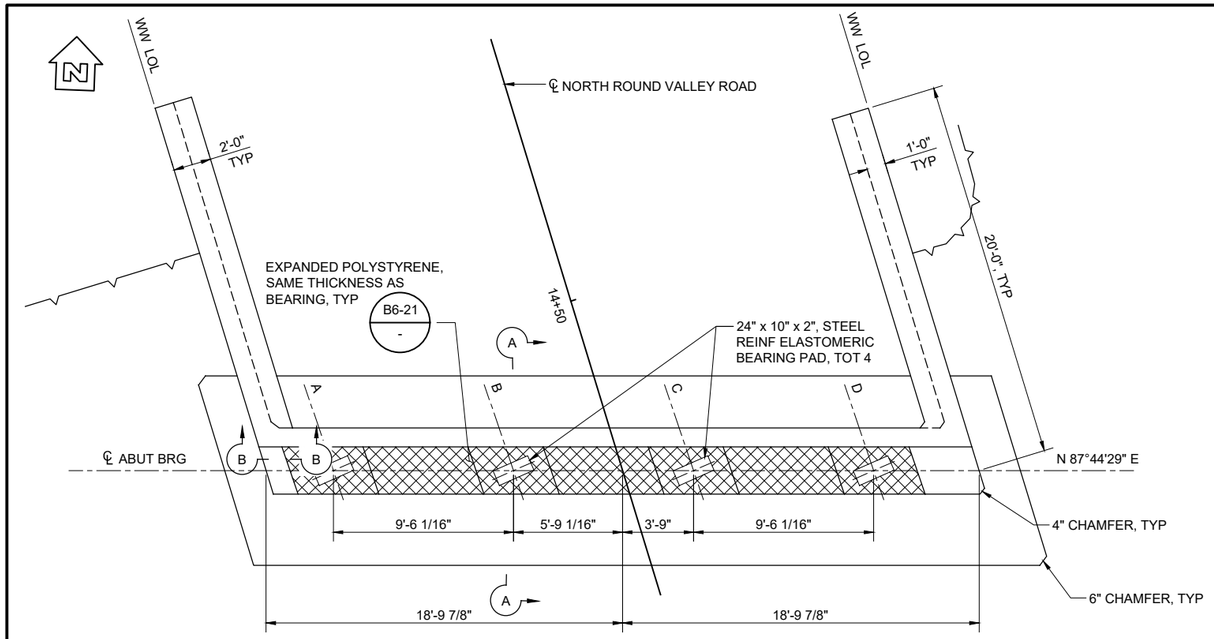
SHEET 18 OF 33 SHEETS

FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Aug 31, 2020 - 3:30pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	19	33

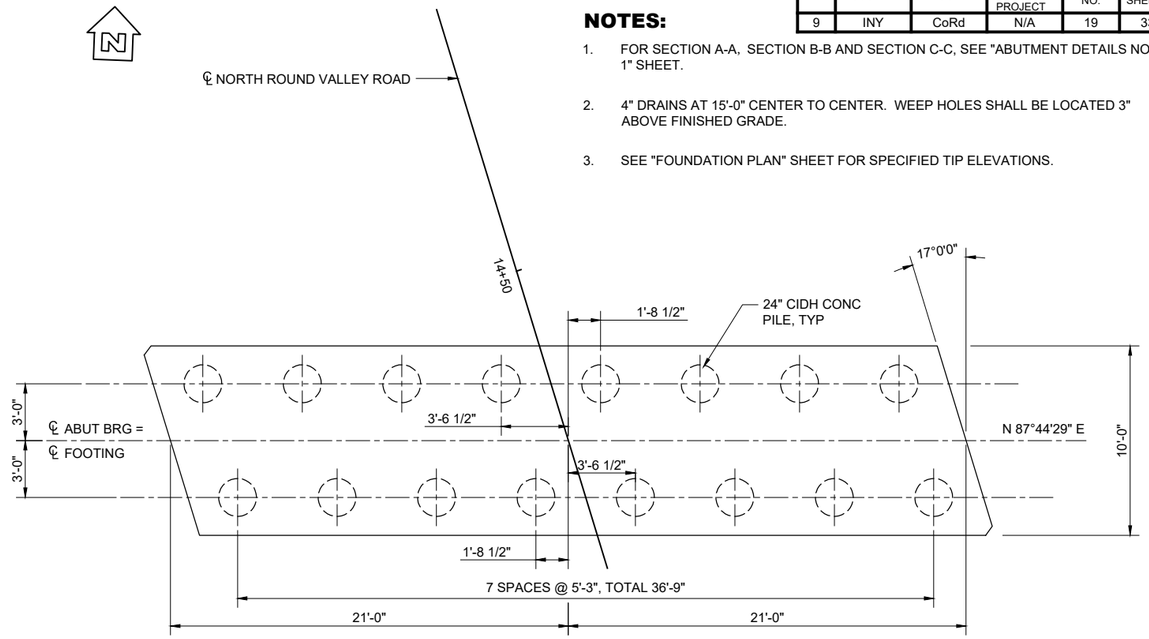


GIRDER	A	B	C	D
TOP OF BRG	4678.72	4678.61	4678.45	4678.21

ALL ELEVATIONS PROVIDED AT ℄ BRG PAD.
CONTRACTOR TO VERIFY TOP OF BRG PAD ELEVATIONS PRIOR TO POURING ABUTMENT CONCRETE.

ABUTMENT 2 PLAN

1/4" = 1'-0'

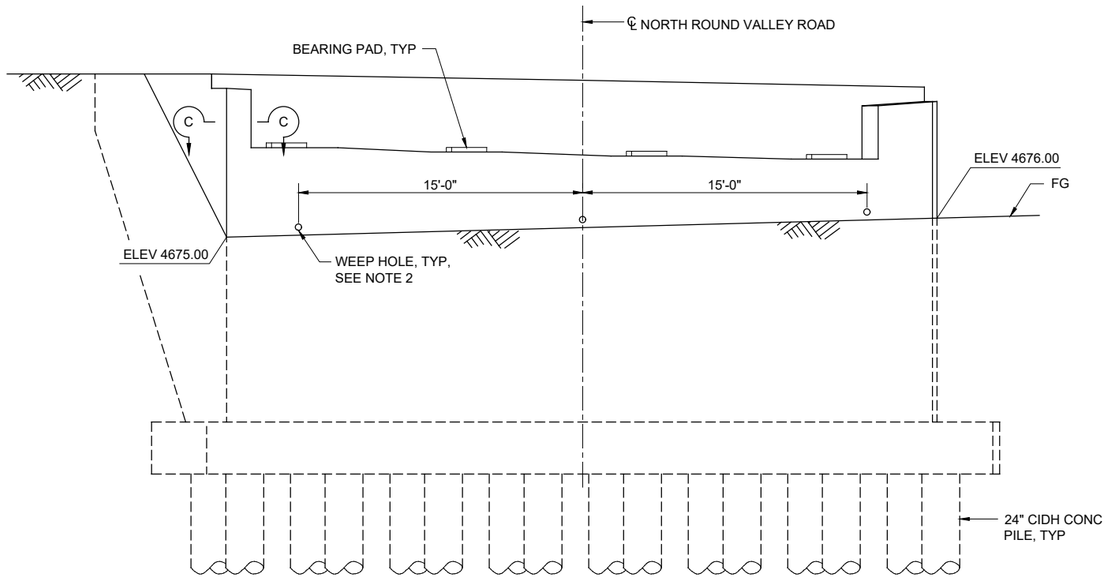


ABUTMENT 2 FOOTING

1/4" = 1'-0'

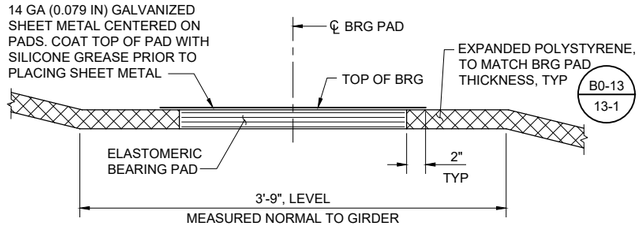
NOTES:

1. FOR SECTION A-A, SECTION B-B AND SECTION C-C, SEE "ABUTMENT DETAILS NO. 1" SHEET.
2. 4" DRAINS AT 15'-0" CENTER TO CENTER. WEEP HOLES SHALL BE LOCATED 3" ABOVE FINISHED GRADE.
3. SEE "FOUNDATION PLAN" SHEET FOR SPECIFIED TIP ELEVATIONS.



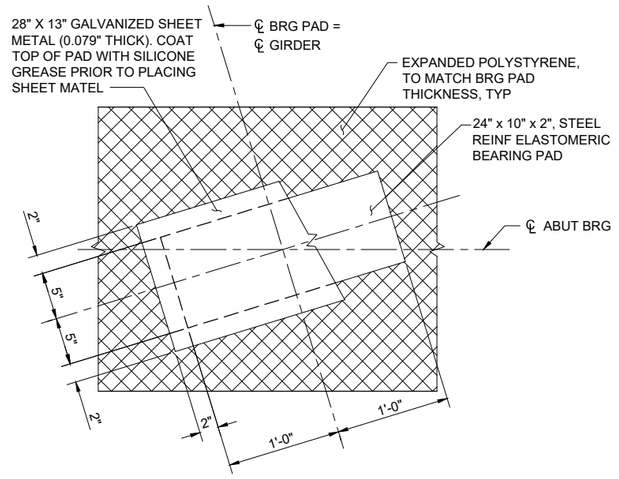
ABUTMENT 2 ELEVATION

1/4" = 1'-0'



ELEVATION

1 1/2" = 1'-0'



PLAN

1 1/2" = 1'-0'

BEARING PAD DETAILS

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 8/31/2020
CHECKED	Y. DENG	DATE 8/31/2020
RECOMMENDED	W. SENNETT	DATE 8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

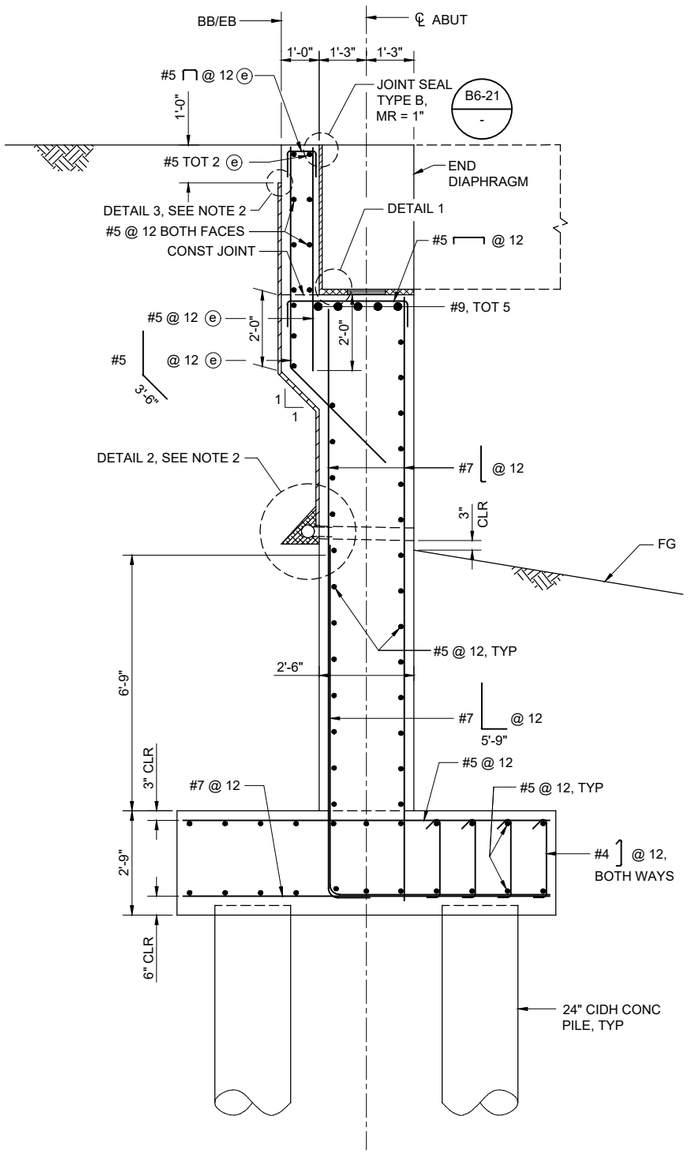
ABUTMENT LAYOUT NO. 2

SHEET **19** OF **33** SHEETS

FED PROJ NO.: XXX(YYY)
C.R. XXXA, M.P. 0.00

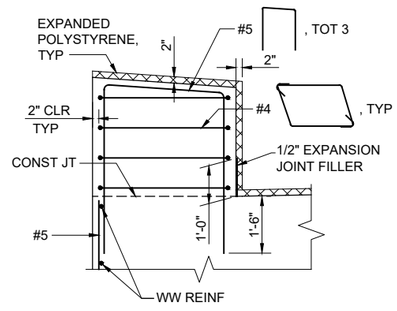
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Aug 31, 2020 - 3:31pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	20	33



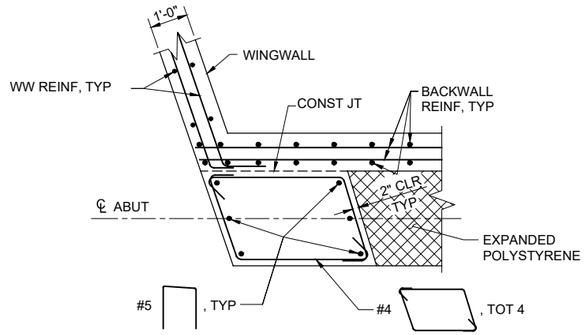
SECTION A-A

1/2" = 1'-0'



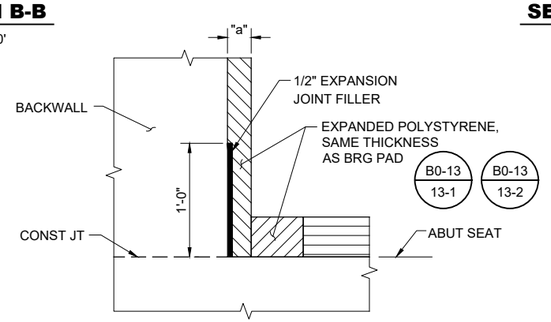
SECTION B-B

1/2" = 1'-0'



SECTION C-C

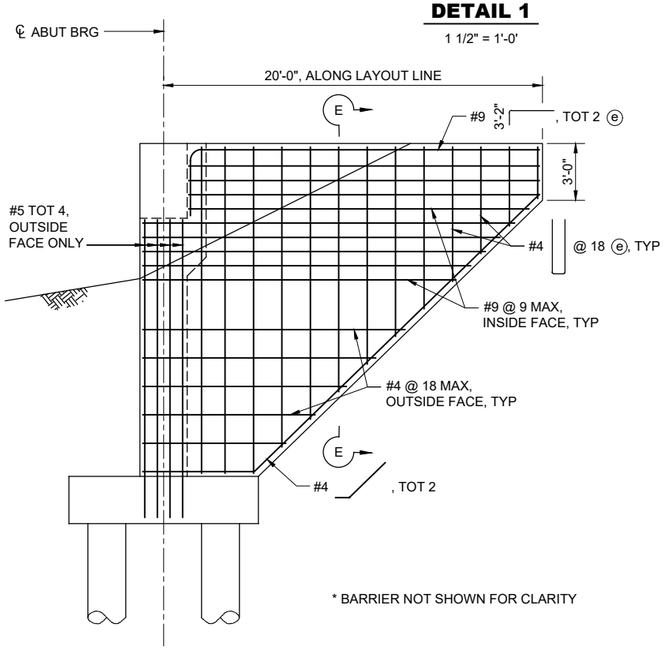
1/2" = 1'-0'



NOTE: FOR DIMENSION "a", SEE STANDARD PLAN B6-21

DETAIL 1

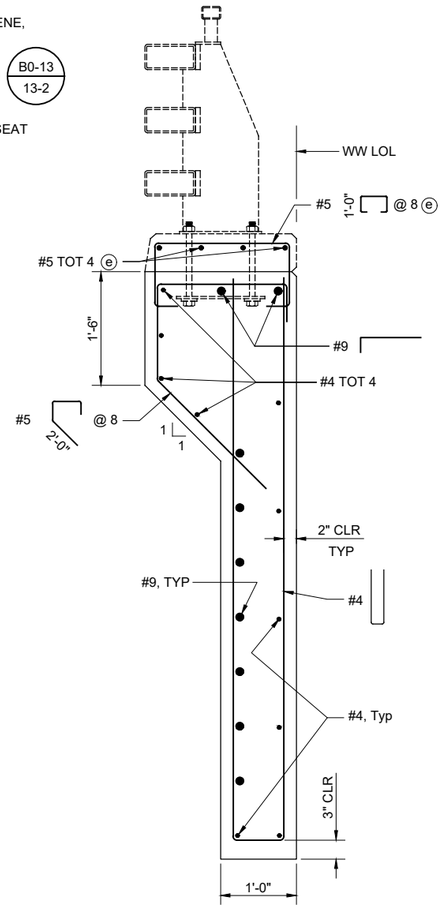
1 1/2" = 1'-0'



* BARRIER NOT SHOWN FOR CLARITY

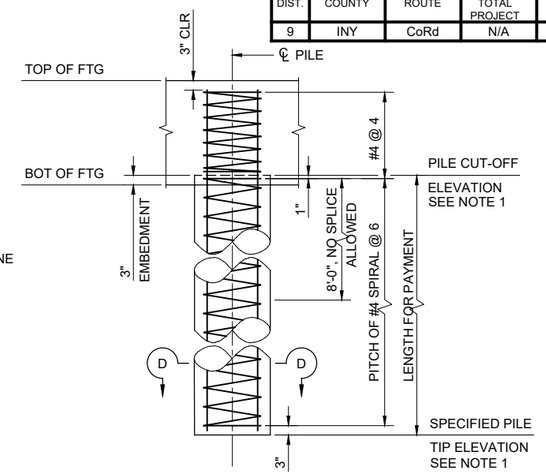
WINGWALL ELEVATION

1/4" = 1'-0'



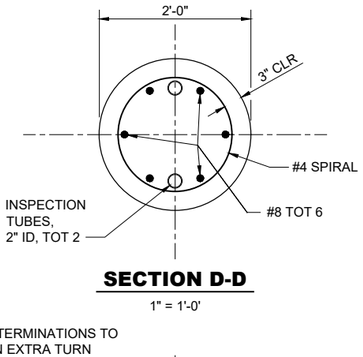
SECTION E-E

1" = 1'-0'



PILE ELEVATION

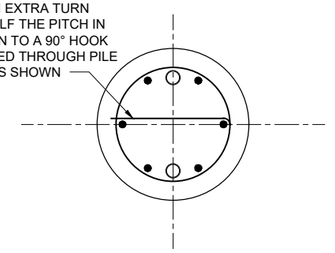
1/2" = 1'-0'



SECTION D-D

1" = 1'-0'

SPIRAL TERMINATIONS TO HAVE AN EXTRA TURN WITH HALF THE PITCH IN ADDITION TO A 90° HOOK EXTENDED THROUGH PILE CORE, AS SHOWN



SPIRAL TERMINATION DETAIL

1" = 1'-0'

LEGEND:

(e) INDICATES EPOXY COATED REINFORCEMENT

NOTES:

1. SEE "FOUNDATION PLAN" SHEET FOR SPECIFIED TIP ELEVATIONS.
2. FOR DETAIL 2 AND DETAIL 3, SEE "ABUTMENT DETAILS NO. 2" SHEET.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000
REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE
REGISTERED PROFESSIONAL ENGINEER WESLEY M. SENNETT NO. 82031 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 8/31/2020
CHECKED	Y. DENG	DATE 8/31/2020
RECOMMENDED	W. SENNETT	DATE 8/31/2020

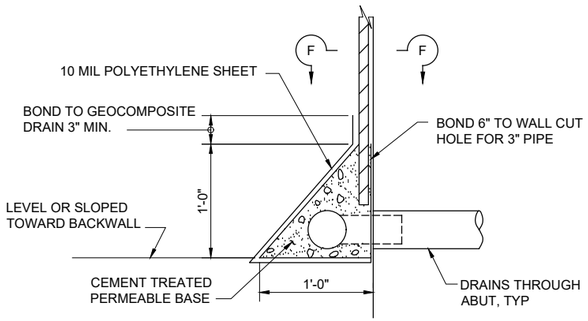
BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ABUTMENT DETAILS NO. 1

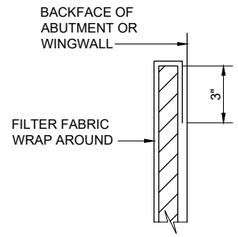
SHEET 20 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	21	33



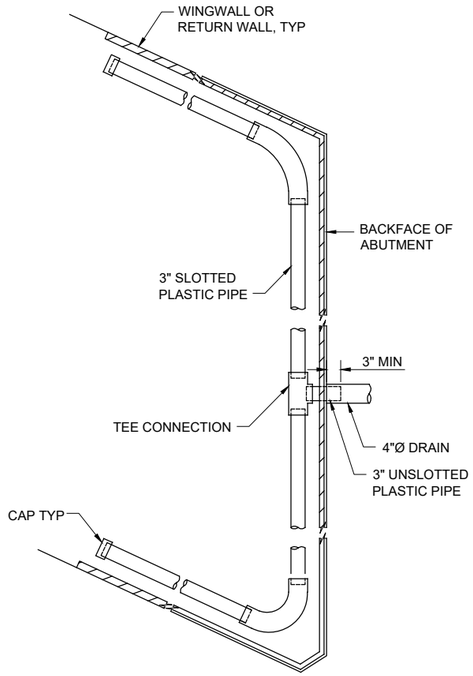
DETAIL 2



DETAIL 3

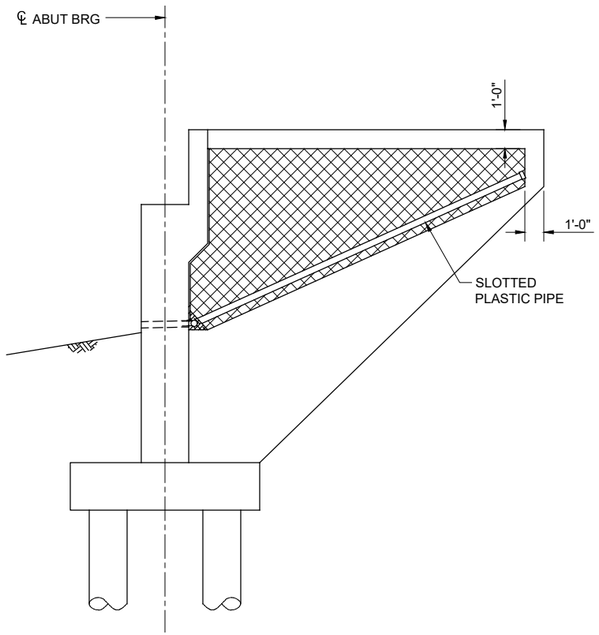
WEEP HOLE AND GEOCOMPOSITE DRAIN

NO SCALE



SECTION F-F

3/4" = 1'-0"



WINGWALL DRAIN ELEVATION VIEW

1/4" = 1'-0'

NOTES:

1. GEOCOMPOSITE DRAIN, CEMENT TREATED PERMEABLE BASE, AND 3"Ø SLOTTED PLASTIC PIPE CONTINUOUS BEHIND ABUTMENT & WINGWALLS. CAP ENDS OF PIPE. PROVIDE "TEE" CONNECTION AT EACH 4"Ø DRAIN.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	P. ZHAO	8/31/2020
CHECKED	Y. DENG	8/31/2020
RECOMMENDED	W. SENNETT	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

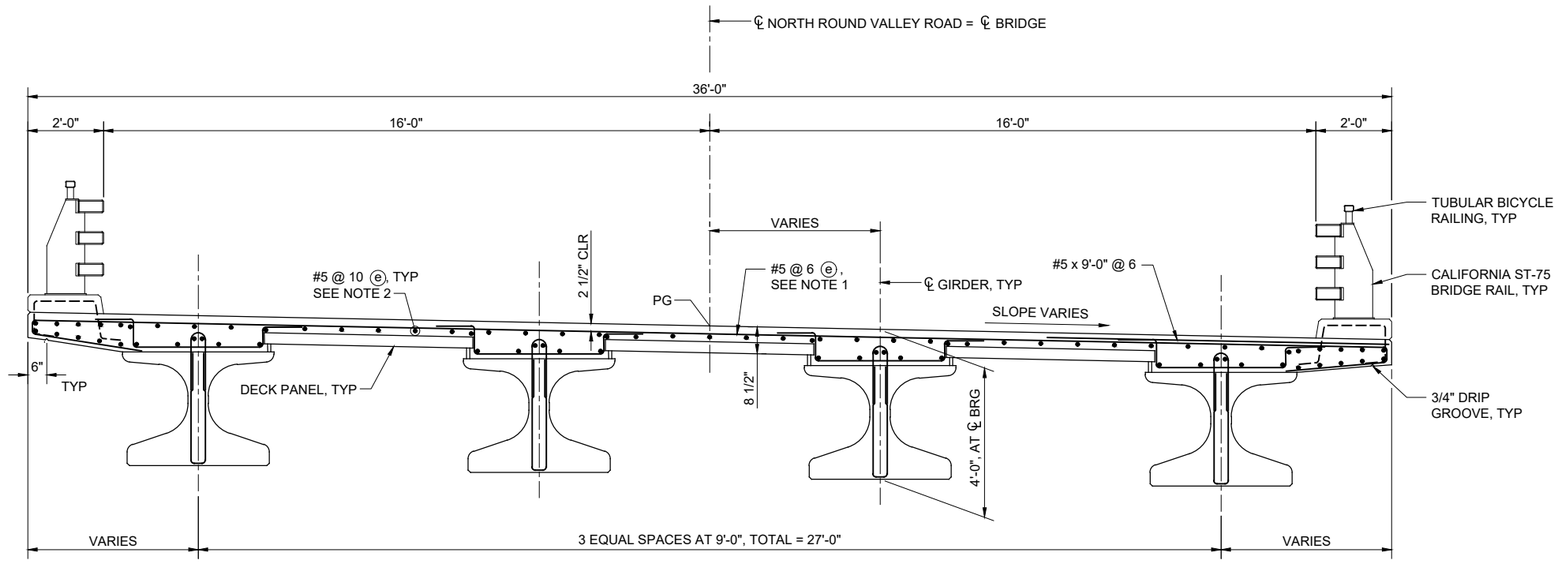
ABUTMENT DETAILS NO. 2

SHEET **21** OF **33** SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

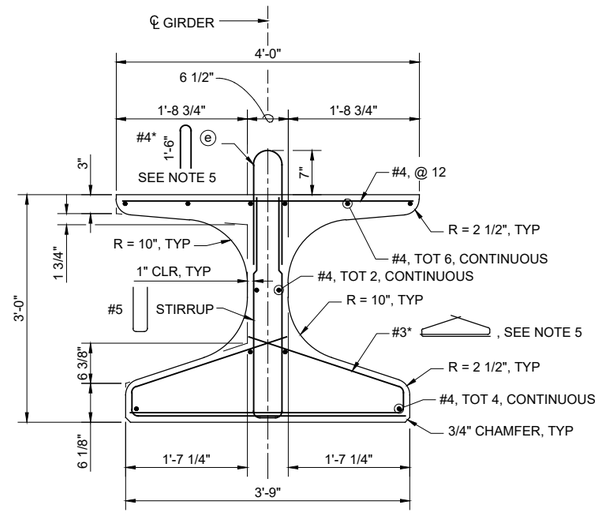
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Aug 31, 2020 - 3:32pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	22	33



TYPICAL SECTION

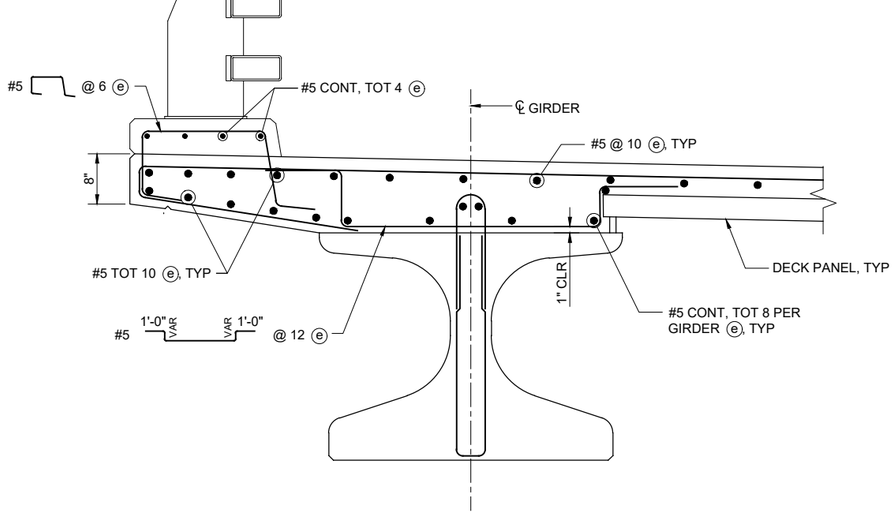
1/2" = 1'-0'



* MATCH STIRRUP SPACING.

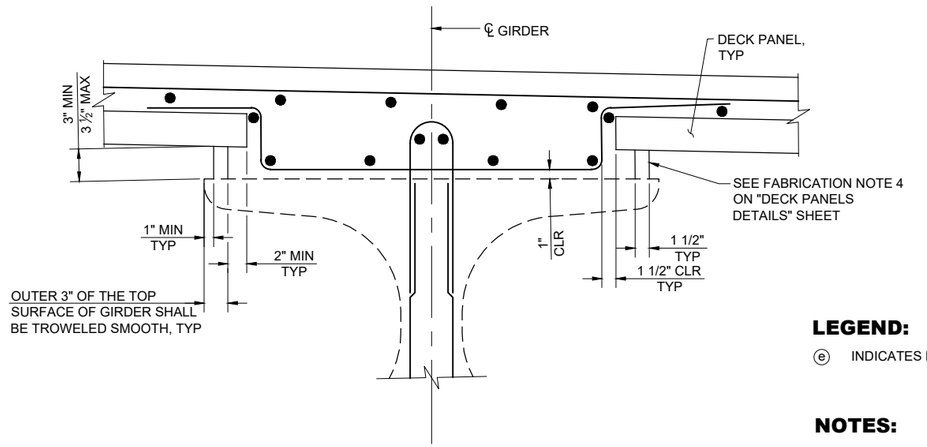
TYPICAL GIRDER SECTION

1" = 1'-0'



PARTIAL SECTION

1" = 1'-0'



CAMBER STRIP DETAILS

1 1/2" = 1'-0"

LEGEND:

ⓔ INDICATES EPOXY COATED REINFORCEMENT

NOTES:

1. PLACE REINF PARALLEL TO CENTER LINE ABUTMENT.
2. PLACE REINF PARALLEL TO CENTER LINE NORTH ROUND VALLEY ROAD.
3. FOR STIRRUP SPACING, SEE "GIRDER DETAILS" SHEET.
4. FOR DECK PANEL DETAILS NOT SHOWN, SEE "DECK PANEL DETAILS" SHEET.
5. SPACING TO MATCH STIRRUPS, SEE GIRDER ELEVATION ON "GIRDER DETAILS" SHEET.

MGE ENGINEERING, INC.
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REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	8/31/2020
CHECKED	Y. DENG	8/31/2020
RECOMMENDED	W. SENNETT	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

TYPICAL SECTION

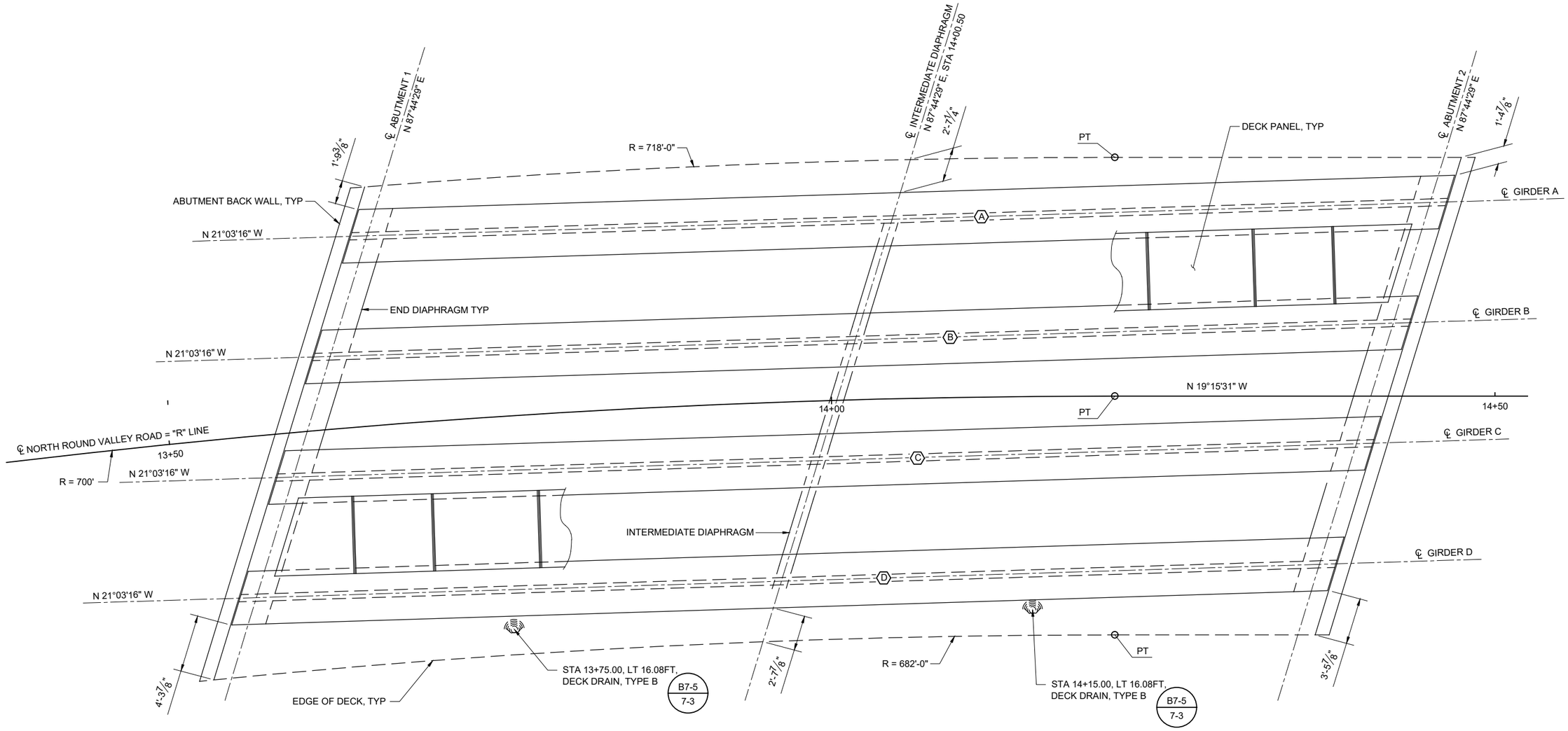
SHEET 22 OF 33 SHEETS

FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Aug 31, 2020 - 3:32pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	23	33



GIRDER LAYOUT

1/4" = 1'-0'

MGE ENGINEERING, INC.
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8/31/2020
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WESLEY M. SENNETT
NO. 82031
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE
INYO COUNTY
DEPARTMENT OF PUBLIC WORKS

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DRAWN	DATE
P. ZHAO	8/31/2020
CHECKED	DATE
Y. DENG	8/31/2020
RECOMMENDED	DATE
W. SENNETT	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

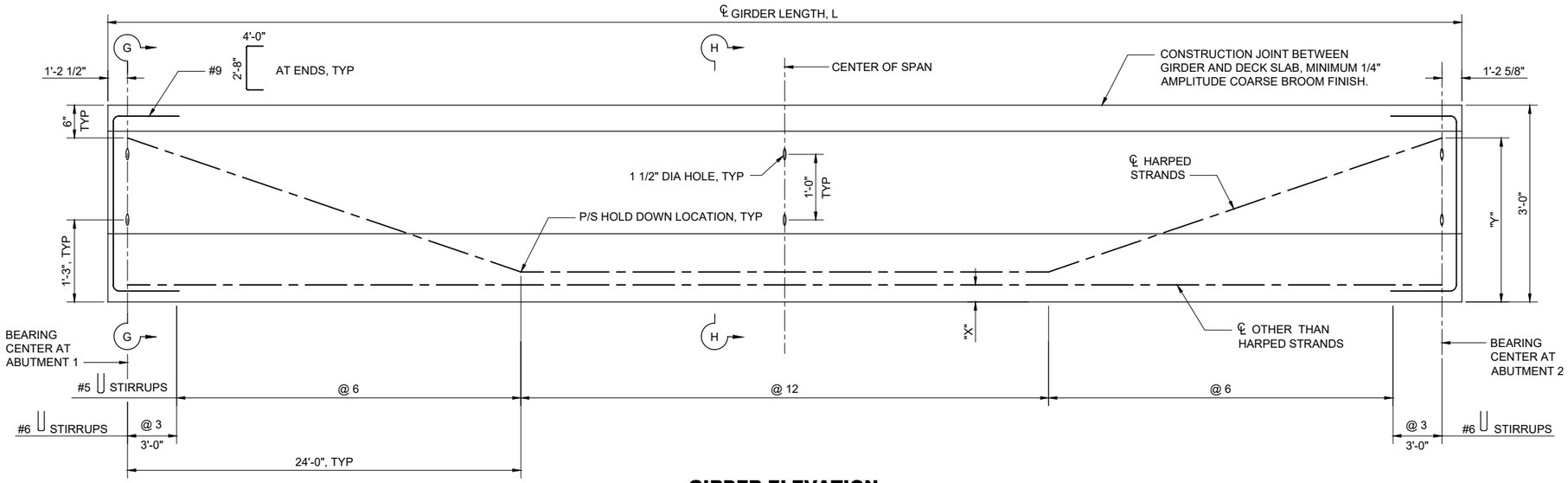
GIRDER LAYOUT

SHEET **23** OF **33** SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Aug 31, 2020 - 3:33pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	24	33



GIRDER ELEVATION

HORIZONTAL 1/4" = 1'-0'
VERTICAL 1" = 1'-0'

GIRDER SCHEDULE

LOCATION	GIRDER LENGTH (L)*	NO. OF 0.6" DIA. STRANDS	JACK FORCE (KIPS)	MIDSPAN DEFLECTION (IN)		
				DECK	BARRIER	WEARING
GIRDER A	82'-7 1/4"	40	1758	1.57	0.05	0.13
GIRDER B	82'-7 1/4"	40	1758	1.57	0.05	0.13
GIRDER C	82'-7 1/4"	40	1758	1.57	0.05	0.13
GIRDER D	82'-7 1/4"	40	1758	1.57	0.05	0.13

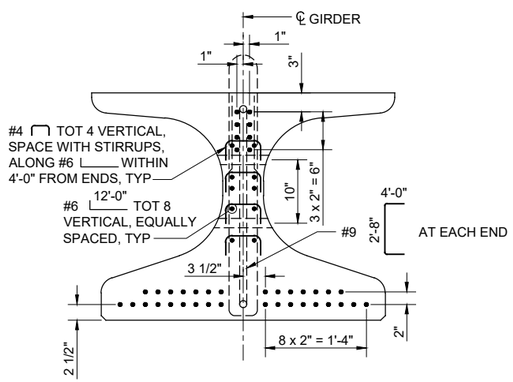
* GIRDER LENGTH IS PLAN LENGTH AND DOES NOT INCLUDE GRADE EFFECTS.

STRAND SCHEDULE

ROW NO.	NO. OF STRAIGHT STRANDS	NO. OF HARPED STRANDS	"X"	"Y"
4	-	2	8 1/2"	2'-9"
3	-	2	6 1/2"	2'-7"
2	14	2	4 1/2"	2'-5"
1	18	2	2 1/2"	2'-3"

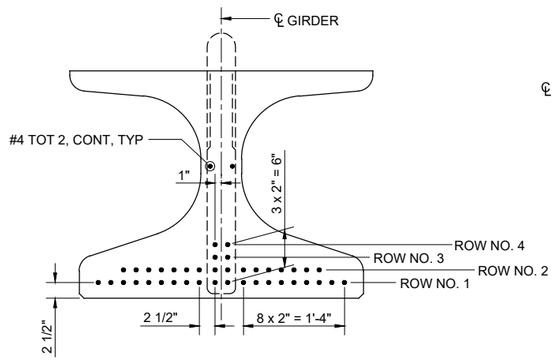
PRESTRESSING NOTES:

1. THE JACKING FORCE, P_{JACK}, IS THE JACKING FORCE REQUIRED AT THE POINT OF CONTROL ALONG THE SPAN. THE JACKING FORCE DOES NOT INCLUDE ANY FABRICATION SPECIFIC LOSSES.
2. THE MAXIMUM TEMPORARY TENSILE STRESS (JACKING STRESS) IN THE PRESTRESSING STEEL SHALL NOT EXCEED 75% OF THE SPECIFIED MINIMUM ULTIMATE TENSILE STRENGTH OF THE PRESTRESSING STEEL.
3. GIRDER CONCRETE STRENGTH:
   f'_{ci} = 7 KSI f'_c = 8 KSI
   f'_{ci} IS AT TIME OF INITIAL STRESSING; f'_c IS AT 28 DAYS
4. PRESTRESSING STRAND SHALL BE 270 KSI LOW RELAXATION.
5. FOR THE PRESTRESSING THERE SHALL BE A MINIMUM OF TWO HOLD DOWN PER GIRDER.
6. STRANDS SHALL BE PLACED AS LOW AS POSSIBLE IN THE STRAND TEMPLATE AND SYMMETRICAL ABOUT THE CENTER LINE OF GIRDER.
7. STRAND LOCATIONS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER.



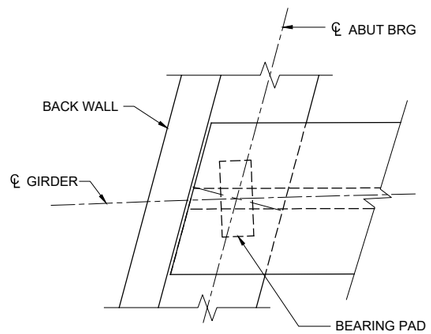
SECTION G-G

1" = 1'-0'



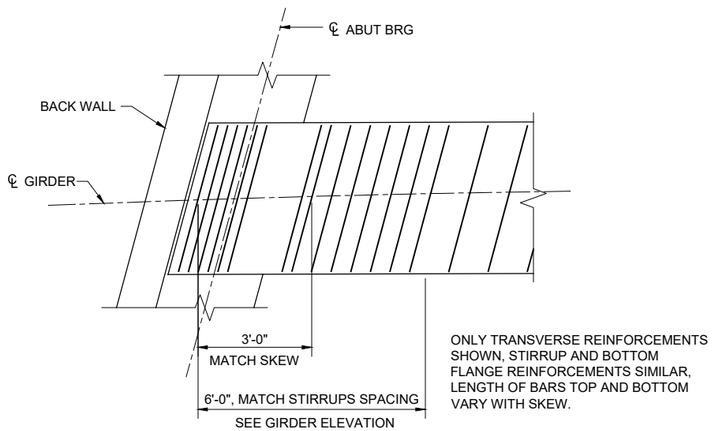
SECTION H-H

1" = 1'-0'



GIRDER DETAIL AT ABUTMENT

1/2" = 1'-0'



TRANSVERSE REINFORCING SKEWED ENDS

1/2" = 1'-0'

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
WESLEY M. SENNETT
NO. 82031
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	P. ZHAO	8/31/2020
CHECKED	Y. DENG	8/31/2020
RECOMMENDED	W. SENNETT	8/31/2020

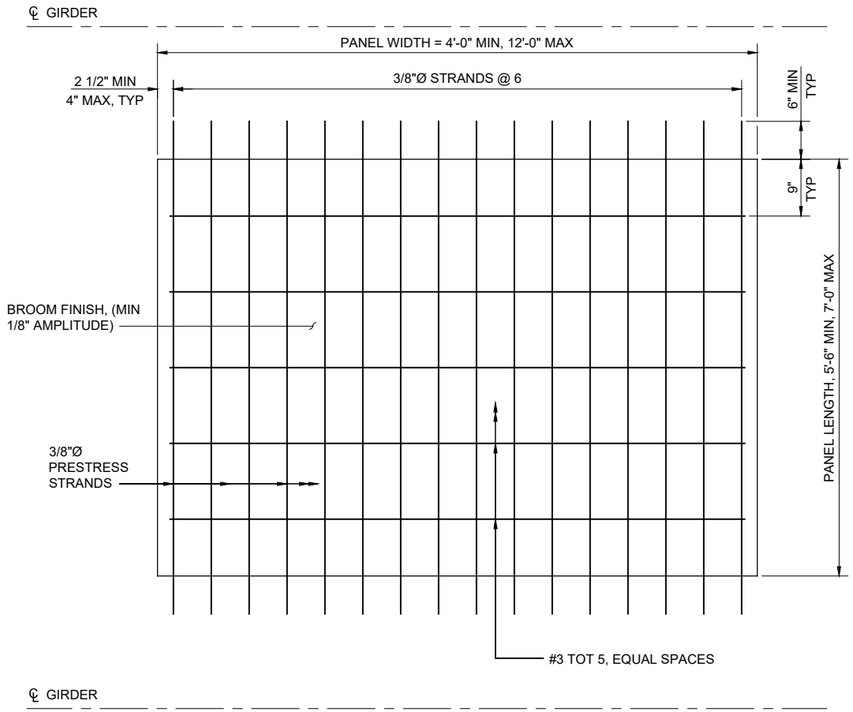
BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

GIRDER DETAILS

SHEET 24 OF 33 SHEETS

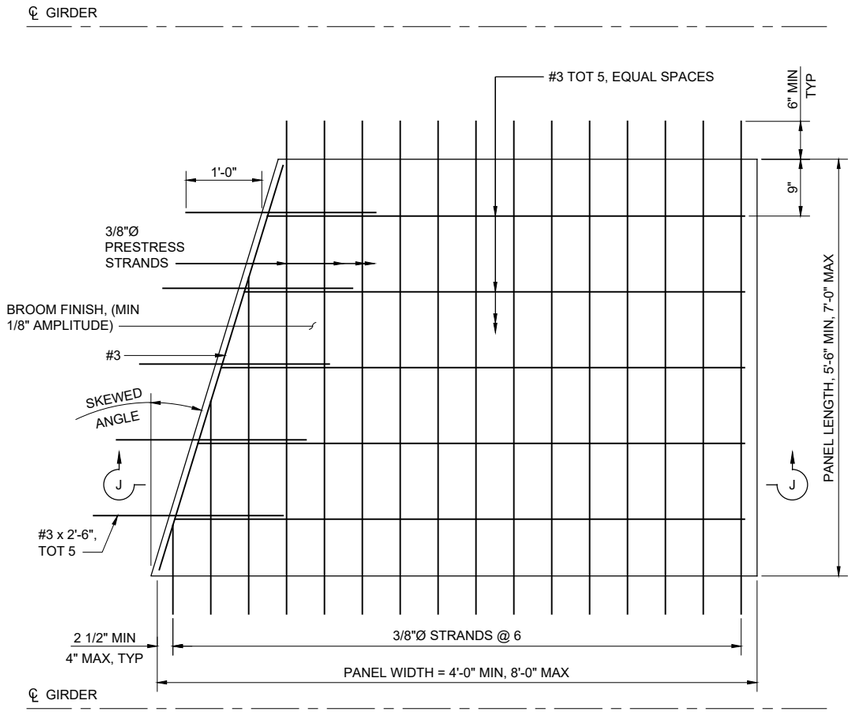
FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	25	33



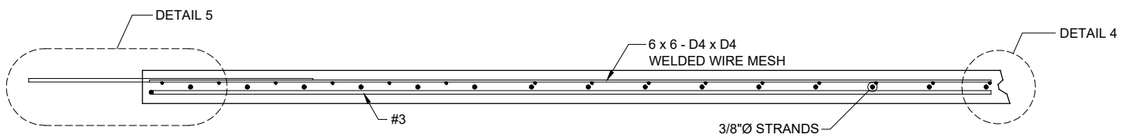
PLAN - TYPICAL PANEL

1" = 1'-0"



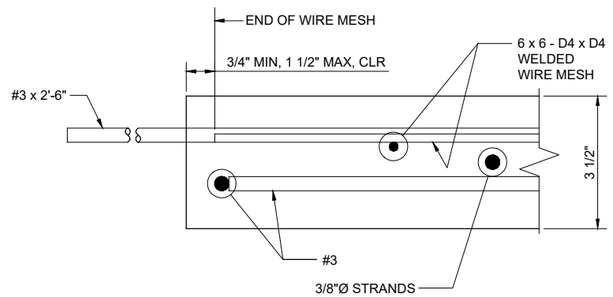
SKEWED END PANEL

1" = 1'-0"



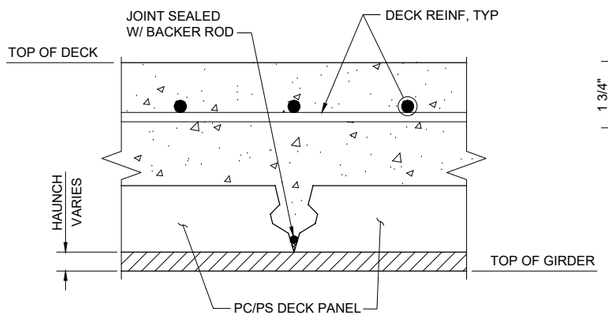
SECTION J-J

1 1/2" = 1'-0"



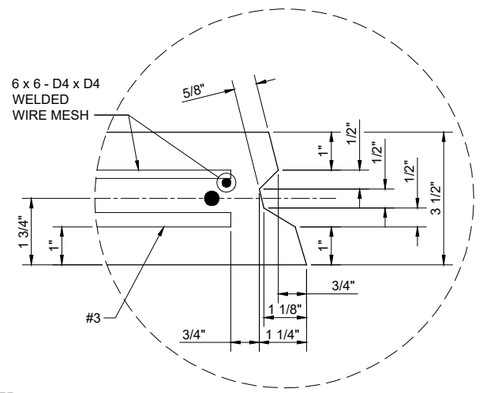
DETAIL 5

6" = 1'-0"



SECTION AT LONGITUDINAL DECK PANEL JOINT

3" = 1'-0"



DETAIL 4

6" = 1'-0"

DESIGN NOTES:

1. PANELS: DESIGN SHALL BE IN ACCORDANCE WITH AASHTO LRFD SPECIFICATIONS WITH CALTRANS AMENDMENTS AND STANDARD SPECIFICATIONS FOR CONSTRUCTION LOADS.
2. CONCRETE STRENGTH: PRECAST PRETENSIONED PANELS: f'_c = 5,000 PSI AT 28 DAYS; f'_{ci} = 4,000 PSI AT RELEASE. PRELIMINARY CONCRETE DECK POUR MATERIAL SHALL USE AN APPROVED MIX DESIGN TO ENSURE ADEQUATE STRENGTH AND FLOWABILITY FOR DECK PANEL SUPPORT.
3. PRESTRESSING STEEL: ALL STRANDS SHALL BE 3/8" Ø, GRADE 270, SEVEN WIRE LOW RELAXATION STRANDS CONFORMING TO ASTM A416. JACKING FORCE = 0.75 x 270 KSI x 0.085 IN^2 = 17.2 KIPS/STRAND. WORKING FORCE (AFTER LOSSES) = 15.6 KIPS/STRAND.
4. CAMBER STRIPS: MATERIAL FOR CAMBER STRIPS (SERVING AS PANEL SUPPORT AND DAMS) SHALL BE CONTINUOUS, HIGH-DENSITY, EXPANDED POLYSTYRENE STRIPS WITH A MINIMUM COMPRESSIVE STRENGTH OF 55 PSI. STRIPS SHALL CONSIST OF ONE LAYER WITH 1" WIDTH AND HEIGHT IN ACCORDANCE WITH DIMENSIONS, 1" MINIMUM AND 2" MAXIMUM.
5. WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A497, GRADE 70.

DECK PANEL SEQUENCE:

1. PLACE POLYSTYRENE CAMBER STRIPS (PANEL SUPPORT AND DAMS) WITH ADHESIVE ALONG TOP OF GIRDERS AFTER PLACEMENT OF GIRDERS.
2. PLACE DECK PANELS ON CAMBER STRIPS.
3. PLACE SUPPLEMENTARY U-BARS AND ASSOCIATED REBAR (WHERE REQUIRED).
4. PLACE AND VIBRATE HAUNCH AND DECK CONCRETE IN A CONTINUOUS POUR ENSURING THAT HAUNCH CONCRETE IS PLACED A MINIMUM OF THREE PANEL LENGTHS AHEAD OF THE LEADING EDGE OF THE DECK CONCRETE.

FABRICATION NOTES:

1. PANELS: CARE SHALL BE TAKEN TO AVOID APPLYING EXCESSIVE PRETENSIONING FORCE DURING FABRICATION. A PANEL LAYOUT WHICH IDENTIFIES THE LOCATION OF EACH PANEL SHALL BE DEVELOPED BY THE FABRICATOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. PANELS SHALL BE PERMANENTLY MARKED IN ACCORDANCE WITH PANEL LAYOUT. PANEL LENGTH SHALL BE SET TO PROVIDE A BEARING WIDTH OF 2" MINIMUM FOR THE BEDDING MATERIAL. PRESTRESSING STRANDS SHALL EXTEND 6" MINIMUM OUTSIDE THE PANEL ENDS AND SHALL BE LOCATED AT THE PANEL CENTROID AT THE REQUIRED SPACING. A MINIMUM OF 90% OF THE PANEL TOP SURFACE AREA SHALL BE BROOM FINISHED TO AN AMPLITUDE OF 1/8" MINIMUM. FINISH SHALL BE PARALLEL WITH STRAND. PANEL EDGES PARALLEL TO STRAND SHALL BE BEVELED.
2. CAMBER STRIP: POLYSTYRENE CAMBER STRIPS SHALL HAVE 1/2" x 1/2 " SLOTS. CAMBER STRIPS SHALL BE CUT AND PLACED TO MATCH THE REQUIRED PROFILE ALONG THE GIRDERS AND SHALL VARY IN HEIGHT ACROSS THE GIRDER TO ACCOUNT FOR ROADWAY CROSS SLOPE.

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE CAMBER STRIP DURING CONSTRUCTION OPERATIONS.
2. THE ATTACHMENT OF THE CAMBER STRIP PER THE DETAILS SHOWN MAY BE OMITTED PROVIDED THE APPROVED ADHESIVE ATTACHMENT IS STABLE DURING THE PLACEMENT OF THE DECK POUR.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
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TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 8/31/2020
CHECKED	Y. DENG	DATE 8/31/2020
RECOMMENDED	W. SENNETT	DATE 8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

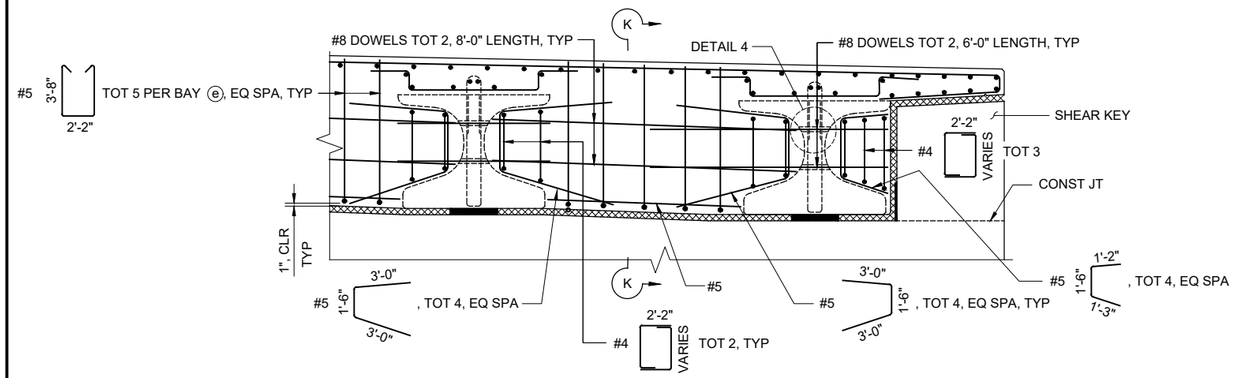
DECK PANEL DETAILS

SHEET 25 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

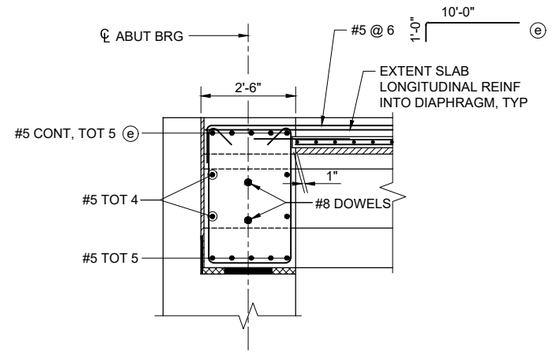
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Aug 31, 2020 - 3:34pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	26	33



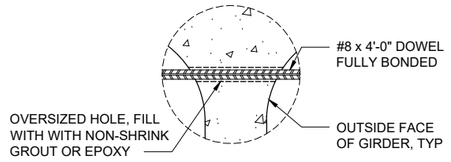
END DIAPHRAGM

1/2" = 1'-0'



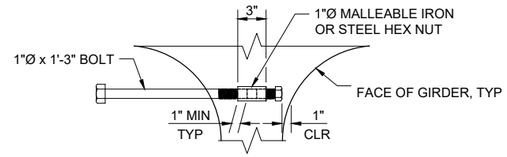
SECTION K-K

1/2" = 1'-0'



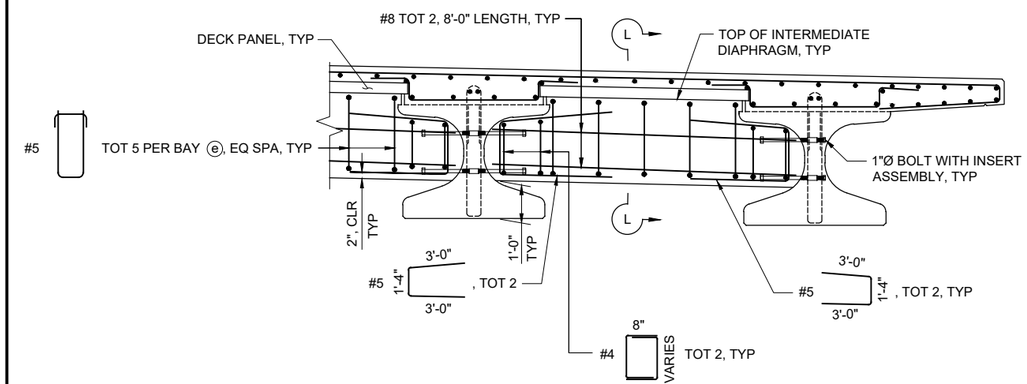
DETAIL 4

1 1/2" = 1'-0'



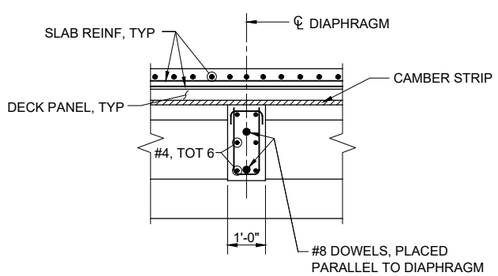
INSERT ASSEMBLY

NO SCALE



INTERMEDIATE DIAPHRAGM

1/2" = 1'-0'



SECTION L-L

1/2" = 1'-0'

LEGEND:

ⓔ INDICATES EPOXY COATED REINFORCEMENT

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
WESLEY M. SENNETT
NO. 82031
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE
INYO COUNTY
DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 8/31/2020
CHECKED	Y. DENG	DATE 8/31/2020
RECOMMENDED	W. SENNETT	DATE 8/31/2020

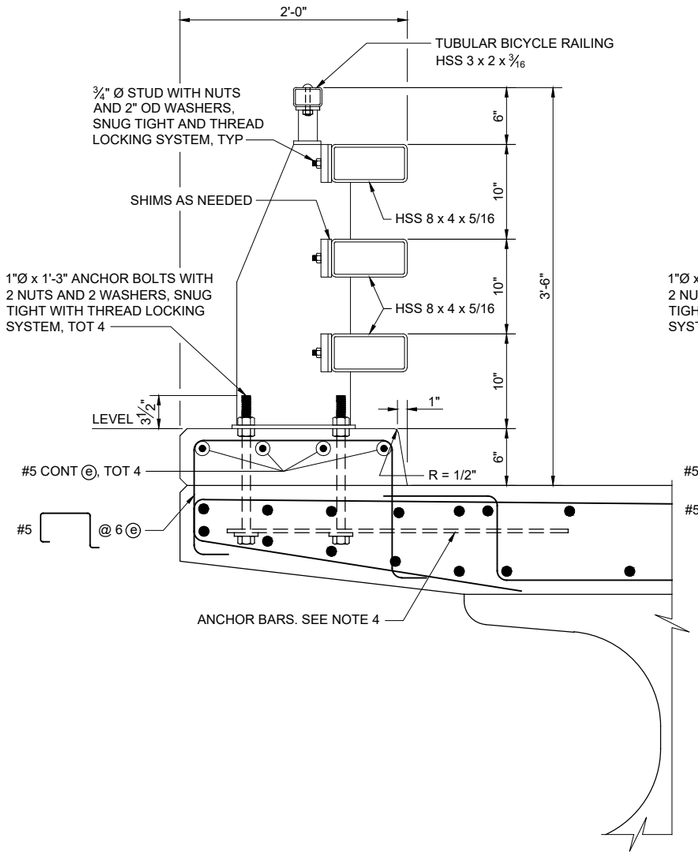
BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

DIAPHRAGM DETAILS

SHEET **26** OF **33** SHEETS

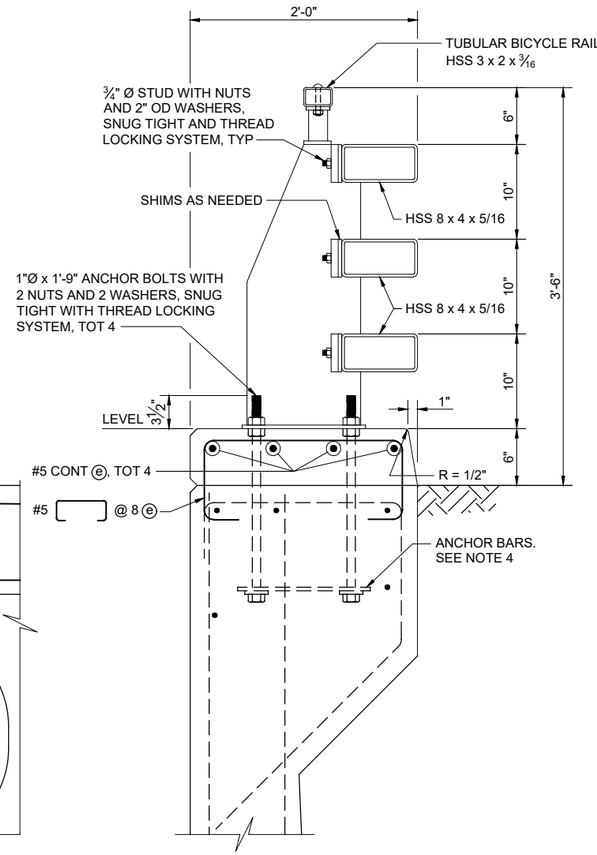
FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	27	33



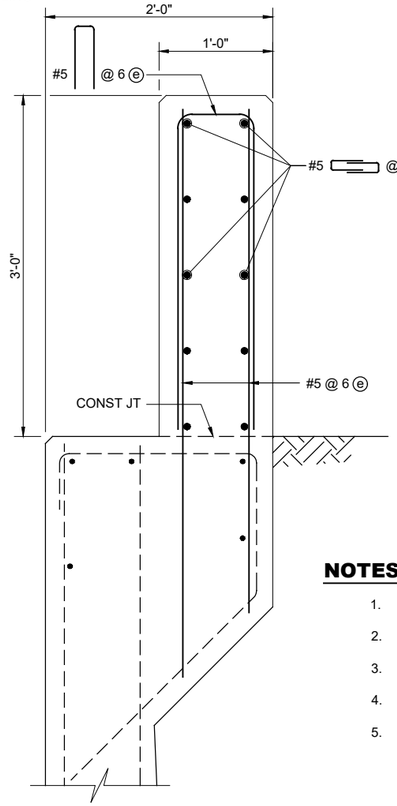
SECTION L-L

1 1/2" = 1'-0'



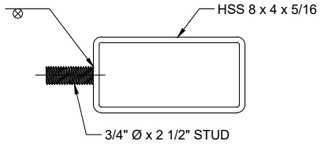
SECTION M-M

1 1/2" = 1'-0'



SECTION N-N

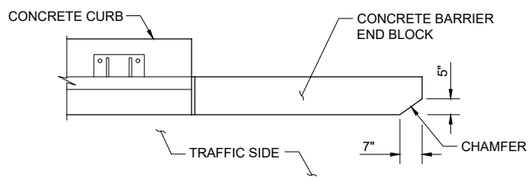
1 1/2" = 1'-0'



RAIL SECTION AT POST

3" = 1'-0'

⊗ INDICATES STUD WELD

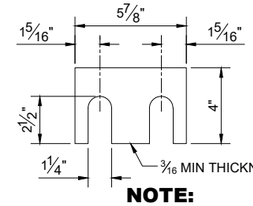


PLAN VIEW - END BLOCK

1/2" = 1'-0'

NOTES

1. ALL HORIZONTAL MEMBERS ARE PARALLEL TO LONGITUDINAL PROFILE GRADE.
2. POSTS ARE NORMAL TO PROFILE GRADE OF STRUCTURE.
3. POSTS ARE VERTICAL TO THE TRANSVERSE CROSS SECTION.
4. FOR ANCHOR BAR DETAILS, SEE "ST-75 BRIDGE RAIL DETAILS NO. 3" SHEET.
5. PLACE EXPANSION SPLICE AT THE BAY NEXT TO BRIDGE DECK JOINT.



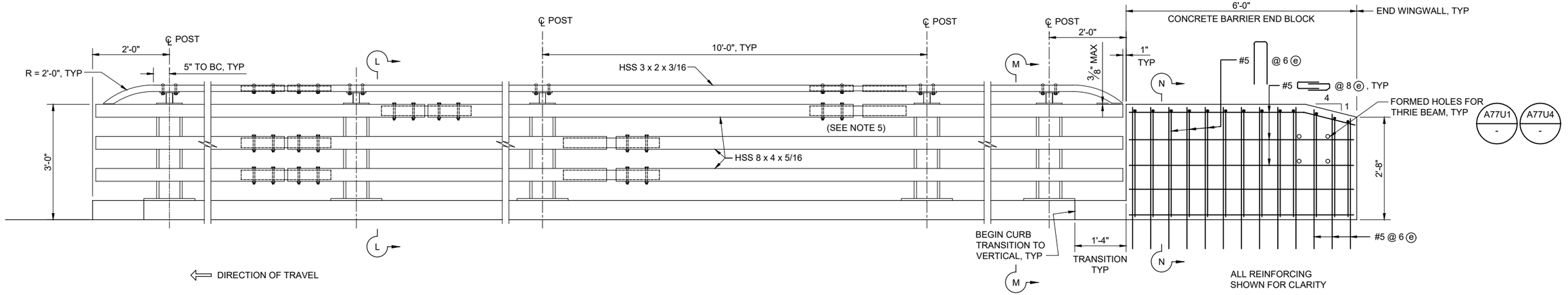
NOTE:
SHIMS AS NEEDED BETWEEN POSTS AND HSS RAIL TUBES.

SHIM DETAILS

3" = 1'-0'

LEGEND

(e) - INDICATES EPOXY COATED REINF.



ELEVATION

3/4" = 1'-0"

END BLOCK

(APPROACH)

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000
REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 8/31/2020
CHECKED	Y. DENG	DATE 8/31/2020
RECOMMENDED	W. SENNETT	DATE 8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ST-75 BRIDGE RAIL DETAILS NO. 1

SHEET 27 OF 33 SHEETS

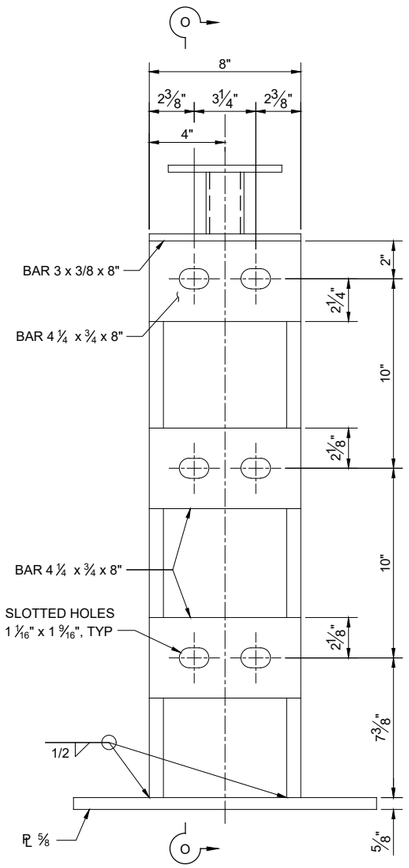
FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Aug 31, 2020 - 3:35pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	28	33

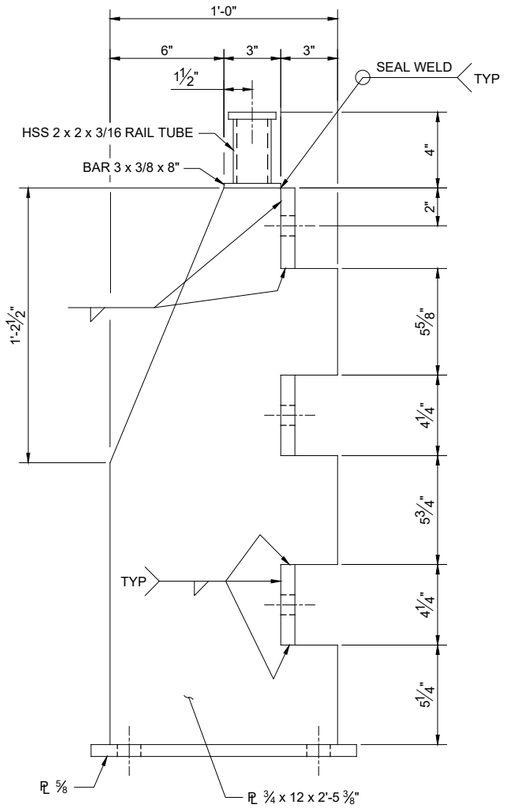
NOTES

1. ANCHOR BOLTS MAY BE TACK WELDED (SHOP OR FIELD) TO ANCHORAGE.
2. EACH RAIL LENGTH MUST BE CONTINUOUS OVER A MINIMUM OF TWO POSTS.
3. THE FABRICATOR MUST CHECK THAT THE TUBULAR SLEEVE SPLICES CONFORM TO THE DIMENSIONS INDICATED TO ASSURE PROPER CLEARANCE.
4. EXCEPT FOR EXPANSION SPLICES, NOT MORE THAN ONE SPLICE PERMITTED PER SAME SIDE OF POST.



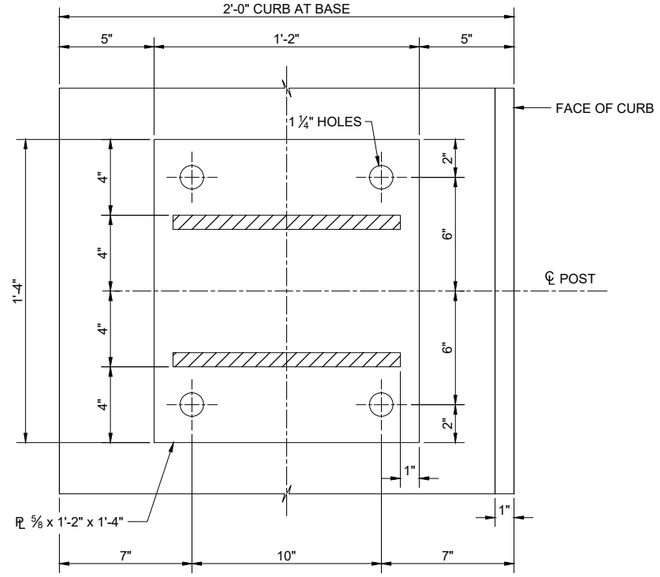
POST DETAIL

3" = 1'-0'



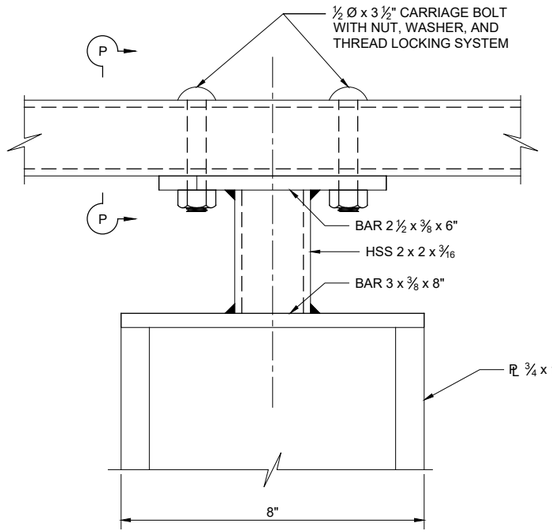
SECTION O-O

3" = 1'-0'

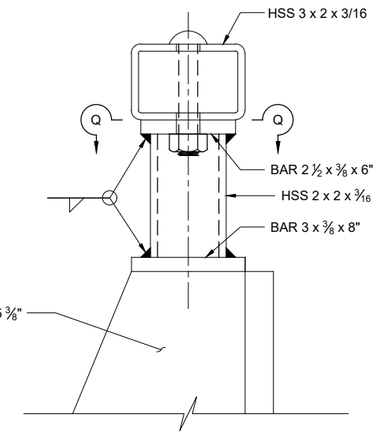


BASE PLATE

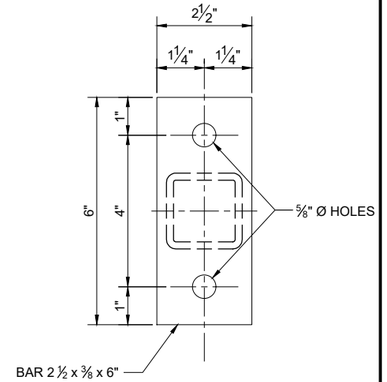
3" = 1'-0'



ELEVATION



SECTION P-P



SECTION Q-Q

RAIL CONNECTION DETAILS

6" = 1'-0"

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN / DATE	P. ZHAO / 8/31/2020
CHECKED / DATE	Y. DENG / 8/31/2020
RECOMMENDED / DATE	W. SENNETT / 8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

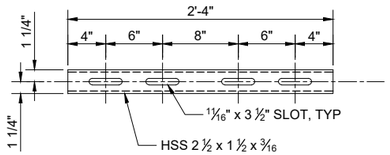
ST-75 BRIDGE RAIL DETAILS NO. 2

SHEET **28** OF **33** SHEETS

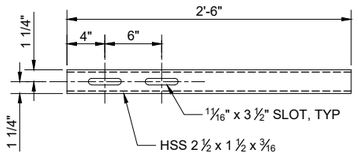
FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P:\ST4 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\ST4 DETAILS.dwg
Last Opened: Aug 31, 2020 - 3:35pm by Peter

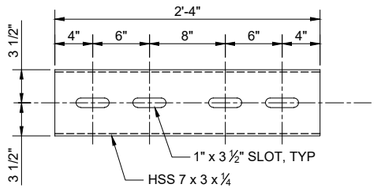
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	29	33



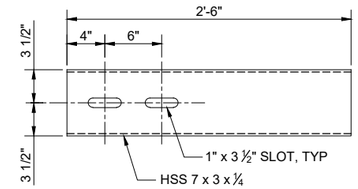
(FOR HSS 3 x 2 x ³/₁₆ RAIL)



(FOR HSS 3 x 2 x ³/₁₆ RAIL)



(FOR HSS 8 x 4 x ⁵/₁₆ RAIL)



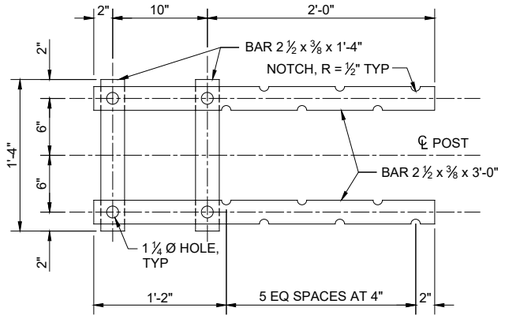
(FOR HSS 8 x 4 x ⁵/₁₆ RAIL)

STANDARD SLEEVE DETAILS

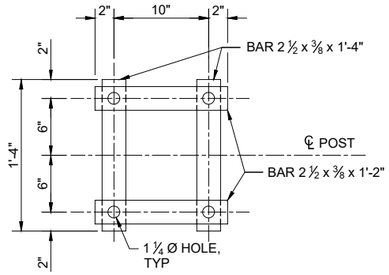
1 1/2" = 1'-0"

EXPANSION SLEEVE DETAILS

1 1/2" = 1'-0"



(AT DECK)



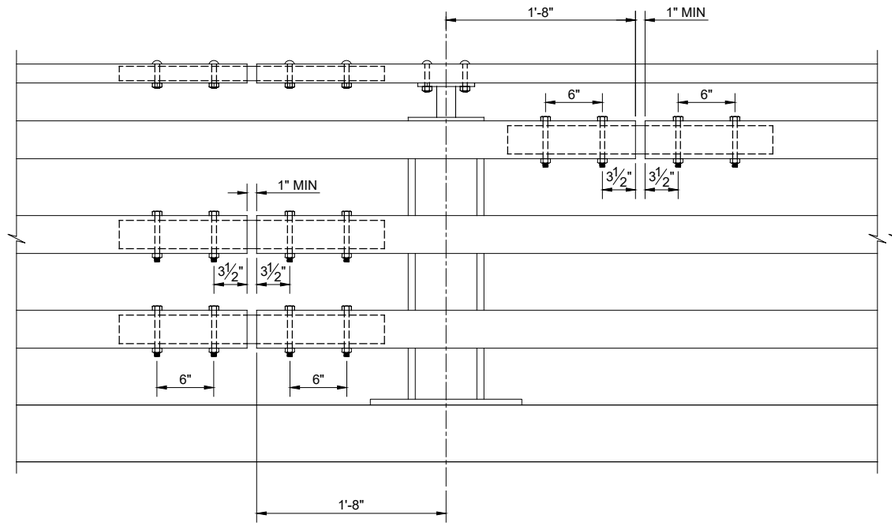
(AT WINGWALL OR RETURN WALL)

ANCHOR BAR DETAILS

1 1/2" = 1'-0"

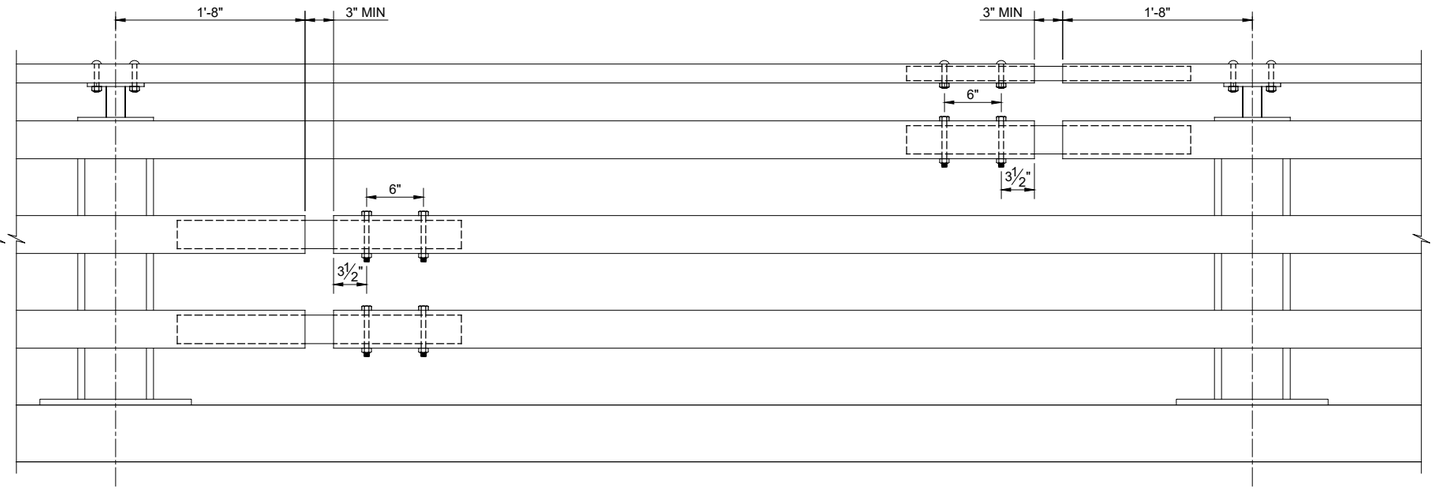
NOTES

1. HS BOLTS WITH NUT AND WASHERS, SNUG TIGHTENED, AND THREAD LOCKING SYSTEM.
2. USE ½ Ø x 3 ⁵/₁₆ (HSS 3 x 2 x ³/₁₆)
   USE ¾ Ø x 5 ⁵/₁₆ (HSS 8 x 4 x ⁵/₁₆)



STANDARD SPLICE

1 1/2" = 1'-0"



EXPANSION SPLICE

1 1/2" = 1'-0"

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	8/31/2020
CHECKED	Y. DENG	8/31/2020
RECOMMENDED	W. SENNETT	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ST-75 BRIDGE RAIL DETAILS NO. 3

SHEET 29 0F 33 SHEETS

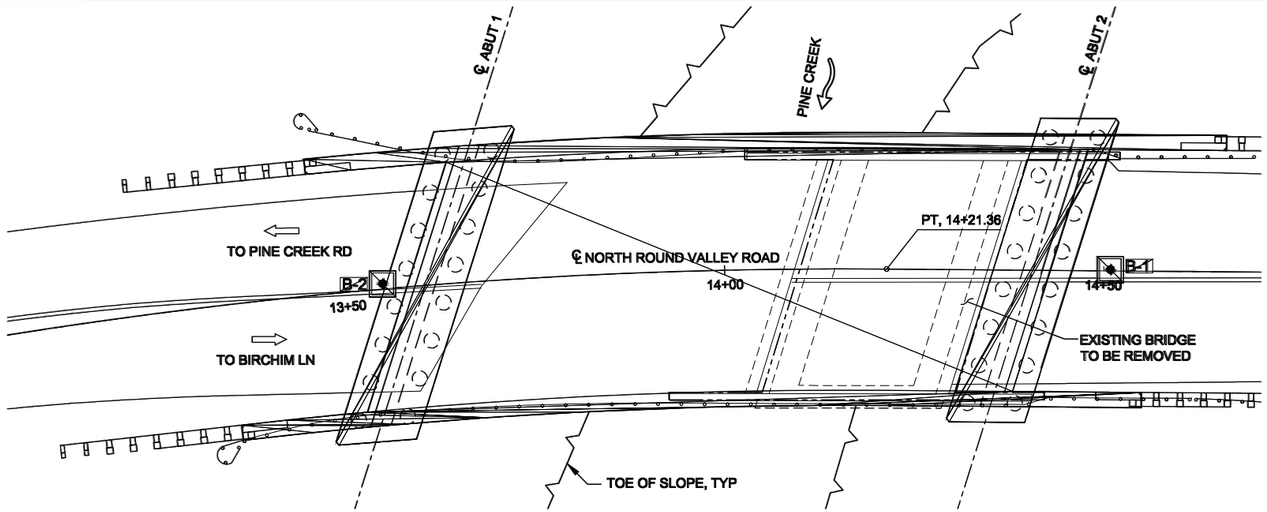
FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	27	30

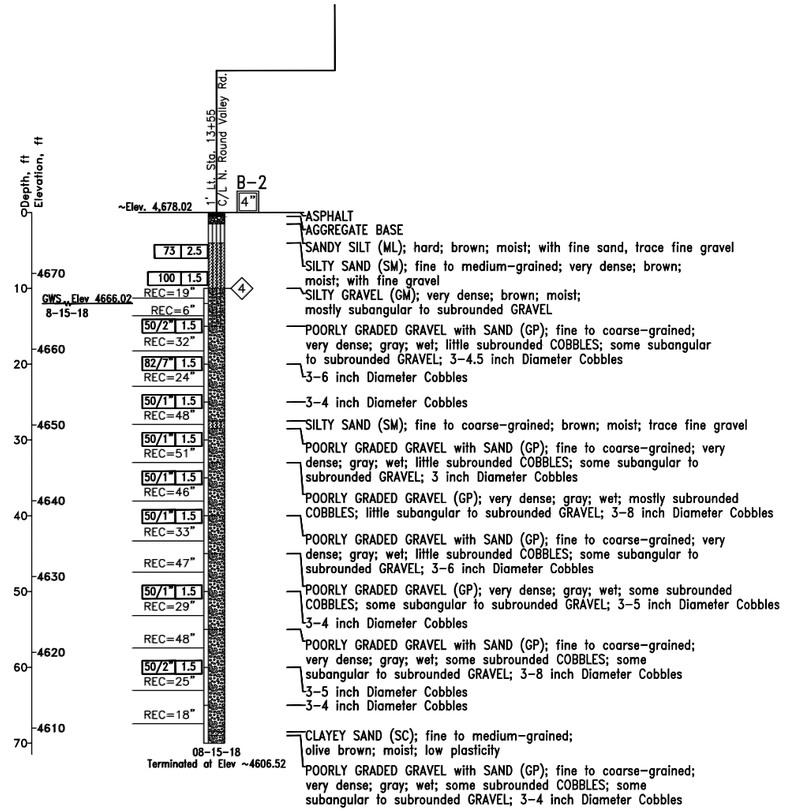
NOTES:

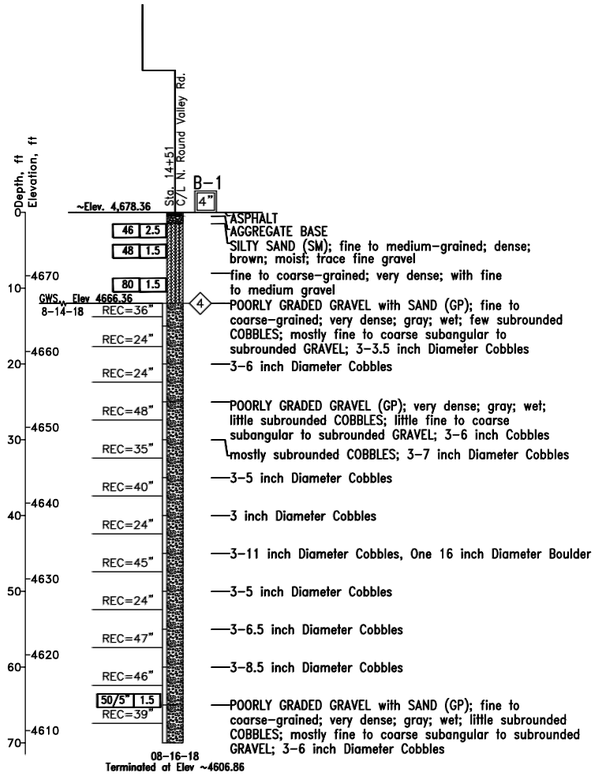
1. 1.5–INCH DIAMETER SAMPLES WERE TAKEN USING A STANDARD PENETRATION TEST (SPT) SPLIT BARREL SAMPLER WITH AN INSIDE DIAMETER (ID) OF 1.5 INCHES AND AN OUTSIDE DIAMETER (OD) OF 2.0 INCHES.
2. 2.5–INCH DIAMETER RING SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT BARREL SAMPLER WITH AN ID OF 2.5 INCHES AND AN OD OF 3.0 INCHES.
3. ALL DRIVE SAMPLES WERE DRIVEN WITH 140 LB HAMMER WITH A FALLING HEIGHT OF 30 INCHES.



PLAN

SCALE: 1"=10'





PROFILE

SCALE: 1"=10' HORIZONTAL
SCALE: 1"=10' VERTICAL

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REGISTERED ENGINEER - GEOTECHNICAL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

	DATE
DRAWN D. FAHRNEY	10/2018
CHECKED A. AhTye	10/2018
RECOMMENDED S. PLAUSON	10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044
LOG OF TEST BORING

SHEET 30 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\2019132\4\2019132\4_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:06pm by DFahrney

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

CEMENTATION OF SOILS

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

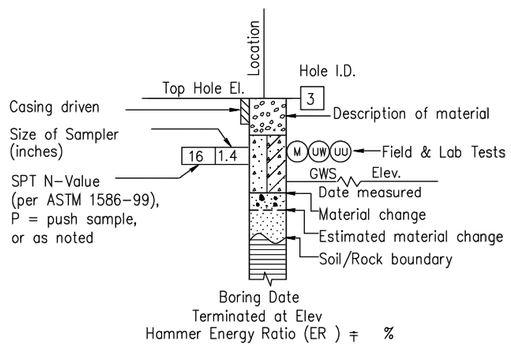
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778)
	O	Other (note on LOTB)

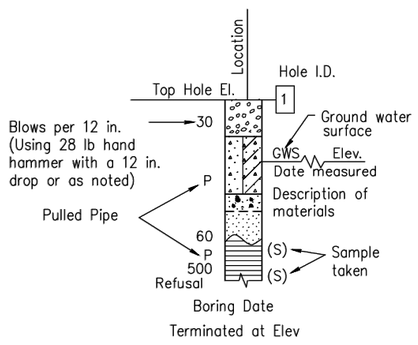
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

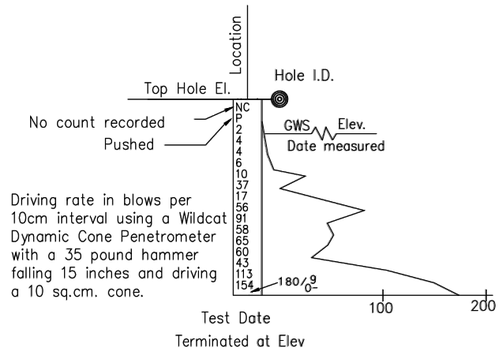
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 – 0.25	0.25 – 0.5	0.12 – 0.25	0.12 – 0.25
Medium Stiff	0.25 – 0.5	0.5 – 1	0.25 – 0.5	0.25 – 0.5
Stiff	0.5 – 1	1 – 2	0.5 – 1	0.5 – 1
Very Stiff	1 – 2	2 – 4	1 – 2	1 – 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



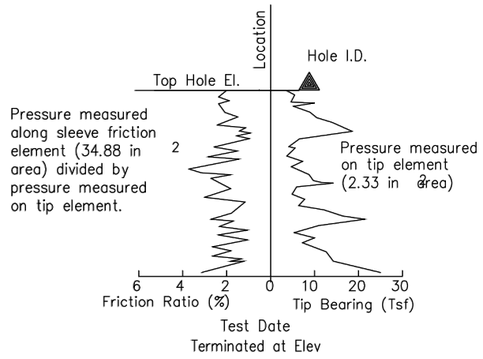
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

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REGISTERED ENGINEER - GEOTECHNICAL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	D. FAHRNEY	DATE 10/2018
CHECKED	A. AhTye	DATE 10/2018
RECOMMENDED	S. PLAUSON	DATE 10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - SOIL LEGEND 1

SHEET 31 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\2019132420\2019132420191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:09pm by DFahrney

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	29	30

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content–% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression–Soil (ASTM D 2166) Unconfined Compression–Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 – 5
Loose	5 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% – 10%
Little	15% – 25%
Some	30% – 45%
Mostly	50% – 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 – 12
Gravel	Coarse	3/4 – 3
	Fine	1/5 – 3/4
Sand	Coarse	1/16 – 1/5
	Medium	1/64 – 1/16
	Fine	1/300 – 1/64
Silt and Clay		Less than 1/300

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REGISTERED ENGINEER - GEOTECHNICAL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	D. FAHRNEY	10/2018
CHECKED	A. AhTye	10/2018
RECOMMENDED	S. PLAUSON	10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - SOIL LEGEND 2

SHEET 32 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\2019\1324\20191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:09pm by DFahrney

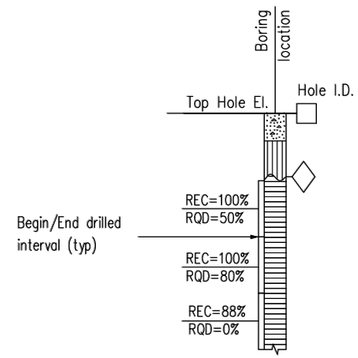
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	30	30

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

$$REC = \frac{\sum \text{Length of the recovered core pieces (in.)}}{\text{Total length of core run (in.)}} \times 100\%$$

$$RQD = \frac{\sum \text{Length of intact core pieces} \geq 4 \text{ in.}}{\text{Total length of core run (in.)}} \times 100\%$$



RQD* Indicates soundness criteria not met.

BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft – 10 ft
Thickly Bedded	1 ft – 3 ft
Moderately Bedded	4 in. – 1 ft
Thinly Bedded	1 in. – 4 in.
Very Thinly Bedded	1/4 in. – 1 in.
Laminated	Less than 1/4 in.

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

WEATHERING DESCRIPTORS FOR INTACT ROCK

Description	Diagnostic Features					General Characteristics
	Chemical Weathering–Discoloration and/or Oxidation		Mechanical Weathering–Grain Boundary Conditions (Disaggregation) Primarily for Granitics and Some Coarse–Grained Sediments	Texture and Leaching		
	Body of Rock	Fracture Surfaces		Texture	Leaching	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change	No leaching	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved	Minor leaching of some soluble minerals.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe–Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe–Mg minerals are altered to clay to some extent; or chemical alteration produces in–situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe–Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

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REGISTERED ENGINEER - GEOTECHNICAL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
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STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	D. FAHRNEY	DATE 10/2018
CHECKED	A. AhTye	DATE 10/2018
RECOMMENDED	S. PLAUSON	DATE 10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - ROCK LEGEND

SHEET 33 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\20191324\20191324_LOTB.dwg
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EXHIBIT C

INFORMATION HANDOUT

FOR

NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT OVER PINE CREEK PROJECT
BISHOP, CA

NORTH ROUND VALLEY ROAD BRIDGE OVER PINE CREEK

BRIDGE REPLACEMENT PROJECT

Inyo County, California

Information Handout

August 2020

Prepared For:

County of Inyo
Department of Public Works
P.O. Drawer Q
Independence, CA 93526

Prepared By:

MGE ENGINEERING, INC.
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Sacramento, CA 95831

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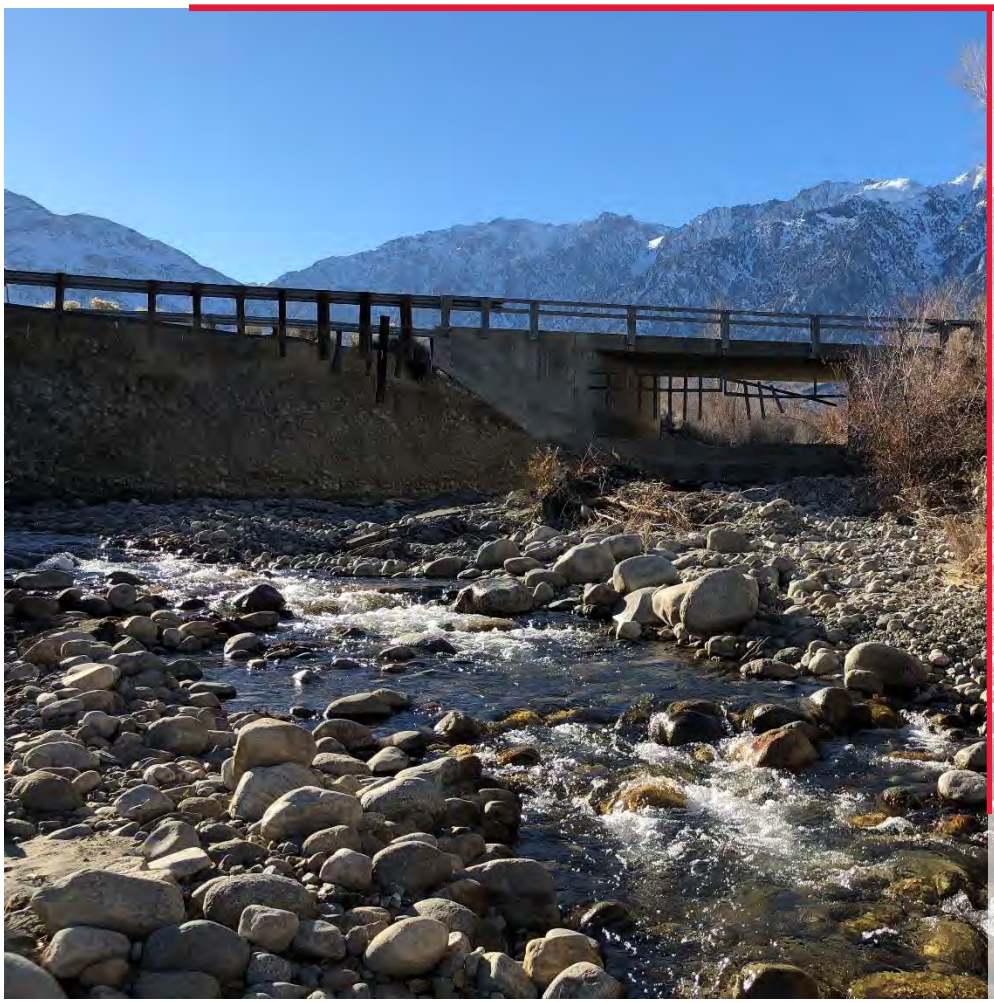
Section 1

CEQA – Initial Study/MND and Mitigation Monitoring and Reporting Program dated January 2020

North Round Valley Road Bridge over Pine Creek Bridge Replacement Project (Bridge No. 48C0044)

CEQA - Initial Study/MND and Mitigation Monitoring and Reporting Program



Prepared for:

Inyo County Public Works Department

January 2020

Prepared by:

GEI Consultants

Consulting Engineers and Scientists

North Round Valley Road Bridge over Pine Creek Bridge Replacement Project (Bridge No. 48C0044)

Initial Study/Proposed Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program

Prepared for:

CEQA Lead Agency:
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Ray Weiss
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January 2020

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Abbreviations and Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ADT	Average Daily Traffic
APE	Area of Potential Effect
BMPs	Best Management Practices
CalOES	California Governor's Office of Emergency Services
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH4	Methane
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of Inyo
CO2	carbon dioxide
CRHR	California Register of Historical Resources
CRS	California Road System
EIC	Eastern Information Center
EIR	Environmental Impact Report
GHGs	Greenhouse gases
IS/MND	Initial Study/proposed Mitigated Negative Declaration
IPAC	Information, Planning, and Conservation System
MLD	Most Likely Descendant
MPH	Miles per Hour
N2O	nitrous dioxide
NAHC	Native American Heritage Commission
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
OHWM	Ordinary High Water Mark
PM_{10}	PM equal to or less than 10 micrometers in diameter
PRC	Public Resources Code
ROG	reactive organic gases
RSP	Rock Slope Protection

RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SPCP	Spill Prevention and Control Plan
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
WPCP	Water Pollution Control Plan

Chapter 1. Mitigated Negative Declaration

1.1 Introduction

The Inyo County Public Works Department (County) has prepared this Initial Study/proposed Mitigated Negative Declaration (IS/MND) in compliance with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines to address the potentially significant environmental impacts of the proposed North Round Valley Road Bridge over Pine Creek Bridge Replacement Project (proposed project) located within the Rovana, California, U.S. Geological Survey (USGS) 7.5 Minute topographic quadrangle map. The County is the lead agency under CEQA.

To satisfy specific CEQA requirements for the proposed project, this document includes:

- a proposed MND and the environmental determination (see **Chapter 1**),
- location and description of the proposed project (see **Chapter 2**),
- initial study checklist (see **chapter 3**).

1.2 Purpose of the Initial Study

This document is an IS/MND prepared in accordance with CEQA (California Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations [CCR]). The purpose of this IS is to (1) determine whether proposed project implementation would result in potentially significant or significant impacts on the physical environment; and (2) incorporate mitigation measures into the proposed project design, as necessary, to eliminate the proposed project's potentially significant or significant project impacts or reduce them to a less-than-significant level. An MND is prepared if the IS identified potentially significant impacts, but: (1) revisions in the proposed project plans or proposals mitigate the impacts to a point where clearly no significant impacts would occur; and (2) there is no substantial evidence, considering the whole record before the agency, that the proposed project as revised may have a potentially significant or significant impact on the physical environment.

An IS presents environmental analysis and substantial evidence in support of its conclusions regarding the significance of environmental impacts. Substantial evidence may include expert opinion based on facts, technical studies, or reasonable assumptions based on facts. An IS is neither intended nor required to include the level of detail provided in an environmental impact report (EIR).

CEQA requires that all State and local government agencies consider the potentially significant and significant environmental impacts of projects they propose to carry out or over which they have discretionary authority, before implementing or approving those projects. The public agency that has the principal responsibility for carrying out or approving a proposed project is the lead agency for CEQA compliance (State CEQA Guidelines, CCR Section 15367). The County has principal responsibility for carrying out the proposed project and is therefore the CEQA lead agency for this IS/MND.

If there is substantial evidence (such as the findings of an IS) that a proposed project, either individually or cumulatively, may have a significant or potentially significant impact on the physical environment, the lead agency must prepare an EIR (State CEQA Guidelines, CCR Section 15064[a]). If the IS concludes that impacts would be less than significant, or that mitigation measures committed to by the County would clearly reduce impacts to a less-than-significant level, a Negative Declaration or MND can be prepared.

After the required public review of this document is complete, the County will consider all comments received on the IS/MND, the entirety of the administrative record for the project, and whether to adopt the proposed MND and a Mitigation Monitoring and Reporting Program and approve the proposed project.

1.3 Project Information

1. Project title:	North Round Valley Road Bridge over Pine Creek Bridge Replacement Project (Bridge No. 48C0044)
2. Lead agency name and address:	Inyo County Public Works Department 168 N. Edwards P.O. Drawer Q Independence, CA 93526
3. Contact person and phone number:	Ashley Helms, Associate Engineer, (760) 878.0200
4. Project location:	The proposed project site is in northwestern Inyo County, in Section 17 of the USGS 7.5-minute Rovana Quadrangle, Township 6 South, Range 31 East. The project site is accessible from North Round Valley Road, via Pine Creek Road or Birchim Lane.
5. Project sponsor's name and address:	Inyo County Public Works Department
6. General plan designation:	Natural Resource
7. Zoning:	Unclassified
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)	Inyo County Department of Public Works (County) proposes to replace the existing North Round Valley Road Bridge over Pine Creek (Bridge No. 48C0044), which was damaged from high-velocity flows in Pine Creek. The County proposes to replace the structure with a single-span, precast/prestressed wide flange girder superstructure supported on high cantilever abutments founded on cast-in-drilled-hole concrete piles, approximately 85 feet in length. The existing horizontal and vertical alignments of North Round Valley Road will be maintained. No falsework (temporary form-work used to support the concrete until it develops strength) within locations of the creek channel will be required
9. Surrounding land uses and setting: Briefly describe the project's surroundings:	The project setting is rural in nature and the project site is composed of sagebrush scrubland, developed areas (roadway), and a perennial stream (Pine Creek). No residential land uses are located within the immediate vicinity of the project site.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)	California Department of Fish and Wildlife, Central Valley Regional Water Quality Control Board, State Water Resources Control Board, and U.S. Army Corps of Engineers.
11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code (PRC) Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.? Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See PRC Section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality.	The County has sent letters requesting AB 52 consultation to fourteen (14) representatives of several federally recognized tribes and California tribes. No responses have been received to date.

1.4 Environmental Determination

1.4.1 Summary

The County has prepared an IS to assess the potential effects of the proposed project on the environment in the project area. The analysis of potential environmental impacts from the proposed project is based on data gathered for this project and other projects within the project vicinity. **Chapter 3** of this document contains the analysis and discussion of potential environmental impacts of the proposed project. Based on the issues evaluated in that chapter, it was determined that:

The proposed project would result in ***no impacts*** on the following issue areas:

- Agriculture and Forestry Resources
- Energy
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Recreation
- Public Services/Utilities and Service Systems
- Transportation

The proposed project would result in ***less-than-significant*** impacts on the following issue areas:

- Aesthetics

- Geology and Soils
- Greenhouse Gas Emissions

The proposed project would result in ***less-than-significant impacts*** after ***mitigation*** implementation on the following issue areas:

- Air Quality
- Biological Resources
- Cultural Resources
- Hazards/Hazardous Materials and Wildfire
- Hydrology and Water Quality
- Tribal Cultural Resources

1.4.2 Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

AHelms	11/4/19
Signature	Date
Ashley Helms	Associate Engineer
Print Name	Title
Inyo County Public Works Department	
Agency	

Chapter 2. Project Description

This chapter provides additional details on the proposed project, including the project location, background, project objectives, proposed construction activities, and a summary of discretionary actions and approvals that may be required to implement the project.

2.1 Project Location and Site

The project site is located in Inyo County and accessible from North Round Valley Road, via Pine Creek Road or Birchim Lane. The site is west of U.S. Route 395, which provides regional access (see **Figures 2-1** and **2-2**). Bishop is the nearest incorporated city, located approximately 10 miles to the southeast. The project site encompasses 2.85 acres and is in Section 17 of the USGS 7.5-minute Rovana Quadrangle, Township 6 South, Range 31 East. Natural features include Pine Creek, which the proposed project crosses.

2.2 Project Background

The Pine Creek drainage basin delineated at Round Valley Road discharges approximately 37 square miles. The creek is primarily fed by snow melt and is also subject to high flows during high intensity precipitation events. On October 27, 2017, a state of emergency was declared in Inyo and Mono Counties, as a result of severe winter storms and exceptional snowfall, leading to snowmelt that damaged critical infrastructure. These runoff conditions and high-velocity flows in Pine Creek also resulted in failure of the North Round Valley Road Bridge.

On October 27, 2017, the Governor of the State of California signed a Proclamation of a State of Emergency for both Inyo and Mono Counties, due to these severe winter storms and the resultant damage to critical roadway and bridge infrastructure. In anticipation of this emergency proclamation, the Inyo County Board of Supervisors adopted Resolution #2017-15 (dated March 28, 2017 and amended June 27, 2017) which also proclaimed the threatened existence of a local emergency resulting from the run-off potential of near-record snowpack in the Eastern Sierra. While the proposed project is consistent with the intent of this County resolution and meets the Statutory Exemption (Article 18) requirements consistent with CEQA Guidelines 15269 for Emergency Projects, the County has determined that preparation of this IS/MND is still necessary to disclose the environmental impacts of the proposed project, consistent with CEQA Guidelines. The proposed project will also comply with all other state, local or federal laws that may be applicable to the project (see "Required Regulatory Permits" below).

Figure 2-1. Regional Location Map

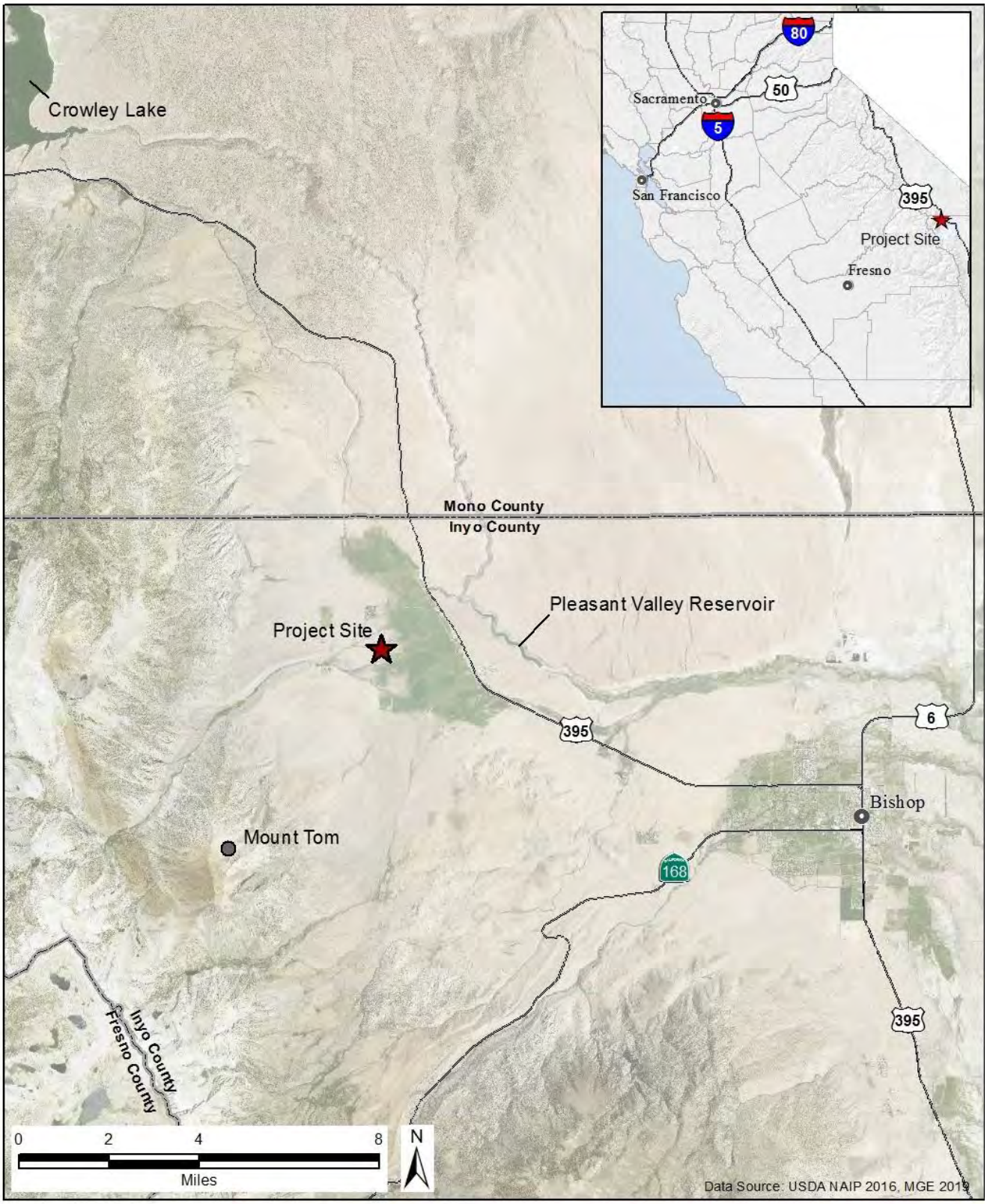
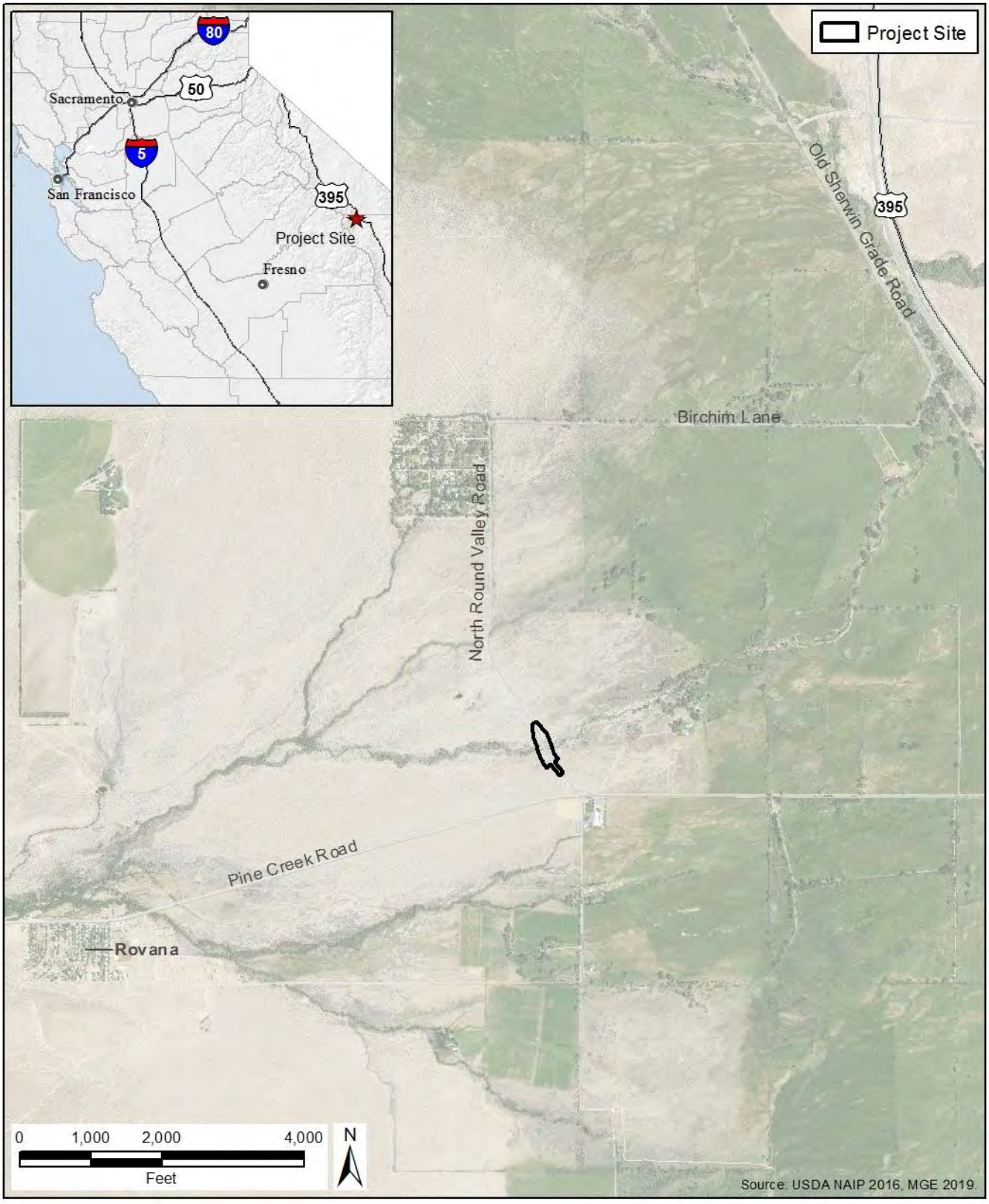


Figure 2-2. Project Location Map



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2.3 Existing Bridge and Roadway

The existing North Round Valley Road Bridge (Bridge Number 48C0044), built in 1987, is a single-span, cast-in-place, reinforced concrete slab superstructure supported on cantilever abutments and spread footings. The bridge provides a clear hydraulic opening of approximately 21'-5". The structure has a total length of 25'-6 3/4" and a clear roadway width of 32-feet between metal tube bridge railings.

The bridge is currently closed due to high velocity flows that occurred in June and July of 2017 that eroded approximately 50-feet of the south approach roadway behind the abutment. In addition to the eroded south approach, both existing abutment foundations were undermined due to scour, as native soil at this location is highly erodible. Pine Creek now flows behind the south abutment where the approach roadway was washed out. To reduce the future risk of the embankments eroding from high velocity flows, the replacement bridge will need to be significantly longer than the existing bridge. In addition, rock slope protection (RSP) will be used to armor both abutment embankments. The replacement of the existing bridge is being funding through the State of California Governor's Office of Emergency Services (CalOES).

North Round Valley Road is a paved road and according to the California Road System (CRS) Maps, it is designated as a Minor Collector Road. Prior to the roadway closure, average daily traffic (ADT) was likely less than 500 vehicles.

2.4 Purpose and Need

Specific objectives of the proposed project are to replace the existing flood-damaged North Round Valley Road Bridge with a new structure that:

- Accommodates safe vehicular travel and pedestrian access;
- Provides a slightly longer structure to accommodate the widened creek conditions and to protect the replacement structure against future instability; and
- Minimizes environmental impacts to local resources.

2.5 Environmental Setting

Topography on the project site slopes gently toward the east. Elevation at the project site is approximately 4,670 feet above mean sea level. Natural features include Pine Creek, which the proposed project crosses. Pine Creek headwaters are located high in the Sierra Nevada, east of Royce Peak and southwest of the project site. Pine Creek confluences with Pleasant Valley Reservoir, an impoundment of the Owens River, east of U.S. Route 395.

2.5.1 Surrounding Land Uses

Land uses surrounding the project site are comprised of open space uses (comprised primarily of sagebrush scrubland), developed areas (i.e., Round Valley Road and Bridge), and a perennial stream (Pine Creek). No residential land uses are located adjacent or near the project site.

2.5.2 Land Use Designations and Zoning

The project site is designated as Natural Resource and zoned as unclassified under the Inyo County General Plan. No lands in the study area are designated or zoned for Agriculture Preserve, Timber Lands, or are associated with an executed Williamson Act contract.

2.6 Proposed Project

2.6.1 Bridge Design

The replacement structure will be a single-span, precast/prestressed wide flange girder superstructure on high cantilever abutments founded on cast-in-drilled-hole concrete piles, approximately 85 feet in length (see **Figure 2-3**). The existing horizontal and vertical alignments of North Round Valley Road will be maintained. Bridge barriers proposed consist of California Department of Transportation standard California ST-75 open bridge railing. No falsework (temporary form-work used to support the concrete until it develops strength) will be required within locations of the creek channel.

2.6.2 Bridge Abutments

Construction of the new bridge abutments will require two relatively deep excavations. Excavations may need to be stabilized with temporary shoring and will likely need to be de-watered for footing concrete placement. Abutment footing areas are estimated to be approximately 40 feet long by 12 feet wide by 3 feet thick.

2.6.3 Vertical Profile

Water surface elevations are low enough that the existing profile grade of the bridge will not need to be raised. The California Department of Transportation's Highway Design Manual requires the fifty-year (Q50) event to pass under the soffit with a minimum 2-feet of freeboard and pass the 100-year (Q100) event. The proposed bridge exceeds the freeboard requirements for both the 50-year and 100-year events.

2.6.4 Roadway Approaches, Railing, and Bridge Width

The existing approach roadway widths vary from approximately 22 to 24-feet. Approach roadways will be tapered down from the 32-foot clear bridge width to match existing roadway widths on each side of the bridge (see **Figure 2-3**). As the proposed project maintains the existing profile grades, the approach roadway work will be limited to reconstructing portions of both approach roadways (roughly 120 feet in each direction) from the bridge. All four corners of the bridge will require California Department of Transportation standard transition railings and terminal systems as the bridge clear width is less than 40-feet. Road improvements will be designed to at least meet the American Association of State Highway and Transportation Officials (AASHTO)'s Policy on Geometric Design of Highways and Streets (Greenbook) as well as AASHTO's Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT<400).

2.6.5 Utilities

Overhead telephone and power lines are located approximately 150 to 170-feet east of the existing roadway centerline, and thus will not interfere with the proposed construction, as they are located outside the project's area of direct impact. No utilities are required to be carried on the proposed project.

2.6.6 Right of Way

Existing information indicates that north of the bridge the right-of-way is 60-feet wide versus a 40-foot wide right-of-way south of the bridge. Some permanent right-of-way acquisition will be required on the east and west side of the bridge due to the placement of rock slope protection materials. Temporary construction easements will be needed to allow contractor access into the channel.

2.6.7 Construction Approach, Staging Areas, and Traffic Diversion

Overall, project construction activities are anticipated to occur during the summer and fall months when water levels are at their lowest levels. **Table 2-1** (see below) identifies the anticipated timing and duration of the primary construction activities anticipated with this project. Construction staging areas will be located on the bridge approaches (see **Figure 2-4**). Traffic will continue to be detoured around the bridge site on North Round Valley Road during construction. Existing detour signs will be maintained for the duration of construction.

It is anticipated that excavators, dozers, cranes, pavers, dump trucks, concrete trucks, and concrete pumps may be required to demolish and construct the proposed project.

Table 2-1. Proposed Construction Work Order and Schedule

Activity	Approximate Duration	Estimated Dates
Clearing and grubbing	1 week	May
Install environmental fencing	1 week	June
Water diversion (if necessary)	1 week	June
Remove bridge	1 week	June
Construct bridge		Mid to Late Summer
Footing construction at abutments	2 weeks	
Abutment construction	4 weeks	
Place precast/prestressed CA wide flange girder superstructure	1 weeks	
Finish bridge deck and complete barriers	8 weeks	
Install erosion control/scour countermeasures	2 weeks	Early Fall
Reconstruct approaches	3 weeks	Late Summer/Early Fall

2.6.8 In Channel Work and Temporary Creek Diversion

Implementation of the proposed project will not involve permanent modifications to the Pine Creek channel. However, bridge demolition and new bridge construction will require temporary access to the creek channel to remove the existing bridge pier/abutments, installation of new bridge abutments, and for the placement of new rock slope protection at the abutments. Creek access will be limited to 80 feet in each direction from the roadway centerline. Depending on creek flows, a temporary creek diversion system may be necessary during both demolition of the existing bridge and the construction of the new bridge. The water diversion system may include sump pumps to remove water from the abutment excavations and a temporary pipe or culvert (plastic or metal covered with gravel) network through the site (50 to 60 feet in length) to route flow through and around the immediate work area, maintain dewatered conditions, and return flow to the downstream channel network without causing harm to

biological resources or affecting water quality. Sand bags and plastic sheeting would be used to direct creek water to the culvert network. Impacted waters located in the work area would either be treated per Stormwater Pollution Prevention Plan (SWPPP)/Water Pollution Control Plan (WPCP) requirements or disposed of per Regional Water Quality Control Board (RWQCB) requirements.

2.6.9 Scour Counter Measures

The geotechnical investigation prepared for the proposed project indicates that soils within the study area are highly susceptible to scour, with high channel velocities at the bridge crossing expected to result in bank and abutment scour in exceedance of 5 feet. Revetment (such as rock slope protection) will be installed around both sides of the bridge abutments (see **Figure 2-3**), extending approximately 30 feet upstream and 40 feet downstream of the edges of the bridge, to prevent loss of bank material.

2.6.10 Erosion Control

The contractor would be required to install temporary BMPs to control any runoff or erosion from the project site into the surrounding waterways. These temporary BMPs would be installed prior to any construction operations and would remain in place for the duration of the construction period. The removal of these BMPs would be the final operation, along with project site cleanup and restoration.

2.7 Regulatory Requirements, Permits, and Approvals

As the lead agency under CEQA, the County has the principal responsibility for approving and carrying out the proposed project and for ensuring that CEQA requirements and all other applicable regulations are met. Other agencies that may have permitting approval or review authority over portions of the proposed project are listed below:

- **California Department of Fish and Wildlife**—Section 1602 streambed alteration agreement; California Endangered Species Act compliance
- **Central Valley Regional Water Quality Control Board**—Clean Water Act Section 401 Certification; and Clean Water Act Section 402 National Pollutant Discharge Elimination System storm water permit for general construction
- **U.S. Army Corps of Engineers**—Department of the Army, Clean Water Act Section 404 Permit for discharge of fill to Waters of the U.S.

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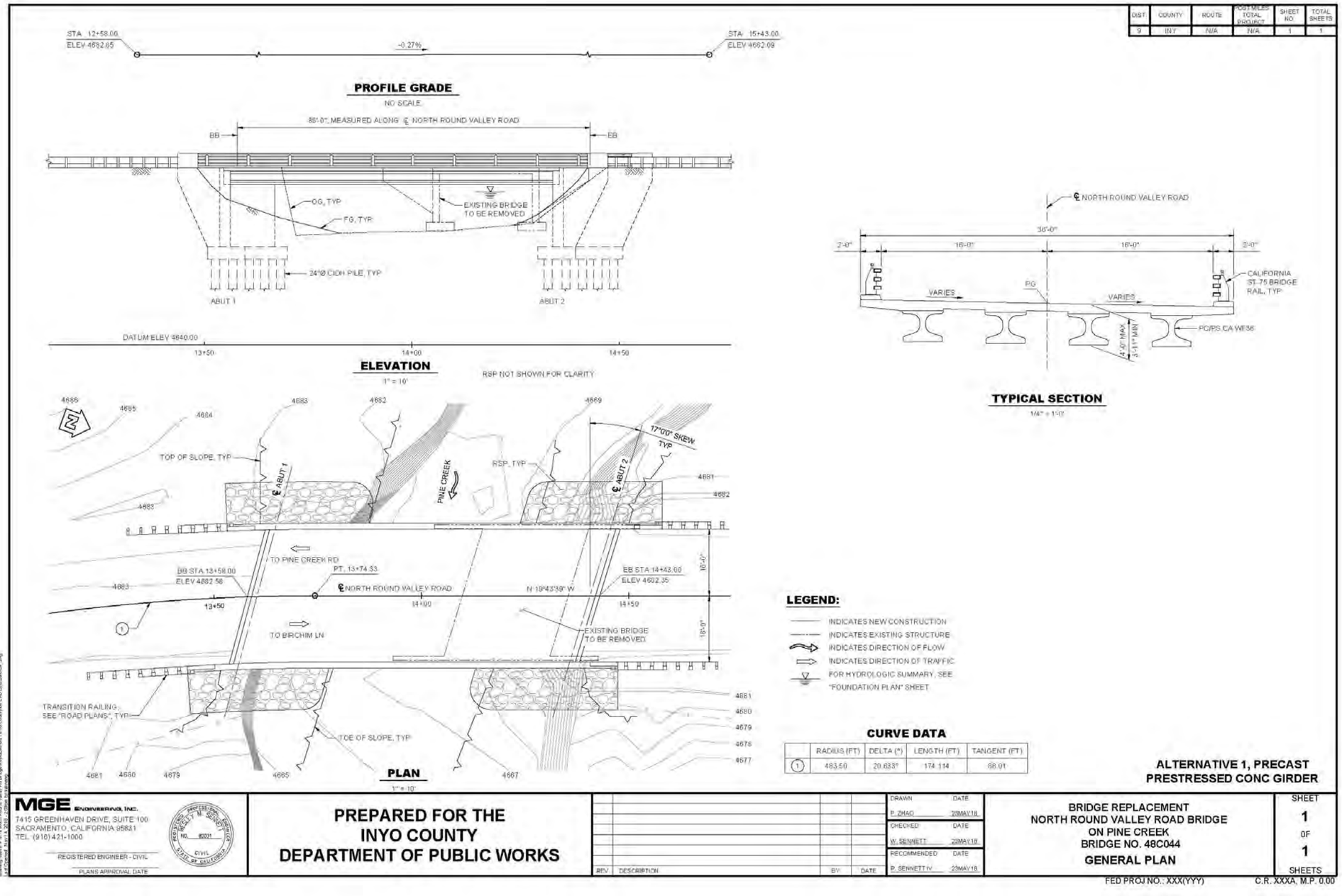
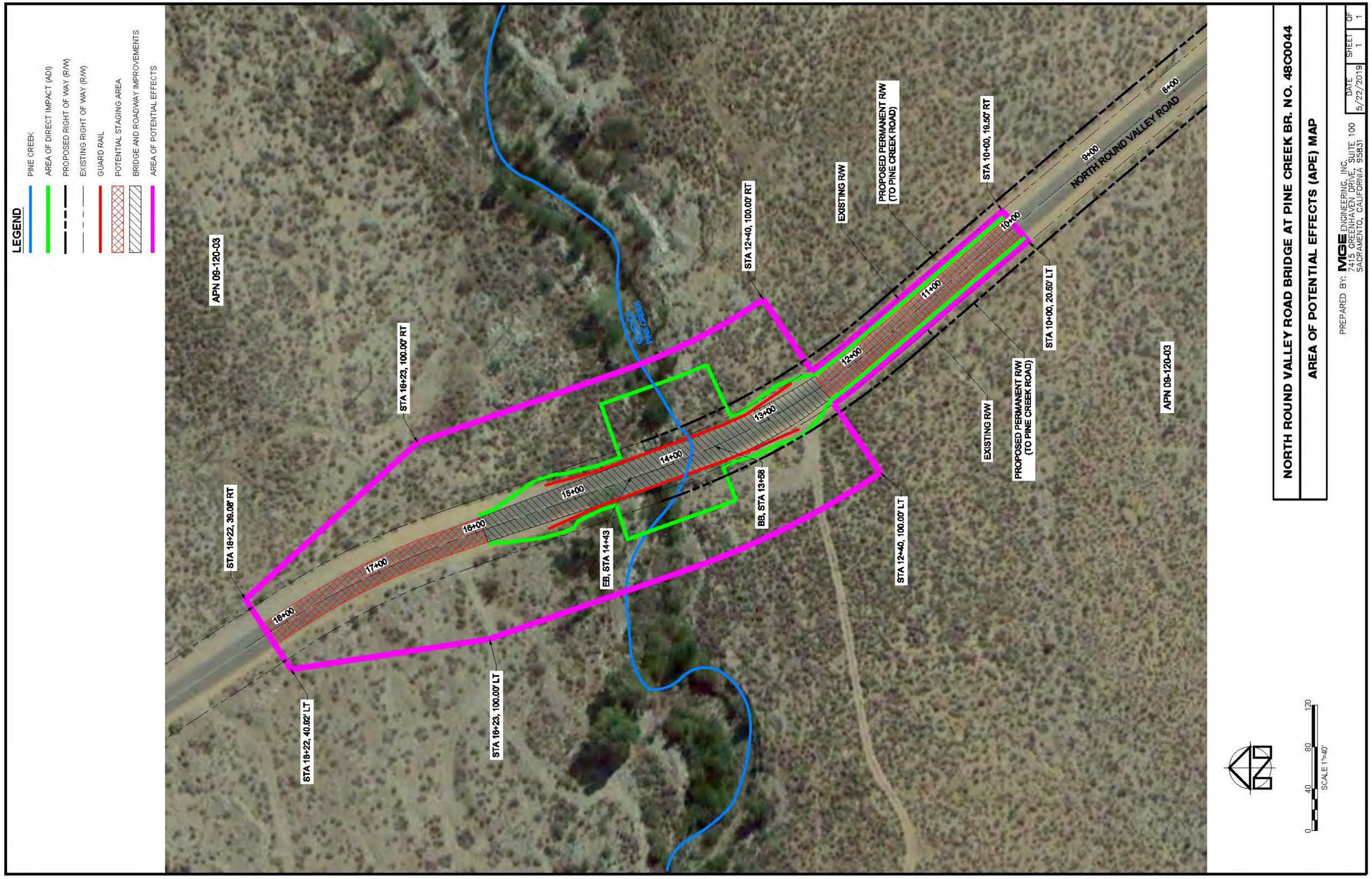
Figure 2-3. Cross Section and Design Details for the Proposed Project



Source: Prepared by MGE Engineering, Inc., 2019

Figure 2-4. Proposed Project Site Plan (and Area of Potential Effect)



Source: Prepared by MGE Engineering, Inc., 2019

Chapter 3. Initial Study Checklist

3.1 Introduction

In compliance with the CEQA Guidelines, the County has prepared the following initial study checklist to analyze the environmental impacts of the proposed project. This checklist uses Appendix G of the CEQA Guidelines to provide a basis for the analysis of the resource areas addressed. An evaluation of potential impacts and mitigation measures to reduce potentially significant impacts is presented in the analysis.

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages. However, all impacts would be mitigated to a less than significant level as indicated on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☐	Energy
☐	Geology/Soils	☐	Greenhouse Gas Emissions	☒	Hazards and Hazardous Materials
☒	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
☐	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☐	Transportation	☒	Tribal Cultural Resources
☐	Utilities/Service Systems	☒	Wildfire	☐	Mandatory Findings of Significance

3.2 Evaluation of Environmental Impacts

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. Operations and maintenance impacts of the proposed project are routine, minimal, and essentially the same as current operations and maintenance of the existing facilities. There is no potential for a significant impact to any resource category from project operations and maintenance of the existing and proposed facilities.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required. “Beneficial impact” is also identified where appropriate to provide full disclosure of any benefits from implementing the proposed project.

4) "Less-than-Significant Impact with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-than-Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063[c][3][D]). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are a "Less-than-Significant Impact with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

Significance thresholds are identified for certain resources, but others are not explicitly identified because there is clearly no impact or the checklist question itself serves as the significance threshold.

3.3 Aesthetics

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
I. AESTHETICS.					
Except as provided in PRC Section 21099, **would the project:**					
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	☒	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒	☐

3.3.1 Discussion

a) Have a substantial adverse effect on a scenic vista?

Implementation of the proposed project will require the removal of some vegetation along Pine Creek; however, replanting (using native vegetation) and erosion control measures (see **Section 3.6** "**Biological Resources**") would be completed as part of the project to restore the construction site to pre-project conditions. While the project will result in short-term, construction-related visual impacts (i.e., dust, equipment, construction vehicles), no vertical features (such as cellular towers, storage tanks, or utility lines) or new sources of lighting are included with the project that would result in permanent negative effects to existing open space views in the study area. Therefore, the project will not result in a negative adverse impact to a scenic vista or the visual character of the site. Consequently, this impact is ***less-than-significant***, with no additional mitigation measures required.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

The project site is not located on or near a state designated scenic highway and will not result in damage to scenic resources within a state scenic highway. Consequently, ***no impact*** would occur.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

See checklist Item "**a**" above.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

See checklist Item "**a**" above. Consequently, ***no impact*** would occur.

3.4 Agriculture and Forestry Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
II. AGRICULTURE AND FORESTRY RESOURCES.					
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒	☐

3.4.1 Discussion

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping

and Monitoring Program of the California Resources Agency, to non-agricultural use?

The project site does not contain any Important Farmlands as identified by the California Department of Conservation's Farmland Mapping and Monitoring Program, parcels with an active Williamson Act contract, or lands designated as Forest or Timberlands. Additionally, the project would replace an existing bridge, with construction activities concentrated within and directly adjacent to the existing roadway, thus remaining consistent with existing development and current zoning and land use designations. Therefore, the project will not result in the conversion of Important Farmland, Timberland/Forest resources or is expected to encourage the non-renewal or cancellation of Williamson Act contracted lands. Consequently, ***no impact*** would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

See checklist Item "**a**" above.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

See checklist Item "**a**" above.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

See checklist Item "**a**" above.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

See checklist Item "**a**" above.

3.5 Air Quality

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
III. AIR QUALITY.					
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations. **Would the project:**					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?	☐	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒	☐

3.5.1 Discussion

a) Conflict with or obstruct implementation of the applicable air quality plan?

This impact is determined based on whether the proposed project would conflict with or obstruct implementation of the applicable air quality plan and/or applicable portions of the State Implementation Plan, which would lead to increases in the frequency or severity of existing air quality violations. As a bridge replacement project (with the primary objective of maintaining public safety, the proposed project would not increase roadway capacity or service capabilities that would induce unplanned growth, remove an existing obstacle to growth, or lead to permanent increases in vehicle miles travelled by existing motorists. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. Consequently, this impact is ***less-than-significant***, with no mitigation measures required.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?

The project site is in a region designated as nonattainment for ozone and particulate matter equal to or less than 10 micrometers in diameter (PM10) under state standards and nonattainment for PM10 under federal standards. While air quality estimates or modelling were not generated for this project, it is assumed that combustion-related emissions, some of which are precursors to ozone, would be well below South Coast Air Quality Management District (SCAQMD) significance thresholds and would have minimal impact on ambient air quality at the project site or in the region, based on a review of similar bridge replacement projects in the County. However, the proposed project may generate construction-related diesel exhaust and dust that

could impact air quality in the region. Fugitive dust would also be generated from use of vehicles and equipment as well as during earth-moving activities. Impacts to air quality from emissions generated during construction would be relatively short and limited to the 5/6-month construction period; however, the proposed project's contribution of fugitive dust and ozone precursors to the region, which is in nonattainment may be ***potentially significant***. Implementation of **Mitigation Measure AIR-1** requires implementation of dust and engine emissions control measures, which would reduce the impact to less than significant. Therefore, the proposed project would have a ***less-than-significant*** impact with mitigation incorporated.

Mitigation Measure AIR-1: Dust and Engine Emissions Control Measures
Inyo County shall ensure that the construction contractor will comply with District Rule 401 regulations. In addition to reasonable precautions outlined in Rule 401, the following measures shall be incorporated during the demolition and installation of the bridge and realigned roadway approaches:

1. Water or dust palliatives shall be applied on dirt roads, material stockpiles, and other surfaces that could give rise to airborne dust and are subject to disturbance.

2. Water or dust palliatives shall be applied to prevent particulate matter from becoming airborne during the transportation or stockpiling of dusty materials.

3. Trucks hauling material shall be covered during transit.

4. Roadways shall be maintained in a clean condition.

5. Vehicles shall be limited to 15 miles per hour (mph) on unpaved roads, to the extent feasible.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]).

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer 's specifications. All equipment shall be checked by a certified visible emissions evaluator.

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

c) Expose sensitive receptors to substantial pollutant concentrations?

No sensitive receptors are located near the project site or would be exposed to substantial pollutant concentrations. Consequently, ***no impact*** would occur.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No objectionable odors would be generated from project construction activities or from use of the proposed bridge. Consequently, ***no impact*** would occur.

3.6 Biological Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
IV. BIOLOGICAL RESOURCES.					
Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
c) Have a substantial adverse effect on State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒	☐

3.6.1 Discussion

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

A Biological Resources Technical Report (GEI, 2019a) and a Preliminary Delineation of Waters of the United States, Including Wetlands Report (GEI, 2019b) were prepared for the County to evaluate site conditions and potential impacts to sensitive habitats, biological, and botanical species from project activities. Other primary references consulted include species lists and

information gathered using United States Fish and Wildlife Service's (USFWS), Information, Planning, and Conservation System (IPAC), California Department of Fish and Wildlife's (CDFW) Natural Diversity Database (CNDDB), the California Native Plant Society's (CNPS) list of rare and endangered plants, and literature review. The conclusions of the reports are the result of field survey findings and research to determine the potential of special-status species to occur within the study area, and/or if these species could be impacted by project activities. The following information is summarized from the Biological Resources Technical Report and the report is included as **Appendix A**.

Implementing the proposed project would not result in tree removal or permanent conversion of sagebrush habitat. Developed road shoulders and adjacent sagebrush scrubland are areas where equipment and materials may be temporarily staged. Impacts of the proposed project on biological resources could result from vegetation removal and grading during construction. In-water work could result in temporary disturbance to aquatic biological resources. In general, terrestrial impacts are anticipated to be relatively minor, because project implementation would be restricted to the developed surfaces along North Round Valley Road and sagebrush scrub habitat located adjacent to the road.

In-water construction would be restricted to periods of low-flow, most likely beginning in June. In-water construction activities include removing the existing failed bridge and constructing new abutments in the Pine Creek channel. Because Pine Creek is a perennial channel, dewatering is required to complete project construction.

Special-status Species – Birds

Four special-status bird species—golden eagle, bald eagle, Swainson's hawk, and bank swallow––have low or moderate potential to occur on or adjacent to the project site (see **Table 2**, Biological Resources Technical Report, **Appendix A**). All of these species are known or likely to occur in the general region, but potential for most of them to occur onsite is likely limited to foraging and/or roosting. The project site and immediately adjacent areas provide limited potential nesting habitat for large raptors; only two large-diameter Cottonwood trees are present along the north bank of Pine Creek, and few large trees are present along other nearby portions of the creek. Stick nests were not observed in trees on or near the project site during the December field survey, when trees were devoid of leaves and nests would have been readily observable. In the unlikely event an active Swainson's hawk nest is present on or adjacent to the project site during demolition and construction activities, nesting birds could be disturbed to an extent that results in nest failure. The CNDDB contains few records for the species nesting in Inyo County, indicating that the population is small, and the loss of a single nest would result in a substantial adverse effect on the species. Implementation of **Mitigation Measure BIO-1** requires implementation of preconstruction and species avoidance measures, which would reduce the impact to less than significant. Therefore, the proposed project would have a ***less-than-significant*** impact with mitigation incorporated.

Mitigation Measure BIO-1: Avoid and Minimize Effects to Nesting Swainson's Hawk. Inyo County shall ensure the construction contractor implement the following measures to avoid and minimize potential adverse effects on nesting Swainson's hawk during project construction.

1. Preconstruction surveys for active Swainson's hawk nests shall be conducted by a qualified biologist in all areas of suitable nesting habitat within 0.25-mile of project disturbance. A minimum of one survey shall be conducted no more than 14 days before project activities commence.

2. Appropriate buffers shall be established and maintained around active nest sites to avoid nest failure from project activities. The appropriate size and shape of the buffers shall be determined by a qualified biologist and may vary depending on the nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines it would not be likely to adversely affect the nest. Monitoring shall be conducted to confirm that project activities are not resulting in detectable adverse effects on nesting birds or their young. No project activities shall commence within the buffer areas until a qualified biologist determines that the young have fledged, or the nest site is otherwise no longer in use.

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

The project site and vicinity lack suitable nesting habitat for bank swallow. Implementation of the proposed project would result in the loss of a very small amount of temporal foraging habitat loss for one season but would not substantially reduce the overall populations or distribution of any special-status bird species. However, it is recommended that **Mitigation Measure BIO-2** be implemented to avoid and minimize destruction of active bird nests and potential violation of FGC Section 3503 during project construction. Implementation of the construction worker awareness training practices, revegetation measures, and invasive plant avoidance measures identified in **Mitigation Measures BIO-3**, **BIO-4**, and **BIO-5** are also recommended to minimize related species and habitat impacts.

Mitigation Measure BIO-2: Pre-Construction Bird Surveys

Inyo County shall ensure the construction contractor implement the following measures to avoid and minimize destruction of active bird nests and potential violation of FGC Section 3503 during project construction:

1. If vegetation removal must occur during the migratory bird nesting season (March 15 through July 31), surveys for active bird nests shall be conducted by a qualified biologist in areas of suitable nesting vegetation designated for removal. If active nests are found, removal of vegetation in which the nests are located will be delayed until a qualified biologist determines that the young have fledged, or the nest site is otherwise no longer in use.

2. Preconstruction surveys for active nests of common raptor species shall be conducted by a qualified biologist. Surveys for raptor nests shall include suitable habitat within up to 300 feet of areas subject to project disturbance, depending on the potential extent of indirect impact. Surveys shall be conducted within 14 days before commencement of any construction activities that occur during the raptor nesting season (March 15 to July 31) in a given area.

3. If any active nests, or behaviors indicating active nests are present, are observed, appropriate buffers around the nest sites shall be determined by a qualified biologist to avoid nest failure resulting from project activities. Buffer size shall depend on the species, nest location, nest stage, and specific construction activities to be performed while the nest is active. The buffers may be adjusted if a qualified biologist determines it would not be likely to adversely affect the nest. If buffers are adjusted, monitoring shall be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity shall commence within the buffer areas until a qualified biologist determines that the young have fledged, or the nest site is otherwise no longer in use.

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

Mitigation Measure BIO-3: Conduct Environmental Awareness Training Regarding Special-status Species and Sensitive Habitats prior to Construction

Inyo County shall ensure the construction contractor will implement the following actions before and during construction activities:

Before any work occurs in the proposed project footprint, including grading and equipment staging, all construction personnel shall participate in an environmental awareness training regarding special-status species and sensitive habitats present in the project limits. The training shall describe sensitive resources (i.e., waters of the U.S. and state, riparian habitat, special-status species and habitat, nesting birds/raptors) to be avoided during project construction and applicable permit conditions identified by state and federal agencies to protect these resources. If new construction personnel are added to the project, they must receive the mandatory training before starting work. After being trained, each construction person shall sign-in to document they received the training.

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

Mitigation Measure BIO-4: Return Temporarily Disturbed Areas to Pre-Project Conditions

The County shall ensure the construction contractor will implement the following actions before and during construction activities:

All temporarily disturbed areas shall be returned to pre-project conditions within one year following completion of construction/maintenance. These areas shall be properly protected from washout and erosion using appropriate erosion control devices including coir netting, hydroseeding, and revegetation.

Responsibility: County of Inyo / Construction Contractor

Timing: During and After Construction Activities

Mitigation Measure BIO-5: Avoid the Spread of Invasive Plant Species

The County shall ensure the following mitigation measures shall be implemented, as appropriate, to avoid the spreading of invasive plant species throughout the project site during construction and maintenance activities, particularly in riparian areas:

1. All hay, straw, hay bales, straw bales, seed, mulch, or other material used for erosion control or landscaping on the project site, and all material brought to the site, including rock, gravel, road base, sand, and top soil, shall be free of noxious weed seeds and propagules. Noxious weeds are defined in Title 3, Division 4, Chapter 6, Section 4500 of the California Code of Regulations and the California Quarantine Policy – Weeds. (Food and Agriculture Code, Sections 6305, 6341 and 6461)

2. All equipment brought to the project site for construction shall be thoroughly cleaned of all dirt and vegetation prior to entering the site to prevent importing noxious weeds. (Food and Agriculture Code, Section 5401)

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

Special-status Species – Mammals

Three special-status bat species—pallid bat, Townsend big-eared bat, and spotted bat have the potential to forage over the project site, but roosting habitat is absent from the project site and immediate vicinity. Foraging activities are unlikely to be disturbed by construction activities. Areas of rock outcrops near the toe slope of Wheeler Mountain may support colonial bat roost sites, but project activities are unlikely to create enough disturbance to disrupt bats that may roost in such areas, located over 3 miles away. The existing failed bridge structure is concrete slab and lacks cracks or openings on the underside of the bridge deck that could serve as bat rooting habitat. Existing mature trees on the project site are unlikely to provide habitat for roosting colonies due to the limited amount of habitat present, but they could be used as temporary roost sites for small numbers of individuals. Potential disturbance of small numbers of roosting bats that may be present onsite would not result in a substantial adverse effect to local or regional populations of either species. Therefore, the proposed project would have a ***less-than-significant*** impact on special-status bats.

Western white-tailed jackrabbit and Sierra Nevada bighorn sheep utilize high elevations in the summer months and migrate down the eastern slope of the Sierra Nevada during winter months. These species are not likely to be present on the project site or vicinity when the project is implemented during summer and fall months. The proposed project would not result in a permanent loss of sagebrush scrubland habitat and therefore would not result in the loss of foraging habitat for these species. The proposed project would have ***no impact*** on western white-tailed jackrabbit and Sierra Nevada bighorn sheep.

Sierra Nevada red fox are typically found at elevations above 7,000 feet and have been extirpated from much of the Sierra Nevada. One potential occurrence of this subspecies has been reported from several miles upstream along Pine Creek, but the identification cannot be confirmed. The project site includes a narrow band of sagebrush scrub habitat adjacent to North Round Valley

Road, which could provide suitable dispersal and foraging habitat for Sierra Nevada red fox. The proposed project would not result in a permanent loss of sagebrush scrubland habitat and therefore would not result in the loss of dispersal/foraging habitat for this species. Project implementation would not impede the movement of this species, if an individual were present at the time of construction. The proposed project would have ***no impact*** on Sierra Nevada red fox.

Special-status Species – Fish

Owens sucker and Owens speckled dace were determined to have moderate potential to occur in the waters of Pine Creek. The proposed project would result in temporary dewatering of Pine Creek in the construction footprint (approximately 50 to 60 linear feet) to complete in-channel construction activities including the removal of the existing failed bridge structure and the construction of two new bridge abutments. Channel dewatering would result in a temporary loss of foraging habitat for fish species. The construction of new bridge abutments would require excavation in the creek bed to construct the cast-in-drilled-hole piles and modification of the channel bank in the immediate vicinity of the abutment. Each new abutment would measure approximately 40 feet long by 12 feet wide by 3 feet deep. Temporary shoring may be required to stabilize the abutment excavation and localized dewatering may be required to ensure that the area surrounding the footing concrete remains dry. Uncured cement has a high pH and can rapidly change stream chemistry if the area is not isolated. Degradation of downstream water quality could result in mortality of aquatic species downstream of construction and could result in mortality of individuals of special-status fish downstream, if present. This would be a ***potentially significant*** impact on special-status fisheries. Implementation of **Mitigation Measure BIO-6** and **BIO-7** requires implementation of dewatering and water quality measures, which would reduce the impact to less than significant. Therefore, the proposed project would have a ***less-than-significant*** impact with mitigation incorporated.

Scour counter measures are required because the soils within the project site are highly susceptible to erosion and therefore it is anticipated that rip rap would be placed 30 feet upstream and 40 downstream of abutments. Placement of rip rap would result in the permanent modification of channel slopes in the immediate vicinity of the bridge resulting in the loss of a fraction of a percent of available spawning habitat within Pine Creek, since most scour counter measures would be placed along the streambank. Up to 70 linear feet of spawning habitat represents a minor loss of the overall amount of spawning habitat present in Pine Creek and therefore this impact would be ***less-than-significant***.

Mitigation Measure BIO-6: Avoid and Minimize Effects to Special-status Fish.

Inyo County shall ensure the construction contractor implement the following measures to avoid and minimize adverse impact on special-status fish species.

1. The construction contractor shall prepare a dewatering plan, which shall be reviewed by a qualified fisheries biologist retained by Inyo County.

2. A qualified biologist shall be present during dewatering activities and shall relocate fish downstream to flowing waters outside the project site, if necessary.

3. No refueling, storage, servicing, or maintenance of equipment shall take place on the shore within 100 feet of the Ordinary High-Water Mark (OHWM) of Pine Creek.

4. All machinery used during project construction shall be properly maintained and cleaned to prevent spills and leaks that could contaminate soil or water. Secondary containment for stationary machinery used to dewater, such as pumps or generators, shall be used.

5. All pumps used to conduct dewatering activities shall be screened to prevent fish entrainment.

6. The area surrounding concrete abutment footings shall remain dry until cement is fully cured. Any waters that make contact with wet cement shall be disposed of outside of the active channel of Pine Creek.

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

Mitigation Measure BIO-7: Avoid and Minimize Effects to waters of the United States/waters of the State.

Inyo County shall ensure the construction contractor implement the following measures to avoid and minimize direct fill of waters of the United States in Pine Creek. Pine Creek is also a water of the state, regulated under Section 401 of the CWA, and subject to regulation by CDFW under Section 1600 of the California Fish and Game Code.

1. Ground disturbance shall be limited to construction areas, including necessary access routes and staging areas. The total area of the project activity shall be limited to the minimum necessary. When possible, existing access routes and points shall be used. All roads, staging areas, and other facilities shall be placed to avoid and limit disturbance to Pine Creek when feasible.

2. A Storm Water Pollution Prevention Plan (SWPPP) or a Water Pollution Control Plan (for disturbance areas less than an acre) that identifies specific best management practices (BMPs) to avoid and minimize impacts on water quality during construction activities shall be prepared and implemented. BMPs may include:

3. Erosion control measures that minimize soil or sediment from entering waterways and wetlands shall be installed, monitored for effectiveness, and maintained throughout construction activities.

4. Precautions to minimize turbidity/siltation shall be implemented during construction. This may require placing barriers (e.g., silt curtains) to prevent silt and/or other deleterious materials from entering downstream reaches.

5. Petroleum products, chemicals, fresh cement, and construction by-products containing, or water contaminated by, any such materials shall not be allowed to enter flowing waters and shall be collected and transported to an authorized upland disposal area.

6. A written spill prevention and control plan (SPCP) shall be prepared and implemented. The SPCP and all material necessary for its implementation shall be accessible on-site

prior to initiation of project construction and throughout the construction period. The SPCP shall include a plan for the emergency cleanup of any spills of fuel or other material. Employees/construction workers shall be provided the necessary information from the SPCP to prevent or reduce the discharge of pollutants from construction activities to waters and to use the appropriate measures should a spill occur. In the event of a spill, work shall stop immediately and CDFW, Lahontan Regional Water Quality Control Board (RWQCB), and United States Army Corps of Engineers (USACE) shall be notified within 24 hours.

7. Before the commencement of construction activities, high-visibility fencing shall be erected to protect areas of Pine Creek that are located adjacent to construction areas, but can be avoided, from encroachment of personnel and equipment. The fencing shall be inspected before the start of each work day and shall be removed only when the construction within a given area is completed. Limits of waters of the United States shall be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas.

8. A qualified biologist shall monitor the start of in-water construction activities to ensure that avoidance and minimization measures are being properly implemented and no unauthorized activities occur.

9. Project implementation would result in the need to obtain regulatory permits from USACE, RWQCB, and CDFW for direct impacts to Pine Creek. All measures developed through consultation with the respective regulatory agencies shall be implemented.

10. Section 404: Before any ground-disturbing project activities begin in Pine Creek, a qualified biologist shall conduct a formal delineation of waters of the United States for Clean Water Act Section 404 permitting. The findings shall be documented in a detailed report and submitted to USACE for verification as part of the Section 404 wetland delineation process. Authorization for fill of jurisdictional waters of the United States shall be secured from USACE via the Section 404 permitting process before project construction. Any measures determined necessary during the 404 permitting process shall be implemented during project construction.

11. Section 401: Water quality certification pursuant to Section 401 of the Clean Water Act shall be obtained from the Lahontan RWQCB before starting project construction in any areas that may contain waters of the State. Any measures required as part of the issuance of water quality certification shall be implemented.

12. Section 1602: A CDFW lake and streambed alteration agreement shall be obtained under Section 1602 of the California Fish and Game Code for all work below the top of bank of Pine Creek. Any conditions of issuance of the lake and streambed alteration agreement shall be implemented as part of project implementation.

Responsibility: County of Inyo / Construction Contractor

Timing: Before, During and After Construction Activities

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or

by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

See checklist Item "**a**" above.

c) Have a substantial adverse effect on State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

See checklist Item "**a**" above.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

See checklist Item "**a**" above.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, apply to the project site. Consequently, ***no impact*** would occur.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

No impact would occur.

3.7 Cultural Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
V. CULTURAL RESOURCES.					
Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource pursuant to California Code of Regulations (CCR) Section 15064.5?	☐	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5?	☐	☒	☐	☐	☐
c) Disturb any human remains, including remains interred outside of dedicated cemeteries?	☐	☒	☐	☐	☐

3.7.1 Discussion

a) Cause a substantial adverse change in the significance of a historical resource pursuant to in California Code of Regulations Section 15064.5?

A Cultural Resources Inventory Report (GEI, 2019c) was prepared for the County to evaluate site conditions and potential impacts to cultural resources. The report (available for review at the Inyo County Public Works office) is summarized below and has been conducted to comply with Section 106 of the National Historic Preservation Act of 1966, as amended (Section 106) and the California Environmental Quality Act and its implementing guidelines (CEQA) as pertaining to cultural resources.

The cultural resources investigation included a records search conducted at the Eastern Information Center (EIC) of the California Historical Information System located at the University of California, Riverside and a pedestrian survey of the Area of Potential Effects (APE). The records search at the EIC did not identify any previously reported cultural resources within the APE. One previously unidentified, prehistoric archaeological resource was found during the archaeological field survey. Given the temporary designation RV-1 until the EIC can assign a resource number and trinomial to the site, it consists of a moderately sized lithic scatter predominantly containing debitage but also some stone tools including bifaces, flake tools, and projectile points; two artifact concentrations were also noted.

There is insufficient data regarding RV-1 to determine if it is eligible for listing in either the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR). While RV-1 is outside of the project's area of direct impact, a portion of RV-1 is located within the APE. However, project activities would be focused on construction staging and limited to the existing roadway. To ensure no adverse effects to the resource, implementation of resource avoidance measures provided in **Mitigation Measure CR-1** and **CR-2** would reduce

the impact to less than significant. Therefore, the proposed project would have a ***less-than-significant*** impact with mitigation incorporated.

Mitigation Measure CR-1: Install Environmentally Sensitive Area Fencing Around Portions of Resource RV-1

To ensure no adverse effects to the resource, Inyo County will ensure that the construction contractor install Environmentally Sensitive Area fencing around portions of the RV-1 resource near the roadway limits to clearly depict the limits of the resource. The fencing would provide a visual reference, so construction personnel can clearly recognize the resource limits on the ground and ensure no adverse effects to RV-1.

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

Mitigation Measure CR-2: Accidental Finding of Human Remains

1. If human remains are found, the California Health and Safety Code requires that excavation be halted in the immediate area and that the Inyo County Coroner be notified to determine the nature of the remains. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private of State lands (California Health and Safety Code, Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by telephone within 24 hours of making that determination (California Health and Safety Code, Section 7050.5[c]).

2. Once notified by the Coroner, the NAHC shall identify the person it believes it the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner(s), the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. This visit should be conducted with 48 hours of the MLD's notification by the NAHC (California Public Resources Code [PRC], Section 5097.98[a]). If a satisfactory agreement for treatment of the remains cannot be reached, any of the parties may request mediation by the NAHC (California PRC, Section 5097.94[k]). Should mediation fail, the landowner or landowner's representative must reinter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (California PRC, Section 5097.98[b]).

Responsibility: County of Inyo / Construction Contractor

Timing: During Construction Activities

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations Section 15064.5?

See checklist Item "**a**" above.

c) Disturb any human remains, including remains interred outside of dedicated cemeteries?

See checklist Item "**a**" above.

3.8 Energy

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
VI. ENERGY.					
Would the project:					
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒	☐
b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒	☐

3.8.1 Discussion

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Fuel use would be consistent with typical construction and manufacturing practices and would not require excessive or wasteful use of energy. Construction activities would not reduce or interrupt existing fuel or electricity delivery systems due to insufficient supply. The proposed bridge replacement project would not result in a potentially significant environmental impact due to wasteful, inefficient, or the unnecessary consumption of energy resources. Consequently, ***no impact*** would occur.

b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

The proposed bridge replacement project would not conflict with or obstruct a plan for renewable energy or energy efficiency. Consequently, ***no impact*** would occur.

3.9 Geology and Soils

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
VII. GEOLOGY AND SOILS.					
Would the project:					
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated),), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒	☐

3.9.1 Discussion

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist

for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

Implementation of the proposed project would adhere to construction recommendations in the California Department of Transportation's Design Manual and the current design parameters of the Structural Engineers of California Uniform Building Code. Therefore, the project would not expose people or structures to potential substantial adverse effects involving the rupture of a known earthquake fault, and no impact would occur. Furthermore, the proposed project would be designed to withstand seismic loading. Consequently, ***no impact*** would occur.

ii) Strong seismic ground shaking?

See checklist Item "**ai**" above.

iii) Seismic-related ground failure, including liquefaction?

See checklist Item "**ai**" above.

iv) Landslides?

The project site and surrounding area is flat and has a low potential for landslides. Construction and operation of the proposed project would result in no additional exposure of people to landslides. Therefore, there would be no increased hazard from landslides and ***no impact***.

b) Result in substantial soil erosion or the loss of topsoil?

Construction activities associated with the project would involve grading and excavation activities within the project site. These activities could expose barren soils to sources of wind or water, resulting in the potential for erosion and sedimentation on and off the project site. The County plans to complete construction in the dry season, such that any surfaces disturbed during construction would be paved or re-vegetated before the raining season, keeping the potential for erosion low. Furthermore, the County would employ appropriate sediment and erosion control BMPs to minimize the potential for erosion and sedimentation as part of a SWPPP (or as part of a WPCP in accordance with the construction specifications and prepared by a QSP) in accordance with contract specification and with NPDES General Permit for Storm Water Discharges associated with construction activity. Additionally, the implementation of the erosion prevention measures/water quality best management practices provided under **Mitigation Measure BIO-7** (more fully described above under **Section 3.6** "**Biological Resources**"), would serve to further minimize the project's impacts to soil loss and substantial soil erosion. Consequently, this impact is ***less-than-significant***.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

See checklist Item "**ai**" above.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?

See checklist Item "**ai**" above.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Portable toilets would be used for construction workers. The proposed project would not require or include the construction of wastewater disposal systems of any kind. Thus, there would be ***no impact*** related to the ability of project site soils to support the use of septic systems.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The proposed bridge replacement project would not destroy a unique geologic feature. Consequently, ***no impact*** would occur.

3.10 Greenhouse Gas Emissions

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
VIII. GREENHOUSE GAS EMISSIONS.					
Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐

3.10.1 Discussion

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Project construction-related activities would generate a variety of greenhouse gases, such as carbon dioxide (CO2), methane (CH4), and nitrous dioxide (N2O) from the exhaust of equipment and the exhaust of vehicles for employees, visitors, and construction hauling trips. The project would also result in the short-term generation of aerosols from diesel particulate matter exhaust. Aerosols are short-lived greenhouse gases, as they remain in the atmosphere for approximately one week. The project would emit nitrogen oxides (NOx) and reactive organic gases (ROG), which are ozone precursors. Ozone is a greenhouse gas. However, unlike the other greenhouse gases, ozone in the troposphere is relatively short-lived and is being reduced in the troposphere daily. Overall, these emissions are considered temporary or short-term.

As previously described above in **Section 3.5** "**Air Quality**", the proposed project would not increase roadway capacity or service capabilities that would induce unplanned growth or remove an existing obstacle to growth that would contribute additional long-term sources of ROG or NOx. The proposed project would generate temporary and short-term construction-related emissions of ROG or NOX; however, **Mitigation Measure AIR-1** (more fully described above in **Section 3.5** "**Air Quality**") requires implementation of engine emissions control measures which would further minimize the project's greenhouse gas emission impacts. Therefore, the proposed project would have a ***less-than-significant*** impact.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The California Air Resources Board (CARB) Scoping Plan provides an outline of actions to reduce California's GHG emissions. The Scoping Plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce Greenhouse Gases (GHGs). At this time, there are no applicable local plans, mandatory GHG regulations, or finalized agency guidelines that would apply to this project. As such, the proposed project does not conflict with any local plans.

Additionally, the proposed project would generate very minimal GHG emissions compared to GHG thresholds that have been developed by SCAQMD to meet compliance with AB32 requirements. Consequently, this impact is ***less-than-significant***, with no mitigation measures required.

3.11 Hazards and Hazardous Materials

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
IX. HAZARDS AND HAZARDOUS MATERIALS.					
Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐	☐

3.11.1 Discussion

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Hazardous materials present during project construction may include gasoline, diesel fuel, hydraulic oils, equipment coolants, and any generated wastes that may include these materials. Fueling of equipment and vehicle would be performed on-site. Construction equipment and vehicles would use a minimal amount of hazardous materials. Gasoline and diesel fuel would be

stored in small quantities at the staging yards during construction. Although very few individuals live and work in the area, a hazard to the public or the environment could occur through the transport and use of gasoline and diesel fuel on the project site. Spill response and control would be addressed in the project-specific SWPPP or WPCP (more fully described above under **Section 3.6** "**Biological Resources**"). Compliance with the spill control and response measures in the SWPPP or WPCP would reduce the risk to the public and environment from transport and use of hazardous materials. The impact to the public or the environment from use, disposal, or transport of hazardous materials during construction would be ***less-than-significant***.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

See checklist Item "**a**" above.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The Round Valley Joint Elementary School is located near the project site. However, construction related activities would occur during the summer months to minimize impacts to the school. Consequently, ***no impact*** would occur.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The project site is not located on a site included on a list of hazardous materials sites. The project would result in no impacts associated with emissions from hazardous materials sites. Consequently, ***no impact*** would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The project site is not located within an airport use plan or within 2 miles of a public airport or public use airport. The project would have no impacts associated with airport hazards. Consequently, ***no impact*** would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The existing bridge is currently not in use, with no through vehicle traffic on this portion of North Round Valley Road. Use of the new bridge would allow for safer passage of larger emergency response vehicles and easier evacuation, if needed. The project would have no impact on emergency response. Consequently, ***no impact*** would occur.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Heavy equipment used during project construction has the potential to start a fire on surrounding open space areas near the project site. Vegetation removal activities resulting from the project will help to reduce the potential of wildland fires by providing a clearing, reducing fire fuels and removing fire sustaining litter. In addition, during construction, spark arrestors or turbo chargers (which eliminate sparks in exhaust) and fire extinguishers would be required for all heavy equipment pursuant to **Mitigation Measure HAZ-1** that would serve to further minimize wild land fire impacts. Consequently, this impact is ***less-than-significant*** with mitigation incorporated.

Mitigation Measure HAZ-1: Implement BMPs for Wildland Fire Prevention.

Inyo County shall ensure that the construction contractor will clear dried vegetation or other materials that could serve as fuel for combustion from construction or building areas. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak. Construction contractors shall ensure that any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

3.12 Hydrology and Water Quality

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
X. HYDROLOGY AND WATER QUALITY.					
Would the project:					
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐	☐
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐	☐

3.12.1 Discussion

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction-related activities resulting from the proposed project would require ground-disturbing work within and adjacent to Pine Creek. Construction and staging areas would be disturbed by vehicles and various work activities (e.g., grading) that would make these areas susceptible to erosion by stormwater runoff. Sediment-laden stormwater runoff could increase turbidity in Pine Creek within the immediate project area, resulting in a temporary adverse effect

on water quality. However, the County plans to complete construction in the dry season, such that any surfaces disturbed during construction would be paved or re-vegetated before the rainy season, keeping the potential for erosion low. Additionally, impacts to runoff water quality could potentially result from leaks or spills of fuel or hydraulic fluid used in construction equipment; outdoor storage of construction materials; or spills of paints, solvents, or other potentially hazardous materials commonly used in construction.

As previously described above in **Sections 3.6** "**Biological Resources**" and **3.9** "**Geology and Soils**", a SWPPP (or WPCP prepared in accordance with the contract specifications and by a QSP), in accordance with contract specifications and with California National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges (associated with construction activity) would be implemented as part of the project. The SWPPP (or WPCP) would require the implementation of appropriate construction BMPs and would ensure no water quality standards or waste discharge requirements would be violated. In addition, the project is subject to the water quality and erosion prevention provisions outlined under the Clean Water Act Sections 401 and 404 and a CDFW Streambed Alteration Agreement.

Prior to in-channel construction activities, the County will complete the Section 404 Clean Water Act Nationwide Permitting Process, complete RWQCB certification, and obtain a Streambed Alteration Agreement with California Department of Fish and Wildlife. Conditions of Approval outlined in the respective permits would help to alleviate any potential water quality impacts resulting from bridge replacement activities occurring within Pine Creek. Additionally, the implementation of the erosion prevention measures/water quality best management practices provided under **Mitigation Measure BIO-7** (more fully described above under **Section 3.6** "**Biological Resources**"), would serve to further minimize the project's impacts to soil and substantial soil erosion. Consequently, this impact is ***less-than-significant***, with no further mitigation required.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The proposed project would not require the use of groundwater or substantially interfere with groundwater recharge. The proposed project is located within an area where groundwater levels vary seasonally and are highly influenced by precipitation, drainage, soil texture, and profile. Replacement of the bridge would not result in new amounts of impervious surfaces that would affect local groundwater levels or the production rates of nearby water wells. Therefore, the project would not substantially deplete groundwater supplies and would not affect groundwater recharge such that a net deficit would occur. Consequently, this impact is ***less-than-significant***, with no mitigation required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation on- or off-site;

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv) Impede or redirect flood flows?

The project site naturally drains into Pine Creek. The proposed bridge and road widening would not add a significant amount of new impervious surfaces and would not substantially alter the existing topography or drainage pattern of the creek channel. While there may be a temporary alteration of flow during installation of the proposed bridge, any water diversion structures utilized would be in place over a short-term period and are not anticipated to significantly alter the existing drainage pattern of the site in a way that would result in substantial erosion or siltation on- or offsite. In addition, standard construction erosion control measures, permit Conditions of Approval, as well as the SWPPP (or WPCP) would be implemented as a part of the project and would ensure that potential construction erosion and siltation would not affect drainages. Consequently, this impact is ***less-than-significant,*** with no mitigation required.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

There are no large water bodies in the vicinity of the project site and the surrounding area is in a flat valley area, not subject to mudflow risks. Consequently, ***no impact*** would occur.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

See checklist Item "**b**" above.

3.13 Land Use and Planning

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XI. LAND USE AND PLANNING.					
Would the project:					
a) Physically divide an established community?	☐	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒	☐

3.13.1 Discussion

a) Physically divide an established community?

The proposed project would replace an existing storm damaged bridge and would not result in a physical division or barrier to an established community. Land uses in the immediate project vicinity consist of open space with scattered rural residential uses. The project is designed to improve public safety, connectivity, and circulation for residents in the project vicinity and any short term-construction-related impacts to local vehicle travel would be minimal. Consequently, implementation of the proposed project would not physically divide an established community and improve public safety by replacing the existing storm damaged bridge, resulting in a ***beneficial impact***.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed replacement of an existing bridge would occur within the County's existing right-of-way and the proposed project would remain consistent with the existing site land use and surrounding land use designations, requiring no further change or amendment to the General Plan land use designation or zoning assigned by the County. Therefore, the project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. Consequently, ***No impact*** would occur.

3.14 Mineral Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XII. MINERAL RESOURCES.					
Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒	☐

3.14.1 Discussion

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No mineral extraction activities exist on the project site and mineral extraction is not included as a part of the project. Consequently, ***no impact*** would occur.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

See checklist Item "**a**" above.

3.15 Noise

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XIII. NOISE.					
Would the project:					
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable standards of other agencies?	☐	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒	☐

3.15.1 Discussion

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable standards of other agencies?

Implementation of the proposed project would result in potential noise impacts from short-term construction activities. Regarding long-term or operational noise impacts, implementation of the proposed project would not result in added travel lanes along the project alignment, nor would it move travel lanes substantially closer to any sensitive receptor in the project vicinity. In addition, implementation of the proposed project would not result in any increase in traffic volumes along the project alignment. As such, the project would not result in any new long-term operational noise sources, nor would it move existing operational noise sources (i.e., traffic) closer to existing sensitive land uses. No long-term or operational noise impacts are associated with the project and this topic is not addressed further.

Construction activities necessary to complete the bridge replacement would generate a considerable amount of noise in the immediate project vicinity. Noise from vehicles, earth-moving operations, and heavy equipment would result in elevated ambient and intermittent noise levels. Noise impacts from construction depend on the noise generated by various pieces of equipment, timing and duration of noise-generating activities, and the distance between construction noise sources and noise-sensitive receptors, and the noise environment in which the proposed project would be constructed. Noise generated during the construction period would vary on a day-to-day basis, depending on the specific activities being

undertaken at any given time. Construction traffic and equipment resulting from the proposed project is not anticipated beyond the limits of the project site. Consequently, construction noise would not exceed County noise standards. No residential land uses are located near the project site and construction-related activities would occur during the summer months to minimize construction noise to the Round Valley Joint Elementary School. Consequently, ***no impact*** would occur.

b) Generation of excessive groundborne vibration or groundborne noise levels?

See checklist Item "**a**" above.

c) For a project located within-the vicinity of a private airstrip or-an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project site is not located within 2 miles of an airport or within an existing or projected airport land use plan. Consequently, ***no impact*** would occur.

3.16 Population and Housing

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XIV. POPULATION AND HOUSING.					
Would the project:					
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	☐

3.16.1 Discussion

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project would not directly or indirectly induce growth in the area. The new bridge would restore connectivity and safely accommodate existing traffic volumes by replacing the existing storm damaged bridge. The new bridge and roadway would not provide an extension to new destinations beyond the current extent of the existing road. Construction is expected to last up to 20 weeks utilizing a construction crew of 12 workers. Adequate temporary housing (including local hotels or campgrounds) is available for construction workers and implementation of the proposed project would not require new or additional housing. Consequently, ***no impact*** would occur.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Replacing the storm damaged bridge with a similar structure does not involve the construction, displacement, or demolition of any existing housing structures. Consequently, ***no impact*** would occur.

3.17 Public Services

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XV. PUBLIC SERVICES.					
Would the project:					
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:					
Fire protection?	☐	☐	☐	☐	☒
Police protection?	☐	☐	☐	☐	☒
Schools?	☐	☐	☐	☐	☒
Parks?	☐	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☐	☒

3.17.1 Discussion

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

Implementing the proposed project would not create new housing or other structures and, therefore, would not require additional public services (including fire or police protection facilities, schools, or parks). Furthermore, replacement of the existing storm damaged bridge would improve circulation patterns and benefit emergency response within the local area. Consequently, implementation of the proposed project would result in a ***beneficial impact***.

3.18 Recreation

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XVI. RECREATION.					
Would the project:					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒	☐

3.18.1 Discussion

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

As previously described, the proposed project does not include the development of any new residential uses or include other land development that would directly induce additional population growth affecting existing recreation facilities or opportunities. Employment opportunities from the construction phase of the project would not induce any additional population growth in Inyo County. Therefore, the project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities. Consequently, ***no impact*** would occur.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

See checklist Item "**a**" above.

3.19 Transportation

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XVII. TRANSPORTATION.					
Would the project:					
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☐	☒
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☐	☐	☒

3.19.1 Discussion

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The proposed project complies with multiple circulation system improvement plans and initiatives, and replacement of the existing storm damaged bridge would improve circulation patterns and benefit emergency response within the local area. Consequently, implementation of the proposed project would result in a ***beneficial impact***.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

See checklist Item "**a**" above.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No hazards due to design features would occur through implementation of the proposed project, as the replacement bridge structure and associated roadway approaches would conform to County standards. In addition, replacement of the storm damaged bridge will be designed to increase safety. Therefore, the project would not substantially increase hazards due to a design feature or incompatible use. Consequently, ***no impact*** would occur.

d) Result in inadequate emergency access?

See checklist Item "**a**" above.

3.20 Tribal Cultural Resources

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XVIII. TRIBAL CULTURAL RESOURCES.					
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or	☐	☒	☐	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐	☐

3.20.1 Discussion

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)?

Under PRC section 21080.3.1 and 21082.3, the County must consult with tribes traditionally and culturally affiliated with the project area that have requested formal notification and responded with a request for consultation. The parties must consult in good faith. Consultation is deemed concluded when the parties agree to measures to mitigate or avoid a significant effect on a tribal cultural resource when one is present or when a party concludes that mutual agreement cannot be reached. Mitigation measures agreed on during the consultation process must be recommended for inclusion in the environmental document.

Inyo County sent letters requesting AB 52 consultation to representatives of several federally recognized tribes and California tribes, as shown in **Table 3-1**, below. The letters provided a brief description of the project, the project location, and an invitation to engage in consultation regarding the project. The letters were sent in the first week of March 2019 with return receipts

dated between three and six days after being sent. Responses were due back from the tribes during the second week of April 2019; due dates for the responses were based on the CEQA requirement that tribes be given 30 days to respond from receipt of requests for consultation. As shown in **Table 3-1**, none of the tribal contacts has responded back to the information request.

Table 3-1. Summary Inyo County AB 52 Consultation

Contact	Tribe	Date Sent	Return Receipt	Received By	Response Due	Response
Mary Wuester, Chairperson	Lone Pine Paiute-Shoshone Tribe	3/6/2019	3/12/2019	Jennifer Naylor	4/11/2019	None
Carl Dahlberg, Chairperson	Fort Independence Indian Community of Paiutes	3/6/2019	3/12/2019	Brianne Bent	4/11/2019	None
George Gholson, Chairperson	Timbisha Shoshone Tribe	3/6/2019	3/11/2019	Margaret C.	4/10/2019	None
Danelle Guiterrez, Tribal Historic Preservation Officer	Big Pine Paiute Tribe of the Owens Valley	3/6/2019	3/11/2019	G. Lewis	4/10/2019	None
Genevieve Jones, Chairperson	Big Pine Paiute Tribe of the Owens Valley	3/7/2019	3/11/2019	G. Lewis	4/10/2019	None
Jill Paydon, Tribal Administrator	Big Pine Paiute Tribe of the Owens Valley	3/6/2019	3/11/2019	G. Lewis	4/10/2019	None
Allen Summers Sr, Chairperson	Bishop Paiute Tribe	3/6/2019	3/11/2019	Teresa Martinez	4/10/2019	None
Gloriana Bailey, Tribal Administrator	Bishop Paiute Tribe	3/6/2019	3/11/2019	Teresa Martinez	4/10/2019	None
Monty Bengochia, Tribal Historic Preservation Officer	Bishop Paiute Tribe	3/6/2019	3/11/2019	Teresa Martinez	4/10/2019	None
Michael Mirelez, Cultural Resource Coordinator	Torres Martinez Desert Cahuilla Indians	3/6/2019	3/11/2019	Jones	4/10/2019	None
Darrell Mike, Tribal Chairperson	Twenty-Nine Palms Band of Mission Indians	3/6/2019	3/9/2019	E. Reyes	4/8/2019	None
Anthony Madrigal, Jr., Tribal Grants Administrator	Twenty-Nine Palms Band of Mission Indians	3/6/2019	3/9/2019	E. Reyes	4/8/209	None
Doug Todd Welmas	Cabazon Band of the Mission Indians	3/6/2019	3/9/2019	Frank Quincnez	4/8/2019	None
Jacquelyn Barnum, Environmental Director	Cabazon Band of the Mission Indians	3/6/2019	3/9/2019	Frank Quincnez	4/8/2019	None

While no responses have been received to date, portions of the proposed project area may be sensitive for the presence of tribal cultural resources. However, no tribal cultural resources as defined in Public Resources Code 21074 have been identified in or adjacent to the proposed project area. Consequently, the proposed project is not anticipated to result in an adverse change in the significance of a tribal cultural resource pursuant to Public Resources Code 21074. While unlikely, construction of the proposed project could result in the inadvertent discovery of undocumented tribal cultural resources such as Native American archaeological sites, Native American human remains and associated objects and materials, features, sacred places or objects with value to a Tribe that is culturally or traditionally affiliated with the proposed project, and the disturbance or destruction of these resources. Therefore, the proposed project could result in potentially significant impact on tribal cultural resources. To ensure no adverse effects to the resource, implementation of resource avoidance measures provided in **Mitigation Measure CR-2** and **CR-3** would reduce the impact to less than significant. Therefore, the proposed project would have a ***less-than-significant*** impact with mitigation incorporated.

Mitigation Measure CR-2: Accidental Finding of Human Remains

1. If human remains are found, the California Health and Safety Code requires that excavation be halted in the immediate area and that the Inyo County Coroner be notified to determine the nature of the remains. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private of State lands (California Health and Safety Code, Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by telephone within 24 hours of making that determination (California Health and Safety Code, Section 7050.5[c]).

2. Once notified by the Coroner, the NAHC shall identify the person it believes it the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner(s), the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. This visit should be conducted with 48 hours of the MLD's notification by the NAHC (California Public Resources Code [PRC], Section 5097.98[a]). If a satisfactory agreement for treatment of the remains cannot be reached, any of the parties may request mediation by the NAHC (California PRC, Section 5097.94[k]). Should mediation fail, the landowner or landowner's representative must reinter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (California PRC, Section 5097.98[b]).

Responsibility: County of Inyo / Construction Contractor

Timing: During Construction Activities

Mitigation Measure CR-3: In the Event that Tribal Cultural Resources or Cultural Resources Are Discovered During Construction, Implement Avoidance and Minimization Measures and Procedures to Evaluate Resources.

If cultural resources or tribal cultural resources (such as Native American archaeological materials, sacred objects, unusual amounts of bone or shell, artifacts, or human remains and associated objects and materials) are encountered at the project site during construction, work shall be suspended within 100 feet of the find (based on the apparent distribution of cultural

materials), and the construction contractor shall immediately notify the project's County representative. Avoidance and preservation in place is the preferred manner of mitigating impacts to cultural resources or tribal cultural resources. This will be accomplished, if feasible, by several alternative means, including:

- Recommendations for avoidance of cultural resources or tribal cultural resources will be reviewed by the County representative, interested culturally affiliated Native American tribes and other appropriate agencies, considering factors such as costs, logistics, feasibility, design, technology and social, cultural and environmental considerations, and the extent to which avoidance is consistent with project objectives. Avoidance and design alternatives may include realignment within the project site to avoid cultural resources or tribal cultural resources, modification of the design to eliminate or reduce impacts to tribal cultural resources or modification or realignment to avoid highly significant features within a cultural resource or tribal cultural resource.

- Native American representatives from interested culturally affiliated Native American tribes will be invited to review and comment on these analyses and shall have the opportunity to meet with the County representative and its representatives who have technical expertise to identify and recommend feasible avoidance and design alternatives, so that appropriate and feasible avoidance and design alternatives can be identified.

- If the discovered cultural resource or tribal cultural resource can be avoided, the construction contractor(s), will install protective fencing outside the site boundary, including a 100-foot buffer area, before construction restarts. The boundary of a tribal cultural resource will be determined in consultation with interested culturally affiliated Native American tribes and tribes will be invited to monitor the installation of fencing. Use of temporary and permanent forms of protective fencing will be determined in consultation with Native American representatives from interested culturally affiliated Native American tribes.

- The construction contractor(s) will maintain the protective fencing throughout construction to avoid the site during all remaining phases of construction. The area will be demarcated as an "Environmentally Sensitive Area".

If a cultural resource or tribal cultural resource cannot be avoided, the following performance standard shall be met prior to continuance of construction and associated activities that may result in damage to or destruction of tribal cultural resources:

- Each resource will be evaluated for California Register of Historical Resources- (CRHR) eligibility through application of established eligibility criteria (California Code of Regulations 15064.636), in consultation with consulting Native American Tribes, as applicable.

If a cultural resource or tribal cultural resource is determined to be eligible for listing in the CRHR, the County will avoid damaging effects to the resource in accordance with California PRC Section 21084.3, if feasible. The County shall coordinate the investigation of the find with a qualified archaeologist (meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology) approved by the County and with interested culturally affiliated Native American tribes that respond to the County's invitation. As part of the site investigation and resource assessment, the County and the archaeologist shall consult with interested culturally

affiliated Native American tribes to assess the significance of the find, make recommendations for further evaluation and treatment as necessary and provide proper management recommendations should potential impacts to the resources be determined by the County to be significant. A written report detailing the site assessment, coordination activities, and management recommendations shall be provided to the County representative by the qualified archaeologist. These recommendations will be documented in the project record. For any recommendations made by interested culturally affiliated Native American tribes that are not implemented, a justification for why the recommendation was not followed will be provided in the project record.

Native American representatives from interested culturally affiliated Native American Tribes and the County representative will also consult to develop measures for long-term management of any discovered Native American cultural resources or tribal cultural resources. Consultation will be limited to actions consistent with the jurisdiction of the County and considering ownership of the subject property. To the extent that the County has jurisdiction, routine operation and maintenance within tribal cultural resources retaining tribal cultural integrity shall be consistent with the avoidance and minimization standards identified in this mitigation measure.

If the County determines that the project may cause a significant impact to a cultural resource or tribal cultural resource, and measures are not otherwise identified in the consultation process, the following are examples of mitigation capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to the resource. These measures may be considered to avoid or minimize significant adverse impacts and constitute the standard by which an impact conclusion of less-than significant may be reached:

- Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

- Treat the resource with culturally appropriate dignity considering Tribal cultural values and meaning of the resource, including, but not limited to, the following:

- Protect the cultural character and integrity of the resource.

- Protect the traditional use of the resource.

- Protect the confidentiality of the resource.

- Establish permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.

- Protect the resource.

Responsibility: County of Inyo / Construction Contractor

Timing: Before and During Construction Activities

b) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

See checklist Item "**a**" above.

3.21 Utilities and Service Systems

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XIX. UTILITIES AND SERVICE SYSTEMS.					
Would the project:					
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒	☐
e) Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒	☐

3.21.1 Discussion

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Replacement of the existing storm damaged bridge would not generate any new housing, businesses, or other changes that would increase the demand for utilities or related service systems beyond their current capacity. Therefore, the proposed project would not require or result in the construction of new or upgraded utility systems. Consequently, ***no impact*** would occur.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

See checklist Item "**a**" above.

c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

See checklist Item "**a**" above.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

See checklist Item "**a**" above.

e) Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?

See checklist Item "**a**" above.

3.22 Wildfire

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XX. WILDFIRE.					
If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, **would the project:**					
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☒	☐	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒	☐

3.22.1 Discussion

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Replacement of the existing storm damaged bridge would improve local circulation patterns by restoring connectivity to North Round Valley Road, resulting in a benefit to emergency response within the local area. No short or long-term impacts are anticipated to local emergency response plans. Consequently, implementation of the proposed project would result in a ***beneficial impact***.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Heavy equipment used during project construction has the potential to start a fire on surrounding open space areas near the project site. However, implementation of **Mitigation Measure HAZ-1** (more fully described above in **Section 3.11** "**Hazards and Hazardous Materials**") would reduce the potential for construction-related wildland fires by providing a clearing, reducing fire fuels and removing fire sustaining litter. In addition, during construction, spark arrestors or turbo chargers (which eliminate sparks in exhaust) and fire extinguishers would be required for all

heavy equipment. Consequently, this impact is ***less-than-significant*** with mitigation incorporated.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

See checklist Item "**a**" above.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Replacement of the existing storm damaged bridge does not include any project features that would expose people or structures to significant wildlife, flooding, or landslide risks, as the replacement bridge would be similar in size and occur within the same project footprint. Consequently, ***no impact*** would occur.

3.23 Mandatory Findings of Significance

Environmental Issue	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact	Beneficial Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.					
Would the project:					
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒	☐
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒	☐

3.23.1 Discussion

a) Would the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

As discussed in the Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Hazards, Hydrology and Water Quality, and Tribal Cultural Resources sections, any potentially significant impacts related to the quality of the environment, plant, fish, or wildlife habitat or populations, special-status species, and important historical or cultural resources would be reduced to a less-than-significant level through implementation of avoidance and minimization measures and by incorporating mitigation measures. No known cultural resources would be affected by the proposed project and if unidentified resources are encountered during construction, mitigation measures are in place to ensure that impacts would be ***less than significant***.

b) Would the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

There are no past, present, or probably future projects in the vicinity of the proposed project. **No cumulative impact** would occur.

c) Would the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

As discussed throughout this IS, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. The proposed project is being implemented for the specific purpose of restoring circulation and public safety. Furthermore, mitigation measures are provided as necessary to reduce the proposed project's potentially significant effects on air quality, biological resources, cultural resources, geology and soils, hazards, hydrology and water quality, and tribal cultural resources to less-than-significant levels. Thus, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. Replacement of the existing storm damaged bridge would actually improve local circulation patterns by restoring connectivity to North Round Valley Road, resulting in a benefit to emergency response within the local area. There would be **no cumulative impact**.

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Appendix A. Biological Survey Letter

July 12, 2019

Mr. Michael Errante, Public Works Director
Inyo County Public Works Department
168 N. Edwards Street
P.O. Drawer Q
Independence, CA 93526

Geotechnical
Environmental
Water Resources
Ecological

Subject: Biological Resources Technical Report for the North Round Valley Road Bridge Project

Inyo County is conducting studies to support the North Round Valley Road Bridge Project (proposed project). A state of emergency was declared in Inyo and Mono Counties on October 27, 2017, as a result of severe winter storms and exceptional snowfall, leading to snowmelt that damaged critical infrastructure, including roadways. High-velocity flows in Pine Creek resulted in failure of the North Round Valley Road Bridge over Pine Creek (Bridge No. 48C0044). A field investigation of the project site and assessment of potential for the project to significantly impact sensitive biological resources was conducted by GEI Consultants, Inc. (GEI) on December 13, 2018. This letter report describes the methods and results of the assessment.

Project Location

The project site is located in Inyo County and accessible from North Round Valley Road, via Pine Creek Road or Birchim Lane. The site is west of U.S. Route 395, which provides regional access (**Attachment A, Figures 1 and 2**). Bishop is the nearest incorporated city, located approximately 10 miles to the southeast. The project site encompasses 2.85 acres and is in Section 17 of the U.S. Geological Survey (USGS) 7.5-minute Rovana Quadrangle, Township 6 South, Range 31 East (**Attachment A, Figure 3**).

Pre-field Investigation and Field Survey

Before conducting the field survey, the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2018) and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2018) were reviewed. These reviews were centered on the Rovana USGS 7.5-minute quadrangle and included the eight surrounding quadrangles. Database search results are provided in **Attachment B**.

A list of resources under jurisdiction of the U.S. Fish and Wildlife Service (USFWS) that could occur in the project vicinity was obtained from the USFWS Information for Planning and Conservation (IPaC) website (USFWS 2018a); the IPaC resource list is provided in **Attachment B**. Seven fish and wildlife species listed as "threatened" or "endangered" under the Federal Endangered Species Act (ESA) are included on this list. The project site is not located within proposed or designated critical habitat for any Federally listed species.

Aerial imagery on Google Earth®, National Wetlands Inventory data, and the Natural Resources Conservation Service *Soil Survey of Benton-Owens Valley Area Parts of Inyo and Mono Counties, California* (NRCS 2017) also were reviewed.

www.geiconsultants.com

GEI Consultants, Inc.
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916.631.4500 fax 916.634.4501

A field survey of the project site was conducted by GEI biologists Sarah A. Norris and Brook Constantz on December 13, 2018. Photographs taken during the field survey are provided in **Attachment C**. The field survey included an assessment of habitat types present, including potential waters of the United States, and evaluation of habitat suitability and potential for special-status species to occur at, or adjacent to, the project site and to be affected by implementation of the proposed project.

Environmental Setting

The project site is located within Major Land Resource Area 29 (Southern Nevada Basin and Range) in Land Resource Region D (Western Range and Irrigated Region) (NRCS 2006). Topography on the project site slopes gently toward the east. Elevation at the project site is approximately 4,670 feet above mean sea level (**Attachment A, Figure 3**).

Habitat and Land Cover Types

The project site is composed of sagebrush scrubland, developed areas, and a perennial stream (Pine Creek) (**Attachment A, Figure 4**).

Sagebrush scrub, totaling 2.27 acres, is characterized by an intermittent canopy of short-stature shrubs dominated by big saltbrush (*Artemisia tridentata*), silver sagebrush (*A. cana*), California sagebrush (*A. californica*), and rubber rabbitbrush (*Ericameria nauseosa*). This habitat may be classified to the alliance level, according to the *Manual of California Vegetation* (Sawyer et al., 2009), as big sagebrush shrubland or *Artemisia tridentata* Shrubland Alliance. The shrub layer is typically less than 2 meters tall.

Developed areas, including the paved surface and compacted shoulder of North Round Valley Road, comprise 0.51 acre of the project site. The existing roadway varies from approximately 22 to 24 feet wide. These developed areas completely lack vegetation.

The project site includes a portion of Pine Creek, a perennial stream. Pine Creek is described below under "Sensitive Habitats."

Sensitive Biological Resources

Sensitive biological resources addressed in this assessment include those that are afforded consideration or protection under the California Environmental Quality Act (CEQA), California Fish and Game Code (FGC), California Endangered Species Act (CESA), ESA, Clean Water Act (CWA), and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Special-status Species

For the purposes of this assessment, special-status species include plants and animals that fall into any of the following categories:

- species officially listed by the Federal government or the State of California as endangered, threatened, or rare;
- candidate species for Federal or State listing as endangered or threatened;
- species proposed for Federal or State listing as endangered or threatened;
- taxa (i.e., taxonomic categories or groups) that meet the criteria for listing;

- wildlife species identified by CDFW as species of special concern and plant taxa considered by CDFW to be "rare, threatened, or endangered in California;"
- species listed as Fully Protected under the FGC; or
- species afforded protection under local or regional planning documents.

Plant taxa are assigned by CDFW to one of the following six California Rare Plant Ranks (CRPRs):

- CRPR 1A—Plants presumed to be extinct in California;
- CRPR 1B—Plants that are rare, threatened, or endangered in California and elsewhere;
- CRPR 2A—Plants that are presumed extirpated in California, but are more common elsewhere;
- CRPR 2B—Plants that are rare, threatened, or endangered in California but more common elsewhere;
- CRPR 3—Plants about which more information is needed (a review list); or
- CRPR 4—Plants of limited distribution (a watch list).

All plants with a CRPR are considered "special plants" by CDFW. The term "special plants" is a broad term used by CDFW to refer to all plant taxa inventoried in the CNDDB, regardless of their legal or protection status. As indicated above, only plant taxa considered by CDFW to be "rare, threatened, or endangered in California" (i.e., CRPR 1B and 2B plants) are considered special-status for purposes of this analysis. CDFW applies the term "California species of special concern" to wildlife species that are not listed under CESA but that are nonetheless declining at a rate that could result in listing, or that historically occurred in low numbers and are subject to current known threats to their persistence.

Figure 5 in **Attachment A** show all CNDDB occurrences of plant and wildlife species that meet the definition of special-status species described above and have been documented within 3 miles of the project site. Results of the CNDDB search (see **Attachment B**) yielded occurrences of a total of 55 special-status plants and wildlife within the USGS 9-quad search area; only eight of these species have been documented within 3 miles of the project site. Not all species tracked in the CNDDB and included in the search results in Attachment B meet the definition of a special-status species described above.

Table 1 provides information on special-status plant species that were evaluated for potential to occur on the project site. Species included in the CNDDB or CNPS search results that occupy elevation ranges higher or lower than the elevation of the project site, require alkaline soils not present on the site, or otherwise could be determined to have no potential to occur in the project vicinity, were eliminated from consideration and are not included in **Table 1**.

The following special-status plant species were eliminated from consideration and are not included in Table 1, because their elevation ranges are outside that of the project site: Fish Slough milk-vetch (*Astragalus lentiginosus* var. *piscinensis*), Booth's hairy evening-primrose (*Eremothera boothii* ssp. *intermedia*), hot springs fimbristylis (*Fimbristylis thermalis*), Inyo hulsea (*Hulsea vestita* ssp. *inyoensis*), small-flowered grass-of-Parnassus (*Parnassia parviflora*), and Bailey's greasewood (*Sarcobatus baileyi*).

The soils mapped to the project site are slightly acid or neutral. The following special-status plant species were eliminated from consideration and are not included in Table 1, because they require alkaline soils, which are not present on the project site or immediate vicinity: silver-leaved milk-vetch (*Astragalus argophyllus* var. *argophyllus*), fiddleleaf hawksbeard (*Crepis runcinata*), alkali ivesia (*Ivesia kingii* var. *kingii*), Torrey's blazing star (*Mentzelia torreyi*), Parish's popcornflower (*Plagiobothrys parishii*), Inyo phacelia (*Phacelia inyoensis*), Owens Valley checkerbloom (*Sidalcea covillei*), and foxtail thelypodium (*Thelypodium integrifolium* ssp. *complanatum*). Lincoln rockcress (*Boechera lincolnensis*) and July gold (*Dedeckera eurekensis*) were also eliminated from further consideration because they occur on carbonate soils, typically in the White and Inyo Mountains or Desert Mountains floristic providence, located to the east and south of the project site.

Based on the review of existing documentation and observations made during the field survey, it was determined that there is low potential for two special-status plant species to occur within the sagebrush scrub habitat at the project site: Great Basin onion (*Allium atrorubens* var. *atrorubens*) and many-flowered thelypodium (*Thelypodium milleflorum*).

Table 1. Special-status Plants Evaluated for Potential to Occur on or Adjacent to the Project Site

Species	Blooming Period	Status[1] Federal	Status[1] State	Habitat Associations	Potential to Occur on the Project Site
Great Basin onion *Allium atrorubens* var. *atrorubens*	May–June	–	2B.3	Great Basin scrub, and pinyon and juniper woodland on rocky or sandy soils	Low; suitable habitat is present in the project site. Nearest occurrence is approximately 7 miles south, along Buttermilk Road, west of Highway 168.
Lemmon's milk-vetch *Astragalus lemmonii*	May–August	–	1B.2	Great Basin scrub, meadows and seeps, marshes and swamps, and lake shores	None; no suitable habitat is present on or adjacent to the project site.
Pinyon rockcress *Boechera dispar*	March–June	–	2B.3	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland on granitic or gravelly soils	None; no suitable habitat is present on or adjacent to the project site.
Scalloped moonwort *Botrychium crenulatum*	June–September	–	2B.2	Bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest	None; no suitable habitat is present on or adjacent to the project site.
Inyo County star tulip *Calochortus excavatus*	April–July	–	1B.1	Chenopod scrub, meadows and seeps on alkaline mesic soils	None; no suitable habitat is present on or adjacent to the project site.
Wheeler's dune-broom *Chaetadelpha wheeleri*	April–September	–	1B.2	Desert dunes, Great Basin scrub, Mojavean desert scrub on sandy soils	None; no suitable habitat is present on or adjacent to the project site.

Table 1. Special-status Plants Evaluated for Potential to Occur on or Adjacent to the Project Site

Species	Blooming Period	Status[1] Federal	Status[1] State	Habitat Associations	Potential to Occur on the Project Site
Salina Pass wild-rye *Elymus salina*	May–June	–	2B.3	Pinyon and juniper woodland on rocky soils	None; no suitable habitat is present on or adjacent to the project site.
McGee Meadows lupine *Lupinus magnificus* var. *hesperius*	April–June	–	1B.3	Great Basin scrub, upper montane coniferous forest on sandy soils	None; no suitable habitat is present on or adjacent to the project site.
Inyo blazing star *Mentzelia inyoensis*	April–October	–	1B.3	Great Basin scrub, pinyon and juniper woodland on rocky, sometimes carbonate soils	None; no suitable habitat is present on or adjacent to the project site.
Nevada oryctes *Oryctes nevadensis*	April–June	–	2B.1	Chenopod scrub and Mojavean desert scrub on deep sandy soils	None; no suitable habitat is present on or adjacent to the project site.
Frog's-bit buttercup *Ranunculus hydrocharoides*			2B.1	Marshes and swamps	None; no suitable habitat is present on or adjacent to the project site.
Many-flowered thelypodium *Thelypodium milleflorum*	April–June	–	2B.2	Chenopod scrub and Great Basin scrub on sandy soils	Low; suitable habitat is present in the project site. Nearest occurrence is approximately 11 miles northeast, at Fish Slough Petroglyph site, northeast of Bishop, along Five Bridges Road.

[1] **Status Definitions**
Federal Status
– = No status

California Rare Plant Ranks
1B = Plant species considered rare or endangered in California and elsewhere
2B = Plant species considered rare or endangered in California but more common elsewhere

California Rare Plant Rank Extensions
.1 = Seriously endangered in California (greater than 80 percent of occurrences are threatened and/or have a high degree and immediacy of threat)
.2 = Fairly endangered in California (20 to 80 percent of occurrences are threatened and/or have a moderate degree and immediacy of threat)
.3 = Not very endangered in California

Sources: CDFW 2018; CNPS 2018; USFWS 2018a; data compiled by GEI Consultants, Inc. in 2019

Table 2 provides information on special-status terrestrial wildlife species that were evaluated for potential to occur on the project site. Based on the review of existing documentation and observations made during the field survey, habitat on the project site is unsuitable or only marginally suitable for the special-status wildlife species that were evaluated. Therefore, potential for many of the species to occur on site is low. Some species that are known to occur in the vicinity or that are highly mobile and use a variety of habitat types have moderate potential to occur onsite.

Seven special-status fish were identified in database searches and five were eliminated from consideration. Lahontan cutthroat trout (*Onocorhynchus clarkia henshawi*) are known to occur in the Walker and Carson Rivers and associated drainages, but not known to occur in Pine Creek. Paiute cutthroat trout (*O. clarkia seleniris*) were identified in the CNDDB in Birchim Lake, located in the headwaters of Pine Creek. This occurrence of Paiute cutthroat trout was planted in 1960 and has since hybridized with rainbow or golden trout. Owens pupfish (*Cyprinodon radiosus*) has five known populations from Fish Slough to Lone Pine. Toikona tui chub (*Siphaeteles bicolor snyderi*) was eliminated from consideration because this species is known only to occur at one pond at Mule Spring and White Station Research Station. Owens tui chub (*Siphaeteles bicolor snyderi*) was eliminated from consideration because there are three existing natural Owens tui chub populations, which are located at the Owens River Gorge, source springs of CDFW's Hot Creek Hatchery, and at Cabin Bar Ranch near Owens Dry Lake.

Yosemite toad (*Anaxyrus canorus*) and mountain yellow legged-frog (*Rana muscosa*) were eliminated from consideration and are not included in Table 2, because the project site is outside the elevational range of Yosemite toad and geographic range of mountain yellow-legged frog. California wolverine (*Gulo gulo*) was also eliminated from further consideration since this species is extremely rare in California and known only from the Tahoe National Forest.

Table 2. Special-status Fish and Wildlife Evaluated for Potential to Occur on or Adjacent to the Project Site

Species	Status		Habitat Associations	Potential to Occur on the Project Site
	Federal	State		
Fish				
Owens sucker *Catostomus fumeiventris*	–	SSC	Primarily found in soft-bottomed runs in cool-water streams, also in lakes or reservoirs. Require gravel for spawning.	Moderate; suitable habitat is present in Pine Creek. Owens suckers are widely distributed in streams and rivers of the Owens River watershed, including the Owens River and Bishop Creek. Nearest occurrence in Horton Creek, located approximately 2 miles south of the project site.
Owens speckled dace *Rhinichthys osculus*	–	SSC	Known to occupy a variety of habitats from cold water streams to hot springs, but rarely in water exceeding 84°F. Stream dwellers spawn in riffles or gravelly areas.	Moderate; suitable habitat is present in Pine Creek. Owens speckled dace are only known to occupy three disjunct areas in the northern Owens Valley: Fish Slough, Round Valley, and areas around and in Bishop. Nearest occurrence in Horton Creek, located approximately 2 miles south of the project site.

Table 2. Special-status Fish and Wildlife Evaluated for Potential to Occur on or Adjacent to the Project Site

Species	Status		Habitat Associations	Potential to Occur on the Project Site
	Federal	State		
Amphibians				
Northern leopard frog *Lithobates pipiens*	–	SSC	Grassland, wet meadows, potholes, forests, woodland, springs, canals, bogs, marshes, reservoirs; generally prefers permanent water with abundant aquatic vegetation.	None; no suitable habitat is present on or adjacent to the project site.
Sierra Nevada yellow-legged frog *Rana sierrae*	FE	ST	Montane ponds, lakes, and streams, typically with shallow, exposed, and gently-sloping shorelines.	None; no suitable habitat is present on or adjacent to the project site.
Birds				
Northern goshawk *Accipiter gentilis*	–	SSC	Coniferous and montane riparian forest; typically nests on north-facing slopes near water.	Very low; no suitable habitat is present on or adjacent to the project site, and dispersing individuals are very unlikely to occur onsite.
Golden eagle *Aquila chrysaetos*	–	FP	Variety of habitats in foothills, mountains, high plains, and dessert; primarily nests on cliffs in steep canyons, but also in large trees in open areas.	Moderate; no suitable cliffs/canyons are present in the immediate vicinity, and potential nest trees are only marginally suitable, but transient and other non-breeding individuals could occur in the area.
Swainson's hawk *Buteo swainsoni*	–	ST	Nests in woodlands and scattered trees and forages in grasslands and agricultural fields.	Moderate; several potential nest trees are present on and adjacent to the project site, and transient and other non-breeding individuals could occur in the area.
Southwestern willow flycatcher *Empidonax traillii extimus*	FE	SE	Nests in willows and small shrubs near water.	Very low; no suitable nesting habitat is present on or adjacent to the project site, and onsite habitat conditions are poor for migrant individuals.

Table 2. Special-status Fish and Wildlife Evaluated for Potential to Occur on or Adjacent to the Project Site

Species	Status		Habitat Associations	Potential to Occur on the Project Site
	Federal	State		
Bald eagle *Haliaeetus leucocephalus*	–	SE, FP	Coastal shorelines and wetlands, lakes, reservoirs, and rivers. Nests in large trees, typically in mountain and foothill forests and woodlands and within 1 mile of permanent water that provides suitable foraging habitat (reservoirs, lakes, and rivers).	Moderate; unlikely to nest in the immediate vicinity because of the distance to foraging habitat and poor quality of potential nest trees, but transient and other non-breeding individuals could travel through the area.
Bank swallow *Riparia riparia*	–	ST	Forages in a variety of habitats and nests in vertical banks or bluffs of suitable soil, typically adjacent to water.	Low; no suitable nesting habitat is present on or adjacent to the project site, but transient and other non-breeding individuals could forage over the site. Nearest nest colonies are located at Lake Crowley, North Fork Bishop Creek near the Bishop Airport, and north of the Owens River between 5 Bridges Road and Fish Slough Road north of Bishop.
Mammals				
Pallid bat *Antrozous pallidus*	–	SSC	Variety of habitats, including woodland, forest, grassland, and desert; roosts in tree cavities, rock crevices, mines, caves, and human structures.	Low; no suitable roosting habitat is present on or adjacent to the project site, but individuals from nearby roosts, if present, could forage over the site.
Townsend big-eared bat *Corynorhinus townsendii*	–	SSC	Western populations typically occur in montane habitats with pine, fir, and aspen surrounded by shrub or grasslands; roosts in caves, cliffs, rock ledges, mines, and abandoned structures.	Low; no suitable roosting habitat is present on or adjacent to the project site, but individuals from nearby roosts, if present, could forage over the site.
Spotted bat *Euderma maculatum*	–	SSC	Desert scrub and open forest habitat; roosts along vertical cliffs and in open canyons usually near water.	Low; no suitable roosting habitat is present on or adjacent to the project site, but individuals from nearby roosts, if present, could forage over the site.

Table 2. Special-status Fish and Wildlife Evaluated for Potential to Occur on or Adjacent to the Project Site

Species	Status		Habitat Associations	Potential to Occur on the Project Site
	Federal	State		
Western white-tailed jackrabbit *Lepus townsendii townsendii*	–	SSC	Coniferous forest, shrublands, and grasslands with open areas, shrub cover, and herbaceous understory; occurs at higher elevations during summer months and descends to the eastern slope of the Sierra Nevada range during winter months.	Moderate; unlikely to be present during summer months but could be present during winter months.
Owens Valley vole *Microtus californicus vallicola*	–	SSC	Shrublands and grasslands near riparian corridors; strongly associated with meadows and other mesic vegetation types.	None; no suitable habitat is present on or adjacent to the project site.
Sierra Nevada bighorn sheep *Ovis canadensis sierrae*	FE	SE, FP	Alpine meadows and rocky summit plateaus. Summer elevation range is typically 10,000 to 14,000 feet, descending to 5,000 feet during winter months.	Moderate; unlikely to be present during summer months but could be present during winter months. Known to occur in winter along the base of Wheeler Ridge, approximately 4 miles west of the project site.
Sierra Nevada red fox *Vulpes vulpes necator*	FC	ST	Variety of montane habitats; prefers forest interspersed with meadows and other open areas and requires dense vegetation and rocky areas for cover and den sites.	Low; project site provides poor habitat and is at the low end of the elevation range for this species; transient individuals could move through the area, but this subspecies has been extirpated from much of its former range, and subspecies identification of a red fox observed nearby (along Pine Creek) was not confirmed.

Table 2. Special-status Fish and Wildlife Evaluated for Potential to Occur on or Adjacent to the Project Site

Species	Status: Federal	Status: State	Habitat Associations	Potential to Occur on the Project Site

Notes: CNDDB = California Natural Diversity Database

[1] **Status Definitions**

Federal Status
FC = Candidate for listing under the Federal Endangered Species Act
FE = Listed as Endangered under the Federal Endangered Species Act
FT = Listed as Threatened under the Federal Endangered Species Act
PT = Proposed for listing as Threatened under the Federal Endangered Species Act
– = No status

State Status
CE = Candidate for Listing as Endangered under the California Endangered Species Act
CT = Candidate for Listing as Threatened under the California Endangered Species Act
FP = Fully Protected under the California Fish and Game Code
SE = Listed as Endangered under the California Endangered Species Act
SSC = California Species of Special Concern
ST = Listed as Threatened under the California Endangered Species Act
– = No status

Sources: CDFW 2018; USFWS 2018a; data compiled by GEI 2019

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through CEQA, ESA, Section 1602 of the FGC, Section 404 of the CWA, and the Porter-Cologne Act. Sensitive habitats may be of special concern for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to special-status species.

Critical Habitat

Critical habitat is a geographic area containing features determined to be essential to the conservation of a species listed as threatened or endangered under the ESA. The project site is not located within proposed or designated critical habitat for any listed species (USFWS 2018b).

Other Habitats Protected under Federal and State Regulations

Under Section 404 of the Federal CWA, the U.S. Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into aquatic features that qualify as waters of the United States; wetlands that support hydrophytic vegetation, hydric soil types, and wetland hydrology may also qualify for USACE jurisdiction under Section 404 of the CWA. Under Section 401 of the CWA, the Lahontan Regional Water Quality Control Board (RWQCB) regulates discharge of dredged or fill material into waters of the United States that drain east of the Sierra Nevada, to ensure such activities do not violate State or Federal water quality standards; the Lahontan RWQCB also regulates waters of the State, in compliance with the Porter-Cologne Act. In addition, all diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to the regulatory approval of CDFW pursuant to Section 1602 of the FGC.

Pine Creek flows through the center of the project site (see **Figure 4**). Pine Creek is a named stream on the Rovana USGS topographic map and has perennial flow. This feature is also identified on USFWS National Wetland Inventory, where it is classified as riverine, upper perennial, unconsolidated bottom, permanently flooded (R3UBH). Approximately 0.07 acre of Pine Creek flows through the project site.

Pine Creek headwaters are located high in the Sierra Nevada, east of Royce Peak and southwest of the project site. Pine Creek confluences with Pleasant Valley Reservoir, an impoundment of the Owens River, east of U.S. Route 395. Pine Creek is a jurisdictional water of the United States subject to regulation under Sections 404 and 401 of the CWA and Section 1602 of the FGC.

Natural Communities of Special Concern

CDFW maintains a list of terrestrial natural communities that are native to California, the *List of Vegetation Alliances and Associations* (CDFG 2010). Within that list, CDFW identifies and ranks natural communities of special concern considered to be highly imperiled. Big sagebrush shrubland is not identified as a community of special concern by CDFW.

Potential Project Impacts

Implementing the proposed project would not result in tree removal or permanent conversion of sagebrush habitat. Developed road shoulders and adjacent sagebrush scrubland are areas where equipment and materials may be temporarily staged. Impacts of the proposed project on biological resources could result from vegetation removal and grading during construction. In-water work could result in temporary disturbance to aquatic biological resources. In general, terrestrial impacts are anticipated to be relatively minor, because project implementation would be restricted to the developed surfaces along North Round Valley Road and sagebrush scrub habitat located adjacent to the road.

In-water construction would be restricted to periods of low-flow, most likely beginning in June. In-water construction activities include removing the existing failed bridge and constructing new abutments in the Pine Creek channel. Because Pine Creek is a perennial channel, dewatering is required to complete project construction.

Special-status Species

This impact discussion focuses on resources with reasonable potential to be affected by implementing the proposed project. Therefore, special-status plant and wildlife species that are unlikely to occur on the project site (because of a lack of suitable conditions, known extant range of the species, and/or lack of occurrence records) are not addressed in this discussion.

Birds

Four special-status bird species—golden eagle, bald eagle, Swainson's hawk, and bank swallow—have low or moderate potential to occur on or adjacent to the project site (see **Table 2**). All these species are known or likely to occur in the general region, but potential for most of them to occur onsite is likely limited to foraging and/or roosting. The project site and immediately adjacent areas provide limited potential nesting habitat for large raptors; only two large-diameter Cottonwood trees are present along the north bank of Pine Creek, and few large trees are present along other nearby portions of the creek. Stick nests were not observed in trees on or near the

project site during the December field survey, when trees were devoid of leaves and nests would have been readily observable. In the unlikely event an active Swainson's hawk nest is present on or adjacent to the project site during demolition and construction activities, nesting birds could be disturbed to an extent that results in nest failure. The CNDDB contains few records for the species nesting in Inyo County, indicating that the population is small, and the loss of a single nest would result in a substantial adverse effect on the species. Mitigation Measures BIO-1 has been identified to reduce the impact to less than significant. Therefore, the proposed project would have a **less-than-significant impact with mitigation incorporated**.

The project site and vicinity lack suitable nesting habitat for bank swallow. Implementation of the proposed project would result in the loss of a very small amount of temporal foraging habitat loss for one season but would not substantially reduce the overall populations or distribution of any special-status bird species.

Mammals

Three special-status bat species—pallid bat, Townsend big-eared bat, and spotted bat have the potential to forage over the project site, but roosting habitat is absent from the project site and immediate vicinity. Foraging activities are unlikely to be disturbed by construction activities. Areas of rock outcrops near the toe slope of Wheeler Mountain may support colonial bat roost sites, but project activities are unlikely to create enough disturbance to disrupt bats that may roost in such areas, located over 3 miles away. The existing failed bridge structure is concrete slab and lacks cracks or openings on the underside of the bridge deck that could serve as bat rooting habitat. The existing six mature trees on the project site are unlikely to provide habitat for roosting colonies due to the limited about of habitat present, but they could be used as temporary roost sites for small numbers of individuals. Potential disturbance of small numbers of roosting bats that may be present onsite would not result in a substantial adverse effect to local or regional populations of either species. Therefore, the proposed project would have a **less-than-significant impact** on special-status bats.

Western white-tailed jackrabbit and Sierra Nevada bighorn sheep utilize high elevations in the summer months and migrate down the eastern slope of the Sierra Nevada during winter months. These species are not likely to be present on the project site or vicinity when the project is implemented during summer and fall months. The proposed project would not result in a permanent loss of sagebrush scrubland habitat and therefore would not result in the loss of foraging habitat for these species. The proposed project would have **no impact** on western white-tailed jackrabbit and Sierra Nevada bighorn sheep.

Sierra Nevada red fox are typically found at elevations above 7,000 feet and have been extirpated from much of the Sierra Nevada. One potential occurrence of this subspecies has been reported from several miles upstream along Pine Creek, but the identification cannot be confirmed. The project site includes a narrow band of sagebrush scrub habitat adjacent to North Round Valley Road, which could provide suitable dispersal and foraging habitat for Sierra Nevada red fox. The proposed project would not result in a permanent loss of sagebrush scrubland habitat and therefore would not result in the loss of dispersal/foraging habitat for this species. Project implementation would not impede the movement of this species, if an individual were present at the time of construction. The proposed project would have **no impact** on Sierra Nevada red fox.

Fish

Owens sucker and Owens speckled dace were determined to have moderate potential to occur in the waters of Pine Creek. The proposed project would result in temporary dewatering of Pine Creek in the construction footprint (approximately 50 to 60 linear feet) to complete in-channel construction activities including the removal of the existing failed bridge structure and the construction of two new bridge abutments. Channel dewatering would result in a temporary loss of foraging habitat for fish species. The construction of new bridge abutments require excavation in the creek bed to construct the cast-in-drilled-hole piles and modification of the channel bank in the immediate vicinity of the abutment. Each new abutment would measure approximately 40 feet long by 12 feet wide by 3 feet deep. Temporary shoring may be required to stabilize the abutment excavation and localized dewatering may be required to ensure that the area surrounding the footing concrete remains dry. Uncured cement has a high pH and can rapidly change stream chemistry if the area is not isolated. Degradation of downstream water quality could result in mortality of aquatic species downstream of construction and could result in mortality of individuals of special-status fish downstream, if present. This would be a significant impact on special-status fisheries. Mitigation Measures BIO-2 and BIO-3 have been identified to reduce the impact to less than significant. Therefore, the proposed project would have a **less-than-significant impact with mitigation incorporated**.

Scour counter measures are required because the soils within the project site are highly susceptible to erosion and therefore it is anticipated that rip rap would be placed 30 feet upstream and 40 downstream of abutments. Placement of rip rap would result in the permanent modification of channel slopes in the immediate vicinity of the bridge resulting in the loss of a fraction of a percent of available spawning habitat within Pine Creek, since most scour counter measures would be placed along the streambank. Up to 70 linear feet of spawning habitat represents a minor loss of the overall amount of spawning habitat present in Pine Creek and therefore this impact would be **less than significant**.

Sensitive Habitats

Pine Creek flows through the project site. Pine Creek is a water of the United States subject to regulation under Sections 404 and 401 of the CWA and Section 1602 of the FGC. Implementing the proposed project would result in direct modification of the stream bed and shoreline by placing a small amount of rip rap along the stream bank up and downstream of the new bridge abutment. Placement of scour counter measures would not result in the loss of stream capacity. Dewatering would be required to construct the replacement bridge and remove the existing failed bridge abutments. Project activities could temporarily degrade water quality in the stream. Mitigation Measure BIO-3 has been identified to reduce this impact to less than significant. Therefore, the impact on state or federally protected waters and other sensitive habitat would have a **less-than-significant impact with mitigation incorporated**.

Other Potential Impacts on Biological Resources

The project site is part of a much larger extent of drainages and sagebrush scrub habitats and does not serve as a primary movement corridor for fish or wildlife. It also is not known or anticipated to serve as a nursery site for any wildlife species. Therefore, implementing the proposed project would not substantially interfere with the movement of any native resident or migratory fish or

wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. This impact would be **less than significant**.

The project site is not within any special designated management areas for species or other biological resources. The project site is also not within an area covered by an adopted Habitat Conservation Plan or Natural Community Conservation Plan. Therefore, implementing the proposed project would not conflict with any provisions, guidelines, goals, or objectives related to biological resources outlined in such plans and programs. This impact would be **less than significant.**

Project implementation could result in removal of active nests of common bird species, if removal of ground vegetation occurs during the bird nesting season. Loss of active nests of common species would not substantially reduce their abundance or cause any species to drop below self-sustaining levels; this impact would be **less than significant**. However, destruction of active bird nests or construction disturbance resulting in nest failure could be considered a violation of the FGC. Although mitigation is not required to reduce this impact to less than significant, implementing other recommended measures described below is recommended to would minimize potential for loss of active bird nests protected by FGC Section 3503.

Mitigation Measures

The following measures have been identified to reduce potential impacts on biological resources to less than significant.

Mitigation Measure BIO-1: Avoid and Minimize Effects to Nesting Swainson's Hawk.

Inyo County shall implement the following measures to avoid and minimize potential adverse effects on nesting Swainson's hawk during project construction.

- Preconstruction surveys for active Swainson's hawk nests shall be conducted by a qualified biologist in all areas of suitable nesting habitat within 0.25-mile of project disturbance. A minimum of one survey shall be conducted no more than 14 days before project activities commence.

- Appropriate buffers shall be established and maintained around active nest sites to avoid nest failure from project activities. The appropriate size and shape of the buffers shall be determined by a qualified biologist and may vary depending on the nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines it would not be likely to adversely affect the nest. Monitoring shall be conducted to confirm that project activities are not resulting in detectable adverse effects on nesting birds or their young. No project activities shall commence within the buffer areas until a qualified biologist determines that the young have fledged or the nest site is otherwise no longer in use.

Timing: Before and during construction.

Responsibility: Inyo County/Construction Contractor.

Significance after Mitigation: With implementation of **Mitigation Measure BIO-1**, the potentially significant impact associated with adverse effects to Swainson's hawk would be reduced to a **less-than-significant** level because the proposed project would avoid and minimize nest disturbance and ensure no active nests are lost because of the proposed project.

Mitigation Measure BIO-2: Avoid and Minimize Effects to Special-status Fish.

Inyo County shall implement the following measures to avoid and minimize adverse impact on special-status fish species.

- The construction contractor shall prepare a dewatering plan, which shall be reviewed by a qualified fisheries biologist retained by Inyo County.
- A qualified biologist shall be present during stream dewatering and shall relocate fish downstream to flowing waters outside the project site, if necessary.
- No refueling, storage, servicing, or maintenance of equipment shall take place on the shore within 100 feet of the OHWM of Pine Creek.
- All machinery used during project construction shall be properly maintained and cleaned to prevent spills and leaks that could contaminate soil or water. Secondary containment for stationary machinery used to dewater, such as pumps or generators, shall be used.
- All pumps used to conduct dewatering activities shall be screened to prevent fish entrainment.
- The area surrounding concrete abutment footings shall remain dry until cement is fully cured. Any waters that make contact with wet cement shall be disposed of outside of the active channel of Pine Creek.

Timing: Before and during construction.

Responsibility: Inyo County/Construction Contractor.

Significance after Mitigation: With implementation of **Mitigation Measure BIO-2** and **BIO-3**, the potentially significant impact associated with adverse effects to special-status fish would be reduced to a **less-than-significant** level because the proposed project would avoid direct habitat modification outside of the project site and minimize habitat modification outside of the project area.

Mitigation Measure BIO-3: Avoid and Minimize Effects to waters of the United States/waters of the State.

Inyo County shall implement the following measures to avoid and minimize direct fill of waters of the United States in Pine Creek. Pine Creek is also a water of the state,

regulated under Section 401 of the CWA, and subject to regulation by CDFW under Section 1600 of the California Fish and Game Code.

- Ground disturbance shall be limited to construction areas, including necessary access routes and staging areas. The total area of the project activity shall be limited to the minimum necessary. When possible, existing access routes and points shall be used. All roads, staging areas, and other facilities shall be placed to avoid and limit disturbance to Pine Creek when feasible.

- A Storm Water Pollution Prevention Plan (SWPPP) that identifies specific best management practices (BMPs) to avoid and minimize impacts on water quality during construction activities shall be prepared and implemented. BMPs may include:

  - Erosion control measures that minimize soil or sediment from entering waterways and wetlands shall be installed, monitored for effectiveness, and maintained throughout construction activities.

  - Precautions to minimize turbidity/siltation shall be implemented during construction. This may require placing barriers (e.g., silt curtains) to prevent silt and/or other deleterious materials from entering downstream reaches.

  - Petroleum products, chemicals, fresh cement, and construction by-products containing, or water contaminated by, any such materials shall not be allowed to enter flowing waters and shall be collected and transported to an authorized upland disposal area.

- A written spill prevention and control plan (SPCP) shall be prepared and implemented. The SPCP and all material necessary for its implementation shall be accessible on-site prior to initiation of project construction and throughout the construction period. The SPCP shall include a plan for the emergency cleanup of any spills of fuel or other material. Employees/construction workers shall be provided the necessary information from the SPCP to prevent or reduce the discharge of pollutants from construction activities to waters and to use the appropriate measures should a spill occur. In the event of a spill, work shall stop immediately and CDFW, Lahontan RWQCB, and USACE shall be notified within 24 hours.

- Before the commencement of construction activities, high-visibility fencing shall be erected to protect areas of Pine Creek that are located adjacent to construction areas, but can be avoided, from encroachment of personnel and equipment. The fencing shall be inspected before the start of each work day and shall be removed only when the construction within a given area is completed. Limits of waters of the United States shall be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas.

- A qualified biologist shall monitor the start of in-water construction activities to ensure that avoidance and minimization measures are being properly implemented and no unauthorized activities occur.

- Project implementation would result in the need to obtain regulatory permits from USACE, RWQCB, and CDFW for direct impacts to Pine Creek. All measures developed through consultation with the respective regulatory agencies shall be implemented.

  - **Section 404**: Before any ground-disturbing project activities begin in Pine Creek, a qualified biologist shall conduct a formal delineation of waters of the United States for Clean Water Act Section 404 permitting. The findings shall be documented in a detailed report and submitted to USACE for verification as part of the Section 404 wetland delineation process.

    Authorization for fill of jurisdictional waters of the United States shall be secured from USACE via the Section 404 permitting process before project construction. Any measures determined necessary during the 404 permitting process shall be implemented during project construction.

  - **Section 401**: Water quality certification pursuant to Section 401 of the Clean Water Act shall be obtained from the Lahontan RWQCB before starting project construction in any areas that may contain waters of the State. Any measures required as part of the issuance of water quality certification shall be implemented.

  - **Section 1602**: A CDFW lake and streambed alteration agreement shall be obtained under Section 1602 of the California Fish and Game Code for all work below the top of bank of Pine Creek. Any conditions of issuance of the lake and streambed alteration agreement shall be implemented as part of project implementation.

Timing: Before, during, and after construction.

Responsibility: Inyo County/Construction Contractor.

Significance after Mitigation: With implementation of **Mitigation Measure BIO-3**, the potentially significant impact associated with potential disturbance and loss of sensitive habitats would be reduced to a **less-than-significant** level because direct and indirect impacts to sensitive habitats would be avoided and minimized.

Other Recommended Measures

It is recommended that Inyo County implement the following measures to avoid and minimize destruction of active bird nests and potential violation of FGC Section 3503 during project construction.

- If vegetation removal must occur during the migratory bird nesting season (March 15 through July 31), surveys for active bird nests shall be conducted by a qualified biologist in areas of suitable nesting vegetation designated for removal. If active nests are found, removal of vegetation in which the nests are located will be delayed until a

qualified biologist determines that the young have fledged or the nest site is otherwise no longer in use.

- Preconstruction surveys for active nests of common raptor species shall be conducted by a qualified biologist. Surveys for raptor nests shall include suitable habitat within up to 300 feet of areas subject to project disturbance, depending on the potential extent of indirect impact. Surveys shall be conducted within 14 days before commencement of any construction activities that occur during the raptor nesting season (March 15 to July 31) in a given area.

- If any active nests, or behaviors indicating active nests are present, are observed, appropriate buffers around the nest sites shall be determined by a qualified biologist to avoid nest failure resulting from project activities. Buffer size shall depend on the species, nest location, nest stage, and specific construction activities to be performed while the nest is active. The buffers may be adjusted if a qualified biologist determines it would not be likely to adversely affect the nest. If buffers are adjusted, monitoring shall be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity shall commence within the buffer areas until a qualified biologist determines that the young have fledged or the nest site is otherwise no longer in use.

Conclusions

Potential significant impacts on biological resources from implementing the proposed project can be reduced to less than significant by implementing appropriate mitigation measures identified in this memorandum report. Construction activities would result in temporary disturbance below the top of bank of Pine Creek and temporary use of developed and sagebrush scrubland as a staging area. With implementation of mitigation measures, the proposed project is not anticipated to have substantial adverse effects on any special-status species. Impacts on waters of the United States and waters of the State from construction of a new bridge can be reduced to less than significant by implementing avoidance and minimization measures, in coordination with the appropriate regulatory agencies. Therefore, implementing the proposed project, including the proposed mitigation measures, would not result in any significant impacts to biological resources.

If you have any questions or concerns regarding this monitoring report, please contact me by phone at 916-912-4941 or e-mail at snorris@geiconsultants.com.

Sincerely,

Sarah A. Norris
Senior Regulatory Specialist, Biologist

Ray Weiss
Project Manager

Attachment A: Figures 1-5
Attachment B: Special-status Species Query Results
Attachment C: Photographs of Project Site

1803488

References

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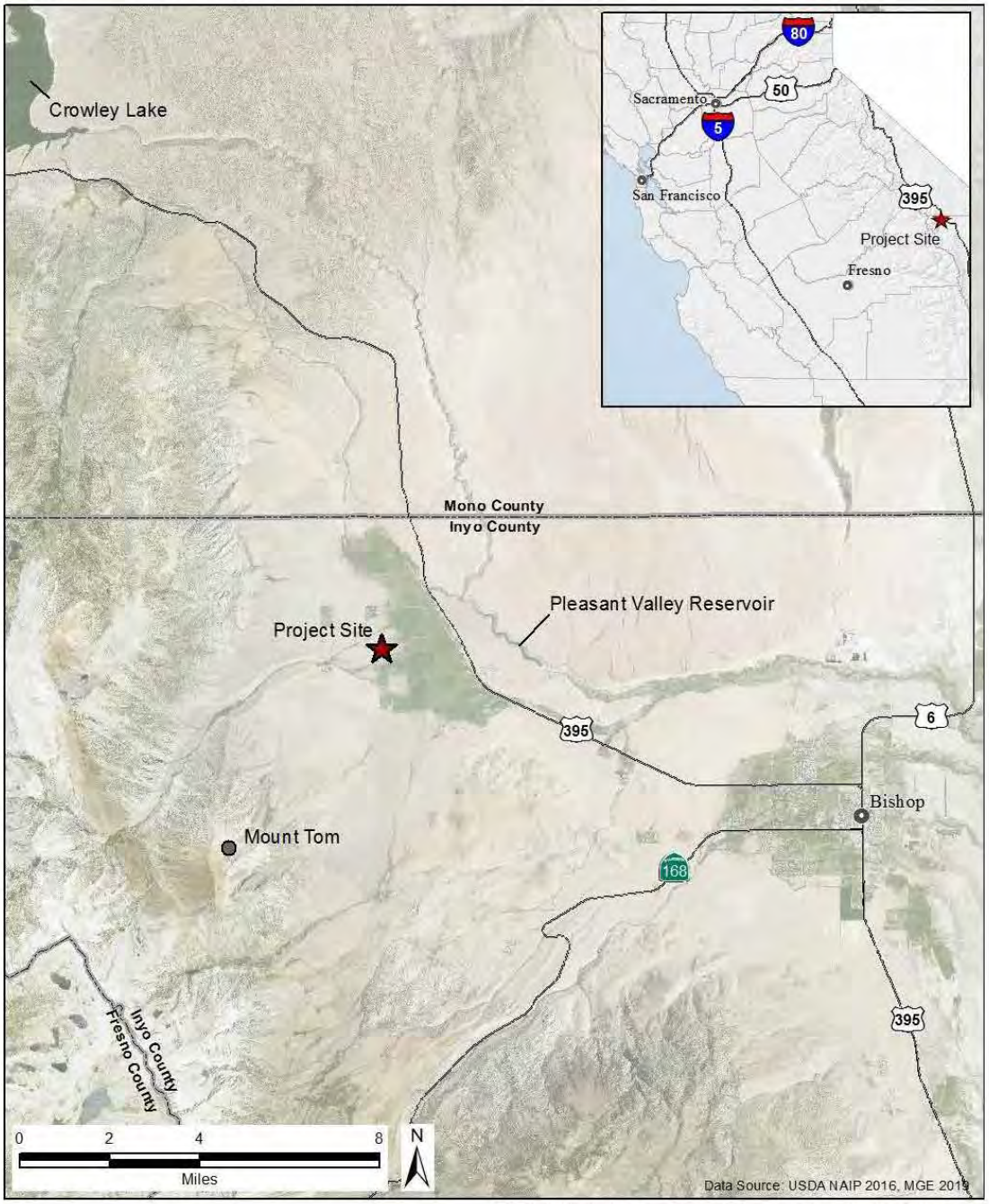
USFWS. See U.S. Fish and Wildlife Service.

USGS. See U.S. Geological Survey.

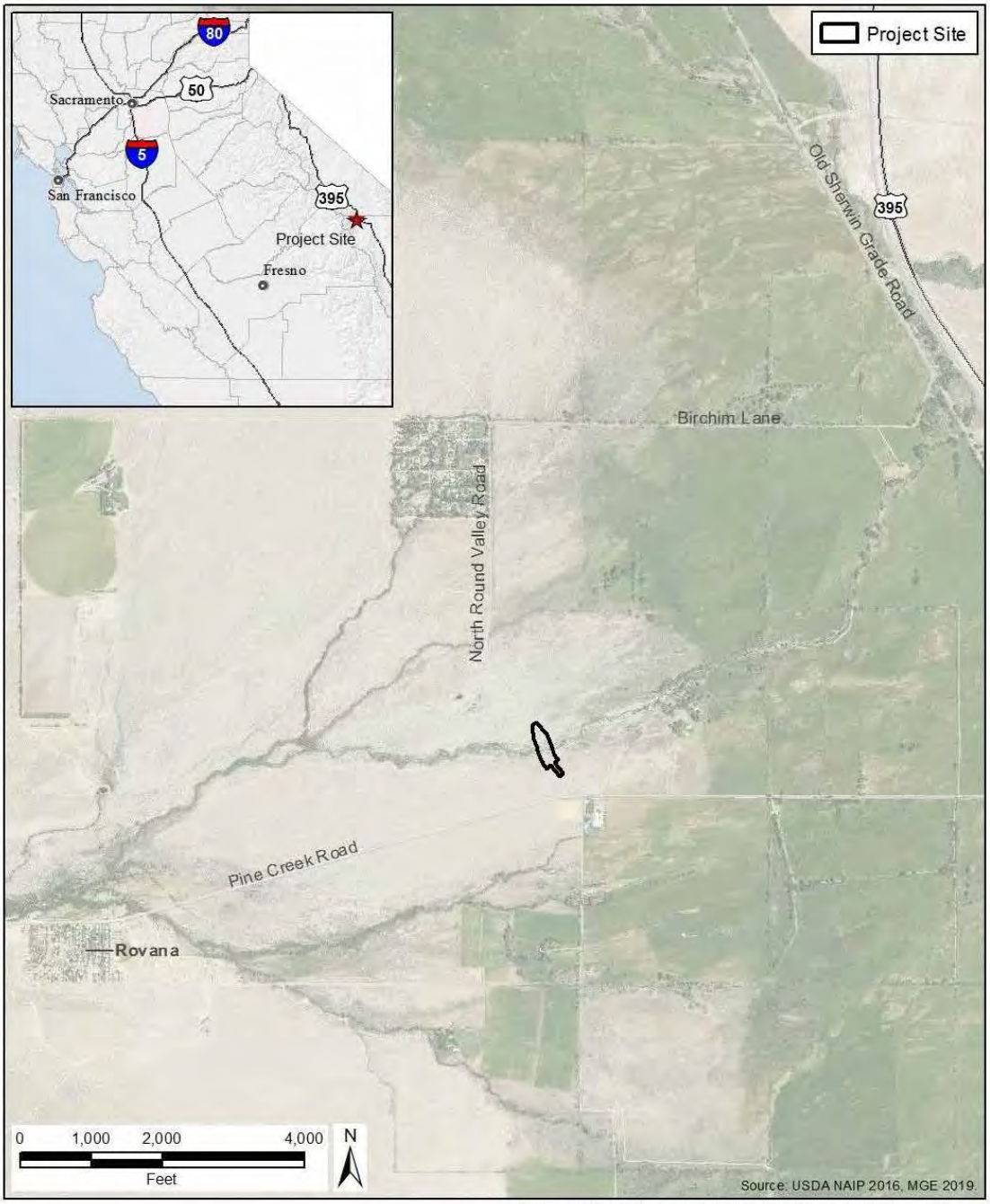
Attachment A

Figure 1. Regional Location



Source: GEI Consultants, Inc. 2019

Figure 2. Site and Vicinity



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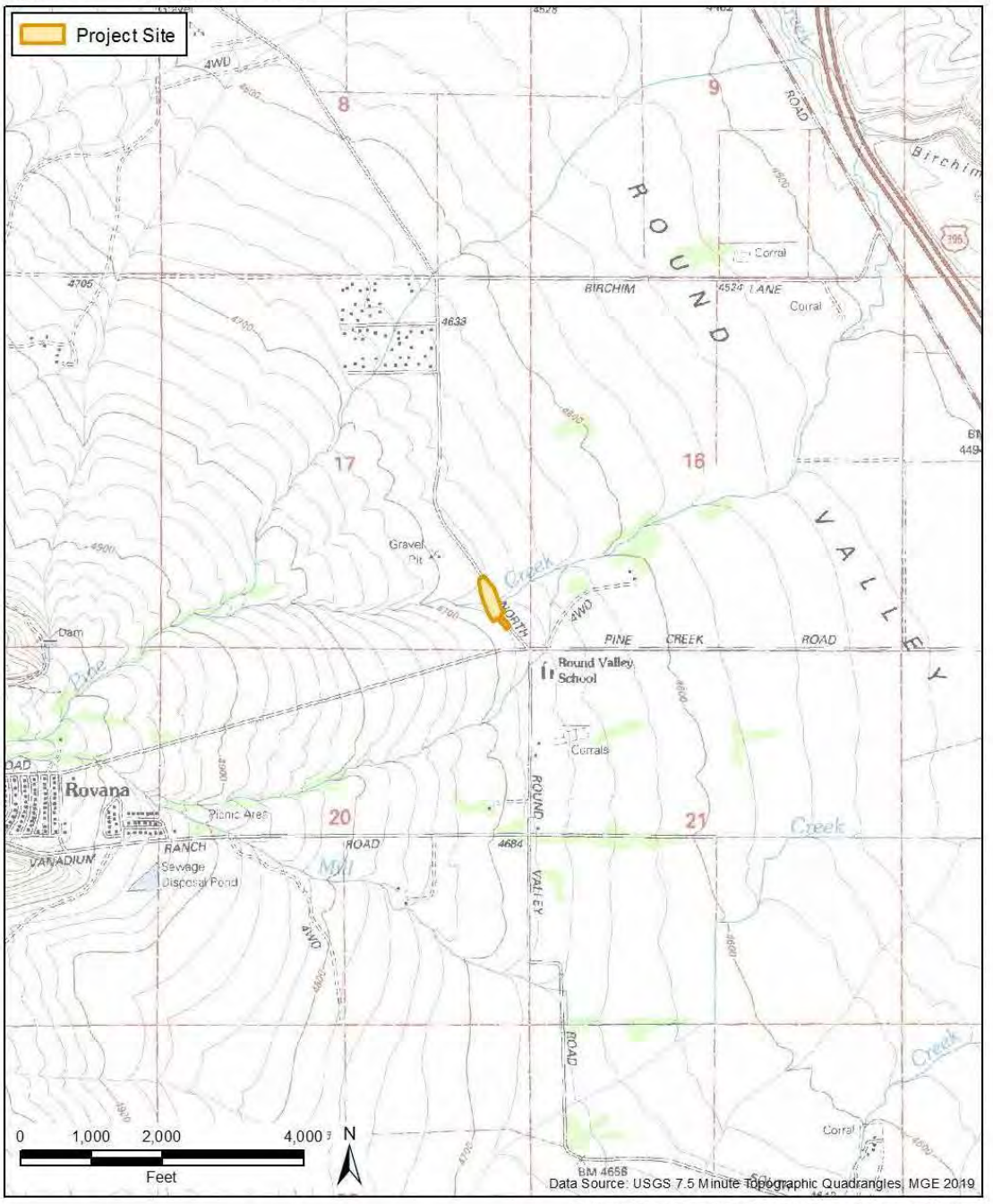
05JULY2019 BMC

Source: GEI Consultants, Inc. 2019

Figure 3. Topographic Map

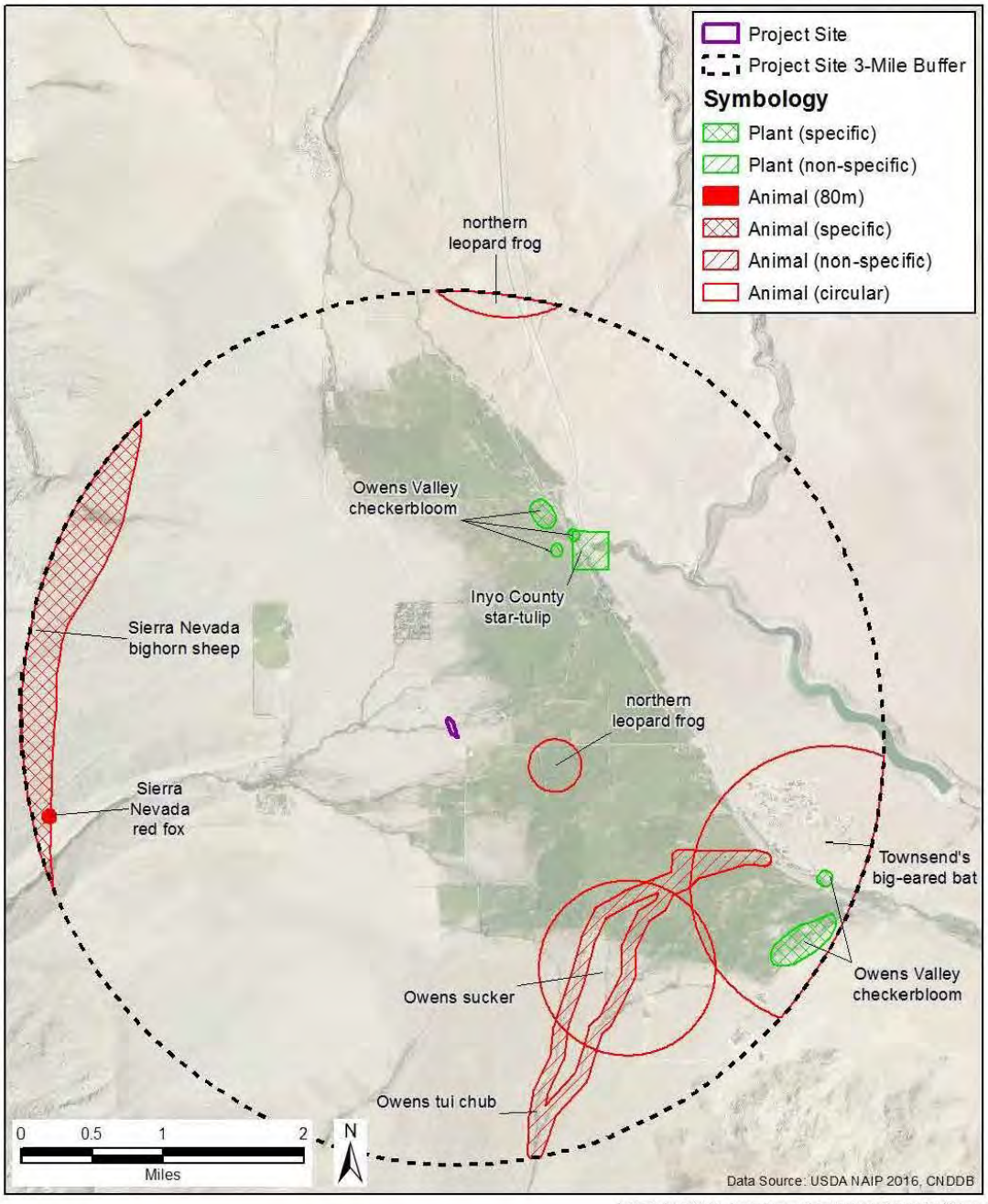


Source: GEI Consultants, Inc. 2019

Figure 4. Land Cover at the Project Site

Source: GEI Consultants, Inc. 2019

Figure 5. California Natural Diversity Database Occurrences within 3 Miles of Project Site



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Source: GEI Consultants, Inc. 2019

Attachment B

Special-status Species Query Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Rovana (3711845) OR Casa Diablo Mtn. (3711855) OR Chidago Canyon (3711854) OR Mt. Morgan (3711846) OR Fish Slough (3711844) OR Mount Tom (3711836) OR Tungsten Hills (3711835) OR Bishop (3711834) OR Toms Place (3711856))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter gentilis northern goshawk	ABNKC12060	None	None	G5	S3	SSC
Alkali Meadow Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
Allium atrorubens var. atrorubens Great Basin onion	PMLIL02061	None	None	G4T4	S2	2B.3
Anaxyrus canorus Yosemite toad	AAABB01040	Threatened	None	G2G3	S2S3	SSC
Anodonta californiensis California floater	IMBIV04020	None	None	G3Q	S2?	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Astragalus argophyllus var. argophyllus silver-leaved milk-vetch	PDFAB0F0S1	None	None	G5T4	S2	2B.2
Astragalus johannis-howellii Long Valley milk-vetch	PDFAB0F4H0	None	Rare	G2	S1	1B.2
Astragalus lemmonii Lemmon's milk-vetch	PDFAB0F4N0	None	None	G2	S2	1B.2
Astragalus lentiginosus var. piscinensis Fish Slough milk-vetch	PDFAB0FB9E	Threatened	None	G5T1	S1	1B.1
Astragalus monoensis Mono milk-vetch	PDFAB0F5N0	None	Rare	G2	S2	1B.2
Astragalus ravenii Raven's milk-vetch	PDFAB0F7F0	None	None	G2	S2	1B.3
Atriplex pusilla smooth saltbush	PDCHE041P0	None	None	G4	SH	2B.1
Boechera dispar pinyon rockcress	PDBRA060F0	None	None	G3	S3	2B.3
Bombus morrisoni Morrison bumble bee	IIHYM24460	None	None	G4G5	S1S2	
Botrychium crenulatum scalloped moonwort	PPOPH010L0	None	None	G4	S3	2B.2
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Calochortus excavatus Inyo County star-tulip	PMLIL0D0F0	None	None	G2	S2	1B.1
Carex scirpoidea ssp. pseudoscirpoidea western single-spiked sedge	PMCYP03C85	None	None	G5T4	S2	2B.2
Catostomus fumeiventris Owens sucker	AFCJC02090	None	None	G3G4	S3	SSC
Chaetadelpha wheeleri Wheeler's dune-broom	PDAST21010	None	None	G4	S2	2B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Crepis runcinata fiddleleaf hawksbeard	PDAST2R0K0	None	None	G5	S3	2B.2
Cyprinodon radiosus Owens pupfish	AFCNB02090	Endangered	Endangered	G1	S1	FP
Draba sierrae Sierra draba	PDBRA112A0	None	None	G3	S3	1B.3
Elymus salina Salina Pass wild-rye	PMPOA6P010	None	None	G4G5	S2S3	2B.3
Empidonax traillii extimus southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S1	
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Euderma maculatum spotted bat	AMACC07010	None	None	G4	S3	SSC
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Fimbristylis thermalis hot springs fimbristylis	PMCYP0B0N0	None	None	G4	S1S2	2B.2
Gulo gulo California wolverine	AMAJF03010	Proposed Threatened	Threatened	G4	S1	FP
Helodium blandowii Blandow's bog moss	NBMUS3C010	None	None	G4	S2	2B.3
Hulsea vestita ssp. inyoensis Inyo hulsea	PDAST4Z073	None	None	G5T2T3	S1S2	2B.2
Hydromantes platycephalus Mount Lyell salamander	AAAAD09020	None	None	G4	S4	WL
Ivesia kingii var. kingii alkali ivesia	PDROS0X092	None	None	G4T3Q	S2	2B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lepus townsendii townsendii western white-tailed jackrabbit	AMAEB03041	None	None	G5T5	S3?	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lithobates pipiens northern leopard frog	AAABH01170	None	None	G5	S2	SSC
Lupinus magnificus var. hesperius Mcgee Meadows lupine	PDFAB2B2K2	None	None	G3T1Q	S1	1B.3
Lupinus padre-crowleyi Father Crowley's lupine	PDFAB2B2Z0	None	Rare	G2	S2	1B.2
Martes caurina sierrae Sierra marten	AMAJF01014	None	None	G5T3	S3	
Mentzelia inyoensis Inyo blazing star	PDLOA032Z0	None	None	G3	S3	1B.3
Mentzelia torreyi Torrey's blazing star	PDLOA031S0	None	None	G4	S2	2B.2
Microtus californicus vallicola Owens Valley vole	AMAFF11033	None	None	G5T3	S3	SSC
Ochotona princeps schisticeps gray-headed pika	AMAEA0102H	None	None	G5T2T4	S2S4	
Oncorhynchus clarkii seleniris Paiute cutthroat trout	AFCHA02089	Threatened	None	G4T1T2	S1S2	
Oryctes nevadensis Nevada oryctes	PDSOL0Q010	None	None	G3	S2	2B.1
Ovis canadensis sierrae Sierra Nevada bighorn sheep	AMALE04015	Endangered	Endangered	G4T2	S2	FP
Parnassia parviflora small-flowered grass-of-Parnassus	PDSAX0P0A0	None	None	G5?	S2	2B.2
Phacelia inyoensis Inyo phacelia	PDHYD0C2F0	None	None	G3	S3	1B.2
Plagiobothrys parishii Parish's popcornflower	PDBOR0V0U0	None	None	G1	S1	1B.1
Poa lettermanii Letterman's blue grass	PMPOA4Z1H0	None	None	G4	S3	2B.3
Pyrgulopsis perturbata Fish Slough springsnail	IMGASJ0290	None	None	G1	S1	
Pyrgulopsis wongi Wong's springsnail	IMGASJ0360	None	None	G2	S2	
Rana sierrae Sierra Nevada yellow-legged frog	AAABH01340	Endangered	Threatened	G1	S1	WL
Ranunculus hydrocharoides frog's-bit buttercup	PDRAN0L190	None	None	G4	S1	2B.1
Rhinichthys osculus ssp. 2 Owens speckled dace	AFCJB3705F	None	None	G5T1T2Q	S1S2	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Sabulina stricta bog sandwort	PDCAR0G0U0	None	None	G5	S3	2B.3
Sarcobatus baileyi Bailey's greasewood	PDCHE0L020	None	None	G4	S1	2B.3
Sidalcea covillei Owens Valley checkerbloom	PDMAL11040	None	Endangered	G2	S2	1B.1
Siphateles bicolor snyderi Owens tui chub	AFCJB1303J	Endangered	Endangered	G4T1	S1	
Thelypodium integrifolium ssp. complanatum foxtail thelypodium	PDBRA2N062	None	None	G5T4T5	S2	2B.2
Thelypodium milleflorum many-flowered thelypodium	PDBRA2N0A0	None	None	G5	S3?	2B.2
Transmontane Alkali Marsh Transmontane Alkali Marsh	CTT52320CA	None	None	G3	S2.1	
Vulpes vulpes necator Sierra Nevada red fox	AMAJA03012	Candidate	Threatened	G5T1T2	S1	
Water Birch Riparian Scrub Water Birch Riparian Scrub	CTT63510CA	None	None	GNR	SNR	

Record Count: 69

Commercial Version -- Dated July, 1 2018 -- Biogeographic Data Branch

Report Printed on Monday, July 23, 2018

Page 4 of 4

Information Expires 1/1/2019

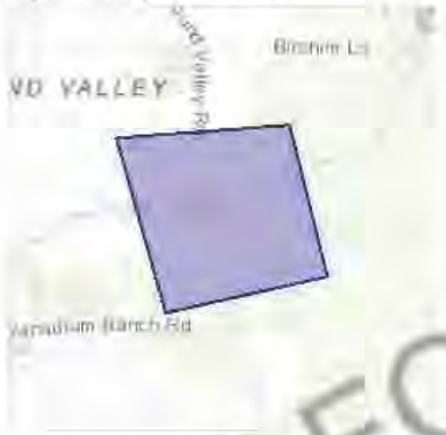
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Inyo County, California



Local office

Reno Fish And Wildlife Office

(775) 861-6300
(775) 861-6301

1340 Financial Boulevard, Suite 234
Reno, NV 89502-7147

http://www.fws.gov/nevada/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. 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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
North American Wolverine Gulo gulo luscus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Amphibians

NAME	STATUS
Mountain Yellow-legged Frog Rana muscosa There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8037	Endangered
Sierra Nevada Yellow-legged Frog Rana sierrae There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/9529	Endangered
Yosemite Toad Anaxyrus canorus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7255	Threatened

Fishes

NAME	STATUS
Lahontan Cutthroat Trout Oncorhynchus clarkii henshawi No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3964	Threatened
Owens Pupfish Cyprinodon radiosus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4982	Endangered

Owens Tui Chub Gila bicolor ssp. snyderi Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/7289

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your

project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Brewer's Sparrow Spizella breweri This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Golden Eagle Aquila chrysaetos This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31

Green-tailed Towhee *Pipilo chlorurus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9444	Breeds May 1 to Aug 10
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Sage Thrasher *Oreoscoptes montanus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10
Sagebrush Sparrow *Artemisiospiza nevadensis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Jul 31
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

Willow Flycatcher Empidonax traillii — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

https://ecos.fws.gov/ecp/species/3482

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

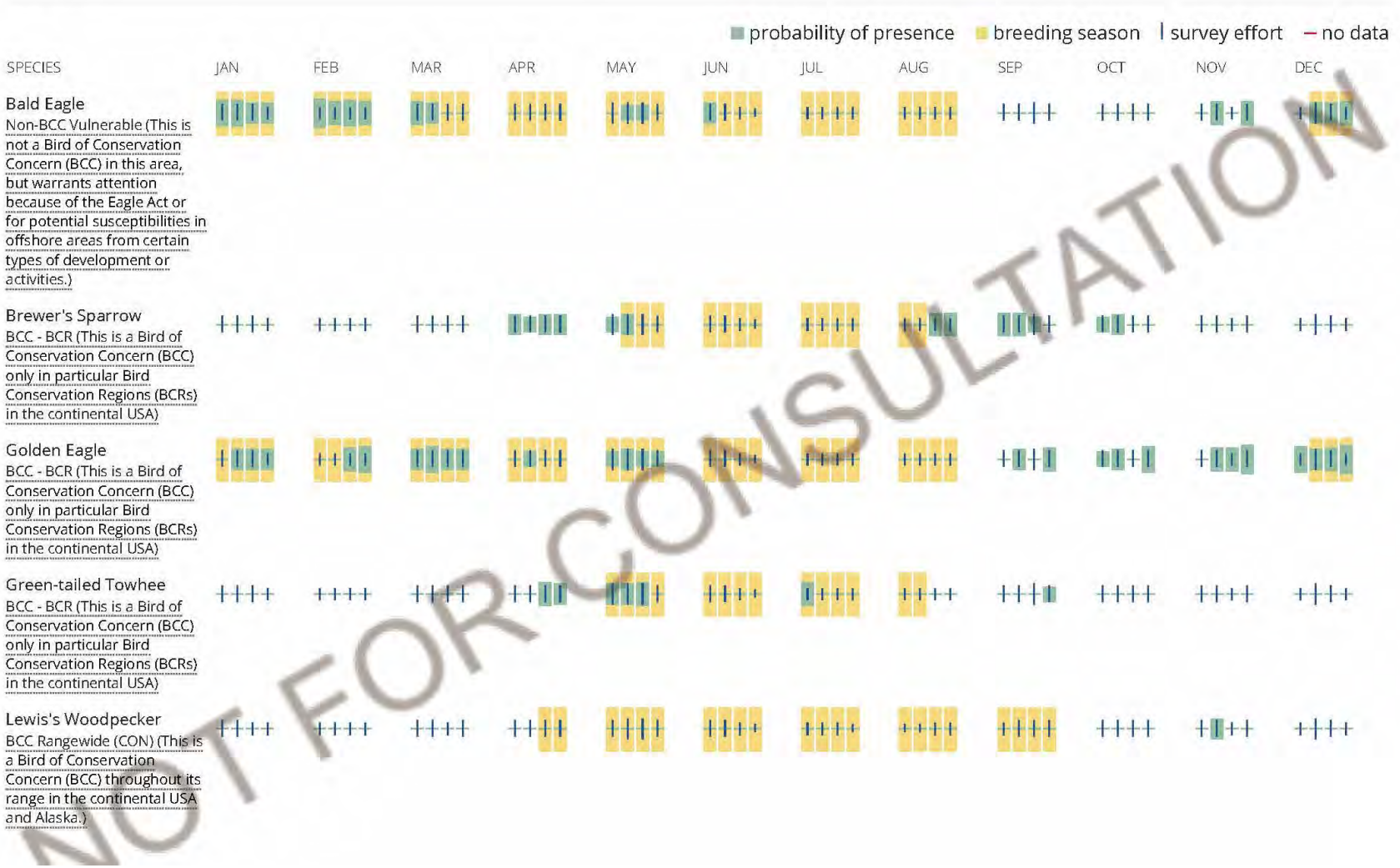
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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 AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1C
- PEM1Cx
- PEM1Ax

FRESHWATER FORESTED/SHRUB WETLAND

- PFOC
- PFOA
- PSSCx

FRESHWATER POND

- PUBFx

RIVERINE

- R3UBH
- R3RBH
- R5UBF
- R4SBC
- R4SBA

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

CNPS California Native Plant Society — Inventory of Rare and Endangered Plants

Plant List

52 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3711856, 3711855, 3711854, 3711846, 3711845, 3711844, 3711836 3711835 and 3711834;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Listing Status	Federal Listing Status	Habitats	Lowest Elevation	Highest Elevation
Allium atrorubens var. atrorubens	Great Basin onion	Alliaceae	perennial bulbiferous herb	May-Jun	2B.3			• Great Basin scrub • Pinyon and juniper woodland	1200 m	2315 m
Arabis repanda var. greenei	Greene's rockcress	Brassicaceae	perennial herb	Jun-Aug	3.3			• Subalpine coniferous forest • Upper montane coniferous forest	2345 m	3600 m
Astragalus argophyllus var. argophyllus	silver-leaved milk-vetch	Fabaceae	perennial herb	May-Jul	2B.2			• Meadows and seeps • Playas	1240 m	2350 m
Astragalus inyoensis	Inyo milk-vetch	Fabaceae	perennial herb	May-Jul	4.2			• Great Basin scrub • Pinyon and juniper woodland	1500 m	3050 m
Astragalus johannis-howellii	Long Valley milk-vetch	Fabaceae	perennial herb	Jun-Aug	1B.2	CR		• Great Basin scrub (sandy loam)	2040 m	2530 m
Astragalus kentrophyta var. danaus	Sweetwater Mountains milk-vetch	Fabaceae	perennial herb	Jul-Sep	4.3			• Alpine boulder and rock field • Subalpine coniferous forest (rocky, talus)	3000 m	3660 m
Astragalus lemmonii	Lemmon's milk-vetch	Fabaceae	perennial herb	May-Aug(Sep)	1B.2			• Great Basin scrub • Meadows and seeps • Marshes and swamps (lake shores)	1007 m	2200 m
Astragalus lentiginosus var. piscinensis	Fish Slough milk-vetch	Fabaceae	perennial herb	Jun-Jul	1B.1		FT	• Playas (alkaline)	1130 m	1300 m
Astragalus monoensis	Mono milk-vetch	Fabaceae	perennial herb	Jun-Aug	1B.2	CR		• Great Basin scrub • Upper montane coniferous forest	2110 m	3355 m
Astragalus ravenii	Raven's milk-vetch	Fabaceae	perennial herb	Jul-Sep	1B.3			• Alpine boulder and rock field	3355 m	3460 m

						• Upper montane coniferous forest		
Boechera dispar	pinyon rockcress	Brassicaceae	perennial herb	Mar-Jun	2B.3	• Joshua tree woodland • Mojavean desert scrub • Pinyon and juniper woodland	1200 m	2540 m
Boechera lincolnensis	Lincoln rockcress	Brassicaceae	perennial herb	Mar-May	2B.3	• Chenopod scrub • Mojavean desert scrub	1100 m	2705 m
Botrychium crenulatum	scalloped moonwort	Ophioglossaceae	perennial rhizomatous herb	Jun-Sep	2B.2	• Bogs and fens • Lower montane coniferous forest • Meadows and seeps • Marshes and swamps (freshwater) • Upper montane coniferous forest	1268 m	3280 m
Calochortus excavatus	Inyo County star-tulip	Liliaceae	perennial bulbiferous herb	Apr-Jul	1B.1	• Chenopod scrub • Meadows and seeps	1150 m	2000 m
Carex buxbaumii	Buxbaum's sedge	Cyperaceae	perennial rhizomatous herb	Mar-Aug	4.2	• Bogs and fens • Meadows and seeps (mesic) • Marshes and swamps	3 m	3300 m
Carex incurviformis	Mt. Dana sedge	Cyperaceae	perennial rhizomatous herb	Jul-Aug	4.3	• Alpine boulder and rock field	3700 m	4060 m
Carex scirpoidea ssp. pseudoscirpoidea	western single-spiked sedge	Cyperaceae	perennial rhizomatous herb	Jul,Sep	2B.2	• Alpine boulder and rock field • Meadows and seeps • Subalpine coniferous forest (rocky)	2990 m	3700 m
Chaetadelpha wheeleri	Wheeler's dune-broom	Asteraceae	perennial rhizomatous herb	Apr-Sep	2B.2	• Desert dunes • Great Basin scrub • Mojavean desert scrub	795 m	1900 m
Cleomella brevipes	short-pedicelled cleomella	Cleomaceae	annual herb	May-Oct	4.2	• Meadows and seeps • Marshes and swamps • Playas	395 m	2195 m
Crepis runcinata	fiddleleaf hawksbeard	Asteraceae	perennial herb	May-Aug	2B.2	• Mojavean desert scrub • Pinyon and juniper woodland	1250 m	2195 m
Cryptantha glomeriflora	clustered-flower cryptantha	Boraginaceae	annual herb	Jun-Sep	4.3	• Great Basin scrub • Meadows and seeps • Subalpine coniferous forest • Upper montane coniferous forest	1800 m	3750 m
Dedeckera eurekensis	July gold	Polygonaceae	perennial deciduous shrub	May-Aug	1B.3	CR • Mojavean desert scrub (carbonate)	1215 m	2200 m
Delphinium inopinum	unexpected	Ranunculaceae	perennial	May-Jul	4.3	• Upper montane coniferous	1890 m	2800 m

	larkspur		herb				forest (rocky, metamorphic)		
Draba sierrae	Sierra draba	Brassicaceae	perennial herb	Jun-Aug	1B.3		• Alpine boulder and rock field (granitic or carbonate)	3500 m	4265 m
Elymus salina	Salina Pass wild-rye	Poaceae	perennial rhizomatous herb	May-Jun	2B.3		• Pinyon and juniper woodland (rocky)	1350 m	2135 m
Eremothera boothii ssp. intermedia	Booth's hairy evening-primrose	Onagraceae	annual herb	(May)Jun	2B.3		• Great Basin scrub (sandy) • Pinyon and juniper woodland	1500 m	2150 m
Eriastrum sparsiflorum	few-flowered eriastrum	Polemoniaceae	annual herb	May-Sep	4.3		• Chaparral • Cismontane woodland • Great Basin scrub • Joshua tree woodland • Mojavean desert scrub • Pinyon and juniper woodland	1075 m	1710 m
Fimbristylis thermalis	hot springs fimbristylis	Cyperaceae	perennial rhizomatous herb	Jul-Sep	2B.2		• Meadows and seeps (alkaline, near hot springs)	110 m	1340 m
Helodium blandowii	Blandow's bog moss	Helodiaceae	moss		2B.3		• Meadows and seeps • Subalpine coniferous forest	1862 m	2700 m
Hulsea vestita ssp. inyoensis	Inyo hulsea	Asteraceae	perennial herb	Apr-Jun	2B.2		• Chenopod scrub • Great Basin scrub • Pinyon and juniper woodland	1645 m	3000 m
Ivesia kingii var. kingii	alkali ivesia	Rosaceae	perennial herb	May-Aug	2B.2		• Great Basin scrub • Meadows and seeps • Playas	1200 m	2130 m
Loeseliastrum depressum	depressed standing-cypress	Polemoniaceae	annual herb		4.3		• Great Basin scrub • Mojavean desert scrub • Pinyon and juniper woodland	1220 m	2100 m
Lupinus magnificus var. hesperius	McGee Meadows lupine	Fabaceae	perennial herb	Apr-Jun	1B.3		• Great Basin scrub • Upper montane coniferous forest	1260 m	1830 m
Lupinus padre-crowleyi	Father Crowley's lupine	Fabaceae	perennial herb	Jul-Aug	1B.2	CR	• Great Basin scrub • Riparian forest • Riparian scrub • Upper montane coniferous forest	2200 m	4000 m
Mentzelia inyoensis	Inyo blazing star	Loasaceae	perennial herb	Apr-Oct	1B.3		• Great Basin scrub • Pinyon and juniper woodland	1158 m	1980 m
Mentzelia torreyi	Torrey's blazing star	Loasaceae	perennial herb	Jun-Aug	2B.2		• Great Basin scrub • Mojavean desert scrub • Pinyon and juniper woodland	1170 m	2835 m
Muilla coronata	crowned muilla	Themidaceae	perennial bulbiferous	Mar-Apr(May)	4.2		• Chenopod scrub • Joshua tree woodland	670 m	1960 m

			herb				• Mojavean desert scrub • Pinyon and juniper woodland		
Oryctes nevadensis	Nevada oryctes	Solanaceae	annual herb	Apr-Jun	2B.1		• Chenopod scrub • Mojavean desert scrub	1100 m	2535 m
Parnassia parviflora	small-flowered grass-of-Parnassus	Parnassiaceae	perennial herb	Aug-Sep	2B.2		• Meadows and seeps	2000 m	2855 m
Penstemon papillatus	Inyo beardtongue	Plantaginaceae	perennial herb	Jun-Jul	4.3		• Pinyon and juniper woodland • Subalpine coniferous forest	2000 m	3000 m
Phacelia inyoensis	Inyo phacelia	Hydrophyllaceae	annual herb	Apr-Aug	1B.2		• Meadows and seeps (alkaline)	915 m	3200 m
Plagiobothrys parishii	Parish's popcornflower	Boraginaceae	annual herb	Mar-Jun(Nov)	1B.1		• Great Basin scrub • Joshua tree woodland	750 m	1400 m
Plagiobryoides vinosula	wine-colored tufa moss	Bryaceae	moss		4.2		• Cismontane woodland • Mojavean desert scrub • Meadows and seeps • Pinyon and juniper woodland • Riparian woodland	30 m	1735 m
Poa lettermanii	Letterman's blue grass	Poaceae	perennial herb	Jul-Aug	2B.3		• Alpine boulder and rock field (sandy or rocky)	3500 m	4265 m
Primula pauciflora	beautiful shootingstar	Primulaceae	perennial herb	Apr-Jun	4.2		• Great Basin scrub • Meadows and seeps • Pinyon and juniper woodland	1000 m	2380 m
Ranunculus hydrocharoides	frog's-bit buttercup	Ranunculaceae	perennial herb (aquatic)	(May)Jun-Sep	2B.1		• Marshes and swamps (freshwater)	1100 m	2700 m
Sarcobatus baileyi	Bailey's greasewood	Sarcobataceae	perennial deciduous shrub	Apr-Jul	2B.3		• Chenopod scrub	1500 m	1600 m
Sidalcea covillei	Owens Valley checkerbloom	Malvaceae	perennial herb	Apr-Jun	1B.1	CE	• Chenopod scrub • Meadows and seeps	1095 m	1415 m
Spartina gracilis	alkali cord grass	Poaceae	perennial rhizomatous herb	Jun-Aug	4.2		• Great Basin scrub • Meadows and seeps • Marshes and swamps	1000 m	2100 m
Thelypodium integrifolium ssp. complanatum	foxtail thelypodium	Brassicaceae	annual / perennial herb	Jun-Oct	2B.2		• Great Basin scrub • Meadows and seeps	1100 m	2500 m
Thelypodium milleflorum	many-flowered thelypodium	Brassicaceae	perennial herb	Apr-Jun	2B.2		• Chenopod scrub • Great Basin scrub (sandy)	1220 m	2500 m
Triglochin palustris	marsh arrow-grass	Juncaginaceae	perennial rhizomatous herb	Jul-Aug	2B.3		• Meadows and seeps • Marshes and swamps (freshwater) • Subalpine coniferous forest	2285 m	3700 m

Suggested Citation

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 27 December 2018].

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The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

Attachment C

Photographs of the Project Site

View of existing failed bridge over Pine Creek. A portion of the existing bridge abutment is located within the OHWM of Pine Creek.

View of existing failed bridge over Pine Creek and abutment to be removed.

C-1

View of Pine Creek upstream of existing bridge.

View of Pine Creek downstream of existing bridge.

C-2

Appendix B. Comment Letters

This appendix includes the comment letters received during the agency/public review period for the Initial Study/Mitigated Negative Declaration (from November 8, 2019 to December 9, 2019). A summary of the comment letters (along with responses) is provided below in **Table B-1**.

Table B-1. Summary of Comment Letters

Letter Date	Commenter	Comment Summary	Response
December 5, 2019	California Department of Fish and Wildlife	The commenter summarizes the California Department of Fish and Wildlife's role as a Trustee Agency over the project and provides recommendations on the timing for pre-construction nesting bird surveys. The commenter also agrees with the IS/MND's conclusions that the project will require compliance with the Lake and Streambed Alteration Program.	In response to the comments provided, **Mitigation Measures BIO-1: "Avoid and Minimize Effects to Nesting Swainson's Hawk"** and **BIO-2: "Pre-Construction Bird Surveys"** (more fully described on pages 3-10 through 3-12 of Section 3.6 "Biological Resources") will be modified to ensure pre-construction bird surveys are conducted as close to the construction start date as possible (no more than 3 days prior to the commencement of onsite vegetation clearing) to ensure no bird species are missed. The updated mitigation measures are provided in Appendix C "Mitigation Monitoring and Reporting Program" of this initial study.
December 9, 2019	Los Angeles Department of Water and Power	The commenter requests that the County right-of-way limits for the project be confirmed. The commenter indicates that the proposed construction start date (May) may not be possible due to stream runoff conditions. The commenter also requests that the implementation of any biological resource mitigation measures (i.e., dewatering, pre-construction surveys, etc.) which encroach on LADWP lands be coordinated with LADWP staff. This includes providing the LADWP with copies of the regulatory permits requiring the surveys, a map of the areas to be surveyed, and the survey results.	Comments are noted. The County will coordinate as appropriate for obtaining access to LADWP lands, if necessary, during the construction process.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

December 5, 2019
Sent via email

Ashley Helms
Associate Engineer
Inyo County Public Works Department
168 N. Edwards, P.O. Drawer Q
Independence, CA 93526
ahelms@inyocounty.us

Subject: Mitigated Negative Declaration
North Round Valley Road Bridge over Pine Creek Bridge Replacement Project
State Clearinghouse No. 2019119037

Dear Ms. Helms:

The California Department of Fish and Wildlife (CDFW) received an Initial Study and Mitigated Negative Declaration (MND) from the Inyo County Public Works Department (County) for the North Round Valley Road Bridge over Pine Creek Bridge Replacement Project (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources, and holds those resources in trust by statute for all the people of the state. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Conserving California's Wildlife Since 1870

environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

PROJECT DESCRIPTION SUMMARY

Description: The Inyo County Department of Public Works (County) proposes to replace the existing North Round Valley Road Bridge over Pine Creek, which was damaged from high-velocity flows in Pine Creek. The County proposes to replace the structure with a single-span, precast/prestressed wide flange girder superstructure supported on high cantilever abutments founded on cast-in-drilled-hole concrete piles, approximately 85 feet in length. The existing horizontal and vertical alignments of North Round Valley Road will be maintained.

Location: The proposed Project site encompasses 2.85 acres in northwestern Inyo County, in Section 17 of the USGS 7.5-minute Rovana Quadrangle, Township 6 South, Range 31 East. The Project site is accessible from North Round Valley Road, via Pine Creek Road or Birchim Lane.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the County in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. The comments and recommendations are also offered to enable CDFW to adequately review and comment on the proposed Project with respect to impacts on biological resources.

Nesting Birds

Mitigation Measure BIO-2: Pre-Construction Bird Surveys proposes conducting surveys within 14 days before commencement of any construction activities during the migratory bird nesting season, which is identified as March 15 through July 31. CDFW recommends revising the measure to require pre-construction surveys no more than three (3) days prior to vegetation clearing or ground disturbing activities, as instances of nesting could be missed if surveys are conducted sooner. In addition, surveys should focus on all suitable nesting habitats within the Project area, not just trees and shrubs, as some species nest directly on the ground. CDFW also recommends revising the nesting season to be identified as February 1-September 15; however, CDFW does not recommend relying on seasonal restrictions alone to avoid impacts to nesting birds, as nesting dates vary from year to year and some species may nest year-round.

Lake and Streambed Alteration Program

CDFW agrees with the MND's identification of the need for a 1602 Lake and Streambed Alteration (LSA) Agreement. Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following:

Substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

Upon receipt of a complete notification, CDFW determines if the proposed Project activities may substantially adversely affect existing fish and wildlife resources and whether an LSA Agreement is required. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. CDFW may suggest ways to modify your Project that would eliminate or reduce harmful impacts to fish and wildlife resources.

CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if necessary, the MND should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the proposed Project may be required to avoid or reduce impacts to fish and wildlife resources. To obtain a Lake or Streambed Alteration notification package, please go to: https://www.wildlife.ca.gov/Conservation/LSA/Forms.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a data base which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying Project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the MND for the North Round Valley Road Bridge over Pine Creek Bridge Replacement Project to assist the Inyo County Public Works Department in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Rose Banks, Environmental Scientist, at (760) 873-4412 or Rose.Banks@wildlife.ca.gov.

Sincerely,

Scott Wilson
Environmental Program Manager

cc: State Clearinghouse

December 9, 2019

Ms. Ashley Helms, Associate Engineer
Inyo County Public Works Department
168 N. Edwards Street
Independence, CA 93526

Dear Ms. Helms:

Subject: LADWP Comments on the Initial Study/Mitigated Negative Declaration for Bridge No. 48C004

The Los Angeles Department of Water and Power (LADWP) is providing the below comments pertaining to the "Notice of Availability/Intent to Adopt the Proposed Mitigated Negative Declaration for the North Round Valley Road Bridge over Pine Creek Bridge Replacement Project."

Right of Way for Project

- Section 2.6.6 states that "north of the bridge the right-of-way is 60-feet wide versus a 40-foot wide right-of-way south of the bridge." LADWP has no record of granting public road rights to Inyo County for the 40-foot road located south of the bridge. LADWP requests that Inyo County show documentation of how it obtained road rights for the 40-foot section. Inyo County will need to submit a written formal request identifying the right-of-way its wants to acquire with an offer and appraisal to start the process.
- Section 2.6.7 identifies a tentative construction schedule indicating a start date of May 2020. As of the date of this letter, Inyo County has not submitted a written formal request identifying the rights it wants to acquire or make an offer to purchase those rights. With less than 5 months remaining there is not sufficient time to process an easement before Inyo County wants to access and start construction work on LADWP property.
- Please be aware that a May 2020 start date may not be possible depending on runoff conditions on Pine Creek.
- LADWP requests that Inyo County monument the centerline of the road for establishing right-of-way to be acquired from LADWP.

111 N. Hope Street, Los Angeles, California 90012-2607 Mailing Address: PO Box 51111, Los Angeles, CA 90051-5700
Telephone (213) 367-4211 ladwp.com

Biological Resources

- On page 3-11 in section 3.6.1, Inyo County states that pre-construction bird surveys would be conducted if vegetation removal occurred during the migratory bird nesting season. However, this measure only applies to surveys of vegetation designated for removal. It is possible that regulatory agencies may require surveys of vegetation beyond those areas that are directly impacted by project activities (i.e., vegetation that is removed). Additionally, there is another measures that states, "Surveys for raptor nests shall include suitable habitat within up to 300 feet of areas subject to project disturbance, depending on the potential extent of direct impact." These surveys could extend onto LADWP land; therefore, we request a copy of any permits that identify the need for surveys on its land and a map of the areas that would be surveyed as well as any results of those surveys.
- On page 3-12 in section 3.6.1, Inyo County states that a buffer will be established around active nests or suspected active nests to prevent their failure. If an active nest or nests are located on LADWP land, we request that Inyo County notify us and provide a map of the nest locations and what measures are being implemented to protect the nesting birds from disturbance. We also request that Inyo County document the outcome of the nest(s).
- On page 3-12 in section 3.6.1, Inyo County states that all temporarily disturbed areas will be returned to pre-project conditions by using appropriate erosion control devices, which could include coir netting, hydroseeding, and revegetation. If disturbance occurs on LADWP land, we will need to review and approve any restoration plans.
- On page 3-14 in section 3.6.1, Inyo County stated that a construction contractor will prepare a dewatering plan that will be reviewed by a qualified fisheries biologist. Since special-status fish could be present downstream on LADWP property, we will need to review and approve the dewatering plan.
- On page 3-16 in section 3.6.1, Inyo County acknowledges that it will need regulatory permits from the U.S. Army Corps of Engineers, Lahontan Regional Water Quality Control Board, and the California Department of Fish and Wildlife. Because project impacts may extend outside of the right-of-way and affect resources on LADWP land, we request a copy of the permits received from each of the regulatory agencies as well as any post-project reports that may be required.

Thank you for the opportunity to comment. If you have any questions regarding our comments, please write to our office located at 300 Mandich Street, Bishop, California, 93514, or contact Mr. Donald. S. McGhie at (760) 873-0248.

Sincerely,

Clarence E. Martin
Manager of Aqueduct

Enclosure
DSM:vg
c: Mr. Donald S. McGhie

Appendix C. Mitigation Monitoring and Reporting Program

In accordance with the California Environmental Quality Act (CEQA), the Inyo County Department of Public Works (County) prepared an initial study/proposed mitigated negative declaration (IS/MND) in 2019 to provide the public and responsible and trustee agencies with information regarding the potential environmental impacts associated with implementation of the North Round Valley Road Bridge over Pine Creek Replacement Project, (hereafter referred to as the "project").

The IS/MND concludes that implementation of the proposed project would generate significant and potentially significant adverse effects on the environment. The IS/MND identifies feasible mitigation measures that avoid, mitigate, or reduce these impacts to a less-than-significant level.

Section 21081.6(a)(1) of the California Public Resources Code (PRC) and Section 15097 of the State CEQA Guidelines require a public agency to adopt a reporting and monitoring program on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental impacts on the physical environment.

This Mitigation Monitoring and Reporting Program (MMRP) provided below in **Table C-1** will be used by the County to ensure that mitigation measures identified in the MND are implemented as described in the MND and that their implementation is documented. The MMRP may be modified by the County during project implementation, as necessary, in response to changing conditions or other refinements.

In responding to comments received on the IS/MND, Mitigation Measures BIO-1 and BIO-2 were modified to ensure pre-construction nesting bird surveys are conducted as close to the construction start date as possible (no more than 3 days prior to the commencement of onsite vegetation clearing) to ensure no bird species are missed. These minor edits to Mitigation Measures BIO-1 and BIO-2 are identified below (<u>underline</u> and ~~strikeout~~ text) in **Table C-1**.

The MMRP is presented in tabular format. The table columns contain the following information:

- **Mitigation Number:** Lists the mitigation measures by number, as designated in the MND.
- **Mitigation Measure:** Provides the text of the mitigation measures, each of which has been adopted and incorporated into the project.
- **Timing/Schedule:** Lists the time frame in which the mitigation measure is expected to take place.
- **Implementation Responsibility:** Identifies the entity responsible for implementing the mitigation measure.
- **Completion of Implementation:** The County is responsible for reporting on implementation of the mitigation measures. The "Completion of Implementation" column is to be used by the County to indicate when implementation of a mitigation measure has been completed. The County, at its discretion, may delegate implementation responsibility or portions thereof to qualified consultants or contractors.

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
AIR QUALITY				
AIR-1	**Dust and Engine Emissions Control Measures** Inyo County shall ensure that the construction contractor will comply with District Rule 401 regulations. In addition to reasonable precautions outlined in Rule 401, the following measures shall be incorporated during the demolition and installation of the bridge and realigned roadway approaches: 1. Water or dust palliatives shall be applied on dirt roads, material stockpiles, and other surfaces that could give rise to airborne dust and are subject to disturbance. 2. Water or dust palliatives shall be applied to prevent particulate matter from becoming airborne during the transportation or stockpiling of dusty materials. 3. Trucks hauling material shall be covered during transit. 4. Roadways shall be maintained in a clean condition. 5. Vehicles shall be limited to 15 miles per hour (mph) on unpaved roads, to the extent feasible. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer 's specifications. All equipment shall be checked by a certified visible emissions evaluator.	Before and During Construction Activities	County / Construction Contractor	
BIOLOGICAL RESOURCES				
BIO-1	**Avoid and Minimize Effects to Nesting Swainson's Hawk** Inyo County shall ensure the construction contractor implement the following measures to avoid and minimize potential adverse effects on nesting Swainson's hawk during project construction. 1. Preconstruction surveys for active Swainson's hawk nests shall be conducted by a qualified biologist in all areas of suitable nesting habitat within 0.25-mile of project disturbance. A minimum of one survey shall be conducted no more than 3 ~~14~~ days before project activities commence. 2. Appropriate buffers shall be established and maintained around active nest sites to avoid nest failure from project activities. The appropriate size and shape of the buffers shall be determined by a qualified	Before and During Construction Activities	County / Construction Contractor	

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
	biologist and may vary depending on the nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines it would not be likely to adversely affect the nest. Monitoring shall be conducted to confirm that project activities are not resulting in detectable adverse effects on nesting birds or their young. No project activities shall commence within the buffer areas until a qualified biologist determines that the young have fledged, or the nest site is otherwise no longer in use.			
BIO-2	**Pre-Construction Bird Surveys** Inyo County shall ensure the construction contractor implement the following measures to avoid and minimize destruction of active bird nests and potential violation of FGC Section 3503 during project construction: 1. If vegetation removal must occur during the migratory bird nesting season (March 15 through July 31), surveys for active bird nests shall be conducted by a qualified biologist in areas of suitable nesting vegetation designated for removal. If active nests are found, removal of vegetation in which the nests are located will be delayed until a qualified biologist determines that the young have fledged, or the nest site is otherwise no longer in use. 2. Preconstruction surveys for active nests of common raptor species shall be conducted by a qualified biologist. Surveys for raptor nests shall include suitable habitat within up to 300 feet of areas subject to project disturbance, depending on the potential extent of indirect impact. Surveys shall be conducted within 3 ~~14~~ days before commencement of any construction activities that occur during the raptor nesting season (March 15 to July 31) in a given area. 3. If any active nests, or behaviors indicating active nests are present, are observed, appropriate buffers around the nest sites shall be determined by a qualified biologist to avoid nest failure resulting from project activities. Buffer size shall depend on the species, nest location, nest stage, and specific construction activities to be performed while the nest is active. The buffers may be adjusted if a qualified biologist determines it would not be likely to adversely affect the nest. If buffers are adjusted, monitoring shall be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity shall commence within the buffer areas until a qualified biologist determines that the young have fledged, or the nest site is otherwise no longer in use.	Before and During Construction Activities	County / Construction Contractor	
BIO-3	**Conduct Environmental Awareness Training Regarding Special-status Species and Sensitive Habitats prior to Construction** Inyo County shall ensure the construction contractor will implement the following actions before and during construction activities:	Before and During Construction Activities	County / Construction Contractor	

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
	Before any work occurs in the proposed project footprint, including grading and equipment staging, all construction personnel shall participate in an environmental awareness training regarding special-status species and sensitive habitats present in the project limits. The training shall describe sensitive resources (i.e., waters of the U.S. and state, riparian habitat, special-status species and habitat, nesting birds/raptors) to be avoided during project construction and applicable permit conditions identified by state and federal agencies to protect these resources. If new construction personnel are added to the project, they must receive the mandatory training before starting work. After being trained, each construction person shall sign-in to document they received the training.			
BIO-4	**Return Temporarily Disturbed Areas to Pre-Project Conditions** The County shall ensure the construction contractor will implement the following actions before and during construction activities: All temporarily disturbed areas shall be returned to pre-project conditions within one year following completion of construction/maintenance. These areas shall be properly protected from washout and erosion using appropriate erosion control devices including coir netting, hydroseeding, and revegetation.	During and After Construction Activities	County / Construction Contractor	
BIO-5	**Avoid the Spread of Invasive Plant Species** The County shall ensure the following mitigation measures shall be implemented, as appropriate, to avoid the spreading of invasive plant species throughout the project site during construction and maintenance activities, particularly in riparian areas: 1. All hay, straw, hay bales, straw bales, seed, mulch, or other material used for erosion control or landscaping on the project site, and all material brought to the site, including rock, gravel, road base, sand, and top soil, shall be free of noxious weed seeds and propagules. Noxious weeds are defined in Title 3, Division 4, Chapter 6, Section 4500 of the California Code of Regulations and the California Quarantine Policy – Weeds. (Food and Agriculture Code, Sections 6305, 6341 and 6461) **2.** All equipment brought to the project site for construction shall be thoroughly cleaned of all dirt and vegetation prior to entering the site to prevent importing noxious weeds. (Food and Agriculture Code, Section 5401)	Before and During Construction Activities	County / Construction Contractor	
BIO-6	**Avoid and Minimize Effects to Special-status Fish** Inyo County shall ensure the construction contractor implement the following measures to avoid and minimize adverse impact on special-status fish species.	Before and During Construction Activities	County / Construction Contractor	

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
	1. The construction contractor shall prepare a dewatering plan, which shall be reviewed by a qualified fisheries biologist retained by Inyo County. 2. A qualified biologist shall be present during dewatering activities and shall relocate fish downstream to flowing waters outside the project site, if necessary. 3. No refueling, storage, servicing, or maintenance of equipment shall take place on the shore within 100 feet of the Ordinary High-Water Mark (OHWM) of Pine Creek. 4. All machinery used during project construction shall be properly maintained and cleaned to prevent spills and leaks that could contaminate soil or water. Secondary containment for stationary machinery used to dewater, such as pumps or generators, shall be used. 5. All pumps used to conduct dewatering activities shall be screened to prevent fish entrainment. 6. The area surrounding concrete abutment footings shall remain dry until cement is fully cured. Any waters that make contact with wet cement shall be disposed of outside of the active channel of Pine Creek.			
BIO-7	**Avoid and Minimize Effects to waters of the United States/waters of the State** Inyo County shall ensure the construction contractor implement the following measures to avoid and minimize direct fill of waters of the United States in Pine Creek. Pine Creek is also a water of the state, regulated under Section 401 of the CWA, and subject to regulation by CDFW under Section 1600 of the California Fish and Game Code. 1. Ground disturbance shall be limited to construction areas, including necessary access routes and staging areas. The total area of the project activity shall be limited to the minimum necessary. When possible, existing access routes and points shall be used. All roads, staging areas, and other facilities shall be placed to avoid and limit disturbance to Pine Creek when feasible. 2. A Storm Water Pollution Prevention Plan (SWPPP) or a Water Pollution Control Plan (for disturbance areas less than an acre) that identifies specific best management practices (BMPs) to avoid and minimize impacts on water quality during construction activities shall be prepared and implemented. BMPs may include:	Before, During, and After Construction Activities	County / Construction Contractor	

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
	3. Erosion control measures that minimize soil or sediment from entering waterways and wetlands shall be installed, monitored for effectiveness, and maintained throughout construction activities. 4. Precautions to minimize turbidity/siltation shall be implemented during construction. This may require placing barriers (e.g., silt curtains) to prevent silt and/or other deleterious materials from entering downstream reaches. 5. Petroleum products, chemicals, fresh cement, and construction by-products containing, or water contaminated by, any such materials shall not be allowed to enter flowing waters and shall be collected and transported to an authorized upland disposal area. 6. A written spill prevention and control plan (SPCP) shall be prepared and implemented. The SPCP and all material necessary for its implementation shall be accessible on-site prior to initiation of project construction and throughout the construction period. The SPCP shall include a plan for the emergency cleanup of any spills of fuel or other material. Employees/construction workers shall be provided the necessary information from the SPCP to prevent or reduce the discharge of pollutants from construction activities to waters and to use the appropriate measures should a spill occur. In the event of a spill, work shall stop immediately and CDFW, Lahontan Regional Water Quality Control Board (RWQCB), and United States Army Corps of Engineers (USACE) shall be notified within 24 hours. 7. Before the commencement of construction activities, high-visibility fencing shall be erected to protect areas of Pine Creek that are located adjacent to construction areas, but can be avoided, from encroachment of personnel and equipment. The fencing shall be inspected before the start of each work day and shall be removed only when the construction within a given area is completed. Limits of waters of the United States shall be incorporated into project bid specifications, along with a requirement for contractors to avoid these areas. 8. A qualified biologist shall monitor the start of in-water construction activities to ensure that avoidance and minimization measures are being properly implemented and no unauthorized activities occur. 9. Project implementation would result in the need to obtain regulatory permits from USACE, RWQCB, and CDFW for direct impacts to Pine Creek. All measures developed through consultation with the respective regulatory agencies shall be implemented. 10. Section 404: Before any ground-disturbing project activities begin in Pine Creek, a qualified biologist shall conduct a formal delineation of waters of the United States for Clean Water Act Section 404 permitting. The findings shall be documented in a detailed report and submitted to USACE for			

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
	verification as part of the Section 404 wetland delineation process. Authorization for fill of jurisdictional waters of the United States shall be secured from USACE via the Section 404 permitting process before project construction. Any measures determined necessary during the 404 permitting process shall be implemented during project construction. 11. Section 401: Water quality certification pursuant to Section 401 of the Clean Water Act shall be obtained from the Lahontan RWQCB before starting project construction in any areas that may contain waters of the State. Any measures required as part of the issuance of water quality certification shall be implemented. 12. Section 1602: A CDFW lake and streambed alteration agreement shall be obtained under Section 1602 of the California Fish and Game Code for all work below the top of bank of Pine Creek. Any conditions of issuance of the lake and streambed alteration agreement shall be implemented as part of project implementation.			
CULTURAL RESOURCES AND TRIBAL CULTURAL RESOURCES				
CR-1	**Install Environmentally Sensitive Area Fencing Around Portions of Resource RV-1** To ensure no adverse effects to the resource, Inyo County will ensure that the construction contractor install Environmentally Sensitive Area fencing around portions of the RV-1 resource near the roadway limits to clearly depict the limits of the resource. The fencing would provide a visual reference, so construction personnel can clearly recognize the resource limits on the ground and ensure no adverse effects to RV-1.	Before and During Construction Activities	County / Construction Contractor	

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
CR-2	**Accidental Finding of Human Remains** 1. If human remains are found, the California Health and Safety Code requires that excavation be halted in the immediate area and that the Inyo County Coroner be notified to determine the nature of the remains. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private of State lands (California Health and Safety Code, Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by telephone within 24 hours of making that determination (California Health and Safety Code, Section 7050.5[c]). **2.** Once notified by the Coroner, the NAHC shall identify the person it believes it the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner(s), the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. This visit should be conducted with 48 hours of the MLD's notification by the NAHC (California Public Resources Code [PRC], Section 5097.98[a]). If a satisfactory agreement for treatment of the remains cannot be reached, any of the parties may request mediation by the NAHC (California PRC, Section 5097.94[k]). Should mediation fail, the landowner or landowner's representative must reinter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (California PRC, Section 5097.98[b]).	During Construction Activities	County / Construction Contractor	
CR-3	**In the Event that Tribal Cultural Resources or Cultural Resources Are Discovered During Construction, Implement Avoidance and Minimization Measures and Procedures to Evaluate Resources** If cultural resources or tribal cultural resources (such as Native American archaeological materials, sacred objects, unusual amounts of bone or shell, artifacts, or human remains and associated objects and materials) are encountered at the project site during construction, work shall be suspended within 100 feet of the find (based on the apparent distribution of cultural materials), and the construction contractor shall immediately notify the project's County representative. Avoidance and preservation in place is the preferred manner of mitigating impacts to cultural resources or tribal cultural resources. This will be accomplished, if feasible, by several alternative means, including: • Recommendations for avoidance of cultural resources or tribal cultural resources will be reviewed by the County representative, interested culturally affiliated Native American tribes and other appropriate agencies, considering factors such as costs, logistics, feasibility, design, technology and social, cultural and environmental considerations, and the extent to which	Before and During Construction Activities	County / Construction Contractor	

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
	avoidance is consistent with project objectives. Avoidance and design alternatives may include realignment within the project site to avoid cultural resources or tribal cultural resources, modification of the design to eliminate or reduce impacts to tribal cultural resources or modification or realignment to avoid highly significant features within a cultural resource or tribal cultural resource. • Native American representatives from interested culturally affiliated Native American tribes will be invited to review and comment on these analyses and shall have the opportunity to meet with the County representative and its representatives who have technical expertise to identify and recommend feasible avoidance and design alternatives, so that appropriate and feasible avoidance and design alternatives can be identified. • If the discovered cultural resource or tribal cultural resource can be avoided, the construction contractor(s), will install protective fencing outside the site boundary, including a 100-foot buffer area, before construction restarts. The boundary of a tribal cultural resource will be determined in consultation with interested culturally affiliated Native American tribes and tribes will be invited to monitor the installation of fencing. Use of temporary and permanent forms of protective fencing will be determined in consultation with Native American representatives from interested culturally affiliated Native American tribes. • The construction contractor(s) will maintain the protective fencing throughout construction to avoid the site during all remaining phases of construction. The area will be demarcated as an "Environmentally Sensitive Area". If a cultural resource or tribal cultural resource cannot be avoided, the following performance standard shall be met prior to continuance of construction and associated activities that may result in damage to or destruction of tribal cultural resources: • Each resource will be evaluated for California Register of Historical Resources- (CRHR) eligibility through application of established eligibility criteria (California Code of Regulations 15064.636), in consultation with consulting Native American Tribes, as applicable. If a cultural resource or tribal cultural resource is determined to be eligible for listing in the CRHR, the County will avoid damaging effects to the resource in accordance with California PRC Section 21084.3, if feasible. The County shall coordinate the investigation of the find with a qualified archaeologist (meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology) approved by the County and with interested culturally affiliated Native American tribes that respond to the County's invitation. As part of the site investigation and resource assessment, the County and the archaeologist shall consult with interested culturally affiliated			

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
	Native American tribes to assess the significance of the find, make recommendations for further evaluation and treatment as necessary and provide proper management recommendations should potential impacts to the resources be determined by the County to be significant. A written report detailing the site assessment, coordination activities, and management recommendations shall be provided to the County representative by the qualified archaeologist. These recommendations will be documented in the project record. For any recommendations made by interested culturally affiliated Native American tribes that are not implemented, a justification for why the recommendation was not followed will be provided in the project record. Native American representatives from interested culturally affiliated Native American Tribes and the County representative will also consult to develop measures for long-term management of any discovered Native American cultural resources or tribal cultural resources. Consultation will be limited to actions consistent with the jurisdiction of the County and considering ownership of the subject property. To the extent that the County has jurisdiction, routine operation and maintenance within tribal cultural resources retaining tribal cultural integrity shall be consistent with the avoidance and minimization standards identified in this mitigation measure. If the County determines that the project may cause a significant impact to a cultural resource or tribal cultural resource, and measures are not otherwise identified in the consultation process, the following are examples of mitigation capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to the resource. These measures may be considered to avoid or minimize significant adverse impacts and constitute the standard by which an impact conclusion of less-than significant may be reached: • Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria. • Treat the resource with culturally appropriate dignity considering Tribal cultural values and meaning of the resource, including, but not limited to, the following: • Protect the cultural character and integrity of the resource. • Protect the traditional use of the resource. • Protect the confidentiality of the resource. • Establish permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or using the resources or places. • Protect the resource.			

Table C-1. Mitigation Monitoring and Reporting Plan for the North Round Valley Road Bridge over Pine Creek Replacement Project.

Mitigation Number	Mitigation Measure	Timing/Schedule	Implementation Responsibility	Completion of Implementation
HAZARDS AND HAZARDOUS MATERIALS AND WILDFIRES				
HAZ-1	**Implement BMPs for Wildland Fire Prevention** Inyo County shall ensure that the construction contractor will clear dried vegetation or other materials that could serve as fuel for combustion from construction or building areas. To the extent feasible, the contractor shall keep these areas clear of combustible materials to maintain a firebreak. Construction contractors shall ensure that any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.	Before and During Construction Activities	County / Construction Contractor	

Section 2

Foundation Report (Final Submittal) North Round Valley Road Bridge, Round Valley, California Dated August 10, 2020

August 10, 2020
File No.: 20191324.001

Mr. Robert Sennett
MGE Engineering, Inc.
7415 Greenhaven Drive
Sacramento, California 95831
Phone: (916) 421-1000
Email: rsennett@mgeeng.com

SUBJECT: Foundation Report (Final Submittal)
North Round Valley Road Bridge
Round Valley, California

Dear Mr. Sennett:

The attached foundation report presents the results of the geotechnical study for the North Round Valley Road Bridge over Pine Creek in Round Valley, California. This report describes our study and provides conclusions and recommendations for use in foundation design.

We appreciate the opportunity to provide geotechnical engineering services to Inyo County and other project designers during the design phase of the project. We trust this information meets your current needs. If there are any questions concerning the information presented in this report, please contact this office at your convenience.

Respectfully Submitted,

KLEINFELDER, INC.

Adam AhTye, EIT
Staff Engineer

Stephen P. Plauson, P.E., G.E.
Principal Geotechnical Professional

AA;SPP:crt

FOUNDATION REPORT (Final Submittal)
NORTH ROUND VALLEY ROAD BRIDGE
ROUND VALLEY, CALIFORNIA

A report prepared for:

MGE Engineering, Inc.
7415 Greenhaven Drive
Sacramento, California 95831

Report prepared by:

Kleinfelder, Inc
3731 West Ashcroft Avenue
Fresno, California 93722

August 10, 2020

File No.: 20191324.001A

Prepared For:
MGE Engineering, Inc.
7415 Greenhaven Drive
Sacramento, California 95831

FOUNDATION REPORT (Final Submittal)
NORTH ROUND VALLEY ROAD BRIDGE
ROUND VALLEY, CALIFORNIA

Kleinfelder Job No.: 20191324.001A

Prepared by:

Adam AhTye, EIT
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3731 West Ashcroft Avenue
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August 10, 2020

TABLE OF CONTENTS

1 INTRODUCTION

1.1 GENERAL

This report presents results of the geotechnical evaluation for the North Round Valley Road Bridge over Pine Creek in Round Valley, California.

1.2 SCOPE OF WORK

The purpose of the Foundation Report is to provide geotechnical recommendations and opinions to aid in design of the project. The scope of services consisted of field exploration, laboratory testing, engineering analysis, and preparation of this written report. The report provides the following:

- A description of the proposed project;
- Discussion of the field and laboratory testing programs;
- Comments on the corrosion potential of foundation soil;
- Comments on the regional geology and site engineering seismology, including the potential for liquefaction, seismically induced settlement, and lateral spreading;
- Discussion of potential scour;
- Recommended peak ground acceleration and ARS curve based on Caltrans Seismic Design Criteria 1.7;
- Recommendations for pile foundations, including design and specified tip elevations;
- Recommended LPILE parameters for use in evaluating the pile response to lateral loads;
- Comments on initial soil stiffness and ultimate equivalent lateral pressure by Caltrans procedures for abutment endwalls; Recommended pavement structural section, using Caltrans guidelines for roadway improvements;
- Earthwork recommendations to supplement Caltrans Standard Specifications;

- Recommended pavement structural section, using Caltrans guidelines for roadway improvements; and
- Log of Test Borings (LOTB)

1.3 PROJECT DESCRIPTION

The existing bridge structure on N. Round Valley Road over Pine Creek consists of a single lane reinforced concrete box culvert with concrete wingwalls. The existing bridge suffered irreparable flood damage causing the need for replacement. The bridge will be replaced with a new single-span reinforced concrete bridge structure. The total bridge length will be about 80.3 feet and will consist of standard precast-prestressed "I"-Girders with composite reinforced concrete deck slab, supported on cantilever seat type abutments. The structure will be supported 24-inch Cast-in-Drilled Hole (CIDH) piles at the abutments.

The hydraulic analysis by others indicated the scour depth is 12 feet, therefore, pile capacity is to neglect the available skin friction resistance above elevation 4650.75 feet.

Tables 1.2-1 and 1.2-2 present foundation design data and foundation design loads used for this geotechnical evaluation. The data in Tables 1.2-1 and 1.2-2 are based on information provided by MGE Engineering, Inc.

TABLE 1.2-1
PILE FOUNDATION DESIGN DATA SHEET

Support	Station	Pile Type	Cut-off Elev. (ft)	Pile Cap Size (ft)		S_p[(1)]	No. Piles Per Support
				B	L		
Abut 1	13+58.00	24 in CIDH	4662.5	10	42	1	16
Abut 2	14+43.00	24 in CIDH	4662.5	10	42	1	16

Note: (1) Permissible settlement under service limit load.

TABLE 1.2-2
PILE FOUNDATION DESIGN LOADS

Support	Pile Type	Service Limit State (kips)			Strength Limit State (kips)			Extreme Event Limit State (kips)		
		Total Load		Permanent Loads	Compression		Tension	Compression		Tension
		Per Support	Max Per Pile	Per Support	Per Support	Max Per Pile	Max Per Pile	Per Support	Max Per Pile	Max Per Pile
Abut 1	24 in CIDH	1714	182	1341	2211	277	1	1341	228	60
Abut 2	24 in CIDH	1714	182	1341	2211	277	1	1341	228	60

1.4 POLICY EXCEPTIONS

Abutment slopes will have a maximum gradient of 1.5H:1V, with rock slope protection.

No other known exceptions to Caltrans policy were made in the geotechnical evaluation for the foundations for this project.

2 FIELD AND LABORATORY PROGRAMS

2.1 INVESTIGATION AND TESTING

The field exploration for the project was performed on August 15 and 16, 2018. The field survey consisted of a site reconnaissance by a staff engineer and the drilling of five (5) test borings. Two test borings were drilled along the existing roadway and two test boring were performed in the shoulder of the roadway with a track mounted drill rig using solid flight auger, mud rotary, and rock coring techniques and one test boring was performed in the Pine Creek channel with a hand auger. Borings extended to depths of 3 and 71.5 feet below the existing ground surface, respectively. The Log of Testing Borings drawing is provided in Appendix A.

The earth materials encountered in the test borings were visually classified in the field and a continuous log was recorded. In-place samples of soil units were collected from the test borings at selected depths by driving a 2.5-inch I.D. split barrel sampler containing brass liners into the undisturbed soil with a 140-pound automatic safety hammer free falling a distance of 30-inches. The automatic hammer had a measured energy efficiency rating of 83%. In addition, an ASTM D1586 standard penetrometer (SPT) without liners (barrel I.D. of 1.5 inches) was driven 18-inches in the same manner. This latter sampling procedure generally conformed to the ASTM D1586 test procedure. Resistance to sampler penetration over the last 12-inches is noted on the Log of Test Borings. The blow counts listed on the Log of Test Borings have not been corrected for the effects of overburden pressure, sampler size, rod length, or hammer efficiency. In addition, bulk samples were obtained from auger cuttings at selected borings.

Penetration rates determined in general accordance with ASTM D1586 were used to aid in evaluating the consistency, compression, and strength characteristics of the foundation soils.

2.2 LABORATORY TESTING PROGRAM

Laboratory tests were performed on selected samples to evaluate certain engineering properties. The laboratory testing program was designed with emphasis on the evaluation of geotechnical properties of foundation materials as they pertain to the proposed project. The laboratory testing program included performing the following tests:

- Unit Weight (ASTM D2937)
- Moisture Content (ASTM D2216)
- Direct Shear (ASTM D3080)
- Grain Size Distribution (ASTM D 422, without hydrometer)
- Soluble Sulfates and Chlorides (California Test Method Nos. 417 and 422)
- pH and Minimum Resistivity (California Test Method No. 643)
- Resistance Value (California Test Method No. 301)

The soluble sulfate and chloride results are presented in Section 4.0 (“Corrosion Potential”). Remaining test results are provided in Appendix B.

3 SITE GEOLOGY AND CONDITIONS

3.1 CONDITIONS AND TOPOGRAPHY

The project site is located just north of Round Valley in Inyo County. The existing Round Valley Road is a 2-lane asphalt concrete paved road with a single lane reinforced concrete bridge at Pine Creek. At the time of investigation, the approach to the south abutment was scoured preventing access across the bridge and the water in Pine Creek was low, approximately 12 feet below the roadway and flowing around the damaged structure. The general topography along the alignment is relatively flat on either side of Pine Creek. The creek invert is presently estimated at 4667 feet.

3.2 REGIONAL GEOLOGY

The project site is located within the Sierra Nevada physiographic province. The Sierra Nevada is a tilted fault block nearly 400 miles long. Its east face is a high, rugged multiple scarp, contrasting with the gentle western slope that disappears under sediments of the Great Valley. Deep river canyons are cut into the western slope. Their upper courses are modified by glacial sculpturing, forming such scenic features as Yosemite Valley (California Department of Conservation, California Geological Survey, 2002). The local geology at the site consists primarily of Quaternary aged alluvium deposits.

3.3 EARTH MATERIALS

The natural earth material profile consists of Holocene Age recent younger alluvial fan deposits. Deposits include laterally discontinuous layers of silty sand and gravel in the upper 10 to 12 feet, underlain by poorly graded gravel with varying amounts of cobble and sand to a depth of 70 feet below ground surface (bgs). Cobbles ranged in size from 3 inches to 11 inches and boring B-1 encountered one boulder approximately 16 inches in diameter. Additionally, boring B-2 encountered two interbedded layers of sand and clayey sand at depths of approximately 32 feet and 68 feet bgs. The borings generally depict the typical deposits in the Owens Valley, with the exception that few boulders were encountered in the borings, therefore, construction should anticipate encountering additional random boulders. The granular soils generally had a relative

consistency of dense to very dense and the fine-grained soils had a relative consistency of hard. A detailed earth material profile is provided on the LOTB in Appendix A.

3.4 GROUNDWATER

Groundwater was not encountered within a depth of 10 feet utilizing the solid flight auger. The depth to groundwater depth was not measured during the rock coring; however, at the time of drilling Pine Creek was flowing with the water level surface approximately 12 feet below the elevation of N. Round Valley Road. Based on the proximity of the borings to the creek channel it is assumed that groundwater levels in the borings is equivalent to Pine Creek's flow level of approximately 12 feet below the street grade of N. Round Valley Road. It is possible that regional groundwater conditions at the site could change some time in the future due to variations in rainfall, groundwater withdrawal, flow or recency of flow in Pine Creek, construction activities, or other factors not apparent.

3.5 CHANNEL SCOUR/DEGRADATION

A review of the hydraulic report for the project indicated potential scour at the supports. A summary of the design scour is presented in Table 3.5-1.

TABLE 3.5-1
DESIGN SCOUR DATA

Support	Reference Elev. (ft)	Long Term (Degradation and Contraction) Scour Elev. (ft)	Short Term (Local) Scour Depth (ft)
Abut 1	4662.5	NA	5.11
Abut 2	4662.5	NA	5.28

4 CORROSION POTENTIAL

Samples obtained from the borings were tested to evaluate the pH, minimum resistivity, and soluble sulfate and chloride content. Test results are presented in Table 4.1-1.

TABLE 4.1-1
CORROSION TESTING

Boring No.	Sample Depth (ft)	Soluble Sulfate (mg/kg)	Soluble Chloride (mg/kg)	pH	Minimum Resistivity (ohm-cm)
B-2	0 – 3	170	5.5	7.74	2010

These test values are outside the Caltrans threshold limits. Consequently, the site soils would be considered to be a non-corrosive environment with respect to foundations. Corrosion is dependent upon a complex variety of conditions, which are beyond the geotechnical practice. Consequently, a qualified corrosion engineer should be consulted if the owner or designer desires more specific recommendations and material types and/or mitigation.

5 SEISMIC RECOMMENDATIONS

5.1 LOCAL FAULTING

The project site is not presently located in an Alquist-Priolo Earthquake Fault Zone, as defined by Special Publication 42 (revised 2018) published by the California Geological Survey (CGS). Numerous faults and shear zones within the region could influence the project site.

5.2 SEISMIC DESIGN CRITERIA

Seismic design parameters were developed in accordance with the Caltrans Seismic Design Criteria Version 1.7.

The project site is located in a region with the potential for relatively low to moderate seismic activity. The more significant faults that could influence the project site include the Round Valley Fault (Fault ID No. 147), the Unnamed Faults in Volcanic Tablelands (Fault ID No. 143), and the Owens Valley Keough Hot Springs Fault (Fault ID No. 155). According to the Caltrans fault database, the Round Valley Fault is a normal fault with a dip angle of 50 degrees towards the east and assigned Maximum Magnitude (M_{Max}) of 7.0; the Unnamed Faults in Volcanic Tablelands is a normal fault with a dip angle of 90 degrees and assigned Maximum Magnitude (M_{Max}) of 6.7, and the Owens Valley Keough Hot Springs Fault is a normal fault with a dip angle of 50 degrees to the east with and assigned Maximum Magnitude (M_{Max}) of 7.2. The characteristics of these three faults are summarized in Table 5.2-1.

Based on the data from the borings and Caltrans SDC, the site can be classified as Soil Profile Type C. A V_{s30} of 400 m/s was determined and used for the evaluation. The site is not located within a California deep soil basin region, as defined by Caltrans, so $Z_{1.0}$ and $Z_{2.5}$ were not considered applicable. Site characteristics and governing deterministic faults are summarized in Table 5.2-1.

TABLE 5.2-1
SITE CHARACTERISTICS AND
GOVERNING DETERMINISTIC FAULTS PARAMETERS

Site Coordinates	Lat = 37.4213 deg, Long = -118.5884 deg
Shear Wave Velocity	400 m/s
Depth to V_s=1.0 km/s, $Z_{1.0}$	N/A
Depth to V_s=2.5 km/s, $Z_{2.5}$	N/A
Fault Name and ID Number	Round Valley Fault, No. 147
Maximum Magnitude (M_{Max})	7.0
Fault Type	Normal
Fault Dip	50 degrees
Dip Direction	East
Bottom of Rupture Plane	13.00 km
Top of Rupture Plane (Z_{tor})	0 km
R_{RUP}[1]	3.868 km
R_{jB}[2]	0 km
R_X[3]	5.050 km
F_{norm} (1 for normal, 0 for others)	1
F_{rev} (1 for reverse, 0 for others)	0
Fault Name and ID Number	Unnamed Faults in Volcanic Tablelands, No. 143
Maximum Magnitude (M_{Max})	6.7
Fault Type	Normal
Fault Dip	90 degrees
Dip Direction	Vertical
Bottom of Rupture Plane	13.00 km
Top of Rupture Plane (Z_{tor})	0 km
R_{RUP}[1]	4.729 km
R_{jB}[2]	4.729 km
R_X[3]	4.694 km
F_{norm} (1 for normal, 0 for others)	1
F_{rev} (1 for reverse, 0 for others)	0
Fault Name and ID Number	Owens valley Keough Hot Springs, No. 155
Maximum Magnitude (M_{Max})	7.2
Fault Type	Normal
Fault Dip	50 degrees
Dip Direction	East
Bottom of Rupture Plane	13.50 km
Top of Rupture Plane (Z_{tor})	0 km
R_{RUP}[1]	18.549 km
R_{jB}[2]	18.549 km
R_X[3]	17.249 km
F_{norm} (1 for normal, 0 for others)	1
F_{rev} (1 for reverse, 0 for others)	0

Notes:
[1]R_{RUP} = Closest distance from the site to the fault rupture plane.
[2]R_{JB} = Joyner-Boore distance; the shortest horizontal distance to the surface projection of the rupture area.
[3]R_X = Horizontal distance from the site to the fault trace or surface projection of the top of the rupture plane.

5.2.1 Deterministic Response Spectrum

The deterministic response spectrum was developed using the ARS Online. The deterministic response spectrum for the Minimum Spectrum for California governed.

5.2.2 Probabilistic Response Spectrum

The probabilistic response spectrum was developed using the ARS Online.

5.2.3 Design Response Spectrum

The upper envelope of the deterministic and probabilistic spectral values determines the design response spectrum. The deterministic response spectra were found to govern for periods except period 0.1s. Period 0.1s was found to be governed by the probabilistic response spectra. The recommended acceleration and displacement design response spectra is provided in Appendix C.

5.2.4 References

Caltrans. Caltrans ARS Online (version 2.3.09), http://dap3.dot.ca.gov/ARS_Online/index.php

Caltrans. Geotechnical Services Manual

Caltrans. Seismic Design Criteria (version 1.7), Appendix B Design Spectrum

USGS. https://earthquake.usgs.gov/hazards/interactive/

5.3 LIQUEFACTION POTENTIAL

5.3.1 General

In order for liquefaction of soils due to ground shaking to occur, it is generally accepted that four conditions will exist:

- The subsurface soils are in a relatively loose state,
- The soils are saturated,
- The soils are non-plastic, and

- ❑ Ground motion is of sufficient intensity to act as a triggering mechanism.

According to Caltrans Geotechnical Manual (2017), liquefaction and lateral spread analyses should use peak horizontal ground acceleration (PHGA) and earthquake magnitude associated with higher of the 5 percent probability of exceedance in 50 years (return period of about 975 years) and deterministic results. Using USGS Unified Hazard tool, a PHGA of 0.678g and earthquake magnitude of 6.89 are estimated for this site which is higher than the deterministic value. Based on the groundwater elevation, average relative density (N-values in boring B-2 exceeded 100 for depths greater than 10 feet), soil type, and anticipated ground shaking at the site, liquefaction or seismically induced settlement or bearing loss is considered unlikely.

6 FOUNDATION CONSIDERATIONS

6.1 GENERAL

Considering the degradation that has occurred within Pine Creek along with damage to the previous bridge structure loss due to bank washout and scour, pile foundations were considered the most suitable type for new foundations. Due to the potential for significant variability and difficulty with pile driving, CIDH piles are considered the most appropriate pile type. Design utilized 24-inch diameter CIDH piles at the abutments. Axial capacity was derived from skin friction and neglects end bearing due to strain incompatibility.

6.2 PILE FOUNDATIONS

6.2.1 Axial Capacity

Table 6.2-1 provide the recommended design and specified tip elevations for the abutments. Analysis for the axial capacity utilized the beta method (AASHTO LRFD Bridge design Specifications, 8th Edition, 2017). The design channel scour provided in Table 5.3-1 has been considered in evaluating the design and specified tip elevations. Based on the evaluation, the design tip elevations are governed by the design scour.

TABLE 6.2-1
FOUNDATION RECOMMENDATIONS

Support	Pile	Cut-off Elev. (ft)	Service Limit State Total Load (kips) per Support		S_P	Required Factored Nominal Resistance per Pile (kips)				Design Tip Elev.[1] (ft)	Specified Tip Elev.[2] (ft)
						Strength Limit		Extreme Event			
			Total	Perm.		Comp. (ϕ=0.7)	Tens. (ϕ=0.7)	Comp. (ϕ=1)	Tens. (ϕ=1)		
Abut 1	24 in CIDH	4662.5	1714	1341	1”	277	1	228	60	4618 (a-I), 4645 (b-I), 4627 (a-II), 4639 (b-II), 4629 (c) TBD (d)	4618
Abut 2	24 in CIDH	4662.5	1714	1341	1”	277	1	228	60	4618 (a-I), 4645 (b-I), 4627 (a-II), 4639 (b-II), 4629 (c) TBD (d)	4618

Notes: (1) Design tip elevations are controlled by: (a-I) Compression (Strength Limit), (b-I) Tension (Strength Limit), (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event), (c) Settlement, (d) Lateral Load.
(2) The specific tip elevation shall not be raised above the design tip elevations of tension, lateral, and tolerable settlement.

6.2.1 Foundation Construction Considerations

Drilled piles will likely encounter poorly graded sand, gravel, cobbles and boulder layers and may penetrate ground water. Slurry assisted (wet method) drilling techniques and temporary casing will likely be required to advance the borings and prevent caving of the saturated granular sediments. Casing could be rotated, pushed, or driven as the pile boring is advanced. Pile boring operations should not extend beyond the casing tip. Use of a casing oscillator is acceptable.

6.2.2 Lateral Capacity

The lateral response of pile foundations can be evaluated using LPILE Plus Version 5.0, or greater, for Windows (computer software developed by Ensoft Inc.). The geotechnical parameters summarized in Table 6.2-3 can be used for evaluation of lateral loading of piles at Abutment 1 and Abutment 2.

TABLE 6.2-3
LPILE PARAMETERS, ABUTMENT 1 and 2

Elevation (ft)		P-Y Curve Soil Type	Effective Unit Weight (pcf)	Friction Angle (deg)	K (pci)
From	To				
4662.5	4606	Sand	70	42	150

When considering the lateral capacity of a pile group, it will be necessary to reduce the single pile capacity of trailing piles. The reduction in capacity due to the effects of shaft interaction will be dependent upon the center-to-center (CTC) pile spacing. It is recommended that the capacity of individual trailing piles in a laterally loaded group (perpendicular to bridge) be reduced according to the data in Table 6.2-4. Capacities for longitudinally loaded group piles need not be reduced. The P-multiplier values for intermediate pile spacing can be determined by linear interpolation.

TABLE 6.2-4
GROUP EFFECT FOR LATERALLY LOADED PILE

Pile Spacing (c-c)	Design P-multiplier, Pm		
	Row 1	Row 2	Row 3 and higher
2.0B	0.6	0.35	0.25
3.0B	075	0.55	0.4
5.0B	1.0	0.85	0.7

Note: B is pile width

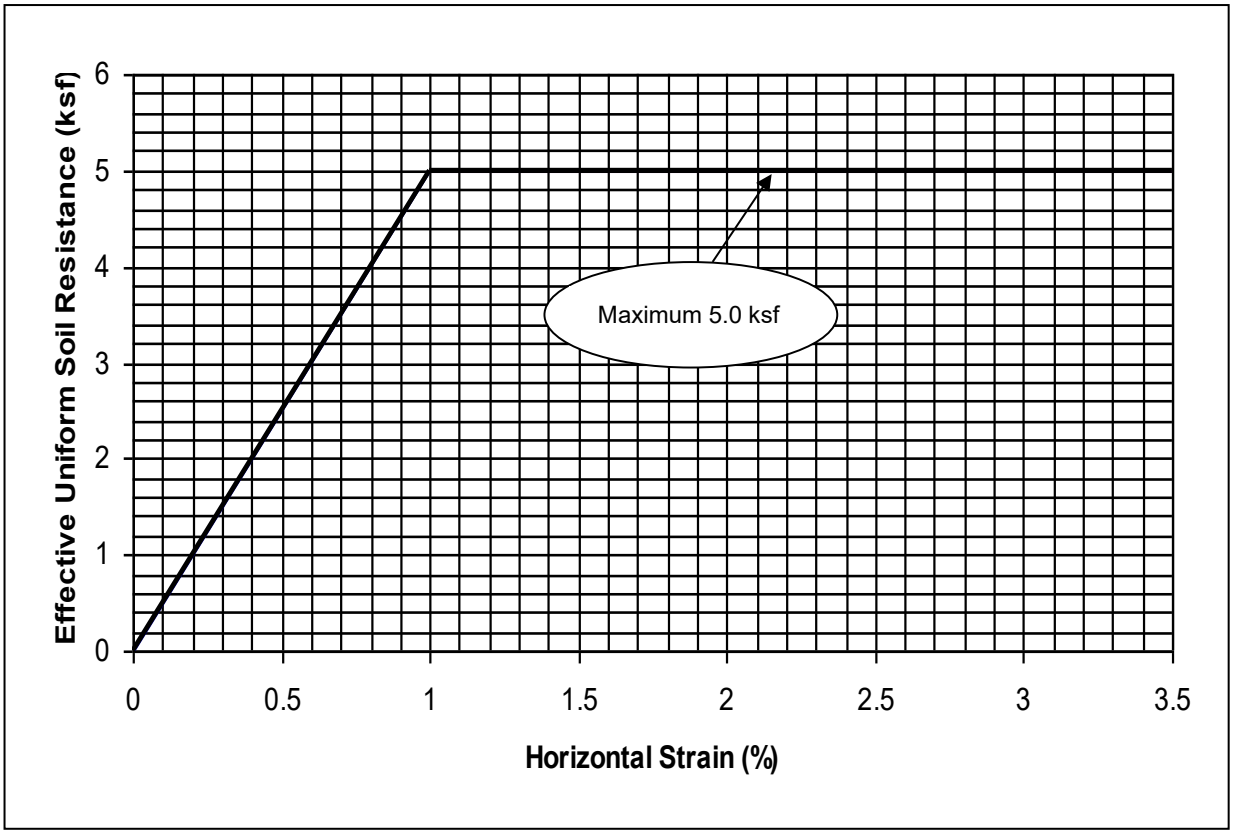
6.3 DYNAMIC LOADING

6.3.1 Abutment Dynamic Lateral Resistance

For backfill at abutments constructed in accordance with applicable provisions of the Caltrans Standard Specifications (2018), an initial abutment soil stiffness of 50 kip/in/ft is recommended. The ultimate lateral resistance that may be applied against abutments to resist seismic loading will be dependent on the deflection that occurs (which mobilizes shear resistance in the soil). Figure 6.3-1 presents the ultimate equivalent uniform lateral soil resistance as a function of horizontal strain (deflection/height) for the abutments. The maximum resistance for strain in excess of 1.0% is 5.0 ksf, when the height of the wall that is buried below the horizontal ground surface is equal to, or greater than, 5.5 ft. When the abutment height is less than 5.5 ft, the maximum equivalent uniform lateral soil resistance shall be reduced proportionately by H/5.5, where H is the endwall height in feet.

FIGURE 6.3-1

UNFACTORED NOMINAL LATERAL BEARING FOR SEISMIC LOADING AT ABUTMENTS



If required, Kleinfelder can provide dynamic stiffness parameters for horizontal and vertical translation, torsion, and rocking.

6.4 EARTH RETAINING SYSTEMS

The lateral earth pressure against abutment end walls and wing walls will be dependent upon the ability of the wall to deflect. Presented in Table 6.4-1 are the active and at-rest lateral earth pressures. The active pressure is applicable to walls able to translate/rotate 0.004 radians. The at-rest soil pressure is applicable to walls that are fully fixed against both rotation and translation.

TABLE 6.4-1
LATERAL EARTH PRESSURES

Loading Conditions	Earth Pressures (psf/ft)	Earth Pressure Coefficient
Active Pressure (psf/ft)	32	0.27
At-Rest Pressure (psf/ft)	55	0.42
Dynamic Increment (psf/ft)	31	--

Approach fills and backfill at abutments, when constructed in accordance with Section 6.5 of this report, will have an active earth pressure of less than 34 psf/ft. This value is consistent with the design data for Caltrans Standard Plans and Caltrans Bridge Standard Details Sheets for retaining structures (e.g. abutment endwalls wingwalls or retaining walls). Consequently, the use of Caltrans standard walls would be appropriate. The above recommended values consider saturated soil conditions; however, they do not include the lateral pressures due to hydrostatic forces. Therefore, wall backfill should be adequately drained.

Should retaining walls be influenced by surcharge loads, the surcharge against the walls can be evaluated by multiplying the surcharge pressure by the earth pressure coefficient. Surcharge loads should be modeled as a uniform pressure against the wall by multiplying the surcharge load by the earth pressure coefficient.

For site specific design, appropriate load factors should be applied to the active pressure and dynamic increment. The factored dynamic increment would be added to the factored active pressure for Extreme Event consideration. Caltrans approach to seismic design considers the distribution of the dynamic increment to be an upright triangle (similar to the active pressure). Consequently, the resultant load for the active pressure and dynamic increment would both be applied at 0.33 H from the base, where H is the total retained height. The effect of wall friction would allow the resultant lateral earth pressure to be directed downward at an angle of 20 degrees from the horizontal. The dynamic increment is based on the Mononobe/Okabe method using a design ground acceleration of one-half the PHGA.

Static lateral loads applied to foundations can be resisted by a combination of passive lateral bearing and base friction. Allowable and factored nominal passive pressures and frictional coefficients for Service Limit, Strength Limit, and Extreme Event loads at piers are presented in Table 6.4-2 for saturated conditions. The tables present the passive pressures for descending

slope and level backfill conditions. The passive pressure considers a conservative value of wall friction (δ) equal to one-half the angle of internal friction (ϕ), to allow for formed foundations.

TABLE 6.4-2
LATERAL RESISTANCE OF FOUNDATION SOILS (SATURATED CONDITION)

Mode of Resistance	**Strength ϕ=0.80**	**Extreme ϕ=1.0**
Frictional Coefficient	0.56	0.70
Mode of Resistance	**Strength ϕ=0.5**	**Extreme ϕ=1.0**
Passive Pressure[1] (psf/ft of depth)	445	890
Passive Pressure[2] (psf/ft of depth)	58	116
Lateral translation needed to develop passive pressure[3]	0.008D	0.04D

Notes: (1) Passive pressure is presented for a level adjacent ground surface.
(2) Passive pressure is presented for a 1.5H:1V adjacent descending ground surface.
(3) D is depth of footing below adjacent grade. Lateral translation will be in same units as D.

If the deflection resulting from the strain necessary to develop the passive pressure is within structural tolerance, the passive pressure and frictional resistance can be used in combination. Otherwise, additional passive pressure values could be provided based on tolerable deflection. It is suggested this strain compatibility approach be considered instead of an arbitrary reduction in passive pressure.

6.5 EARTHWORK

Planned earthwork will be minimal (abutment backfill and roadway subgrade). In general, any required fill or backfill should be constructed in accordance with the latest Caltrans Standard Specifications.

6.6 PAVEMENTS

6.6.1 Design R-Value

The subgrade Resistance-value (R-value) for the proposed roadway subgrade was evaluated in the laboratory based on near surface soil samples obtained from the project site. Testing was in

conformance with American Society of Testing Materials ASTM D2844. Test results are summarized in Table 6.6-1. Considering very high R-values can be significantly affected by subtle variations in gradation and fines content, a design R-value of 50 is recommended.

TABLE 6.6-1
R-VALUE TEST RESULTS

Boring	Depth (ft)	Soil Type	R-Value
B-4	0 - 3	Silty Sand with Gravel	83
B-5	0 - 3	Silty Sand with Gravel	81

Considering very high R-values can be significantly affected by subtle variations in gradation and fines content, a design R-value of 50 is recommended.

6.6.2 HMA Pavements

Preliminary flexible pavement sections have been determined for a design Traffic Index (TI) of 7.0. Estimated structural sections for asphalt concrete (HMA) are provided in Table 6.6-2. The preliminary pavement design recommendations presented are based upon the California Department of Transportation (Caltrans) design procedures, including the gravel equivalent safety factor on the wearing surface.

TABLE 6.6-2
PRELIMINARY PAVEMENT SECTIONS

TI	Design R-value	Pavement Structural Section
7.0	50	0.35’ HMA / 0.40’AB

The HMA should conform to, and be placed in accordance with, Section 39 of the latest revision of the CSS. Class 2 aggregate base (AB) should be in conformance with Section 26 of the CSS. AB and at least the upper 0.65 feet of subgrade should be compacted to 95% of maximum density in accordance with Section 19 of the CSS.

7 CLOSURE

The conclusions and recommendations in this report are for the 100% design of the N. Round Valley Road over Pine Creek Bridge Road bridge replacement, as described in the text of this report. The findings, conclusions, and recommendations presented in this report were prepared in accordance with generally accepted geotechnical engineering practice. No warranty, express or implied, is made. The field exploration program and this report were based on the proposed project information provided to Kleinfelder. If any change (i.e., structure type, location, etc.) is implemented which materially alters the project, additional geotechnical services may be required, which could include revisions to the recommendations given herein.

This report is intended for use by Inyo County and MGE Engineering, Inc., within a reasonable time from its issuance. Noncompliance with the recommendations of the report or misuse of the report will release Kleinfelder from any liability.

The scope of the geotechnical services did not include an environmental site assessment for the presence or absence of hazardous/toxic materials in the soil, groundwater or atmosphere, or the presence of wetlands.

FIGURE 1 – EXPLORATION LOCATION PLAN AND VICINITY MAP

PLOTTED: 8/8/2019 6:35:41 AM BY: AAhTye

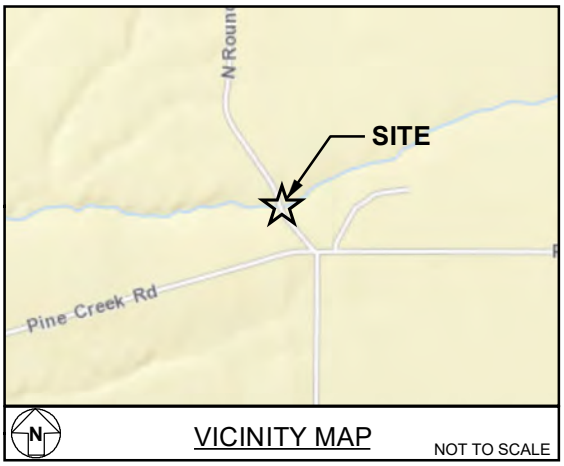
GIS FILE PATH: \\azrgisstorp01\Working_clients_Automated_Exploration Plans

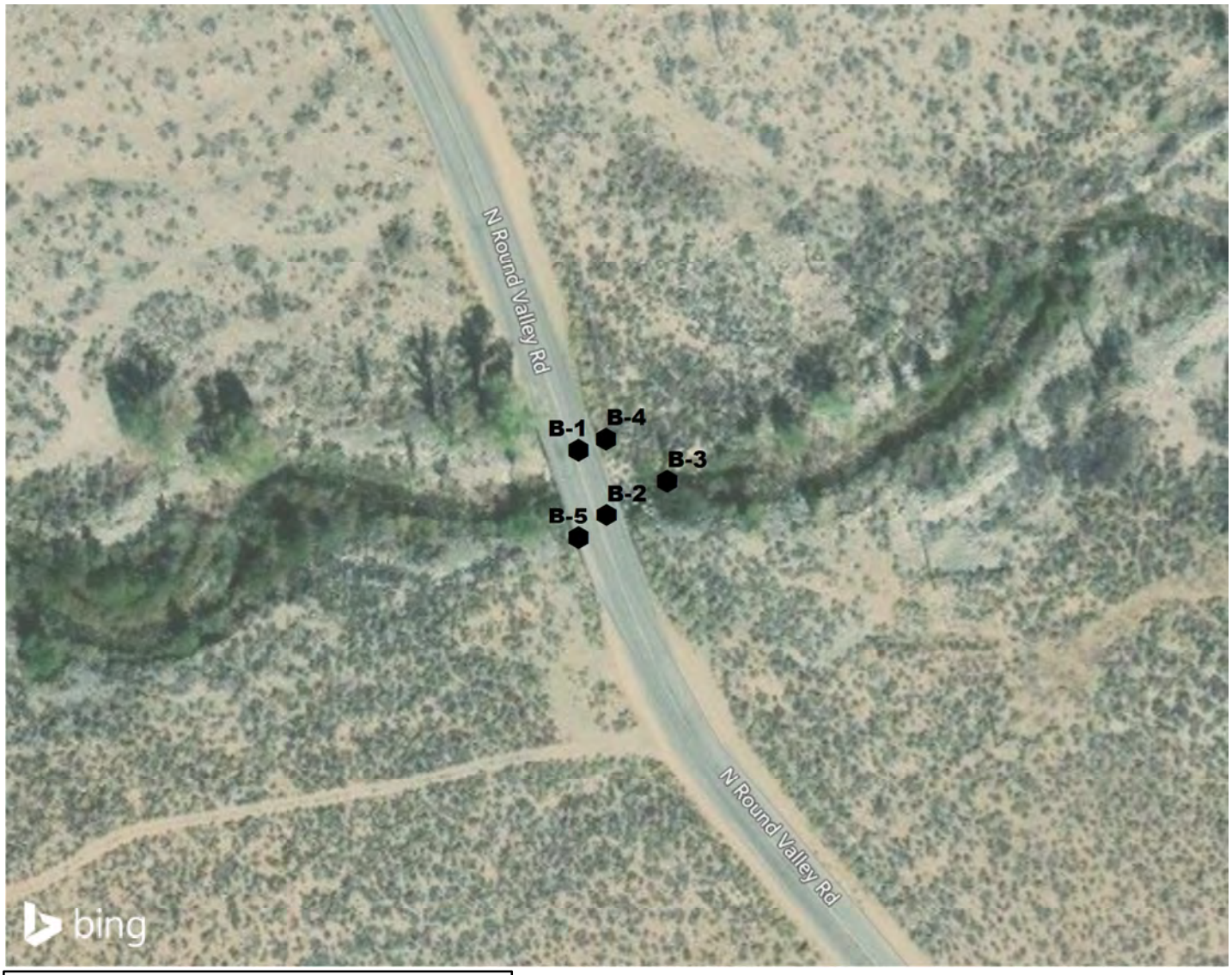
N

LEGEND

SOIL BORING

NOTE:
BASE MAPPING AND VICINITY MAP CREATED FROM LAYERS
COMPILED BY ESRI PRODUCTS AND 2019 MICROSOFT CORPORATION.
COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE CALIFORNIA IV FIPS 0404





0 100 200

1 " = 100 SCALE IN FEET

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CHECKED BY:	S. Plauson
DATE:	08-08-2019
REVISED:	-

EXPLORATION LOCATION PLAN AND VICINITY MAP

N. ROUND VALLEY ROAD BRIDGE
N. ROUND VALLEY ROAD
ROUND VALLEY, CALIFORNIA

FIGURE

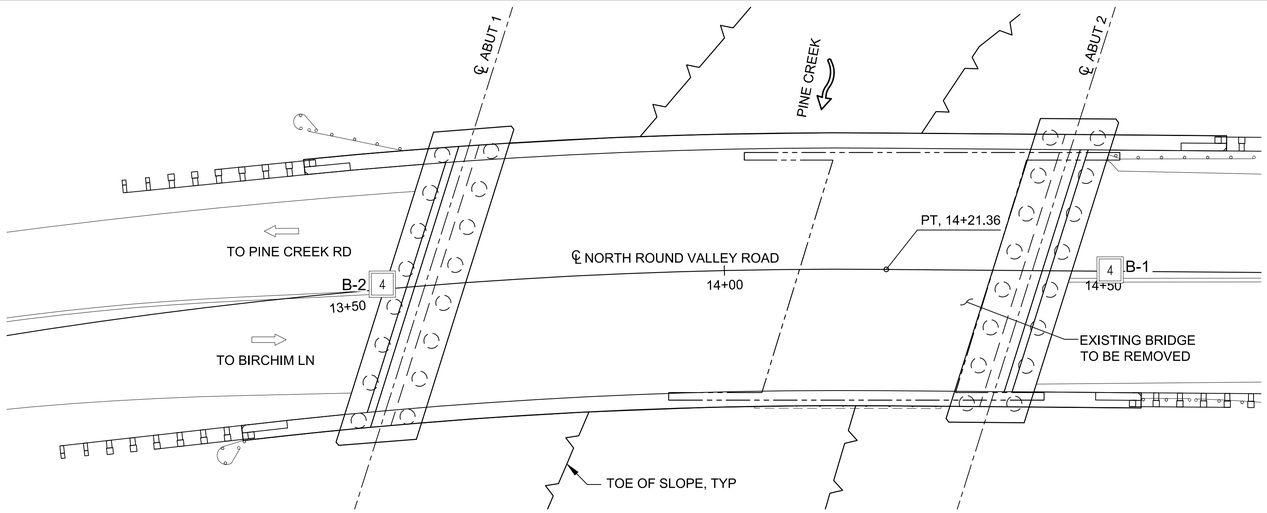
1

APPENDIX A – LOG OF TEST BORINGS

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	N/A	N/A	30	33

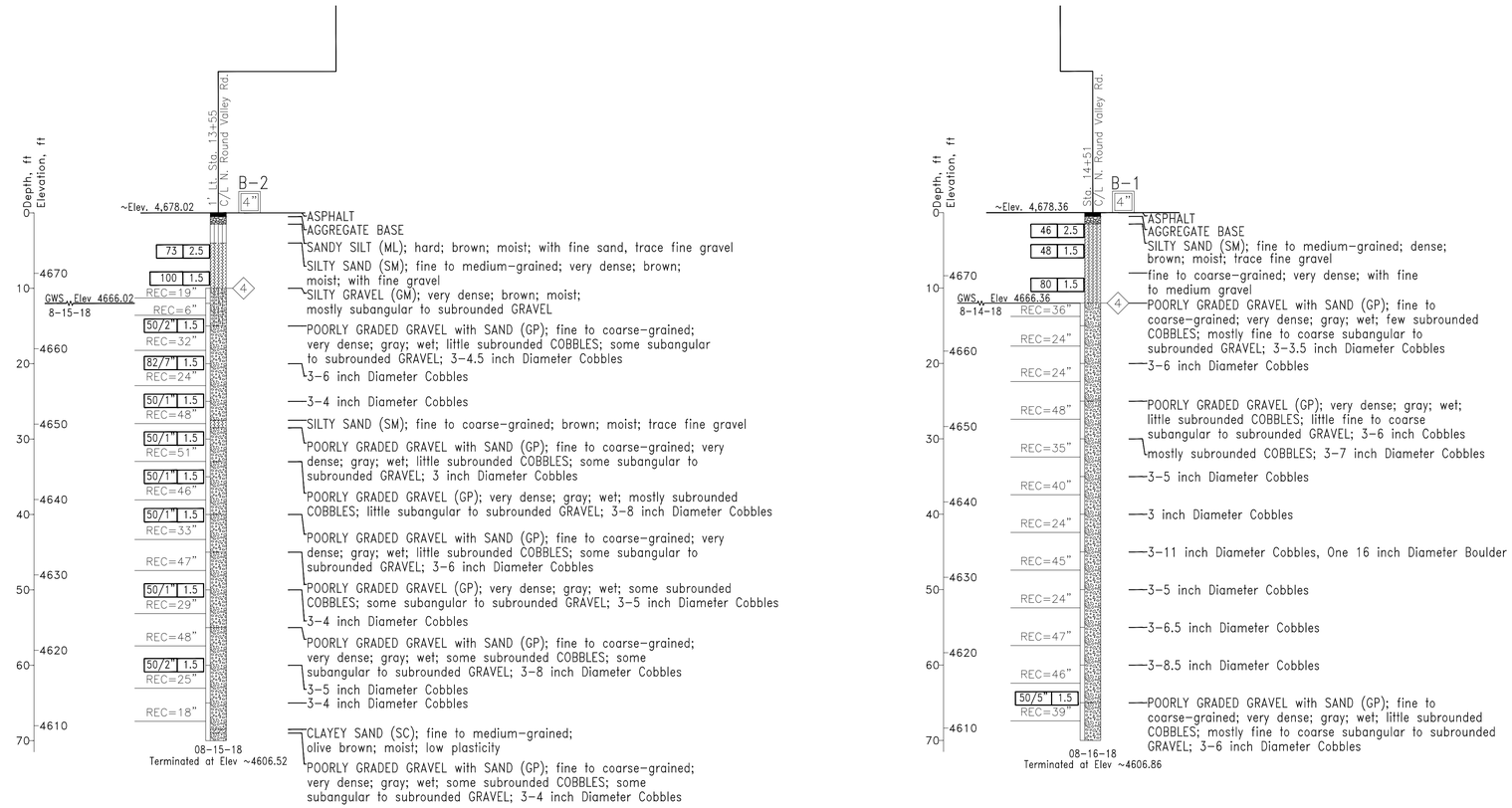
NOTES:

1. 1.5–INCH DIAMETER SAMPLES WERE TAKEN USING A STANDARD PENETRATION TEST (SPT) SPLIT BARREL SAMPLER WITH AN INSIDE DIAMETER (ID) OF 1.5 INCHES AND AN OUTSIDE DIAMETER (OD) OF 2.0 INCHES.
2. 2.5–INCH DIAMETER RING SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT BARREL SAMPLER WITH AN ID OF 2.5 INCHES AND AN OD OF 3.0 INCHES.
3. ALL DRIVE SAMPLES WERE DRIVEN WITH 140 LB HAMMER WITH A FALLING HEIGHT OF 30 INCHES.



PLAN

SCALE: 1"=10'



PROFILE

SCALE: 1"=10' HORIZONTAL
SCALE: 1"=10' VERTICAL

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PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

	DATE
DRAWN D. FAHRNEY	10/2018
CHECKED A. AhTye	10/2018
RECOMMENDED S. PLAUSON	10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING

SHEET 30 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\20191324\20191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:06pm by DFahrney

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	N/A	N/A	31	33

CEMENTATION OF SOILS

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

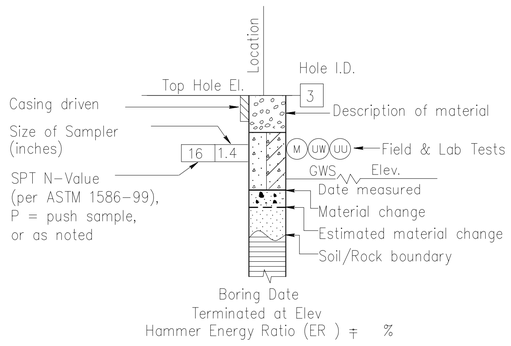
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778)
	O	Other (note on LOTB)

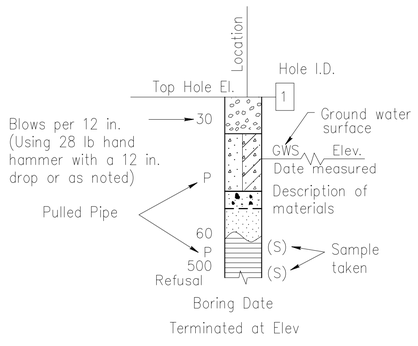
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

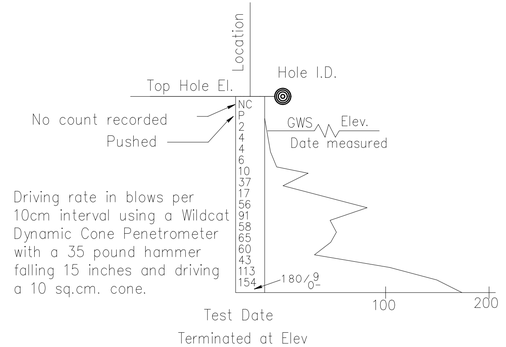
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 – 0.25	0.25 – 0.5	0.12 – 0.25	0.12 – 0.25
Medium Stiff	0.25 – 0.5	0.5 – 1	0.25 – 0.5	0.25 – 0.5
Stiff	0.5 – 1	1 – 2	0.5 – 1	0.5 – 1
Very Stiff	1 – 2	2 – 4	1 – 2	1 – 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



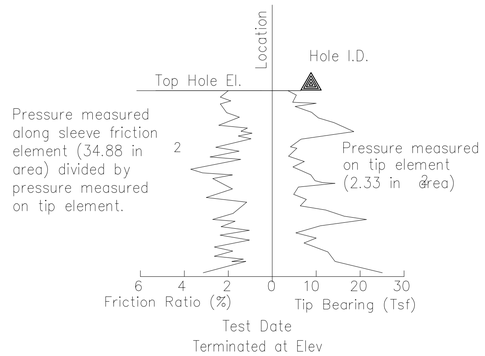
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

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REGISTERED ENGINEER - GEOTECHNICAL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	DATE
D. FAHRNEY	10/2018
CHECKED	DATE
A. AhTye	10/2018
RECOMMENDED	DATE
S. PLAUSON	10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - SOIL LEGEND 1

SHEET 31 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\20191324\20191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:09pm by DFahrney

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	N/A	N/A	32	33

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content–% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression–Soil (ASTM D 2166) Unconfined Compression–Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 – 5
Loose	5 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% – 10%
Little	15% – 25%
Some	30% – 45%
Mostly	50% – 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 – 12
Gravel	Coarse	3/4 – 3
	Fine	1/5 – 3/4
Sand	Coarse	1/16 – 1/5
	Medium	1/64 – 1/16
	Fine	1/300 – 1/64
Silt and Clay		Less than 1/300

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PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	D. FAHRNEY	DATE 10/2018
CHECKED	A. AhTye	DATE 10/2018
RECOMMENDED	S. PLAUSON	DATE 10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - SOIL LEGEND 2

SHEET 32 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CAD\CADD 2019\20191324\20191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:09pm by DFahrney

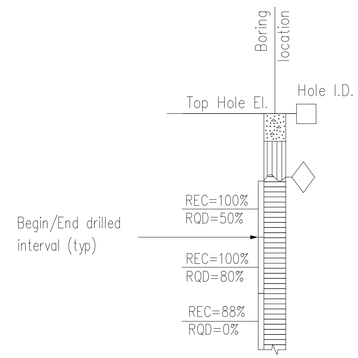
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	N/A	N/A	33	33

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

$$REC = \frac{\sum \text{Length of the recovered core pieces (in.)}}{\text{Total length of core run (in.)}} \times 100\%$$

$$RQD = \frac{\sum \text{Length of intact core pieces} \geq 4 \text{ in.}}{\text{Total length of core run (in.)}} \times 100\%$$



RQD* Indicates soundness criteria not met.

BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft – 10 ft
Thickly Bedded	1 ft – 3 ft
Moderately Bedded	4 in. – 1 ft
Thinly Bedded	1 in. – 4 in.
Very Thinly Bedded	1/4 in. – 1 in.
Laminated	Less than 1/4 in.

LEGEND OF ROCK MATERIALS

IGNEOUS ROCK

SEDIMENTARY ROCK

METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

WEATHERING DESCRIPTORS FOR INTACT ROCK

Description	Diagnostic Features					General Characteristics
	Chemical Weathering–Discoloration and/or Oxidation		Mechanical Weathering–Grain Boundary Conditions (Disaggregation) Primarily for Granitics and Some Coarse–Grained Sediments	Texture and Leaching		
	Body of Rock	Fracture Surfaces		Texture	Leaching	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change	No leaching	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved	Minor leaching of some soluble minerals.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe–Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe–Mg minerals are altered to clay to some extent; or chemical alteration produces in–situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe–Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

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REGISTERED ENGINEER - GEOTECHNICAL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	D. FAHRNEY	DATE 10/2018
CHECKED	A. AhTye	DATE 10/2018
RECOMMENDED	S. PLAUSON	DATE 10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - ROCK LEGEND

SHEET 33 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\20191324\20191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:10pm by DFahrney

APPENDIX B – LABORATORY TESTING SUMMARY

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-2	0.0 - 3.0	SILTY SAND									**pH=** 7.74
											Resistivity= 20100
											Sulfates= 170
											Chlorides= 5.5
B-2	5.0 - 6.5	SILTY SAND	1.7	108.8							
B-3	0.0 - 3.0	POOORLY GRADED GRAVEL			48	31	29				
B-4	0.0 - 3.0	SILTY SAND									**R-Value=** 83
B-5	0.0 - 3.0	SILTY SAND									**R-Value=** 81

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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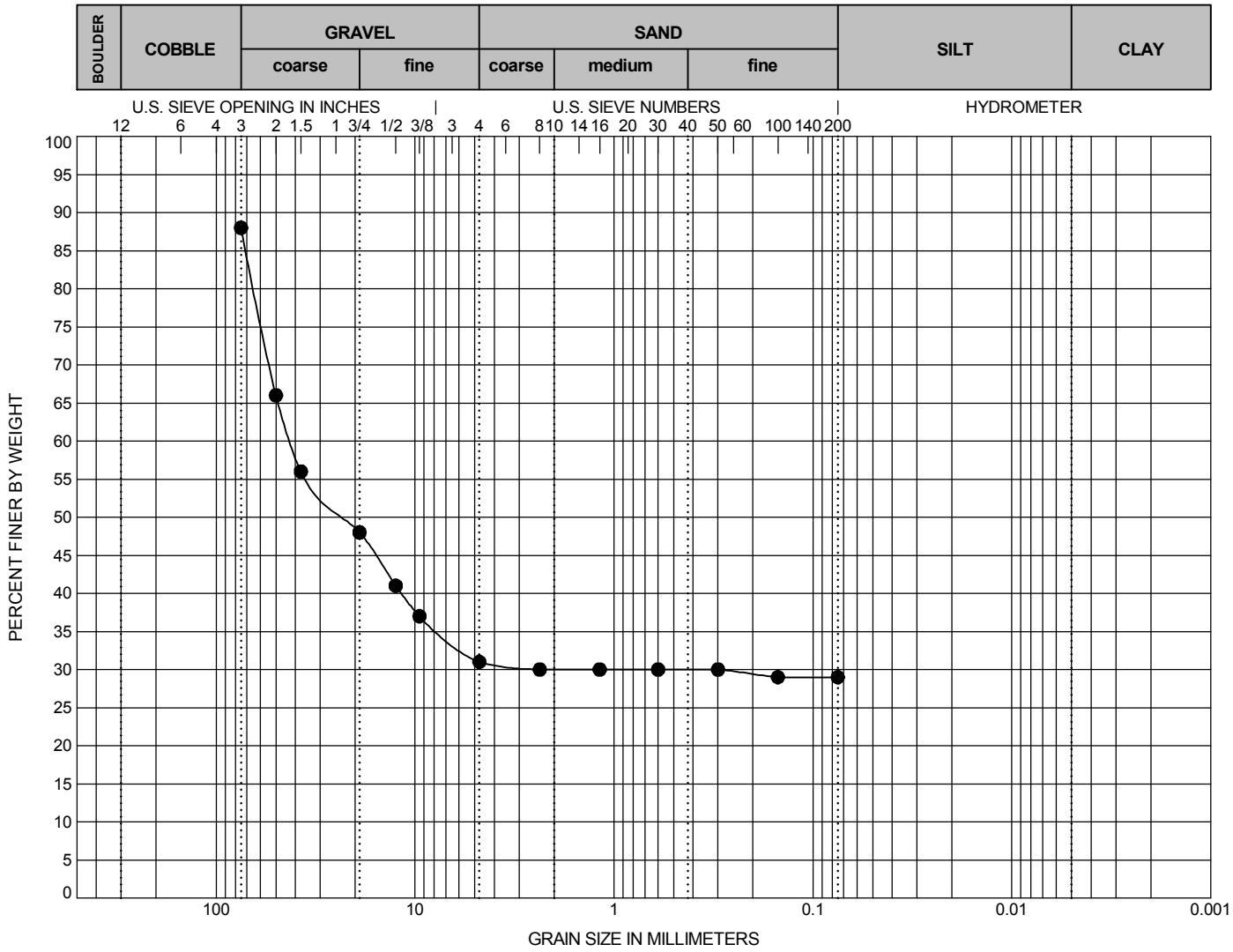
PROJECT NO.: 20191324
DRAWN BY:
CHECKED BY:
DATE:
REVISED: -

LABORATORY TEST RESULT SUMMARY

N. ROUND VALLEY ROAD BRIDGE
N. ROUND VALLEY ROAD
ROUND VALLEY, CALIFORNIA

FIGURE
B-1

APPENDIX C – LABORATORY TESTING RESULTS



Exploration ID	Depth (ft.)	Sample Description	LL	PL	PI
● B-3	0 - 3	POOORLY GRADED GRAVEL	NM	NM	NM

Exploration ID	Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt	%Clay
● B-3	0 - 3	75	42.073	0.3	NM	NM	NM	48	31	29	NM	NM

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60}\, D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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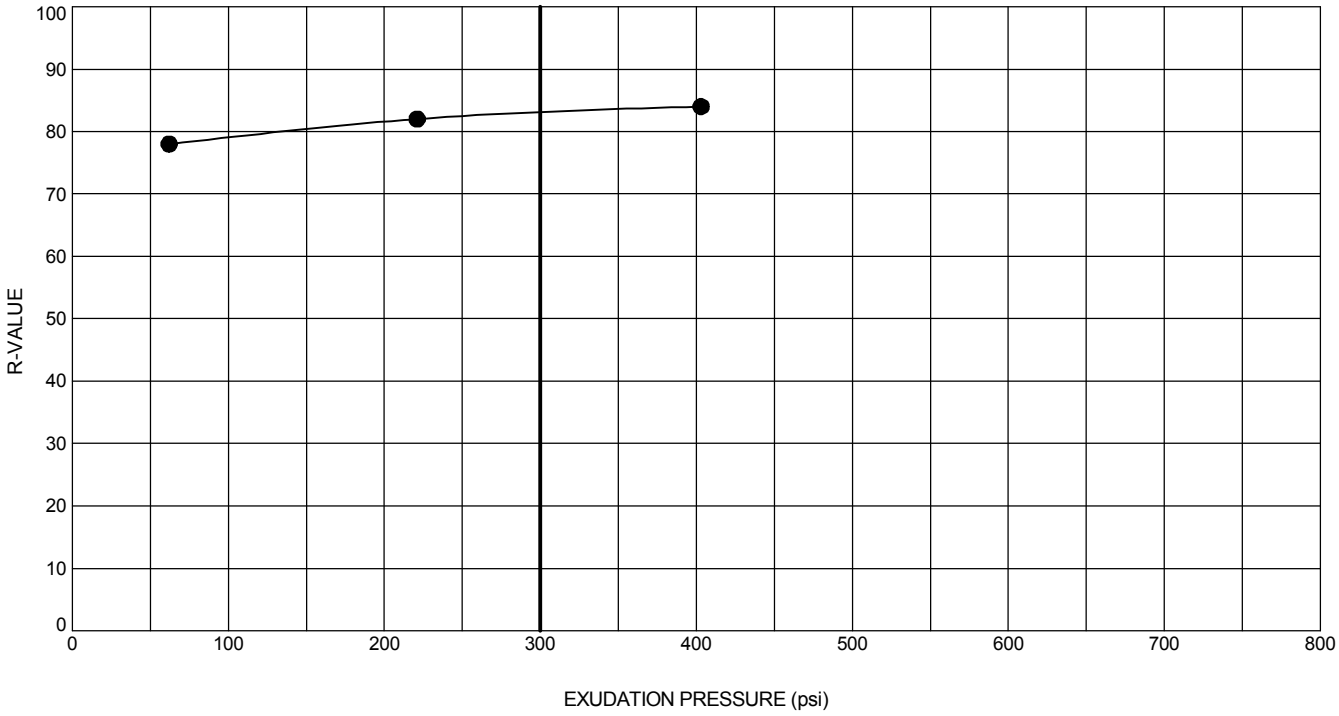
PROJECT NO.:	20191324
DRAWN BY:	AA
CHECKED BY:	SPP
DATE:	
REVISED:	-

SIEVE ANALYSIS

N. ROUND VALLEY ROAD BRIDGE
N. ROUND VALLEY ROAD
ROUND VALLEY, CALIFORNIA

FIGURE
C-1



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-4	0 - 3	SILTY SAND	83

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	8.2	125.9	0	403	84
2	9.0	125.5	0	62	78
3	8.6	126.5	0	221	82

Testing performed in general accordance with ASTM D2844.

KLEINFELDER
Bright People. Right Solutions.

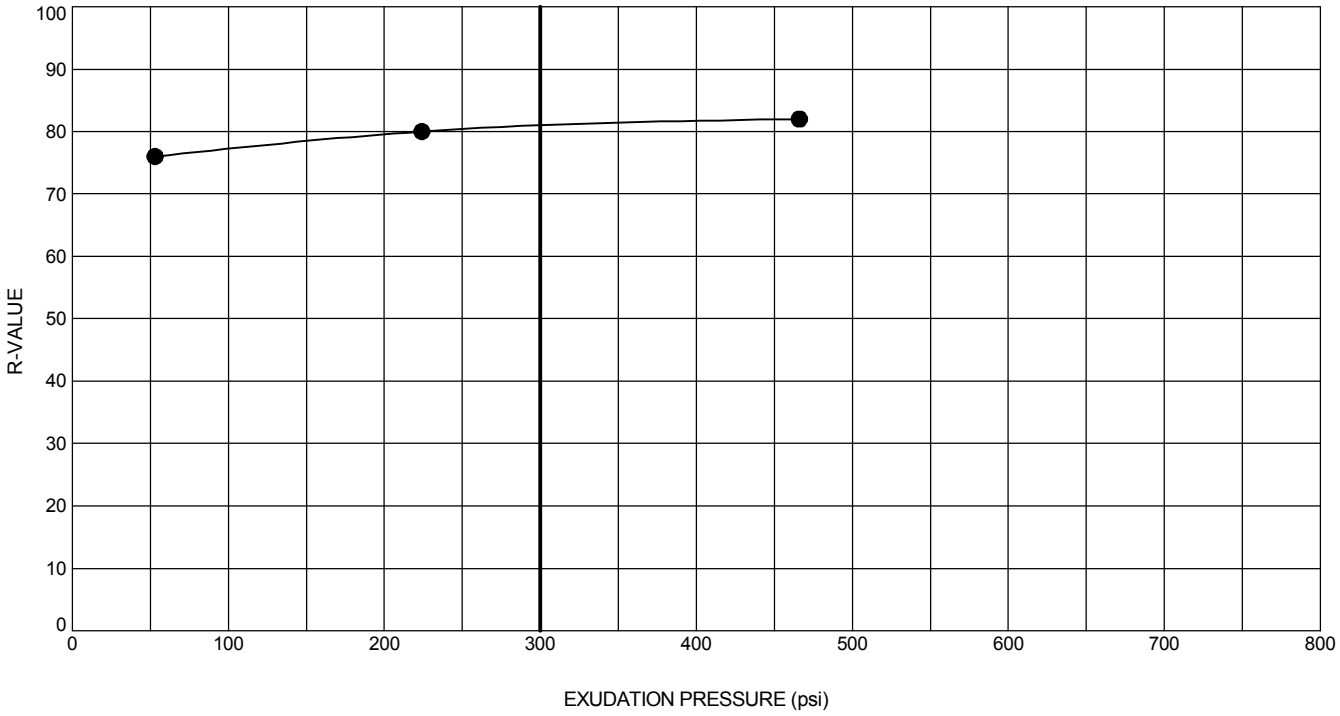
PROJECT NO.:	20191324
DRAWN BY:	AA
CHECKED BY:	SPP
DATE:	
REVISED:	-

R-VALUE

N. ROUND VALLEY ROAD BRIDGE
N. ROUND VALLEY ROAD
ROUND VALLEY, CALIFORNIA

FIGURE

C-2



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-5	0 - 3	SILTY SAND	81

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	8.5	128.6	0	53	76
2	7.6	127.5	0	466	82
3	8.0	129.3	0	224	80

Testing performed in general accordance with ASTM D2844.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20191324
DRAWN BY:	AA
CHECKED BY:	SPP
DATE:	
REVISED:	-

R-VALUE

N. ROUND VALLEY ROAD BRIDGE
N. ROUND VALLEY ROAD
ROUND VALLEY, CALIFORNIA

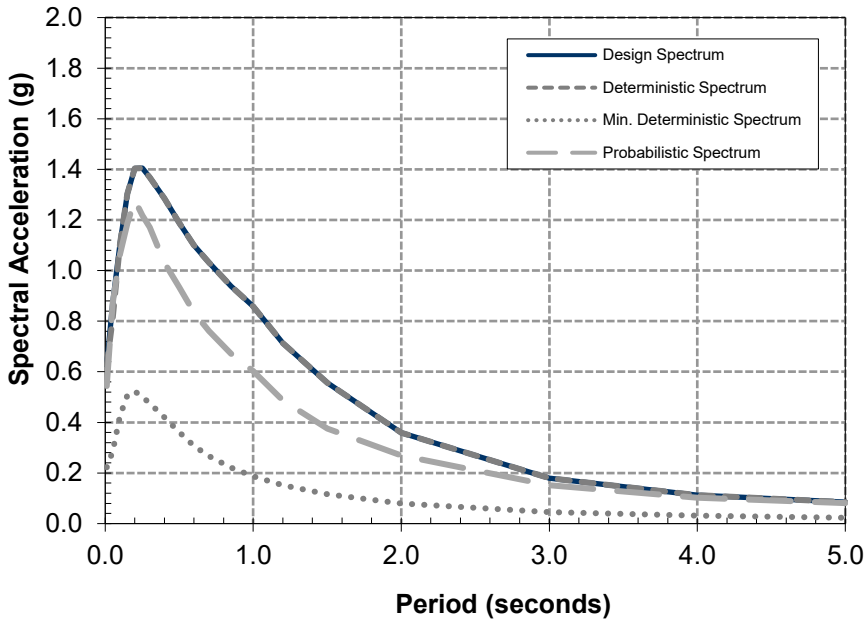
FIGURE

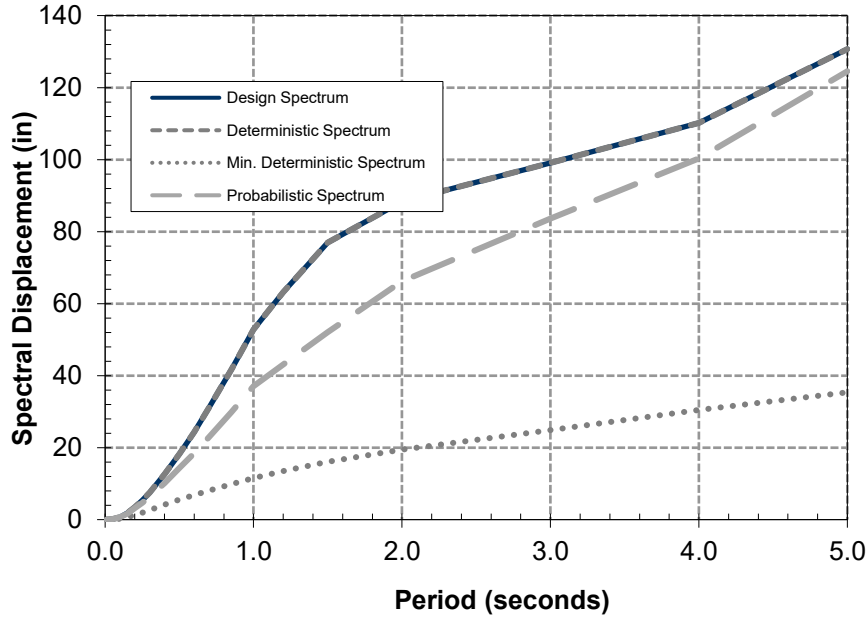
C-3

SITE DATA

Latitude:	37.4213	Shear Wave Velocity	400 m/s
Longitude:	-118.5884	Depth to Vs = 1.0 km/s:	N/A
		Depth to Vs = 2.5 km/s:	N/A

Period (s)	SA (g)	SD (in)
0.01 (PGA)	0.627	0.00
0.05	0.870	0.13
0.1	1.105	0.68
0.15	1.304	1.80
0.2	1.404	3.45
0.25	1.405	5.40
0.3	1.368	7.57
0.4	1.285	12.64
0.5	1.189	18.28
0.6	1.100	24.35
0.7	1.032	31.10
0.85	0.938	41.68
1	0.858	52.76
1.2	0.713	63.14
1.5	0.556	76.93
2	0.359	88.31
3	0.179	99.07
4	0.112	110.20
5	0.085	130.68





KLEINFELDER
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www.kleinfelder.com

PROJECT NO	20191324
DRAWN:	10/10/18
DRAWN BY:	A. AhTye
CHECKED BY:	

CALTRANS ARS CURVES

NORTH ROUND VALLEY ROAD BRIDGE
ROUND VALLEY, CA

ATTACHMENT

C1

Section 3

As-Built Plans

INYO COUNTY ROAD DEPT.

North Round Valley Road
& Bridge Construction

James H. Wood — Director of Public Works — 5-7-87 Date

Project Engineer J. ELLIS | Sheet 7 of 10

15'-4" 15'-4"

E.P. E.P.

ROAD

8 - 50

TYP. FOOTING
35'-0" x 6'-6"

E.B. B+13.78
E.L.= 78.36

S 87-16-22 W

35'-0"

N 19-43-38 W

17°

+25

12'-0"

B.B. B+12.22
EL.= 78.47

8 - 09.26 EC.

S 87-16-22 W

34'-17⅛"

12'-0"

4 ABUT.

2x2 Hub w/Hack
El.= 4675.81

1" = 5'

PINE

ROUND VALLEY

CREEK

LEGEND

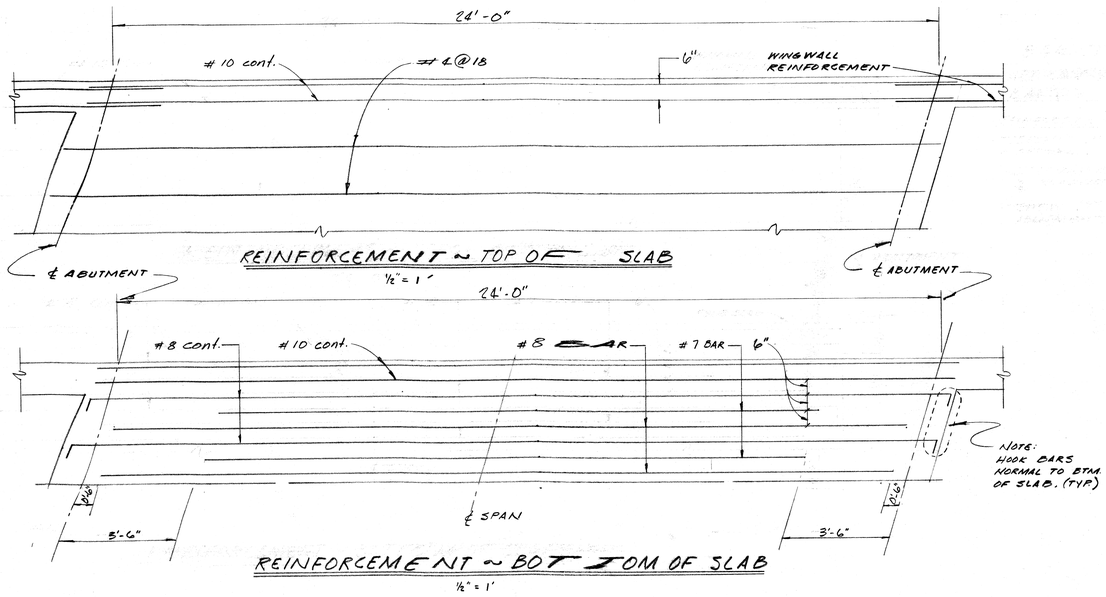
70 EXISTING CONTOURS

(70) NEW CONTOURS

EXISTING STRUCTURE

BRIDGE GENERAL PLAN

73088



REINFORCEMENT ~ TOP OF SLAB

½" = 1'

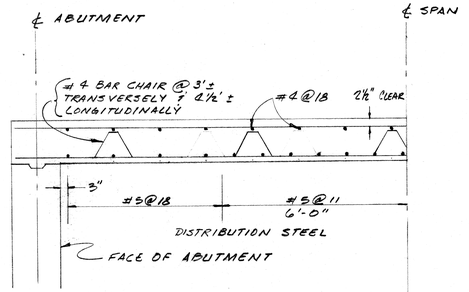
REINFORCEMENT ~ BOTTOM OF SLAB

½" = 1'

BAR SPLICE LENGTH								
BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
ALL BARS	23"	28"	34"	39"	45"	68"	76"	85"

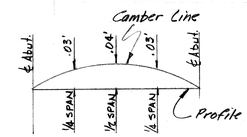
REINFORCEMENT NOTES:

1. SPLICES IN TOP MAIN BARS TO BE LOCATED NEAR CENTER OF SPAN.
2. SPACING OF ALL TRANSVERSE BARS IS MEASURED ALONG ℄ ROADWAY.
3. PLACE ALL TRANSVERSE BARS PARALLEL TO ABUTMENT.



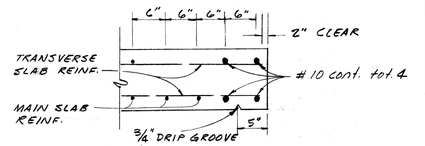
LONGITUDINAL SECTION

SCALE ½" = 1'



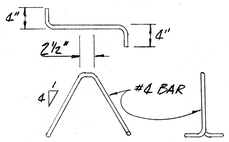
Note: Does not include allowance for falsework settlement.

CAMBER DIAGRAM



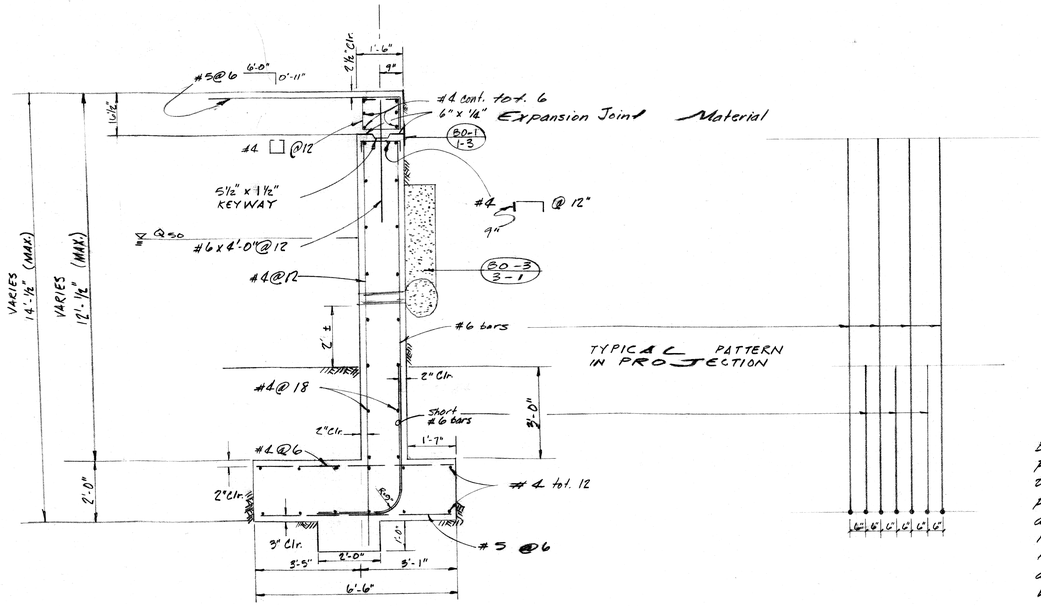
EDGE OF SLAB DETAIL

NO SCALE



BAR CHAIR DETAIL

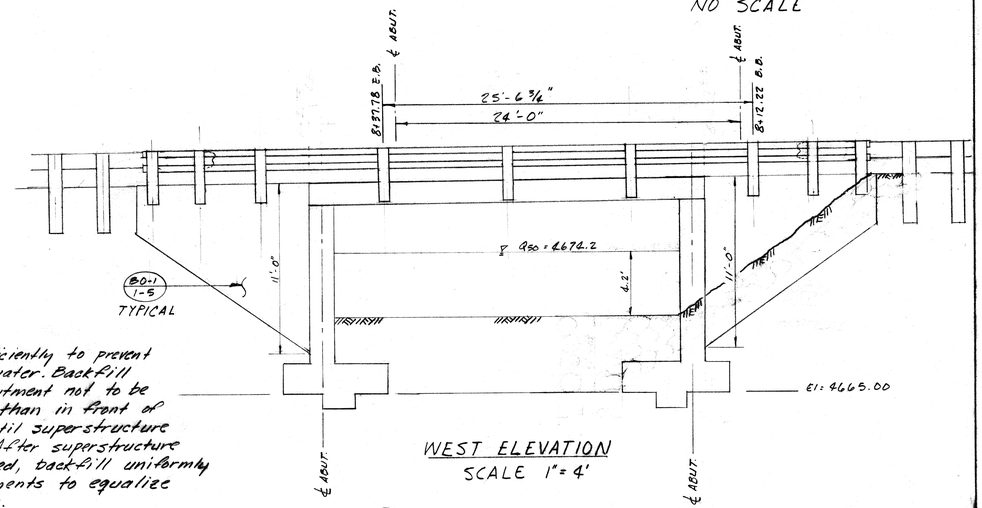
NO SCALE



ABUTMENT CROSS-SECTION ~ TYPICAL

SCALE ½" = 1'

Backfill sufficiently to prevent ponding of water. Backfill behind the abutment not to be placed higher than in front of abutment until superstructure is in place. After superstructure has been placed, backfill uniformly at both abutments to equalize wall pressure.



WEST ELEVATION

SCALE 1" = 4'

BRIDGE STRUCTURAL DETAILS

INYO COUNTY ROAD DEPT.

North Round Valley Road & Bridge Construction

James N. Hoover 5-7-87

Director of Public Works — Date

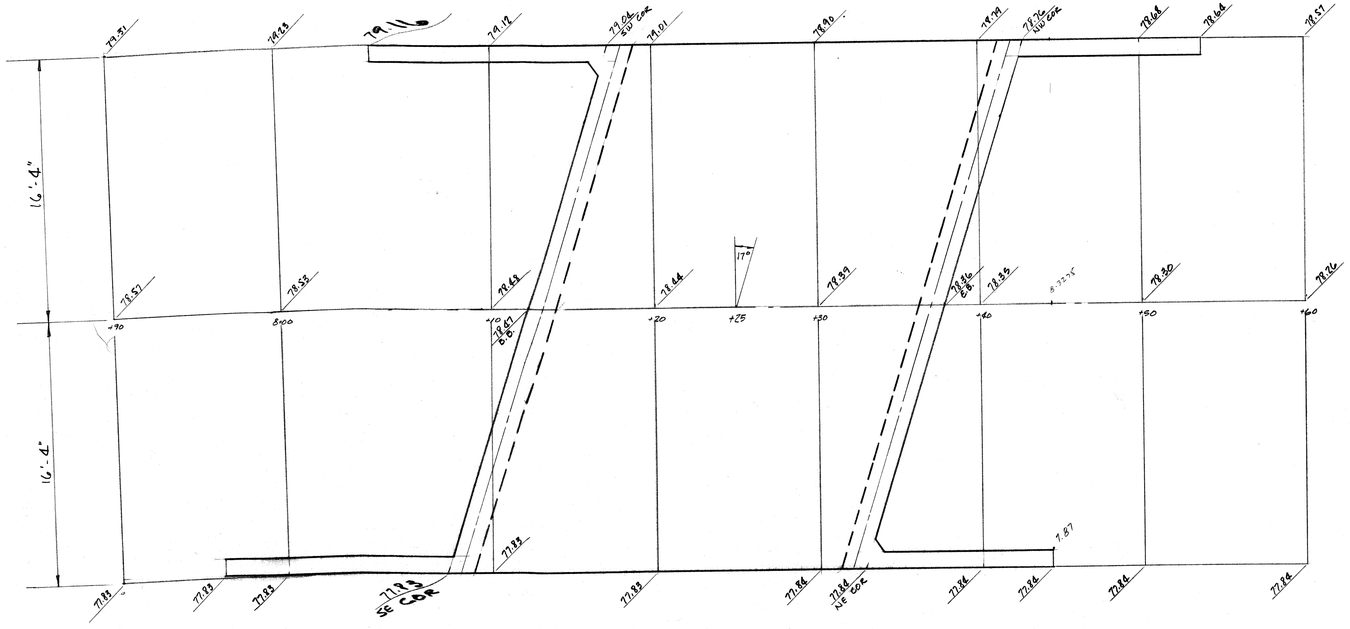
Project Engineer J. ELLIS | Sheet 8 of 10

73089

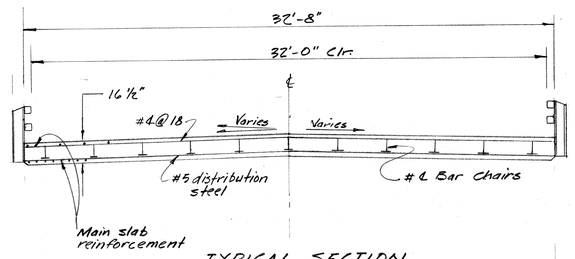
INYO COUNTY ROAD DEPT.
North Round Valley Road & Bridge Construction

Director of Public Works — 5-7-87 Date

Project Engineer J. ELLIS | Sheet 9 of 10

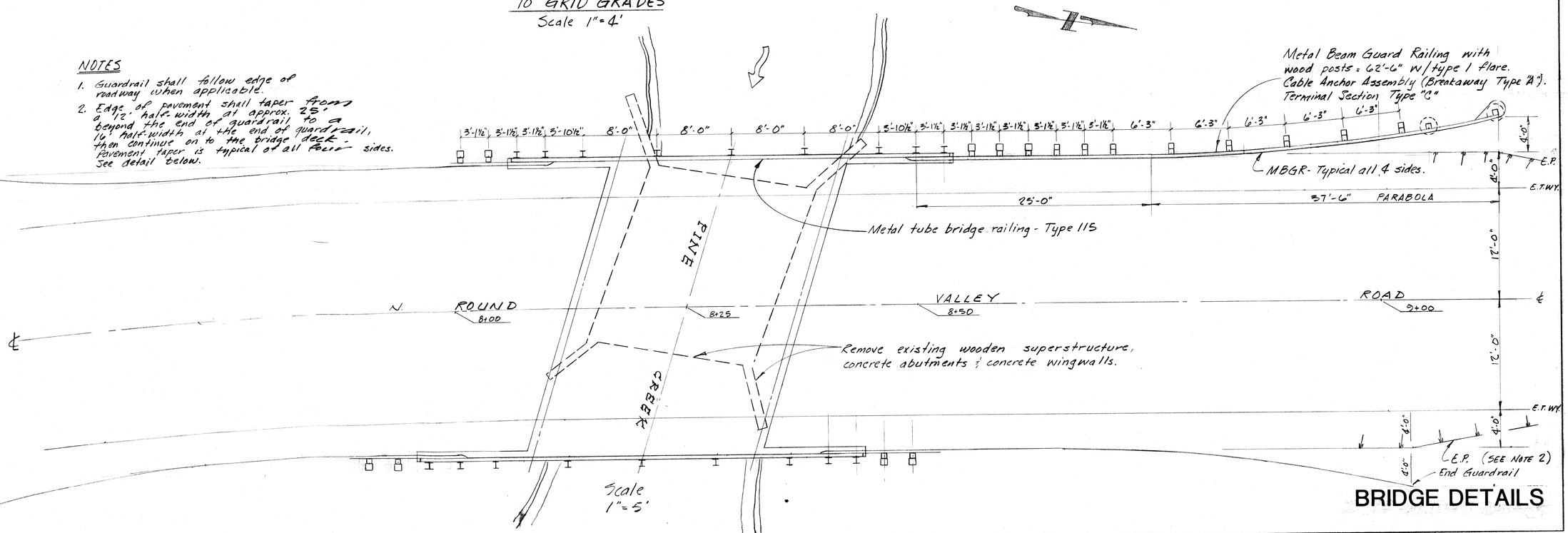


10' GRID GRADES
Scale 1"=4'



TYPICAL SECTION
SCALE = ½" = 1'-0"

NOTES
1. Guardrail shall follow edge of roadway when applicable.
2. Edge of pavement shall taper from a 12' half-width at approx. 25' beyond the end of guardrail to a 16' half-width at the end of guardrail, then continue on to the bridge deck. Pavement taper is typical of all four sides. See detail below.



BRIDGE DETAILS

73090

DIST.	COUNTY	ROUTE	POST MILES—TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
				10	10

DESIGN ENGINEER

DATE APPROVED

NUMBER

TYPE 115 RAILING USE IS FOR VEHICULAR TRAFFIC ONLY.
DO NOT USE TYPE 115 RAILING WITH SIDEWALK.
(FOR SIDEWALK, USE TYPE 26 CONCRETE BARRIER).

NOTES TO DESIGNER - Procedure for use of insertable Standard Plan Sheet for Type 115 Railing on jobs where AC will be placed on the bridge at the time of contract:
(a) A maximum of 3" AC is permitted. (Any more than 3 inches will place the rail out of the height limitations of AASHTO Specs. and an increase in rail dimensions will exceed the structural design of the railing as shown.)
(b) Leave all dimensions as shown and add a line in Sect. B-B and indicate AC surfacing.
(c) Change NOTE 13 to read: "Design of rail is based on a maximum of 3" AC surfacing."
(d) Change Title to: "METAL TUBE BRIDGE RAILING - TYPE 115 (MOD)" and indicate changes/additions with "Δ".

BS 8138

7/16" × 4½" Slotted Hole — 3¾" — Edge of slotted hole — Sleeve

ELEVATION

⅜" ϕ HS Bolt with Hex head, cut and lock washers. — Roadway face of tube — Sleeve — 6" — 8 Min. — ½" or match deck joint — See Note 7

Note: ⅜" nut may be replaced with drilled and tapped hole in sleeve.

PLAN

DETAIL "A" TUBE SPLICE

2" — 4" — 8" Min.

½" ϕ hole near and far side.

7/16" ϕ hole near side.

SLEEVE

Sleeve formed of 3/16" ℄ for sliding fit inside of rail tube, bend thusly:

⅜" nut (Tack weld to sleeve)

S — Backup ℄ 3/16 × 1" min. tight fit. — S

60°

SECTION S-S

SHOP FABRICATION-WELDED TUBE SPLICE

8½" — 1'-1½" — Metal Beam Rail — 1'-0" ± — 1'-0" ±

DETAIL "C"

2'-0" end section may be cut from alternative terminal section or fabricated.

Timber post shown. Type of post determined elsewhere.

Metal Beam Rail — See Detail "C" — Close end of tubes with 3/16 ℄ Place vent hole down. — G

PLAN

Traffic side TS 4 × 4 × 0.25

1'-0" — PLAN — 1'-0" — 4

3" — 4½" 4½" — 9" — 9" — ¼" Min.

⅞" ϕ Holes — 4" — ℄ End Post — ELEVATION — 2" — 2" — ℄ Post — SECTION

METAL BOX SPACERS

℄ End Post — 1'-0" Typical — 6'-0" Min. — 8'-0" Max. Post Spacing

PLAN

#4 @ 2'-0" @ G. Total 5 per post. — 3" — 1½" Cl. — H.S. Rods threaded both ends, total 2 see Note "B". — ¾" ϕ × 2½" Stud Bolts. — Wall Reinf. 2-#8 Min. — 2" — 4" — 2" — 2" — ℄ Post — Lock Washers — Cut Washers — H.S. Rods total 2 threaded full length see Note "5". — Cut Washers — Lock Washers — "A" — 2" — 3" — ℄ Washers 3½×⅜×0'-8" — ℄ ½" Bolt Dia. + ⅛"

Note "B" 1¼" ϕ Top Rods and 1" ϕ Bottom Rods when "A" = 4½". ⅞" ϕ Rods when "A" = 10".

SECTION

RAIL POST ON WALL

1¾" × ¼" × 0'-1¾" ℄ Washer — Hex Nut — Lock Washer — See Detail "Z" — TS 4 × 4 × .25 — 1 1/16" × 1 9/16" Slotted hole.

SECTION

Full penetration butt weld.

PLAN

DETAIL "B"

Pay Limits-MBGR — Length for Payment (Type 115) — Adjust height to provide a smooth transition from end post to typical M.B.G.R. height. — 6" — ℄ End Post — 2'-9" — 1'-0" Cl. — 9" Min. — Metal Box Spacers — 3'-1½" — 3'-1½" — Center of anchorage for M.B.G.R.

SECTION

ELEVATION

METAL BEAM APPROACH

Length for Payment (Type 115) — 5' — 4" — BC — R = 3'-6" — R = 5'-3" — 9" Min. — Top of deck — 1'-0" Min. — Deck exp. Joint.

2 Joints in one panel staggered as shown permitted only at deck expansion joints. — 1'-0" Typ. — See Note 4 & 5 — Detail "A" Typical

RAIL ELEVATION

Square cut or grind T.S. 4 × 4 × .25 — W8 × 31 — Detail "B" — 1⅛" ϕ × 2'-0" H.S. rods (threaded both ends) total 2 (with 3 hex. nuts per rod) — 12" Typ — #3 tot. 5 pairs bundled, equally spaced. — 3½×⅜×0'-8" ℄ Washer. — 1'-0" Min. — 1" ϕ × 2'-0" H.S. rods (threaded both ends) total 2 (with 4 hex. nuts per rod.)

1 1/16" × 1 9/16" slotted holes. — 2" — 10" — 1'-10" — 3'-5" — 2'-3" — 4½" — 4½" — 2½" — 2¼" — 2" — 4" — 3" — See Detail "X" — Bolt Dia. + 1/16" — Slot for vertical adjustment

SECTION A-A

RAIL POST DETAILS-THIN SLAB

1 1/16" × 1 9/16" slotted holes. — 2" — 10" — 1'-10" — 3'-11" — 2'-3" — 4" — 2" — 3" — See Detail "X" — Bolt Dia. + 1/16" — Slot for Vertical adjustment

SECTION B-B

Square cut or grind. T.S. 4 × 4 × .25 — W8 × 31 — Detail "B" — ⅞" ϕ × 1'-6" H.S. rods (threaded both ends) tot. 2 (with 3 hex nuts per rod). — 3½×⅜×0'-8" ℄ Washers — ⅞" ϕ × 1'-6" H.S. rods (threaded both ends) total 2 (with 4 hex nuts per rod) — 1'-6" Min.

RAIL POST DETAILS-THICK SLAB

Note: *3 ☐ for thin slab not shown. — ℄ ℛ 3½ × ⅜ Stiffener each side of web. — Cut Washer — ℄ Between Bolts ? — Lock Washers — Cut Washer — ℄ ℛ 3½ × ⅜ × 0'-8" (Tack weld nut to ℛ). — Bolt dia + 1/16" — 4"

DETAIL "X"

Bolt Dia. + 1/16" — 4" — ½" Cope (Typ.) — Typical

SECTION C-C

℄ End Post — 5½" — 3¼" — 2¾" — ¼ ℄ Washers — 2½" — 9" — 1'-2" — 2½" — 6 × 4 × ¼ Min. × 1'-0" Metal Box Spacer — Lock Washers — Cut Washers — ¾" ϕ HS bolts with hex nuts. — Slotted holes in M.B.G.R. ¾" ϕ HS Bolts with Hex nuts.

DETAIL "Z"

NOTES:

1. Posts shall be vertical.
2. Tubing shall be shop bent to fit horizontal curve when curve radius is less than 950'.
3. Tubing shall be parallel to vertical alignment.
4. Tubing shall be continuous over not less than 3 intermediate posts, with a minimum length of 3 panels except as noted.
5. No more than one tube splice per panel is permitted, except as noted.
6. Space posts to provide 1'-6" min clear between expansion joints and ℄ of post.
7. Rail joints in top and bottom tubes at deck expansion joints shall provide allowance for movement equal to width of deck joint with corresponding increase in length of sleeve.
8. Railing on bridge wingwalls to be placed after walls are backfilled.
9. Stud bolt nuts shall be torqued to 175 ft lbs.
10. Anchor bolt nuts shall be wrench tight.
11. Galvanize rail assembly after fabrication.
12. Designed by AASHTO dated 1977 and interim Specifications dated 1979 and 1980.
13. Design height of rail is based on a future overlay of 3 inches maximum.

XS-9-120

	By	Checked
DESIGN		Checked
DETAILS	By	Checked
QUANTITIES	By	Checked

INYO COUNTY

DIVISION OF STRUCTURES
DESIGN SECTION
PROJECT ENGINEER

BRIDGE NO.
POST MILE

METAL TUBE BRIDGE RAILING - TYPE 115

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU
WO

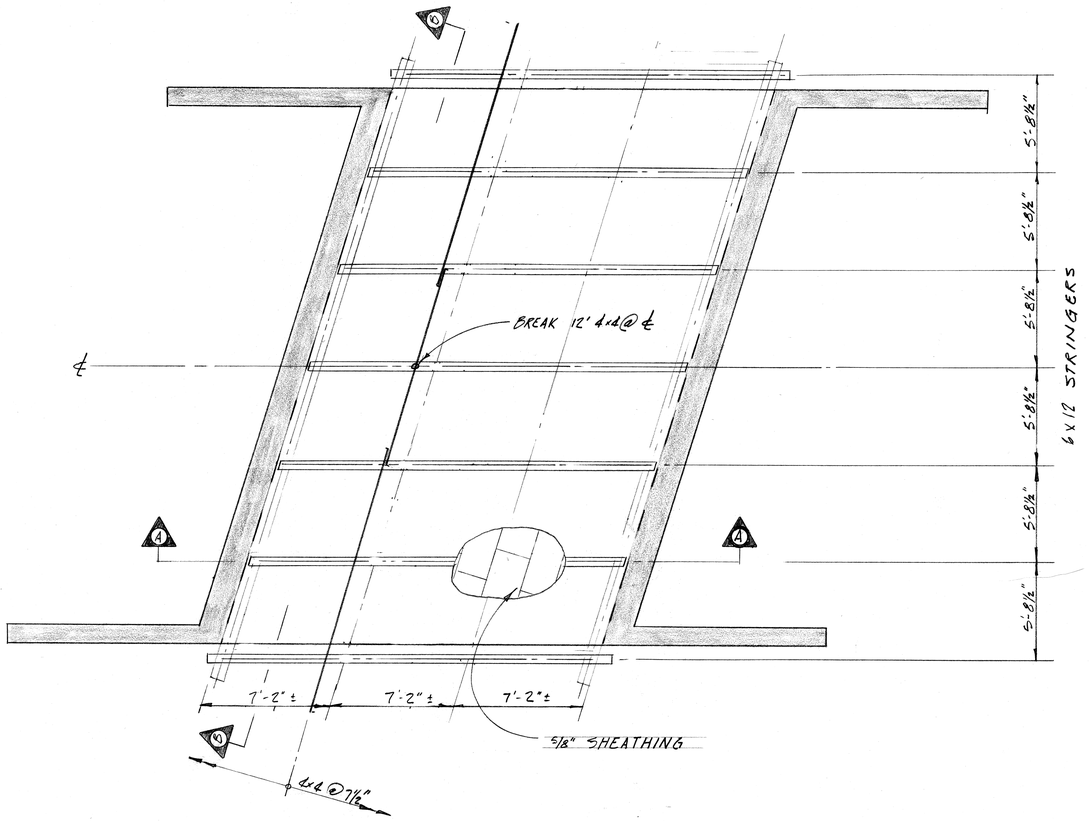
Disregard prints bearing earlier revision dates →

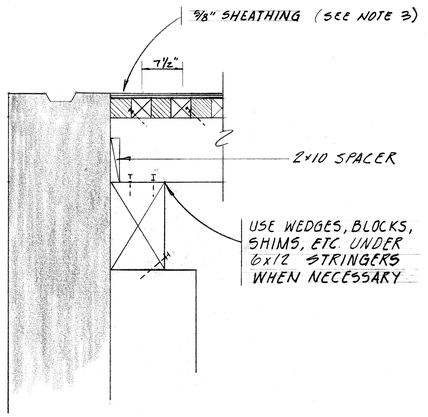
REVISION DATES (PRELIMINARY STAGE ONLY)								SHEET	OF
4/20/81									

73091

NORTH ROUND VALLEY ROAD BRIDGE FALSEWORK

DATE: 9-4-87		
DRAWN BY: J. Ellis	DESIGN BY: [illegible]	CHECKED BY: [illegible]





FALSEWORK NOTES

1 -- GENERAL

1.01 Stringer spans and spacings shown on the drawings are approximate only. Actual locations of falsework stringers and bents may be adjusted slightly to fit field conditions.

1.02 Provide blocks and/or wedges as required to grade the falsework, provide tight fitting joints with full bearing, and allow for falsework removal.

2 -- CONCRETE PLACING SEQUENCE:

2.01 Slab Deck: Place full width of bridge starting at abutment 2 and proceding to abutment 1.

3 -- ANTICIPATED FALSEWORK SETTLEMENT: 3/8".

TIMBERS AT MANZANAR

7½" x ____" x ____'

7½" x 16" x 18'-4½"
7½" x 15½" x 17'-6" ?
7½" x 16" x 21'-3"
7½" x 16" x 21'-3"
7½" x 16" x 21'-3"
7½" x 10" x 17'-10"
7½" x 9" x 11'-2"

8" x ____" x ____'

8" x 14½" x 19'
8" x 10" x 17'-10"
8" x 9½" x 17'-6"
8" x 9½" x 20'-6"
8" x 9½" x 21'
8" x 10" x 26'
8" x 10" x 26'
8" x 9½" x 17'-7"
8" x 15" x 21'

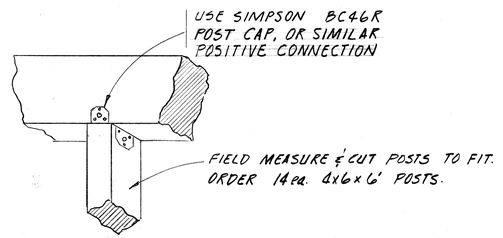
9½" x ____" x ____'

✓ 9½" x 15" x 38'-2"
9½" x 16" x 24'-3½"
9½" x 16" x 21'
✓ 9½" x 15" x 38'-6"
9½" x 16" x ____ ?

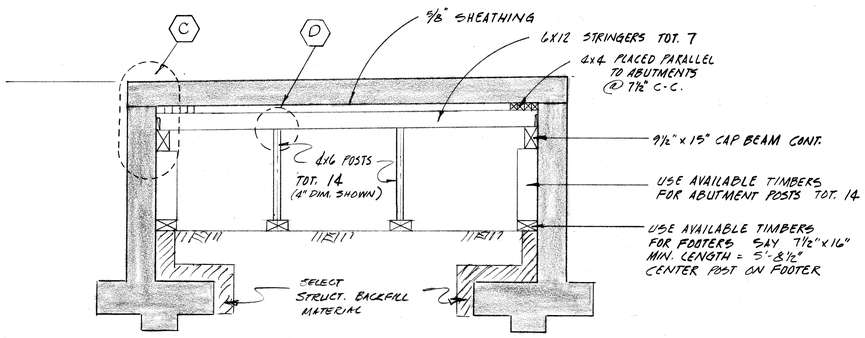
10" x ____" x ____'

10" x 15½" x 18'-11"
✓ 10" x 16" x 38'
10" x 15" x 10'
10" x 15" x 11'
10" x 11" x 7'-6"

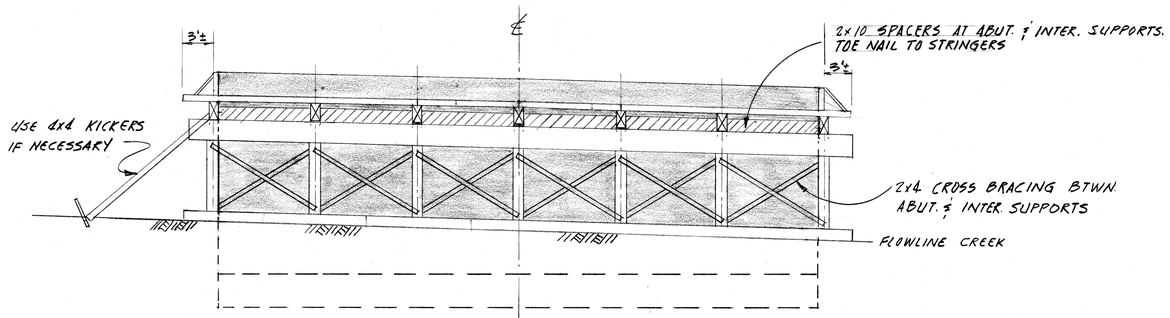
℄ TYPICAL FALSEWORK SECTION @ ABUTMENT



D POST & BEAM CONNECTION DETAIL



SECTION A-A
TYP. LAYOUT
(NO SCALE)



SECTION B-B
TYPICAL LAYOUT AT ABUTMENT

73062

Section 4

Board Order No. R6V-2020-0036, Granting Clean Water Act Section 401 Water Quality Certification, North Round Valley Road Bridge Replacement Project, Inyo County

July 2, 2020

WDID 6B142004001
401 WQC

Ashley Helms, Planner
Inyo County Department of Public Works
168 North Edwards Street,
P.O. Box Drawer Q
Independence, CA 93526

Board Order No. R6V-2020-0036, Granting Clean Water Act Section 401 Water Quality Certification, North Round Valley Road Bridge Replacement Project, Inyo County

The Lahontan Regional Water Quality Control Board (Water Board) has received project information from Inyo County Department of Public Works (Applicant) and an application filing fee to complete an application for Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) for the North Round Valley Road Bridge Replacement Project (Project). The application was deemed complete on May 2, 2020. This Order for WQC is based upon the information provided in the application, and subsequent correspondence received in support of the application.

Any person aggrieved by this action of the Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with California Water Code (CWC), section 13320, and California Code of Regulations (CCR), title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the 30th day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality, or will be provided upon request.

PROJECT DESCRIPTION

This WQC is based upon the information provided by the Applicant. Project details are summarized in the following table.

Table of Project Information:

<table>
<tr><td>WDID Number</td><td colspan="10">6B142004001</td></tr>
<tr><td>Applicant</td><td colspan="10">Inyo County Department of Public Works</td></tr>
<tr><td>Project Name</td><td colspan="10">North Round Valley Road Bridge Replacement Project</td></tr>
<tr><td>Project Purpose and Description</td><td colspan="10">The purpose of the Project is to replace the existing bridge over Pine Creek. The proposed bridge replacement structure will be an 85-foot single span, precast/prestressed wide flange girder superstructure on high cantilever abutments founded on cast-in-drilled-hole concrete piles (Enclosure 1). The new bridge design includes placement of new riprap, which will result in permanent impacts to waters.</td></tr>
<tr><td>Project Type</td><td colspan="10">Transportation, Roads, and Highways</td></tr>
<tr><td>Project Address or other Locating Information</td><td colspan="10">The Project is located 1.7 miles west of Pine Creek Road, which is 10.7 miles north of Bishop, Inyo County.</td></tr>
<tr><td>Latitude/Longitude</td><td colspan="10">Latitude: 37.421372, Longitude: -118.58842 (Center)</td></tr>
<tr><td>Hydrologic Unit(s)</td><td colspan="10">Owens Hydrologic Unit 603.00, Upper Owens Hydrologic Area (603.20)</td></tr>
<tr><td>Project Area</td><td colspan="10">0.61 Acre</td></tr>
<tr><td>Receiving Water(s) Name</td><td colspan="10">Pine Creek</td></tr>
<tr><td>Water Body Type(s)</td><td colspan="10">Perennial Stream</td></tr>
<tr><td>Designated Beneficial Uses</td><td colspan="10">MUN, AGR, IND, GWR, FRSH, POW, REC-1, REC-2, COMM, COLD, WILD, SPWN</td></tr>
<tr><td>Potential Water Quality Impacts to Waters of the United States (WOUS)</td><td colspan="10">Hydrogeomorphic changes in the flow regime on the Project site may result in downstream erosion, sedimentation, and/or siltation.</td></tr>
<tr><td rowspan="3">Project Impacts (Excavation) to WOUS</td><td rowspan="3">Waterbody Type</td><td colspan="6">Permanent</td><td colspan="3">Temporary</td></tr>
<tr><td colspan="3">Physical Loss of Area</td><td colspan="3">Degradation of Ecological Condition</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>Acre</td><td>Linear Feet</td><td>Cubic Yard</td><td>Acre</td><td>Linear Feet</td><td>Cubic Yard</td></tr>
<tr><td></td><td>Stream</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1370</td><td>1300</td><td>0.02</td><td>60</td><td>10</td></tr>
<tr><td>Federal Permit(s)</td><td colspan="10">The U.S. Army Corps of Engineers (USACE) will regulate the Project under Nationwide Permit 14, Linear Transportation Projects, pursuant to section 404 of the CWA.</td></tr>
<tr><td>Non-Compensatory Mitigation</td><td colspan="10">During construction, the Applicant will follow Best Management Practices (BMPs) including construction storm water controls designed to minimize the short-term degradation of water quality. All temporary impacts will be restored to pre-project conditions.</td></tr>
<tr><td>Compensatory Mitigation</td><td colspan="10">The Project design will restore 0.02 acres of Waters of the State by removing the existing bridge abutments from the stream channel and by removing some of the existing excess riprap.</td></tr>
<tr><td>Applicable Fees</td><td colspan="10">$1,949 (Low Impact Discharge)</td></tr>
<tr><td>Fees Received</td><td colspan="10">$1,949</td></tr>
</table>

Table of Project Information:

Estimated Annual Fee[1]	$1,638 (an annual fee will be assessed each fiscal year or portion of a fiscal year until the Project is complete and the Water Board issues a Notice of Completion of Discharges Letter to the Applicant)
[1]The actual Annual Fee will be calculated using the fee schedule in effect at the time the annual fee is assessed per California Code of Regulations, title 23, section 2200(a)(3). It is the Applicant's responsibility to inform Water Board staff when the Project is complete.	

CEQA COMPLIANCE

The Inyo County Department of Public Works prepared an Initial Study/Mitigated Negative Declaration (IS/MND) for the Project. The IS/MND was prepared pursuant to the California Environmental Quality Act (CEQA Public Resources Code 21000, et seq.) and circulated under State Clearinghouse No. 2019119037. The IS/MND was certified on January 28, 2020, following public review.

The Water Board, acting as a CEQA Responsible Agency in compliance with CCR, title 14, section 15096, has considered the EIR for the Project and the potential water quality impacts. As a result of the analysis, the Water Board finds potential water quality impacts are less than significant.

CALIFORNIA ECOATLAS

It has been determined through regional, state, and national studies that tracking of mitigation/restoration projects must be improved to better assess the performance of these projects, following monitoring periods that last several years. In addition, to effectively carry out the State's Wetlands Conservation Policy of no net loss to wetlands, the State needs to closely track both aquatic habitat losses and mitigation/restoration project successes. Therefore, we require that the Applicant provide Project information related to impacts and mitigation/restoration measures (see Additional Condition No. 1 of this WQC Order) to EcoAtlas using the Project Tracker website:http://ptrack.ecoatlas.org. Instructions and how to request a username and password can also be found at the Project Tracker website.

More information about the Water Board's requirement can be found at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/clean_water_act_401/index.shtml. More information about EcoAtlas can be found at: www.ecoatlas.org.

SECTION 401 WATER QUALITY CERTIFICATION

Authority

CWA, section 401 (33 United State Code [USC], paragraph 1341), requires that any applicant for a CWA, section 404 permit, who plans to conduct any activity that may result in discharge of dredged or fill materials to WOUS, shall provide to the permitting agency a certification that the discharge will be in compliance with applicable water quality

standards of the state in which the discharge will originate. No section 404 permit may be granted (or valid) until such certification is obtained. The Applicant submitted a complete application and the fees required for WQC under section 401 of the CWA for the Project. The USACE will regulate the Project under Nationwide Permit No. 14, Linear transportation Projects, pursuant to section 404 of the CWA. CCR, title 23, section 3831(e) grants the Executive Officer the authority to grant or deny WQC for projects in accordance with CWA section 401. The proposed Project qualifies for such WQC.

Standard Conditions

Pursuant to CCR, title 23, section 3860, the following standard conditions are requirements of this WQC:

1. This WQC action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to CWC, section 13330 and CCR, title 23, section 3867.

2. This WQC action is not intended and must not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license unless the pertinent certification application was filed pursuant to CCR, title 23, section 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. The validity of any non-denial WQC action must be conditioned upon total payment of the full fee required under CCR, title 23, section 3833, unless otherwise stated in writing by the certifying agency.

4. Neither Project construction activities nor operation of the Project may cause a violation of the *Water Quality Control Plan for the Lahontan Region* (Basin Plan), may cause a condition or threatened condition of pollution or nuisance, or cause any other violation of the CWC.

5. The Project must be constructed and operated in accordance with the Project described in the application for WQC that was submitted to the Water Board. Deviation from the Project description constitutes a violation of the conditions upon which the certification was granted. Any significant changes to this Project that would have a significant or material effect on the findings, conclusions, or conditions of this WQC, including Project operation, must be submitted to the Executive Officer for prior review and written approval.

6. This WQC is subject to the acquisition of all local, regional, state, and federal permits and approvals, as required by law. Failure to meet any conditions contained herein or any conditions contained in any other permit or approval issued by the State of California or any subdivision thereof may result in the revocation of this WQC and civil or criminal liability.

7. The Water Board may add to or modify the conditions of this WQC, as appropriate, to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the CWC or section 303 of the CWA, or as appropriate to coordinate the operations of this Project with other projects where coordination of operations is reasonably necessary to achieve water quality standards or to protect the beneficial uses of water. Notwithstanding any more specific conditions in this WQC, the Project must be constructed and operated in a manner consistent with all water quality standards and implementation plans adopted or approved pursuant to the CWC or section 303 of the CWA.

8. This WQC does not authorize any act which results in the taking of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under the California Endangered Species Act (Fish and Wildlife Code, section 2050 et seq.) or the federal Endangered Species Act (16 USC, section 1531 et seq.). If a "take" will result from any act authorized under this certification, the Applicant must obtain authorization for the take prior to construction or operation of the Project. The Applicant is responsible for meeting all requirements of the applicable Endangered Species Act for the Project authorized under this WQC.

Additional Conditions

Pursuant to CCR, title 23, section 3859, subdivision (a), the following additional conditions are required with this WQC:

1. Thirty (30) days from the date of issuance of this Order for WQC, the Applicant is required to upload Project information (all information fields required by EcoAtlas), including a Project map (either using upload or draw polygon features) to the following website: http://ptrack.ecoatlas.org/. Amendments to and monitoring reports associated with the Project must be updated on EcoAtlas (using the “Files and Links” tab under “Projects” in EcoAtlas) in addition to any other reporting required as part of this WQC Order.

2. The Applicant proposes to remove the existing concrete piles from and reduce the volume of existing riprap in the channel of Pine Creek as compensatory mitigation for the Project’s permanent impacts to waters of the State. This mitigation will result in 0.02 acres of waters being restored and will be performed concurrent with the Project implementation.

3. All excess sediment excavated from the site that is not used on-site will be removed from the site and stockpiled in an upland location so as to not be transported by wind or water into surface water. An adequate combination of sediment and erosion control BMPs must be implemented and maintained, as needed, to temporarily stabilize stockpiled soils until such time that they are reused and/or permanently stabilized.

4. Work in the stream channel is authorized only during dry weather conditions. Should inclement weather occur, all work within the channel must stop and all equipment and materials must be removed to upland areas.

5. To document the completion of the Project, the Applicant must submit a **Project Completion Report** to the Water Board within **60 days** following completion of the Project, including successful completion of all required mitigation and associated monitoring and reporting, if applicable. The Project Completion Report should include the following, at minimum: a summary of the Project activities, including the date(s) those activities were performed; identification of work locations (tabulated with latitude/longitude and corresponding map with photo documentation); the area of temporary and permanent disturbance to WOUS; a summary of the activities related to construction storm water controls and the BMPs used; and a summary of any mitigation activities as well as activities that deviated from those described in the original application and supporting documents.

6. An "Annual Fee" will be assessed each year this Order remains in "Active" status. The actual Annual Fee will be calculated using the fee schedule in effect at the time the annual fee is assessed per California Code of Regulations, title 23, section 2200(a)(3). The Annual Fee will apply each fiscal year or portion of fiscal year until the Applicant submits a Project Completion Report (see Additional Condition No. 4 above) and the Water Board issues a Notice of Completion of Discharges Letter to the Applicant.

7. This Order does not authorize emergency repair activities. The Applicant is required to apply for separate authorization to perform emergency repairs should that be necessary.

8. No debris, cement, concrete (or wash water there from), oil, or petroleum products must be allowed to enter into or be placed where it may be washed from the Project site by rainfall or runoff into surface waters.

9. An emergency spill kit must be at the Project site at all times during the Project.

10. Construction vehicles and equipment must be monitored for leaks and proper BMPs must be implemented should leaks be detected or the vehicles/equipment must be removed from service, if necessary, to protect water quality.

11. The Applicant must permit Water Board staff or their authorized representative(s) upon presentation of credentials:

    a. Entry onto Project premises, including all areas on which fill, excavation or mitigation is located or in which records are kept;

    b. Access to copy any record required to be kept under the terms and conditions of this WQC;

c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this WQC; and

d. Sampling of any discharge or surface water covered by this WQC.

12. The Applicant must maintain at the Project site a copy of this Order and a copy of the complete WQC application provided to the Water Board so as to be available at all times to site operating personnel and agencies.

13. The Applicant is responsible for informing any contractors of the specific conditions contained in this WQC Order.

Enforcement

1. In the event of any violation or threatened violation of the conditions of this WQC, the violation or threatened violation will be subject to any remedies, penalties, processes or sanctions, as provided for under state law. For purposes of CWA, section 401(d), the applicability of any state law authorizing remedies, penalties, processes or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this WQC.

2. In response to a suspected violation of any condition of this WQC, the State Water Board or the Water Board may require the holder of any permit or license subject to this WQC to furnish, under penalty of perjury, any technical or monitoring report that the State Water Board or Water Board deems appropriate, provided that the burden, including costs, of the reports must be in reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

3. In response to any violation of the conditions of this WQC, the Water Board may add to or modify the conditions of this certification, as appropriate, to ensure compliance.

Section 401 Water Quality Certification Requirements Granted

I hereby issue this Order certifying that any discharge from the referenced Project will comply with the applicable provisions of CWA, sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards), and with other applicable requirements of state law. This discharge is also regulated under State Water Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification," which requires compliance with all conditions of this WQC. A copy of State Water Board Order No. 2003-0017-DWQ is enclosed for your reference (Enclosure 2).

Except insofar as may be modified by any preceding conditions, all WQC actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in

strict compliance with the Applicant's Project description and the terms specified in this WQC Order, and (b) compliance with all applicable requirements of the Basin Plan.

We look forward to working with you in your efforts to protect water quality. If you have any questions regarding this matter, please contact me at (530) 542-5414 (patty.kouyoumdjian@waterboards.ca.gov) or Tiffany Steinert, Engineering Geologist, at (760) 241-7305 (tiffany.steinert@waterboards.ca.gov).

Please send all future correspondence regarding this Project to the Water Board's email address at Lahontan@waterboards.ca.gov and be sure to include the WDID No. in the subject line.

Patty Z. Kouyoumdjian

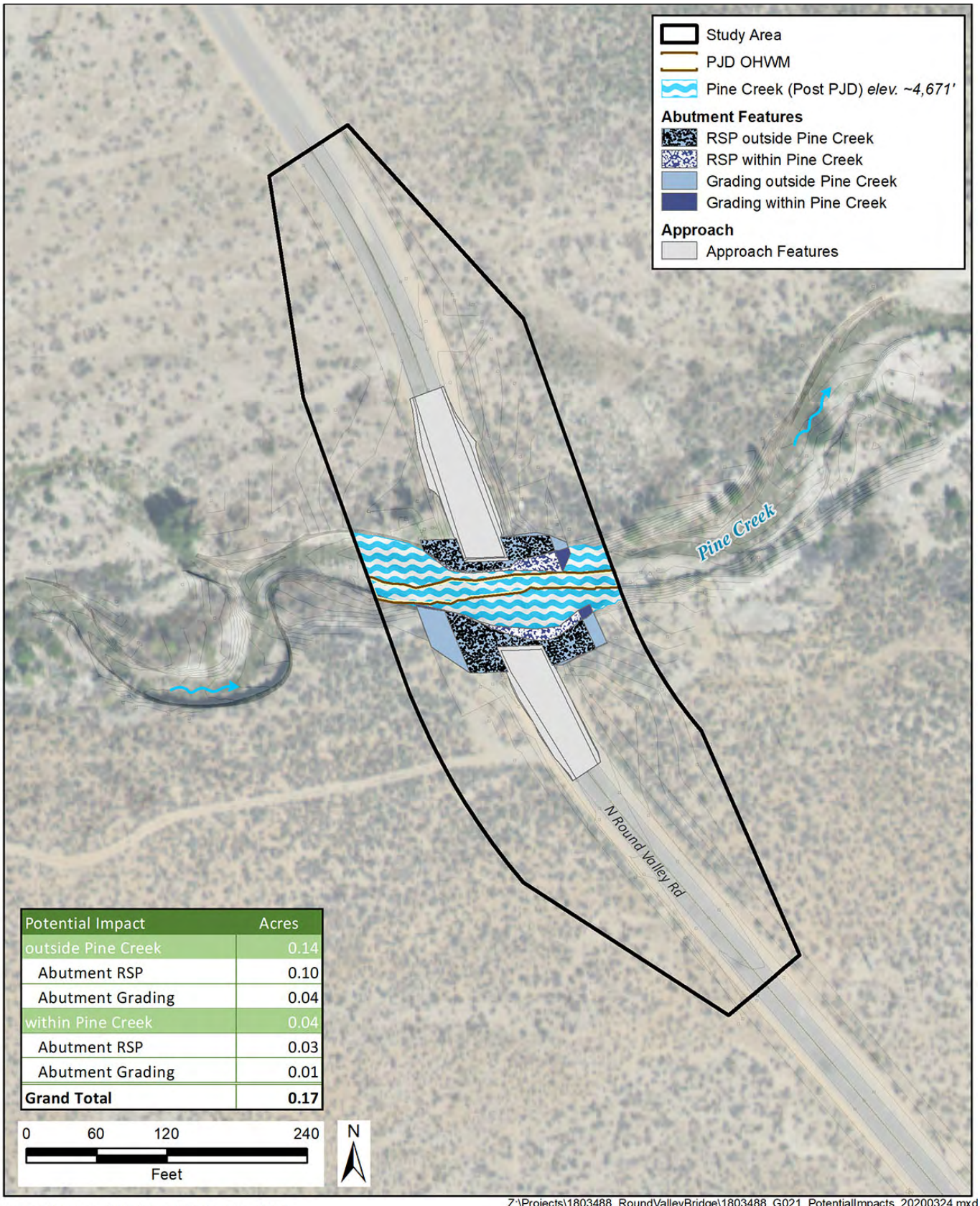
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Enclosures: (1) Site Plan
(2) SWRCB Order No. 2003-0017-DWQ

cc: Nick Tomera, GEI Consultants
Emma Ross, USACE
Melissa Scianni, USEPA Region 9
Alyssa Marquez, Dept. of Fish and Wildlife
Tiffany Steinert, Lahontan Water Board

ENCLOSURE 1

Site Plan



Potential Impact	Acres
outside Pine Creek	0.14
Abutment RSP	0.10
Abutment Grading	0.04
within Pine Creek	0.04
Abutment RSP	0.03
Abutment Grading	0.01
Grand Total	**0.17**

Figure Source: GEI Consultants, Inc. 2019.

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24Mar2020 SI

ENCLOSURE 2

SWRCB Order No. 2003-0017-DWQ

STATE WATER RESOURCES CONTROL BOARD

WATER QUALITY ORDER NO. 2003 - 0017 - DWQ

STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR DREDGED OR FILL DISCHARGES THAT HAVE RECEIVED STATE WATER QUALITY CERTIFICATION (GENERAL WDRs)

The State Water Resources Control Board (SWRCB) finds that:

1. Discharges eligible for coverage under these General WDRs are discharges of dredged or fill material that have received State Water Quality Certification (Certification) pursuant to federal Clean Water Act (CWA) section 401.

2. Discharges of dredged or fill material are commonly associated with port development, stream channelization, utility crossing land development, transportation water resource, and flood control projects. Other activities, such as land clearing, may also involve discharges of dredged or fill materials (e.g., soil) into waters of the United States.

3. CWA section 404 establishes a permit program under which the U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the United States.

4. CWA section 401 requires every applicant for a federal permit or license for an activity that may result in a discharge of pollutants to a water of the United States (including permits under section 404) to obtain Certification that the proposed activity will comply with State water quality standards. In California, Certifications are issued by the Regional Water Quality Control Boards (RWQCB) or for multi-Region discharges, the SWRCB, in accordance with the requirements of California Code of Regulations (CCR) section 3830 et seq. The SWRCB's water quality regulations do not authorize the SWRCB or RWQCBs to waive certification, and therefore, these General WDRs do not apply to any discharge authorized by federal license or permit that was issued based on a determination by the issuing agency that certification has been waived. Certifications are issued by the RWQCB or SWRCB before the ACOE may issue CWA section 404 permits. Any conditions set forth in a Certification become conditions of the federal permit or license if and when it is ultimately issued.

5. Article 4, of Chapter 4 of Division 7 of the California Water Code (CWC), commencing with section 13260(a), requires that any person discharging or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the State,[1] file a report of waste discharge (ROWD). Pursuant to Article 4, the RWQCBs are required to prescribe waste discharge requirements (WDRs) for any proposed or existing discharge unless WDRs are waived pursuant to CWC section 13269. These General WDRs fulfill the requirements of Article 4 for proposed dredge or fill discharges to waters of the United States that are regulated under the State's CWA section 401 authority.

[1] "Waters of the State" as defined in CWC Section 13050(e)

6. These General WDRs require compliance with all conditions of Certification orders to ensure that water quality standards are met.

7. The U.S. Supreme Court decision of *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001) (the *SWANCC* decision) called into question the extent to which certain "isolated" waters are subject to federal jurisdiction. The SWRCB believes that a Certification is a valid and enforceable order of the SWRCB or RWQCBs irrespective of whether the water body in question is subsequently determined not to be federally jurisdictional. Nonetheless, it is the intent of the SWRCB that all Certification conditions be incorporated into these General WDRs and enforceable hereunder even if the federal permit is subsequently deemed invalid because the water is not deemed subject to federal jurisdiction.

8. The beneficial uses for the waters of the State include, but are not limited to, domestic and municipal supply, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources.

9. Projects covered by these General WDRs shall be assessed a fee pursuant to Title 23, CCR section 3833.

10. These General WDRs are exempt from the California Environmental Quality Act (CEQA) because (a) they are not a "project" within the meaning of CEQA, since a "project" results in a direct or indirect physical change in the environment (Title 14, CCR section 15378); and (b) the term "project" does not mean each separate governmental approval (Title 14, CCR section 15378(c)). These WDRs do not authorize any specific project. They recognize that dredge and fill discharges that need a federal license or permit must be regulated under CWA section 401 Certification, pursuant to CWA section 401 and Title 23, CCR section 3855, et seq. Certification and issuance of waste discharge requirements are overlapping regulatory processes, which are both administered by the SWRCB and RWQCBs. Each project subject to Certification requires independent compliance with CEQA and is regulated through the Certification process in the context of its specific characteristics. Any effects on the environment will therefore be as a result of the certification process, not from these General WDRs. (Title 14, CCR section 15061(b)(3)).

11. Potential dischargers and other known interested parties have been notified of the intent to adopt these General WDRs by public hearing notice.

12. All comments pertaining to the proposed discharges have been heard and considered at the November 4, 2003 SWRCB Workshop Session.

13. The RWQCBs retain discretion to impose individual or General WDRs or waivers of WDRs in lieu of these General WDRs whenever they deem it appropriate. Furthermore, these General WDRs are not intended to supersede any existing WDRs or waivers of WDRs issued by a RWQCB.

IT IS HEREBY ORDERED that WDRs are issued to all persons proposing to discharge dredged or fill material to waters of the United States where such discharge is also subject to the water quality certification requirements of CWA section 401 of the federal Clean Water Act (Title 33 United States Code section 1341), and such certification has been issued by the applicable RWQCB or the SWRCB, unless the applicable RWQCB notifies the applicant that its discharge will be regulated through WDRs or waivers of WDRs issued by the RWQCB. In order to meet the provisions contained in Division 7 of CWC and regulations adopted thereunder, dischargers shall comply with the following:

1. Dischargers shall implement all the terms and conditions of the applicable CWA section 401 Certification issued for the discharge. This provision shall apply irrespective of whether the federal license or permit for which the Certification was obtained is subsequently deemed invalid because the water body subject to the discharge has been deemed outside of federal jurisdiction.

2. Dischargers are prohibited from discharging dredged of fill material to waters of the United States without first obtaining Certification from the applicable RWQCB or SWRCB.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 19, 2003.

AYE: Arthur G. Baggett, Jr.
Peter S. Silva
Richard Katz
Gary M. Carlton
Nancy H. Sutley

NO: None.

ABSENT: None.

ABSTAIN: None.

Debbie Irvin
Clerk to the Board

Section 5

Streambed Alteration Agreement. Notification No. 1600-2020-0055-R6

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
INLAND DESERTS REGION
3602 INLAND EMPIRE BOULEVARD, SUITE-220
ONTARIO, CA, 91764

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2020-0055-R6

INYO COUNTY PUBLIC WORKS DEPARTMENT
NORTH ROUND VALLEY ROAD BRIDGE REPLACEMENT PROJECT

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and the Inyo County Public Works Department (Permittee) or as represented by Ashely Helms (designated representative) acting on behalf of Permittee.

RECITALS

WHEREAS, pursuant to Fish and Game Code section 1602, Permittee notified CDFW on April 15, 2020 that Permittee intends to complete the Project described herein.

WHEREAS, pursuant to Fish and Game Code section 1603, CDFW has determined that the Project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the Project in accordance with the Agreement.

PROJECT LOCATION

The Project is located at Pine Creek along North Round Valley Road about 1 mile east of the unincorporated community of Rovana, in the County of Inyo, State of California; Latitude: 37.421372, -118.58842, Section 17, Township 6S, Range 31E, United States Geological Survey (USGS) map Rovana.

PROJECT DESCRIPTION

The proposed Project is limited to the removal and replacement of the existing North Round Valley Road Bridge (Bridge No. 48C0044) that was damaged during high flows in Pine Creek in 2017 (Exhibit A. Project Site Map). The proposed Project will replace the existing bridge with an approximately 85-foot (ft) single-span, precast/prestressed wide flange girder superstructure on high cantilever abutments founded on cast-in-drilled-hole concrete piles. The proposed bridge barriers are California Department of Transportation (Caltrans) standard California ST-75 open bridge railings. Installation of

the new bridge abutments will require two deep excavations (40-ft long by 12-ft wide) that may need to be stabilized with temporary shoring, requiring dewatering for placement of the concrete footings. Water will be temporarily diverted around the construction site to a downstream location below the construction site, where energy dissipators (i.e., rocks) will be placed before water is released back into Pine Creek. The water diversion will be scheduled during low-flow periods (between June and October). The existing horizontal and vertical alignments of the North Round Valley Road will be maintained, and the new bridge will meet Caltrans' Highway Manual freeboard requirements for 50-year (Q50) and 100-year (Q100) events. Equipment that will be used to demolish the existing bridge and construct the new bridge include excavators, dozers, cranes, pavers, dump trucks, concrete trucks, and concrete pumps.

The Project will include: (1) clearing and grubbing; (2) installing temporary BMPs; (3) constructing a temporary water diversion; (4) removal of the existing bridge; (5) construction of the new bridge; (6) construction of abutments; (7) placement of precast/prestressed CA wide flange girder superstructure; (8) construction of bridge deck and barriers; (9) installation of permanent erosion control/scour BMPs; and (10) reconstruction of road approaches.

PROJECT IMPACTS

Existing fish or wildlife resources the Project could substantially adversely affect include:

Mammals: Mammals may be affected by direct mortality, the removal or reduced quality of foraging habitat and disturbance during breeding season. Special-status mammal species (e.g., species of special concern, rare, threatened, endangered, candidate) that may be impacted include: Townsend's big-eared bat (*Corynorhimus townsendii*), western small-footed myotis (*Myotis cilliolabrum*), fringed myotis (*Myostis thysanodes*), and long-eared myotis (*Myotis evotis*). Other mammal species that may be impacted include: California ground squirrel (*Otospermophilus beecheyi*), desert kit fox (*Vulpes macrotis arsipus*), mule deer (*Odocoileus hemionus inyoensis*), black-tailed jackrabbit (*Lepus californicus*), Nuttall's cottontail (*Sylvilagus nuttallii*), desert cottontail (*Sylvilagus audobonii*), western spotted skunk (*Spilogale gracilis*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), least chipmunk (*Tamias minimus*), Botta's Pocket Gopher (*Thomomys bottae*), vagrant shrew (*Sorex vagrans*), Inyo shrew (*Sorex tenellus*), Merriam's Shrew (*Sorex merriami*), kangaroo rats (*Dipodomys spp*.) and American badger (*Taxidea taxus*).

Birds: Birds may be affected by the removal of nesting, roosting, or foraging habitat, disturbance during nesting seasons, loss of migratory habitat, and reduced ability of individual birds to communicate, detect prey and avoid predators due to increased noise and vibration. Special-status bird species that may be impacted include: southwestern willow flycatcher (*Empidonax traillii extimus*), Swainson's hawk *(Buteo swainsoni)*, northern harrier (*Circus hudsonius*), loggerhead shrike (*Lanius ludovicianus*), Le Conte's thrasher (*toxostoma lecontei*), yellow-headed blackbird (*Xanthocephalus*

xanthocephalus), yellow warbler (*Dendrioca petechia*), and golden eagle (*Aquila chrysaetos*). Other bird species that may be impacted include: common raven (*Corvus corax*), Bell's sparrow (*Artemisiospiza belli*), black-billed Magpie (*Pica hudsonia*), red-tailed hawk (*Buteo jamaicensis*), violet-green swallow (*Tachycineta thalassina*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*) and common poorwill (*Phalaenoptilus nuttallii*).

Reptiles: Reptiles may be affected by direct mortality, the removal of foraging habitat, the removal of denning sites, interference with foraging activities, and reduced food availability from increased exotic plant species. Reptiles that could be impacted include: southern desert horned lizard (*Phrynosoma platyrhinos calidiarum*), desert banded gecko (*Coleonyx variegatus variegatus*), great basin collared lizard (*Crotaphytus bicinctores*), western side-blotched lizard (*Uta stansburiana elegeans),* long-nosed leopard lizard (*Gambelia wislizenii*), great basin whiptail (*Aspidoscelis tigris tigris*), red racer (*Coluber flagellum piceus*), Mohave patch-nosed snake (*Salvadora hexalepis mojavensis*), great basin gophersnake (*Pituophis catenifer deseticola*), long-nosed snake (*Rhinocheilus lecontei*), California kingsnake (Lampropeltis californiae), and northern desert nightsnake (*Hypsiglena chlorophaea deserticola*).

Amphibians: Amphibians may be affected by direct mortality, the removal of foraging habitat, the removal of denning sites and interference with foraging activities. Amphibians that may be impacted include: tree frogs (*Pseudacris* spp.).

Plants: Plants may be impacted by crushing, complete or partial removal, soil disturbance, and competition from introduced exotic species. Special-status pant species (e.g., species of special concern, rare, threatened, endangered, candidate) that may be impacted include: Owens valley checkerbloom (*Sidalcea covillei*). Other plant species that may be impacted include: pacific willow (*Salix lasiandra*), narrowleaf willow (*Salix exigua*), white alder (*Alnus rhombifolia*), Fremont's cottonwood (*Populus fremontii*), , sedges (Carex spp.), California sagebrush (*Artemisia californica*), silver sagebrush (*Artemisia cana*) and California rose (*Rosa californica*).

Fish: Fish may be impacted by increased sedimentation, change in water quality, water temperature, pH, and through barriers to fish passage. Fish that may be impacted include: Owens sucker (*Catostomus fumeiventris*), Owens speckled dace (*Rhinichthys osculus spp.* 2), brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*).

The adverse effects the Project could have on the fish or wildlife resources identified above include: direct mortality to wildlife during construction from clearing and grubbing, excavation, filling, equipment movement, equipment, vehicle and material staging; indirect impacts to wildlife and it's habitat from construction noise, light, vibration and dust and increased human disturbance; removal and/or reduced quality of foraging and migration habitat; reduced ability of individuals to communicate, detect prey and avoid

predators due to increased noise and vibration; and introduction and/or increased spread of exotic species due to soil disturbance and construction activities.

This Agreement authorizes impacts to Fish and Game Code section 1602 resources including: 0.04 acres of permanent impacts to Fish and Game Code section 1602 resources through excavating (1,068 cubic yards of structure and roadway excavation), filling (278 cubic yards of structure backfill) and grading of the bed, bank and channel of Pine Creek, installation of bridge abutments, and placement of 1,815 cubic yards of rock-slope-protection (RSP) in the bed, bank and channel; 0.03 acres of temporary impacts to Fish and Game Code section 1602 resources through the placement of water diversions, temporary access for construction equipment ingress and egress. Within Fish and Game Code section 1602 resources this Agreement authorizes the removal of approximately 10 willows over 4 inches in Diameter at Breast Height (DBH).

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available to CDFW personnel, or personnel from another state, federal, or local agency at the Project site at all times upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the Project at the Project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the Project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the Project site at any time to verify compliance with the Agreement.

1.5 Additional Project Impacts. Permittee shall submit to CDFW a request to amend this Agreement if any additional impacts to Fish and Game Code section 1602 resources not identified in this Agreement are anticipated. No additional impacts to Fish and Game Code section 1602 resources are authorized unless the impacts

and/or activities are expressly authorized by CDFW by amendment to this Agreement.

1.6 Compliance with other Agencies. The Agreement does not relieve the Permittee of responsibility for compliance with applicable federal, state, or local laws, ordinances or grant conditions.

1.7 Take of Listed Species. The issuance of this Agreement does not authorize the take of any state- or federally listed threatened, endangered, or fully protected species. Take of any California Endangered Species Act (CESA) listed species is prohibited except as authorized by state law (Fish and G. Code § 2080 & 2085). Consequently, if a Project, including Project construction or any Project related activity during the life of the Project, results in take of CESA-listed species, CDFW recommends that the Permittee seek appropriate authorization prior to Project implementation.

1.8 Take of Nesting Birds. Fish and Game Code section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by Fish and Game Code or any regulation made pursuant thereto. Fish and Game Code section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey), to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by Fish and Game Code or any regulation adopted pursuant thereto. Fish and Game Code section 3513 makes it unlawful to take or possess any migratory nongame bird except as provided by the rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703 et seq.). The issuance of this Agreement does not in any way exempt or excuse compliance with these statutes.

1.9 Reporting of Violations. Permittee shall report any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, to the CDFW contact identified below within 48 hours of the violation occurring.

1.10 Correspondence with CDFW. Any other required reports, survey results, and other Project documentation shall be submitted via e-mail to Alyssa Marquez, Environmental Scientist at **Alyssa.Marquez@wildlife.ca.gov** and to the CDFW regional office, at: **R6LSAReporting@wildlife.ca.gov**. Any other communications may also be submitted via email to Alyssa Marquez, Environmental Scientist, and through phone at **760-873-7452** or **760-567-0332**. For all correspondence please reference **Agreement No. 1600-2020-0055-R6** in the subject line.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

2.1 Designated Biologist. Permittee shall have a full-time, CDFW-approved Designated Biologist (DB) present onsite throughout the entirety of the Project site and during all Project activities within Fish and Game Code section 1602 resources. **No less than 30 calendar days prior to initiation of any Project activities (including construction and/or site preparation), Permittee shall submit to CDFW via email the name, qualifications, business address, and contact information of a DB for review and approval.** Permittee shall ensure that the DB(s) is knowledgeable and experienced in the biology, natural history, collecting, and handling of appropriate species. The DB shall ensure that all avoidance and minimization measures in the Agreement are implemented and maintained, including, but not limited to: conduct pre-activity surveys, present Worker Environmental Awareness Training (WEAT), monitor all dewatering activities, conduct fish salvage, monitor all construction activities in Fish and Game Code section 1602 resources (i.e., ensuring the prescribed access routes and work areas are respected), monitor any active bird nests, perform necessary pre-activity surveys within all areas subject to Fish and Game Code section 1602 and within all sensitive habitats, and ensure impacts to wildlife habitat are minimized. **The DB shall submit weekly construction monitoring logs during construction in areas subject to Fish and Game Code section 1602 to CDFW via email every Friday. All pre-activity survey results or photographs shall be submitted to CDFW via email prior to construction start and as part of the Annual Report as described in Measure 4.1.**

2.2 Designated Biologist Authority. To ensure compliance with the measures of this Agreement, the DB shall have the authority to immediately halt any activity that does not comply with this Agreement, and/or to order any reasonable measure to avoid the violation of or compliance with any measure of this Agreement. **The DB shall not have the authority to handle any special-status species** (e.g., species of special concern, rare, threatened, endangered, and candidate species) except as may be provided in a Scientific Collecting Permit or Incidental Take Permit and must halt construction and notify CDFW immediately (within 24 hours) if any special-status species is identified within or adjacent to the Project site. If compliance with any measure of this Agreement fails or if the measures of this Agreement are violated, DB shall notify CDFW Alyssa Marquez immediately (within 24 hours of non-compliance or violation).

2.3 Worker Environmental Awareness Training. The DB shall provide a Worker Environmental Awareness Training (WEAT) to all employees, representatives, agents, contractors, and subcontractors, including truck drivers and vendors, on the terms and conditions of this Agreement prior to starting work under the Agreement. The DB shall provide interpretation for non-English speaking workers, and the same instruction shall be provided to any new workers before they are authorized to perform work in the Project site. Upon completion of the WEAT, employees shall sign a sign-in sheet stating they attended the program and

understand all protection measures. The WEAT shall be repeated at least once annually until this Agreement expires. The WEAT shall not be presented as a prerecorded presentation. **Permittee shall provide a copy of the WEAT presentation materials and a trainee sign-in sheet to CDFW via email prior to initiation of any Project activities.**

2.4 Nesting Bird Protection. The permittee shall comply with the following:

2.4.1 Nesting Bird Plan. **No less than 30 calendar days prior to initiation of any Project activities, Permittee shall submit to CDFW via email a Nesting Bird Plan (NBP) for review** that includes Project specific avoidance and minimization measures, including active nesting bird monitoring protocols, to ensure that impacts to nesting birds do not occur and that the Project complies with all applicable laws related to nesting birds and birds of prey. The NBP measures shall at a minimum include: 1) Project phasing and timing; 2) Nesting Bird Pre-Activity Surveys **(Measure 2.4.2)** timing and duration; 3) ESA fencing of an appropriately sized work exclusion zone around active nests; 4) monitoring of Project-related noise and all established buffers 5) the creation, maintenance, and **weekly submittal via email to CDFW of a nesting-bird logbook every Friday during construction in areas subject to Fish and Game Code section 1602**; 6) monitoring of active nests by an DB experienced in the behavior of the nesting bird until the DB determines the young have fledged; and 7) shutting down of Project activities by the DB if the nesting bird exhibits agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest.

2.4.2 Nesting Bird Pre-Activity Surveys. Nesting birds and raptors are protected under Fish and Game Code Sections 3503, 3503.5, and 3513 and the Federal Migratory Bird Treaty Act. Permittee may not perform Project activities that will disturb woody vegetation or the ground from February 15 to September 31 where nesting birds could be adversely affected unless an DB surveys the entirety of the Project site and the buffer zone specified in the approved NBP for both diurnal and nocturnal nesting birds and determines no nesting birds are present. Surveys shall be conducted 14-21 days prior to and again no more than 24 hours prior to commencing any Project activities, shall be conducted at the appropriate time(s) of day, shall include surveys of nesting bird habitat adjacent to the Project site (upland and riparian) including bridges, culverts, and overhangs, and shall identify and map for avoidance any nesting birds and their active nests. **Documentation of surveys and findings shall be submitted to CDFW via email prior to initiation of any Project activities and in the Annual Report (Measure 4.1)**. If an active bird nest is located, the DB shall immediately (within 24 hours) notify CDFW and shall implement and monitor specific avoidance and minimization measures as specified in the CDFW-

approved NBP **(Measure 2.4.1).**

2.5 Wildlife and Special-Status Species Pre-Activity Surveys. The DB shall survey the Project site for wildlife and special-status species, and any habitat, dens, burrows, nests, etc. capable of supporting wildlife and/or a special-status species 14-21 days prior to and again no more than 24 hours prior to initiating Project activities. The DB shall ensure that the methods used to locate, identify, map, avoid, and buffer individuals or habitat are appropriate and effective, including the surveyors attaining 100% visual coverage of the entirety of the potential impact areas, including all areas not previously surveyed, and an appropriate buffer surrounding those areas. **Results of the surveys shall be submitted to CDFW via email prior to initiation of any Project activities and in the Annual Report (Measure 4.1)**. Special-status species that could occur in or around the Project site include but are not limited to: Owen's valley checkerbloom, Townsend's big-eared bat, Swainson's hawk, southwestern willow flycatcher, northern harrier, and golden eagle. **If any special-status species (or sign of presence) is identified within or adjacent to the Project site, Permittee shall immediately (within 24 hours) notify and submit via email to CDFW, species-specific avoidance, minimization and mitigation measures.** If full avoidance cannot be accomplished, Permittee shall postpone the Project, and contact CDFW to discuss an appropriate path forward.

2.6 Bat Protection - Bridges. Prior to work commencing at any bridge-including removal of the existing damaged bridge-, the bridge shall be surveyed for bats by the DB. If bats are found on the bridge, operations shall cease. **Bats shall not be disturbed without specific notice to and consultation with CDFW**. CDFW reserves the right to provide additional provisions to this Agreement designed to protect nesting/roosting bats. Impact minimization measures shall be implemented prior to beginning Project activities, including removal of the existing damaged bridge. If bats are found on the bridge, the new bridge design shall incorporate a CDFW approved design for bat habitat.

2.7 Delineate Work Area Boundary. In consultation with the DB, Permittee shall clearly delineate the outer perimeter of the work areas and access routes with appropriate fencing, signage, and/or flagging to prevent damage to adjacent habitats. The delineation materials shall be in place during all periods of operation and all persons employed or otherwise working on the Project site shall be instructed about the restrictions. DB shall monitor the delineation materials daily, and shall ensure that they are maintained, repaired, or replaced immediately if the materials are damaged, lost, stolen, or become ineffective in any way. The DB shall ensure the delineation materials do not create a barrier to wildlife movement and will not pose a risk to wildlife safety.

2.8 No Work in Flowing Water. Work within Fish and Game Code section 1602 resources shall be restricted to periods of no stream flow except for CDFW approved water diversions.

2.9 Temporary Stream Diversion. To facilitate construction activities covered under this Agreement, flows shall be diverted and bypasses around work areas identified in this Agreement when necessary to safely and efficiently complete Project Activities. The Permittee shall comply with the following measures to protect aquatic life.

2.9.1 Diversion Plan. **No less than 30 calendar days prior to initiation of any Project activities, Permittee shall submit to CDFW via email a final diversion plan for review and approval.**

2.9.2 Maintain Water Quality. Permittee shall divert flow in a manner that prevents turbidity, siltation, or pollution, and provides uninterrupted flows to downstream reaches. Flows to reaches below the construction area shall be provided during all times that the natural flow would have supported aquatic life, without diminution of quality and quantity, including the use of energy dissipators (i.e., placement of rocks at the diversion system inlet and outlet), to support fish and other aquatic life below the diversion. Bypassed flow shall be of sufficient quality and quantity, and of appropriate temperature to support fish and other aquatic life both above and below the diversion (Fish & G. Code § 5937 and 5946). Temporary diversion structures shall be removed to restore flow to the affected stream reach immediately upon completion of work in the channel.

2.9.3 Stranded Aquatic Life. Prior to diverting waterways, the DB shall use hand tools (*e.g.* rake) to remove and check submerged aquatic vegetation for stranded aquatic life from the area that will be dewatered. The DB shall check for stranded aquatic life as the water level in the dewatered area drops and in the settling basin. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas and the settling basin. Capture methods may include backpack electrofishing, fish landing nets, dip nets, buckets and by hand. Captured aquatic life shall be released in the creek immediately downstream of the water diversion outlet. **A summary of any such activities, including species and number of aquatic life rescued, shall be submitted to CDFW weekly on Fridays as part of the weekly construction monitoring log** and as described in **Measure 2.1.**

2.10 Limited Ingress/Egress. Permittee shall make every effort to access all work areas using existing ingress/egress routes. If alternative ingress/egress routes are required, Permittee shall submit the alternate route prior to construction activities for CDFW approval, if the new access route includes activities subject to Fish and Game Code section 1602.

2.11 Pollution and Litter. Permittee shall comply with all litter and pollution laws, including Fish and Game Code section 5650. All contractors, subcontractors, and

employees shall also obey these laws and it shall be the responsibility of Permittee to ensure compliance.

2.11.1 Permittee shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter areas subject to Fish and Game Code section 1602 or be placed in locations that may be subjected to high storm flows.

2.11.2 Spoil sites shall not be located within areas subject to Fish and Game Code section 1602 or locations that may be subjected to high storm flows, where spoil could be washed back into areas subject to Fish and Game Code section 1602 where it will impact streambed habitat and aquatic or riparian vegetation.

2.11.3 Raw cement/concrete or washings thereof, asphalt, paint, or other coating material, oil or other petroleum products, or any other substances which could be hazardous to fish and wildlife resources resulting from Project related activities shall be prevented from contaminating the soil and/or entering areas subject to Fish and Game Code section 1602. These materials, placed within or where they may enter a lake, streambed, or flowing stream by Permittee or any party working under contract or with the permission of Permittee, shall be removed immediately.

2.11.4 No broken concrete, cement, debris, soil, silt, sand, bark, slash, sawdust, trash, or washings thereof, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into areas subject to Fish and Game Code section 1602. When operations are completed, any excess materials or debris shall be removed from the work area. None of these materials shall be deposited within one hundred and fifty (150) feet of areas subject to Fish and Game Code section 1602.

2.12 Waste Collection and Disposal. Permittee shall pick up and contain in a closed container all debris and waste generated by the Project daily at the Project site. Collected waste and debris shall be disposed of off-site. Upon completion of Project activities, Permittee shall remove from the Project site and properly dispose of all temporary fill and construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.

2.13 Staging Areas: All Project-related parking areas, storage areas, laydown sites, equipment storage, burrow sites shall not be located within one hundred and fifty (150) feet of areas subject to Fish and Game Code section and, to the extent possible, shall use previously disturbed areas.

2.14 Equipment and Vehicles. Permittee shall comply with the following:

2.14.1 Any equipment or vehicles driven and/or operated while conducting a Project activity shall be checked daily and maintained as needed to prevent leaks of materials that could be deleterious to aquatic and terrestrial life or riparian habitat. Prior to working within a stream bed, bank, or channel, all equipment shall be closely examined for oil and fuel discharges. Any contaminants shall be cleaned prior to any work within a streambed. In addition, equipment being moved between watersheds (i.e., equipment used in a previous Project at a different watershed) shall be cleaned by Permittee to ensure non-native invasive species are not introduced or spread throughout waterways.

2.14.2 All heavy equipment that will conduct a Project activity shall be cleaned by Permittee at a staging or maintenance area prior to entry into areas subject to Fish and Game Code section 1602 to prevent discharge of materials deleterious to aquatic life including oil, grease, hydraulic fluid, soil and other debris.

2.14.3 No equipment maintenance or fueling shall be done within 150 feet of areas subject to Fish and Game Code section 1602 where petroleum products or other pollutants from the equipment could enter these areas.

2.14.4 Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be located 150 feet outside of areas subject to Fish and Game Code section 1602 where material could wash into a stream.

2.14.5 All equipment shall carry suitable spill containment equipment to handle a catastrophic spill/leak. This may include oil absorbent pads, booms, or skimmers, as appropriate.

2.14.6 Permittee shall begin the cleanup of all spills immediately. Permittee shall notify CDFW immediately (within 24 hours) of any spills that occur because of activities covered under this Agreement and shall consult with CDFW regarding cleanup procedures. Permittee shall have all spill clean-up equipment on site during construction.

2.15 Check for Wildlife in Pipes and Construction Materials: The DB shall visually check every culvert, pipe, and other construction materials for the presence of wildlife sheltering within them prior to the start of Project activities and prior to pipe or culverts being placed in a trench.

2.16 Escape Ramps. The DB shall visually check all open trenches and other construction materials daily for the presence of wildlife sheltering within them. All trenches and open pits shall be covered at the end of each workday to prevent wildlife from entering. If wildlife is encountered in open trenches or pits, DB shall

place an escape ramp at each end of the open trench or pit to allow any animals that may have become entrapped to climb out. The ramp may be constructed of dirt, fill, wood planking or other suitable material that is placed at an angle no greater than 30 degrees.

2.17 Native Vegetation Removal. Permittee shall not disturb or remove vegetation along waterways in excess of what is authorized under this Agreement. If additional removal or disturbance of vegetation is required, Permittee shall obtain approval from CDFW prior to vegetation removal. Precautions shall be taken to avoid damage to non-target vegetation by people or equipment. Where appropriate, roots and stumps may be left to facilitate regrowth.

2.18 Restoration of Original Gradient. If the gradient of any area subject to Fish and Game Code section 1602 is altered during work activities, Permittee shall return its contours as close as possible to pre-project conditions. Pre-project condition shall be defined by engineered plans established prior to commencement of Project activities. Permittee shall be liable for restoration of contours to pre-project conditions if subsequent erosion is caused by the work conducted.

2.19 Best Management Practices (BMPs). Permittee shall implement BMPs that will successfully prevent erosion and the discharge of sediment and pollutants into Pine Creek during Project activities. BMPs shall be monitored daily by the DB and repaired or replaced immediately if necessary, to ensure maximum erosion, sediment, and pollution control. If a type of BMP is found to not fully protect areas subject to Fish and Game Code section 1602 from erosion, sedimentation and pollution, the DB, in consultation with CDFW shall select a new type of BMP to ensure all areas subject to Fish and Game Code section 1602 are fully protected. Permittee shall prohibit the use of erosion control materials potentially harmful to fish and wildlife species, such as welded-weave mono-filament netting (erosion control matting) or similar material, within and adjacent to areas subject to Fish and Game Code section 1602. All fiber rolls, straw wattles, and/or hay bales utilized within and adjacent to the Project site shall be certified free of nonnative plant materials. Fiber rolls or erosion control mesh shall be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute, or coconut (coir) fiber, or other products without welded weaves. Non-welded weaves reduce entanglement risks to wildlife by allowing animals to push through the weave, which expands when spread.

2.20 Invasive Species Prevention. Permittee shall conduct Project activities in a manner that prevents the introduction, transfer, and spread of invasive species, including plants, animals, and microbes (e.g., algae, fungi, parasites, bacteria, etc.) from one Project site and/or waterbody to another (Fish & G. code § 702 & 2300). Prevention BMPs and guidelines for invasive plants can be found on the California Invasive Plant Council's website at: **http://www.cal-ipc.org/ip/prevention/index.php** and for invasive mussels and aquatic species

can be found at the stop Aquatic Hitchhikers websites: **http://www.protectyourwaters.net/.**

3. Compensatory Measures

To compensate for adverse impacts to fish and wildlife resources identified above that cannot be avoided or minimized, Permittee shall implement each measure listed below.

3.1 Habitat Mitigation and Monitoring Plan. The Permittee shall be responsible for restoring any fish and wildlife resources that are damaged or impaired as a direct or indirect result of performing activities permitted under this Agreement or as a result of the Permittees failure to comply with the terms and conditions of this Agreement. Impacts to the riparian vegetation corridor along areas subject to Fish and Game Code section 1602 will require mitigation in the form of on-site mitigation planting, plant establishment and mitigation monitoring and reporting. **No less than 60 days prior to the initiation of any Project activities, the Permittee shall submit to CDFW for review and approval a Habitat Mitigation and Monitoring Plan (HMMP)** designed to restore fish and wildlife resources that are damaged or impaired as a direct or indirect result of performing activities permitted under this Agreement. At a minimum the HMMP shall include the following information: (a) restoration activities, including those identified in Measure 3.2; (b) a description of the existing physical conditions of each mitigation site; (c) a map that identifies the location of the mitigation sites; (d) a plan for the preparation of each mitigation site; (e) a list of all native plants in any proposed revegetation seed mix(s); (f) a location map of where willow planting will occur; (g) the procedures to ensure that nonnative plants are controlled and removed within the mitigation site; and (h) success criteria for seed mix and tree planting mitigation determined using baseline quantitative vegetation data (species distribution, composition and cover). The CDFW-approved HMMP shall be implemented in the time frame identified in the HMMP.

3.2 Protection of Riparian Trees. All native trees removed with a DBH equal to or greater than 4-inches shall require mitigation. Where native trees or woody riparian vegetation split into several trunks close to ground level, the DBH shall be measured for each trunk and calculated as one tree. Permittee shall mitigate for adverse impacts to native tree species greater than 4-inches DBH by planting a replacement-to-impact minimum ratio of 3:1. If native trees greater or equal to 12-inches DBH are removed, they shall be replaced by native tree species planted at a 10:1 minimum ratio. Removal of approximately 10 willows shall be mitigated at a 3:1 ratio by planting locally sourced, one-gallon willow seedlings.

4. Reporting Measures

Permittee shall meet each reporting requirement described below.

4.1 Annual Report. **By December 31 during years that the Project is under construction, the Permittee shall submit an Annual Report (AR) to CDFW that**

includes but is not limited to: (1) a summary of Project activities completed during the calendar year; (2) results from any biological surveys including photos; (3) a summary of Project impacts to Fish and Game Code section 1602 resources; (4) any re-contouring that occurred; (5) a summary of any oil spills that occurred; (6) a list of plant and wildlife species that were observed during monitoring; (7) a list of sensitive species encountered; (7) before and after construction photos; (8) results of stranded aquatic life rescue; (9) a copy of the nesting bird logbook, (10) all weekly construction monitoring logs, (11) final tree removal numbers by species and DBH; and (12) a summary of minimization and avoidance measures that were implemented. The first AR is due to CDFW at the end of the calendar year for each year in which construction occurred. The AR shall be sent via email to CDFW.

4.2 Annual Mitigation Monitoring Report. **An Annual Mitigation Monitoring Report (AMMR) shall be submitted to CDFW by December 31 of each calendar year following the completion of mitigation activities, or until CDFW determines mitigation plantings on the mitigation sites have met the success criteria required under this Agreement as described in the HMMP**. At a minimum, the AMMR shall include the following information: (1) a description of the replanting establishment and any other restoration efforts conducted during the previous year, including: (a) an overview of the planting effort including size, type and number of species planted; (b) a re-planting map; (c) the number by species of plants naturally recruited; and (d) when the activities were conducted; (2) current site conditions, including: (a) the percent survival, percent cover, and height of both tree and shrub species; and (b) the methods used to assess these parameters; (3) a list of wildlife species observed at the mitigation site during monitoring surveys including sensitive species and/or listed species; and (4) photos from designated photo stations. The first AMMR is due to CDFW the end of the calendar year in which mitigation planting was undertaken**.** This report shall be sent via email to CDFW.

4.3 CNDDB Reporting. If any sensitive species are observed on or in proximity to the Project site, Permittee shall submit California Natural Diversity Data Base (CNDDB) forms and maps to the CNDDB within five (5) working days of the sightings, and provide the regional CDFW office with copies of the CNDDB forms and survey maps. The CNDDB form is available online at: www.dfg.ca.gov/whdab/pdfs/natspec.pdf. This information shall be mailed within five (5) days to: California Department of Fish and Wildlife, Natural Diversity Data Base, 1807 13th Street, Suite 202, Sacramento, CA 95814, Phone (916) 324-3812. A copy of this information shall also be mailed within five (5) days to the Department of Fish and Wildlife Region 6, 787 North Main Street, Suite 220, Bishop, CA 93514 Attn: Alyssa Marquez. **Please reference SAA # 1600-2020-0055-R6.**

4.4 Construction Notification. The Permittee shall notify CDFW in writing at least five (5) days prior to the commencement and five (5) days after the completion of Project activities in Fish and Game Code section 1602 resources. The notification

shall be sent to CDFW Inland Deserts Region at the address below under Contact Information. **Please reference SAA # 1600-2020-0055-R6** and send via email to CDFW.

Reporting Table		
Measures	**Submittal**	**Timeline**
2.1	Designated Biologist (Approval)	No less than 30 calendar days prior to initiation of any Project activities
2.1	Designated Biologist (Construction Monitoring Logs)	Weekly submittal every Friday during construction in areas subject to Fish and Game Code section 1602
2.3	Worker Environmental Awareness Training (WEAT)	Prior to initiation of any Project activities
2.4.1	Nesting Bird Plan	No less than 30 calendar days prior to initiation of any Project activities
2.4.1	Nesting-Bird Log-Book	Weekly submittal every Friday during construction in areas subject to Fish and Game Code section 1602.
2.4.2	Nesting Bird Pre-activity Survey	Submit prior to initiation of any Project activities and with Annual Report (4.1)
2.5	Wildlife and Special-Status Species Pre-Activity Surveys	Notify CDFW within 24 hrs. of special-status species identification within or near the Project site and submit with Annual Report (4.1)
2.6	Bat Protection - Bridges	Bats shall not be disturbed without specific notice to and consultation with CDFW
2.9.1	Diversion Plan	No less than 30 calendar days prior to initiation of any Project activities
2.9.3	Stranded Aquatic Life	Weekly submittal on Fridays as part of the weekly construction monitoring log during construction in areas subject to Fish and Game Code section 1602. (2.1) and with the Annual Report (4.1)
3.1	Habitat Mitigation and Monitoring Plan	No less than 60 calendar days prior to initiation of any Project activities
4.1	Annual Report	By December 31 each year the Project is under construction
4.2	Annual Mitigation Monitoring Report	By December 31 of each calendar year following the completion of mitigation activities
4.3	CNDDB Reporting	Within 5 working days of sensitive species sightings

4.4	Construction Notification	No less than 5 days prior to the commencement and 5 days after the completion of Project activities in areas subject to Fish and Game Code section 1602

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail or email, or to such other address as Permittee or CDFW specifies by written notice to the other.

To Permittee:

Ashley Helms
Inyo County Public Works Department
168 North Edwards Street, P.O. Drawer Q
Independence, CA 93526
ahelms@inyocounty.us

To CDFW:

California Department of Fish and Wildlife
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
Attn: Lake and Streambed Alteration Program – Alyssa Marquez
Notification #1600-2020-0055-R6
Alyssa.Marquez@Wildlife.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the Project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the Project. The decision to proceed with the Project is Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees,

representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with, or obtaining any other permits or authorizations that might be required under, other federal, state, or local laws or regulations before beginning the Project or an activity related to it. For example, if the Project causes take of a species listed as threatened or endangered under the Endangered Species Act (ESA), such take will be unlawful under the ESA absent a permit or other form of authorization from the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the Fish and Game Code including, but not limited to, Fish and Game Code sections 2050 *et seq*. (threatened and endangered species), section 3503 (bird nests and eggs), section 3503.5 (birds of prey), section 5650 (water pollution), section 5652 (refuse disposal into water), section 5901 (fish passage), section 5937 (sufficient water for fish), and section 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). Submit the form and fee to the CDFW regional office that serves the area where the Project is located.

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). Submit the form and fee to the CDFW regional office that serves the area where the Project is located.

EXTENSIONS

In accordance with Fish and Game Code section 1605, subdivision (b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with Fish and Game Code section 1605, subdivisions (b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the Project the Agreement covers (Fish & G. Code § 1605, subd. (f)). Submit the form and fee to the CDFW regional office that serves the area where the Project is located.

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable Fish and Game Code section 711.4 filing fee listed at https://www.wildlife.ca.gov/Conservation/CEQA/Fees.

TERM

This Agreement shall expire on June 22, 2025 unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as Fish and Game Code section 1605, subdivision (a)(2) requires.

EXHIBITS

The documents listed below are included as exhibits to the Agreement and incorporated herein by reference.

Exhibit A: Project Site Map

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the Project described herein. If Permittee begins or completes a Project different from the Project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with Fish and Game Code section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR CALIFORNIA DEPARTMENT OF TRANSPORTATION

Ashley Helms

Date

Associate Engineer

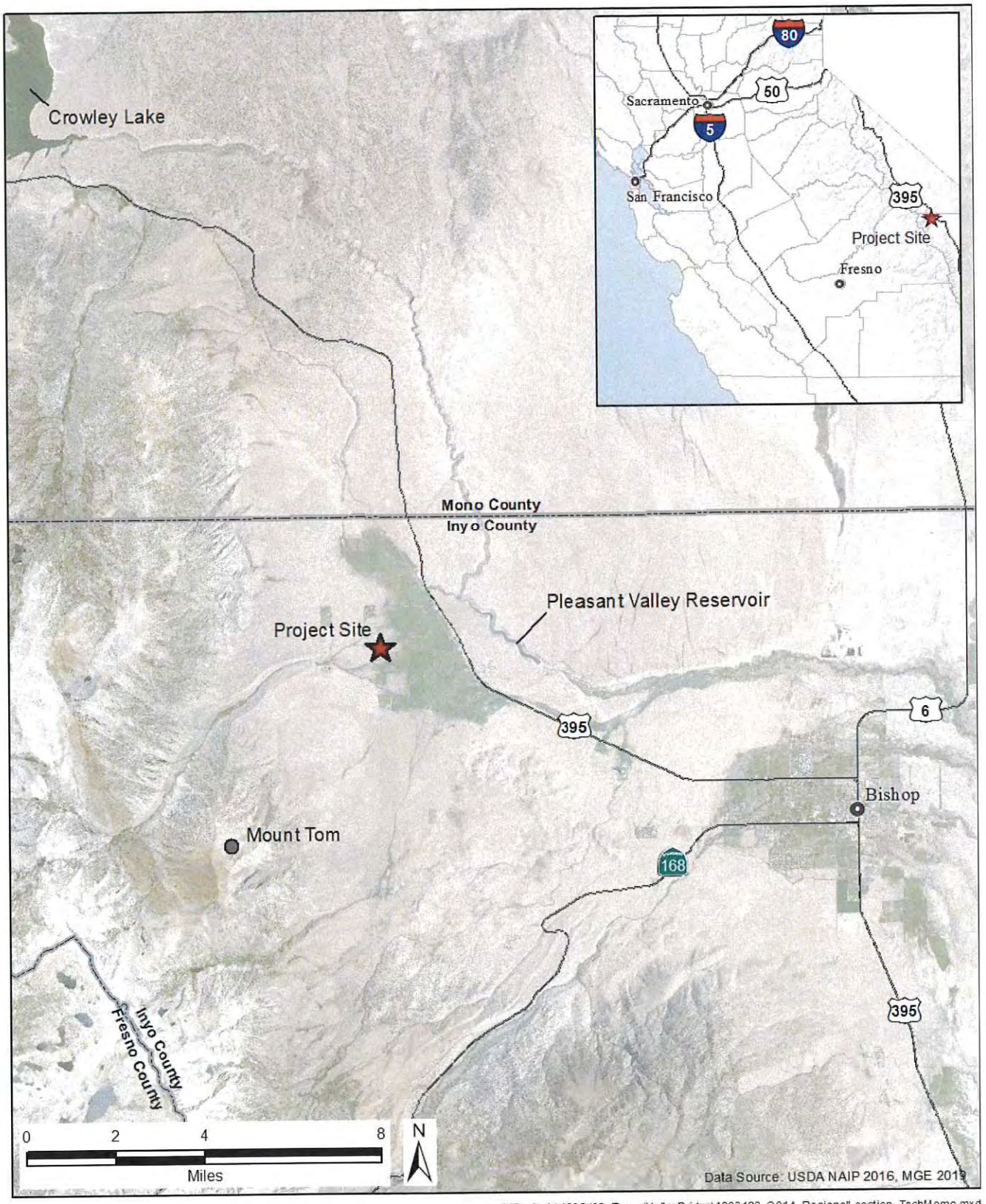
FOR DEPARTMENT OF FISH AND WILDLIFE

Scott Wilson
Environmental Program Manager

Date

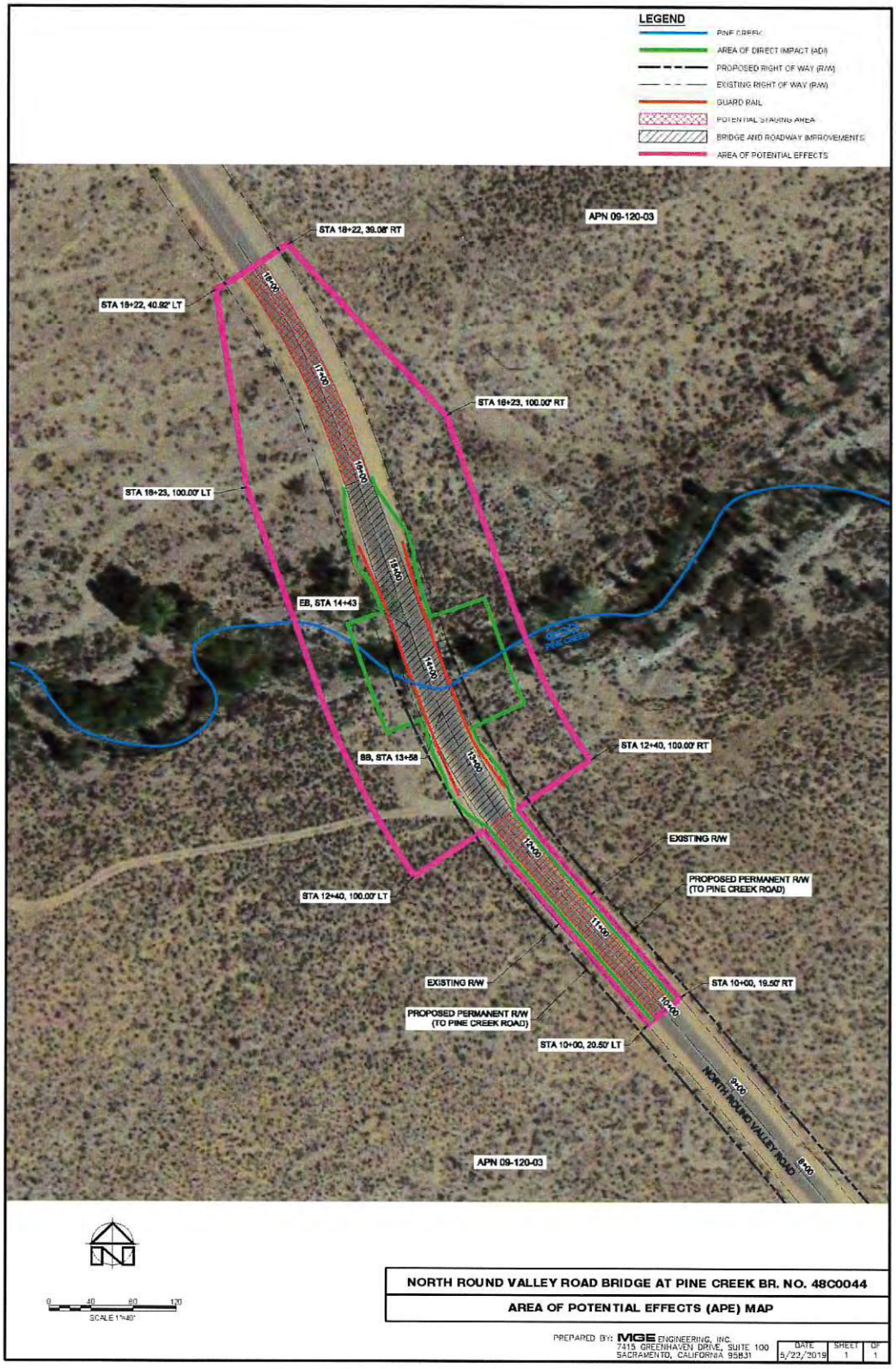
Prepared by: Alyssa Marquez
Environment Scientist

Figure A-1. Regional Location and Topographic Map



Z:\Projects\1803488_RoundValleyBridge\1803488_G014_RegionalLocation_TechMemo.mxd
26FEB2018 BMC

Figure A-2. Site Location Map



Section 6

U.S. Army Corps of Engineers Nationwide Permits 14 & 33

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT
60 S CALIFORNIA STREET, SUITE 201
VENTURA, CA 93001-2598

September 21, 2020

SUBJECT: Nationwide Permit (NWP) Verification

Ashely Helms
Inyo County Public Works Department
168 North Edwards Street P.O. Drawer Q
Independence, California 93526

Dear Ms. Helms:

I am responding to your request (SPL-2020-00271-EBR) for a Department of the Army permit for your proposed project, North Round Valley Road Bridge Replacement. The proposed project is located within the city of Independence, Inyo County, California (lat.: 37.4213, long.: -118.5884).

Because this project would result in a discharge of fill material into waters of the U.S., a Department of the Army permit is required pursuant to Section 404 of the Clean Water Act (33 USC 1344; 33 CFR parts 323 and 330).

I have determined construction of your proposed project, if constructed as described in your application, would comply with NWP 14 Linear Transportation Projects. Specifically, and as shown in the enclosed figure, you are authorized to permanently impact 0.03 acres and temporarily impact 0.02 acres, in order to replace the North Round Valley Road Bridge with a new structure.

For this NWP verification letter to be valid, you must comply with all of the terms and conditions in Enclosure 1. Furthermore, you must comply with the non-discretionary Special Conditions listed below:

1. Within 45 calendar days of completion of authorized work in waters of the U.S., the Permittee shall submit to the Corps Regulatory Division a post-project implementation memorandum including the following information:
   A) Date(s) work within waters of the U.S. was initiated and completed;
   B) Summary of compliance status with each special condition of this permit (including any noncompliance that previously occurred or is currently occurring and corrective actions taken or proposed to achieve compliance);
   C) Color photographs (including map of photopoints) taken at the project site before and after construction for those aspects directly associated with permanent impacts to waters of the U.S. such that the extent of authorized fills can be verified;

D) One copy of "as built" drawings for the entire project. Electronic submittal (Adobe PDF format) is preferred. All sheets must be signed, dated, and to-scale. If submitting paper copies, sheets must be no larger than 11 x 17 inches; and
E) Signed Certification of Compliance (attached as part of this permit package).

2. Pursuant to 36 C.F.R. section 800.13, in the event of any discoveries during construction within waters within the Corps Permit Area (PM insert permit area/APE map) of either human remains, archaeological deposits, or any other type of historic property, the Permittee shall notify the Corps Regulatory Project Manager (insert PM at insert PM Phone number) and the Corps' Regulatory Archaeology Staff (Daniel Grijalva at 760-520-4736) within 24 hours. The Permittee shall immediately suspend all work in any area(s) where potential cultural resources are discovered. The Permittee shall not resume construction in the area surrounding the potential cultural resources until the Corps Regulatory Division re-authorizes project construction, per 36 C.F.R. Section 800.13.

This verification is valid through March 18, 2022. If on March 18, 2022 you have commenced or are under contract to commence the permitted activity you will have an additional twelve (12) months to complete the activity under the present NWP terms and conditions. However, if I discover noncompliance or unauthorized activities associated with the permitted activity I may request the use of discretionary authority in accordance with procedures in 33 CFR part 330.4(e) and 33 CFR part 330.5(c) or (d) to modify, suspend, or revoke this specific verification at an earlier date. Additionally, at the national level the Chief of Engineers, any time prior to March 18, 2022, may choose to modify, suspend, or revoke the nationwide use of a NWP after following procedures set forth in 33 CFR part 330.5. It is incumbent upon you to comply with all of the terms and conditions of this NWP verification and to remain informed of any change to the NWPs.

A NWP does not grant any property rights or exclusive privileges. Additionally, it does not authorize any injury to the property, rights of others, nor does it authorize interference with any existing or proposed Federal project. Furthermore, it does not obviate the need to obtain other Federal, state, or local authorizations required by law.

Thank you for participating in the Regulatory Program. If you have any questions, please contact Emma Ross at (805) 585-2149 or via email at Emma.B.Ross@usace.army.mil. Please help me to evaluate and improve the regulatory experience for others by completing the customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Sincerely,

Crystal Huerta
Senior Project Manager
North Coast Branch
Regulatory Division

Enclosures

LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS

CERTIFICATE OF COMPLIANCE WITH DEPARTMENT OF THE ARMY NATIONWIDE PERMIT

Permit Number: *SPL-2020-00271-EBR*

Name of Permittee: *Inyo County Public Works Department; Ashely Helms*

Date of Issuance: *September 21, 2020*

Upon completion of the activity authorized by this permit and the mitigation required by this permit, sign this certificate, and return it by **ONE** of the following methods:

1) Email a digital scan of the signed certificate to
Emma.B.Ross@usace.army.mil

I hereby certify that the authorized work and any required compensatory mitigation has been completed in accordance with the NWP authorization, including all general, regional, or activity-specific conditions. Furthermore, if credits from a mitigation bank or in-lieu fee program were used to satisfy compensatory mitigation requirements I have attached the documentation required by 33 CFR 332.3(l)(3) to confirm that the appropriate number and resource type of credits have been secured.

_____ _____

Signature of Permittee Date

1803488_G017_TopoCultural
Topography
Round Valley Bridge Replacement
Inyo County, California

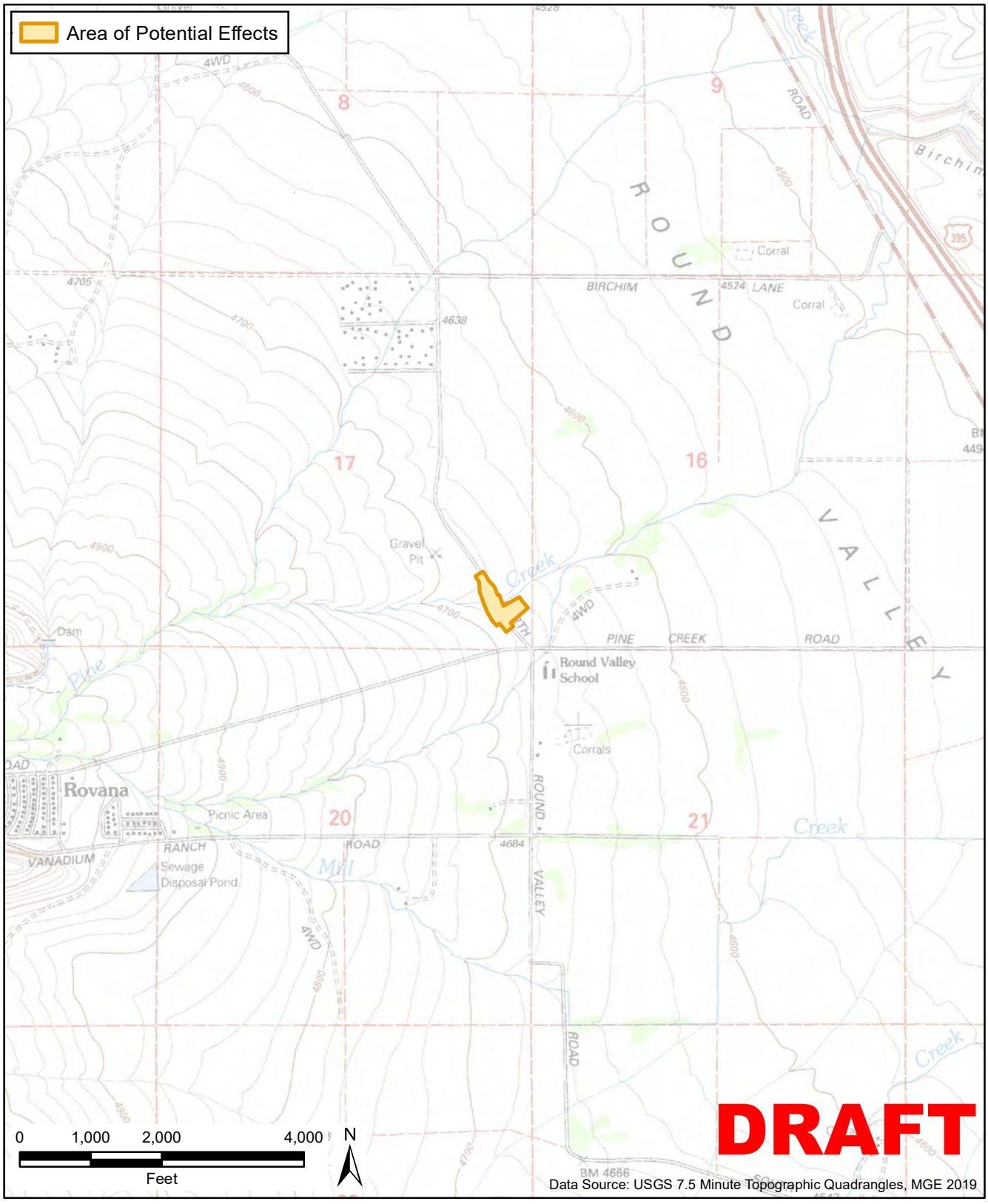


Figure Source: GEI Consultants, Inc. 2020.

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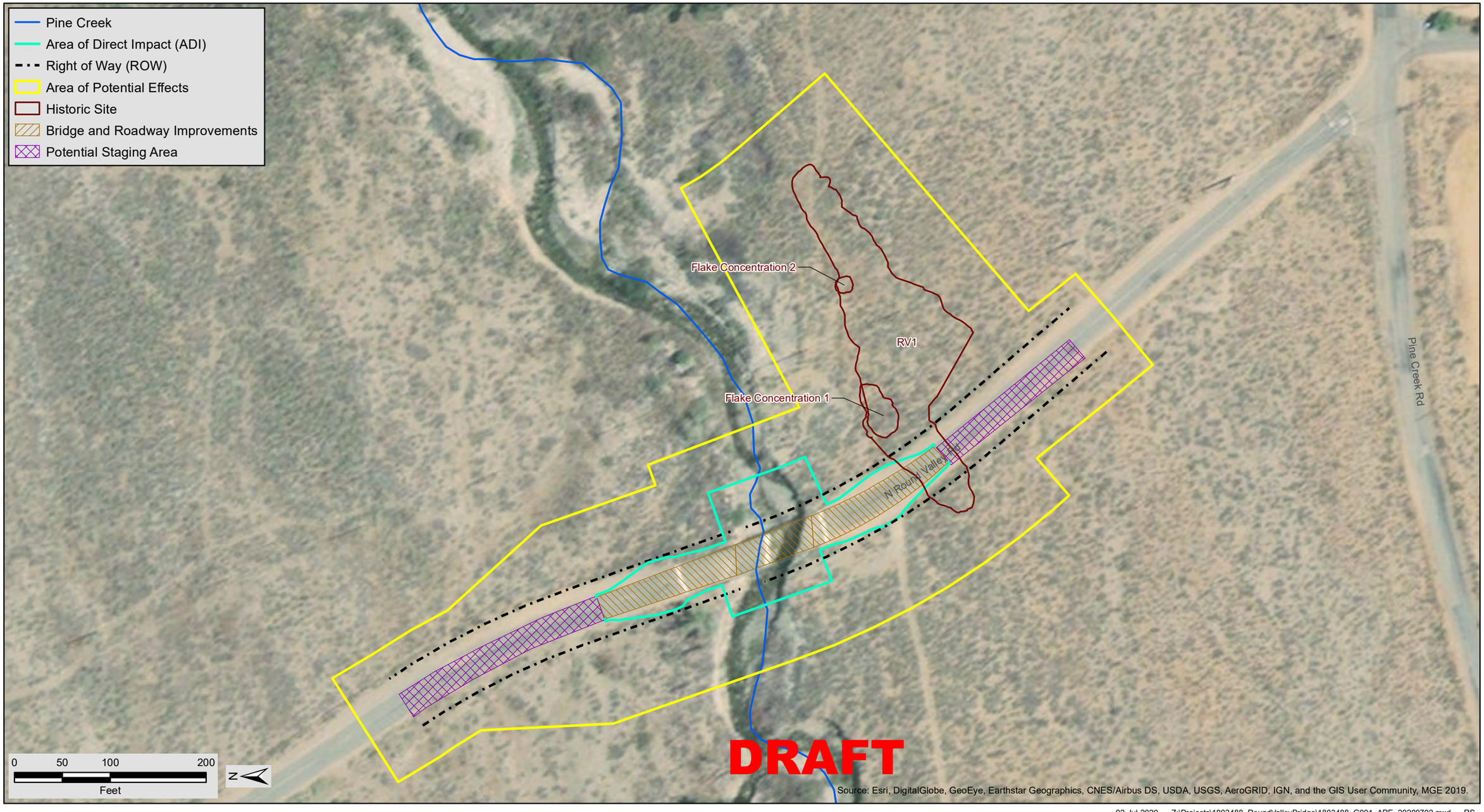
02-Jul-2020 RS

1803488_G001_APE
Area of Potential Effects Map
North Round Valley Road Bridge Replacement Project
Inyo County, California



02-Jul-2020 Z:\Projects\1803488_RoundValleyBridge\1803488_G001_APE_20200702.mxd RS

Figure Source: GEI Consultants, Inc. 2020.

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	1	33

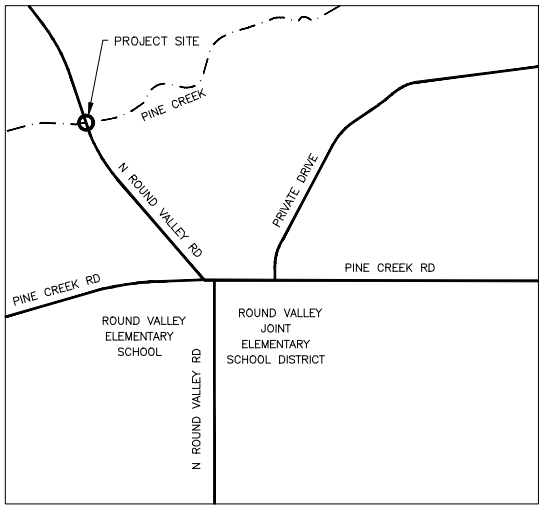
COUNTY OF INYO

DEPARTMENT OF PUBLIC WORKS

PROJECT PLANS FOR CONSTRUCTION OF NORTH ROUND VALLEY ROAD BRIDGE OVER PINE CREEK BRIDGE REPLACEMENT PROJECT

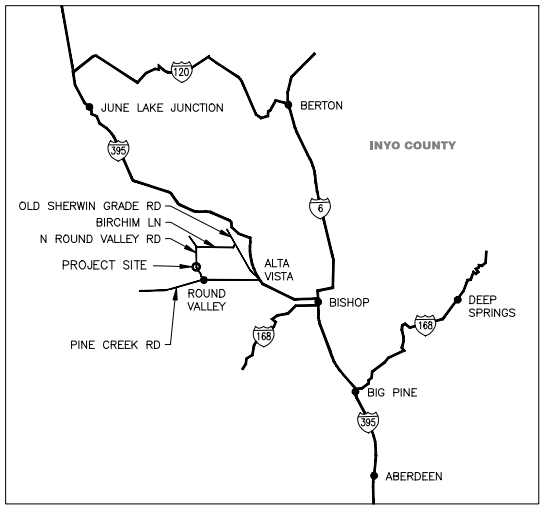
TO BE SUPPLEMENTED BY CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS & SPECIFICATIONS (INCLUDING ALL ISSUED AMENDMENTS) DATED 2018 AND THE MOST RECENT VERSION OF THE CALIFORNIA M.U.T.C.D.

THE CONTRACTOR SHALL POSSESS A CLASS A LICENSE AT THE TIME OF CONTRACT AWARD



VICINITY MAP

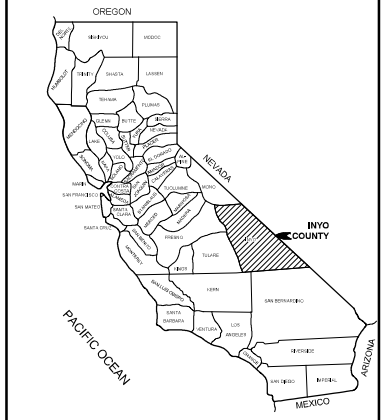
NO SCALE



SITE MAP

NO SCALE

SHEET INDEX



LOCATION MAP

NO SCALE

Michael Errante, P.E. Digitally signed by Michael Errante, P.E. Date: 2020.10.22 13:29:20 -07'00'

DIRECTOR OF PUBLIC WORKS

October 22, 2020

APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CLINT G. QUILLER C 57570 Exp. 12/31/21 CIVIL STATE OF CALIFORNIA

NOTE:
IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO WORK WITH THE LOCAL UTILITY COMPANIES TO LOCATE ALL UNDERGROUND UTILITY SERVICE LINES WITHIN THE PROJECT LIMITS PRIOR TO ANY EXCAVATION WORK. UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA (800) 642-2444.

CALL BEFORE YOU DIG 800-642-2444

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL
8/31/2020
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BRADLEY L. REICHERT C80306 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	DATE
J. HELM	8/31/2020
CHECKED	DATE
S. HAWKINS	8/31/2020
RECOMMENDED	DATE
R. SENNETT IV	8/31/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

TITLE SHEET

FED PROJ NO.: XXXX(XXX)

SHEET 1 OF 33 SHEETS

Drawing Name: P:\014 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Retrieved\1 Title Sheet.dwg
Last Opened: Aug 31, 2020 - 2:26pm by kkeating

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	2	33

ABBREVIATIONS

BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
BW	BARBED WIRE
CL	CENTERLINE
EX, (E)	EXISTING
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
LVC	LENGTH VERTICAL CURVE
(N)	NEW
PVI	POINT OF VERTICAL INTERSECTION
TC	TOP OF CURB
TG	TOP OF GRADE
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY

CALTRANS STANDARD PLANS - 2018

	A3A	ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 3)
	A3B	ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 3)
	A3C	ACRONYMS AND ABBREVIATIONS (SHEET 3 OF 3)
	A10A	LINES AND SYMBOLS (SHEET 1 OF 5)
	A10B	LINES AND SYMBOLS (SHEET 2 OF 5)
	A10C	LINES AND SYMBOLS (SHEET 3 OF 5)
	A10D	LINES AND SYMBOLS (SHEET 4 OF 5)
	A10E	LINES AND SYMBOLS (SHEET 5 OF 5)
	A20A	PAVEMENT MARKERS & TRAFFIC LINES - TYPICAL DETAILS
	A20B	PAVEMENT MARKERS & TRAFFIC LINES - TYPICAL DETAILS
	A62C	LIMITS OF PAVEMENT FOR EXCAVATION AND BACKFILL BRIDGE
	A73A	OBJECT MARKERS
RSP	A73B	MARKERS
	A77Q1	MIDWEST GUARDRAIL SYSTEM - TYPICAL LAYOUTS FOR STRUCTURE APPROACH
RSP	A77Q4	MIDWEST GUARDRAIL SYSTEM - TYPICAL LAYOUTS FOR STRUCTURE DEPARTURE
	A77U1	MIDWEST GUARDRAIL SYSTEM - CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS NO. 1
	A77U2	MIDWEST GUARDRAIL SYSTEM - CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS NO. 2
RSP	A77U4	MIDWEST GUARDRAIL SYSTEM - TRANSITION RAILING (TYPE WB-31)
	T56	TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLLS)
RSP	BO-1	BRIDGE DETAILS
	B0-13	BRIDGE DETAILS
	B6-21	JOINT SEALS (MAXIMUM MOVEMENT RATING=2")
	B7-5	DECK DRAINS

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

UTILITY NOTES:

LOCATIONS FOR EXISTING UNDERGROUND FACILITIES ARE APPROXIMATE. EXACT DEPTH AND LOCATIONS ARE UNKNOWN. FIELD LOCATE PRIOR TO THE START OF CONSTRUCTION.

**CALL UNDERGROUND SERVICE ALERT (USA) 811

LEGEND

RIGHT OF WAY

CENTERLINE OF ROADWAY

LIMITS OF GRADING

LIMITS OF RSP

ORIGINAL GROUND

180 PROPOSED CONTOUR

180 EXISTING CONTOUR

CP #101 SURVEY CONTROL POINTS

CALTRANS STANDARD PLAN SHEET NO.

DETAIL NO.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BRADLEY T. REICHEL C80306 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	3/17/2020
CHECKED	S. HAWKINS	3/17/2020
RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

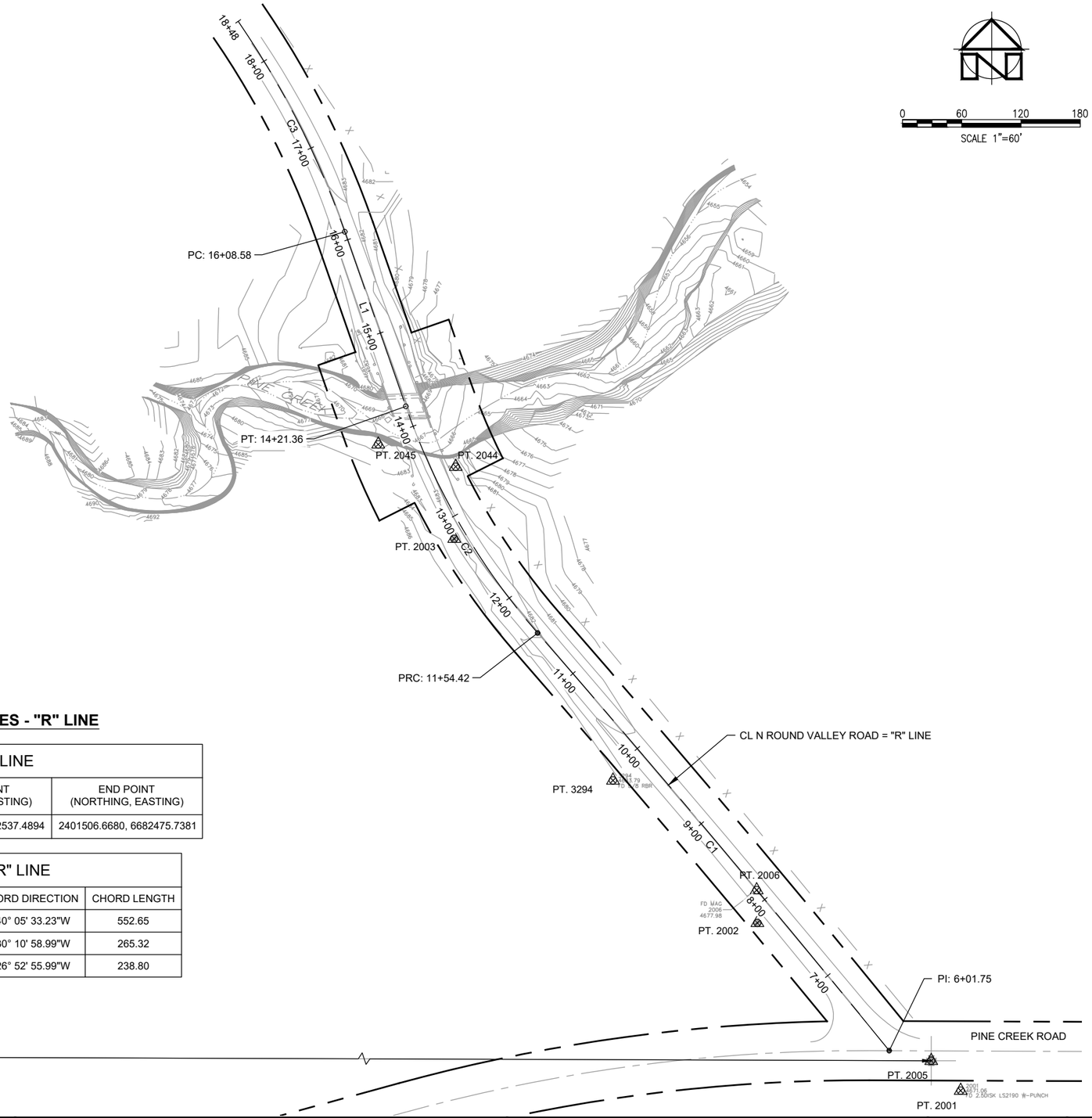
LEGEND AND ABBREVIATIONS

SHEET **2** 0F **33** SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plsheets\02 Legend & Abbrev.dwg
Last Opened: Mar 31, 2020 - 4:41pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	3	33



LEGEND

PT. # CONTROL POINT

TRACKING DATA:

PT. #2001 TO CP #2005: DISTANCE = 42.39', COURSE = N44°26'41"W
PT. #2005 TO CP #3317: DISTANCE = 2625.28', COURSE = N89°48'09"W
PT. #3317 TO CP #3294: DISTANCE = 2319.45', COURSE = N83°11'56"E
PT. #3294 TO CP #2006: DISTANCE = 182.97', COURSE = S52°39'40"E
PT. #2006 TO CP #2005: DISTANCE = 247.14', COURSE = S45°40'07"E

SURVEY NOTES:

BASIS OF BEARINGS: NAD83 CALIFORNIA COORDINATE SYSTEM ZONE 4 PER REFERENCED RECORD OF SURVEY NO. 04-005 FILED FOR RECORD APRIL 2, 2008 IN THE OFFICE OF RECORDER, INYO COUNTY, CALIFORNIA AS DOCUMENT NO. 2008-0001087.

COORDINATES AND MEASURED DISTANCES ARE AT GROUND USING A COMBINED SCALE FACTOR: 1.00020012 (PER REFERENCED RECORD OF SURVEY) WITH A SCALED BASE POINT OF 0,0.

NORTH 89°48'09" WEST, BEING THE NORTHEAST ONE-QUARTER (NE1/4) LINE OF SECTION 20, T.6S., R.31E., M.D.M. WAS MEASURED BETWEEN FOUND MONUMENTS AS SHOWN TO REPLICATE REFERENCED RECORD OF SURVEY NO. 04-005.

PRESERVATION OF SURVEY MONUMENTS

CONTRACTOR IS RESPONSIBLE FOR PRESERVATION AND/OR PERPETUATION OF ALL EXISTING MONUMENTS WHICH CONTROL SUBDIVISIONS, TRACTS, BOUNDARIES, STREETS, HIGHWAYS, OR OTHER RIGHT-OF-WAY EASEMENTS, OR PROVIDE SURVEY CONTROL WHICH WILL BE DISTURBED OR REMOVED DUE TO CONTRACTOR'S WORK. CONTRACTOR SHALL PROVIDE A MINIMUM OF 10 WORKING DAYS NOTICE TO BOTH THE CIVIL ENGINEER AND THE COUNTY'S RESIDENT ENGINEER PRIOR TO DISTURBANCE OR REMOVAL OF EXISTING MONUMENTS. THE CONTRACTOR'S CIVIL ENGINEER OR SURVEYOR IN RESPONSIBLE CHARGE OF THE WORK SHALL COORDINATE WITH CONTRACTOR TO RESET MONUMENTS OR PROVIDE PERMANENT WITNESS MONUMENTS AND FILE THE REQUIRED DOCUMENTATION WITH THE COUNTY SURVEYOR PURSUANT TO BUSINESS AND PROFESSIONS CODE SECTION 8771.

LINE AND CURVE TABLES - "R" LINE

LINE TABLE - "R" LINE				
LINE #	LENGTH	DIRECTION	START POINT (NORTHING, EASTING)	END POINT (NORTHING, EASTING)
L1	187.220	N19° 15' 30.99"W	2401329.9249, 6682537.4894	2401506.6680, 6682475.7381

CURVE TABLE - "R" LINE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C1	552.67'	15600.00'	2° 01' 50"	N40° 05' 33.23"W	552.65
C2	266.93'	700.00'	21° 51' 00"	N30° 10' 58.99"W	265.32
C3	239.50'	900.00'	15° 14' 50"	N26° 52' 55.99"W	238.80

CONTROL POINT TABLE DATA

POINT#	ELEVATION	NORTHING, EASTING	DESCRIPTION
PT. 2001	4671.06	2400637.38, 6683099.10	2.5" DISK
PT. 2002	4677.41	2400807.16, 6682893.32	1/2" REBAR
PT. 2003	4683.27	2401195.99, 6682586.49	MAG
PT. 2005	4672.60	2400667.65, 6683069.42	PKS
PT. 2006	4677.98	2400840.35, 6682892.64	MAG
PT. 2044	4681.52	2401268.92, 6682587.99	SET SPK
PT. 2045	4681.60	2401291.48, 6682509.56	SET SPK
PT. 3294	4683.79	2400951.32, 6682747.17	5/8" REBAR
PT. 3317	4802.24	2400667.65, 6680444.04	2" IP

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — BRADLEY T. REICHEL — C80306 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	J. HELM	3/17/2020
CHECKED	S. HAWKINS	3/17/2020
RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

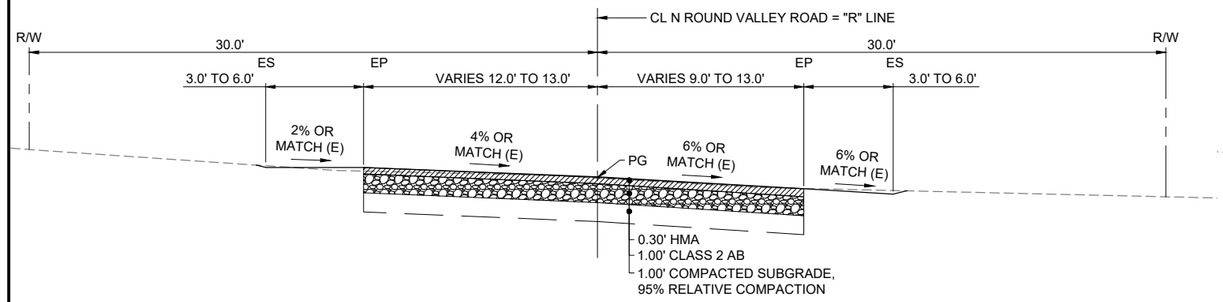
SURVEY CONTROL PLAN

SHEET 3 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

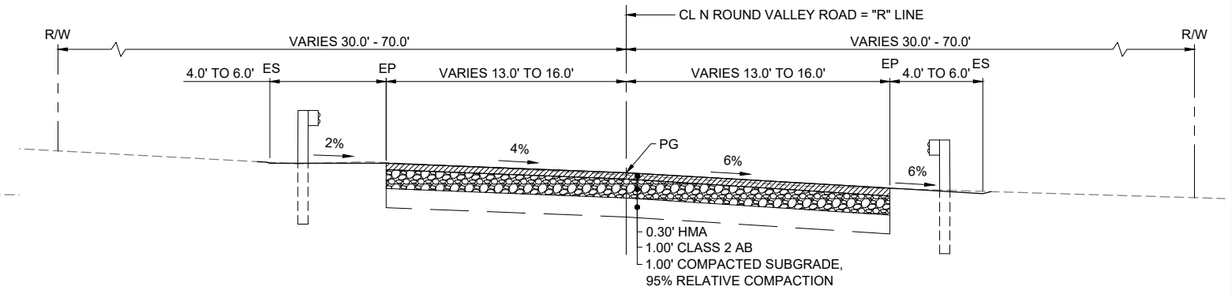
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Pltsheets\03 Survey Control.dwg
Last Opened: Mar 31, 2020 - 4:41pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	4	33



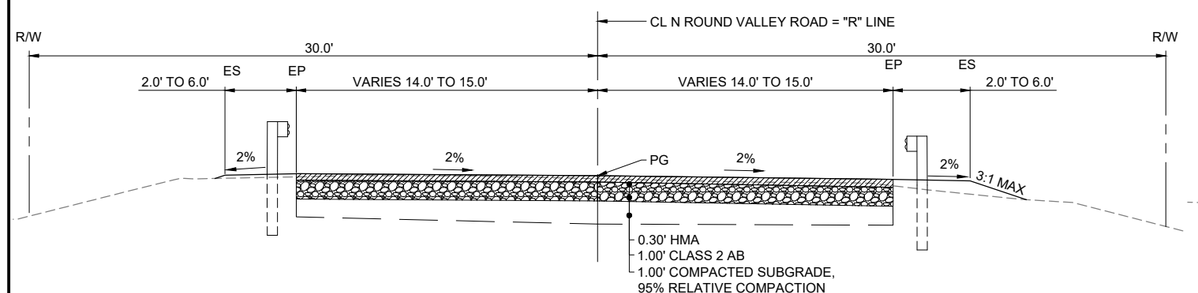
STA 12+40 TO STA 12+59 RT
STA 12+40 TO 12+74 LT

SCALE: 1" = 4'



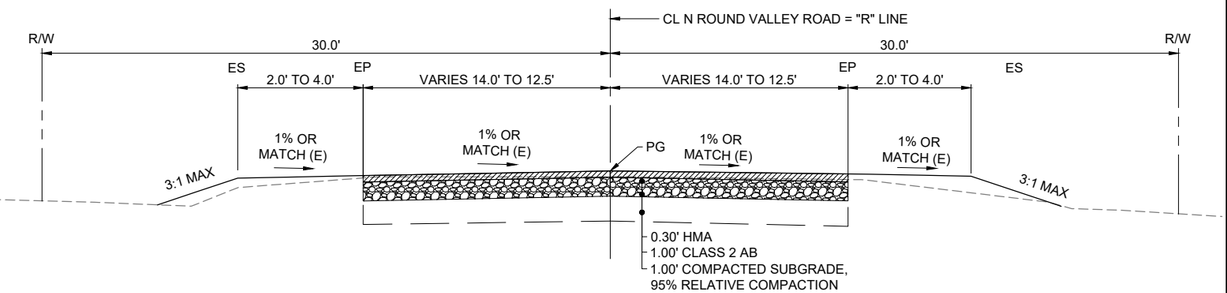
STA 12+59 TO STA 13+34 RT
STA 12+74 TO STA 13+46 LT

SCALE: 1" = 4'



STA 14+54 TO STA 15+29 RT
STA 14+65 TO STA 15+40 LT

SCALE: 1" = 4'



STA 15+29 TO STA 15+93 RT
STA 15+40 TO 15+93 LT

SCALE: 1" = 4'

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BRADLEY T. REICHEL C80306 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	J. HELM	DATE 3/17/2020
CHECKED	S. HAWKINS	DATE 3/17/2020
RECOMMENDED	R. SENNETT IV	DATE 3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

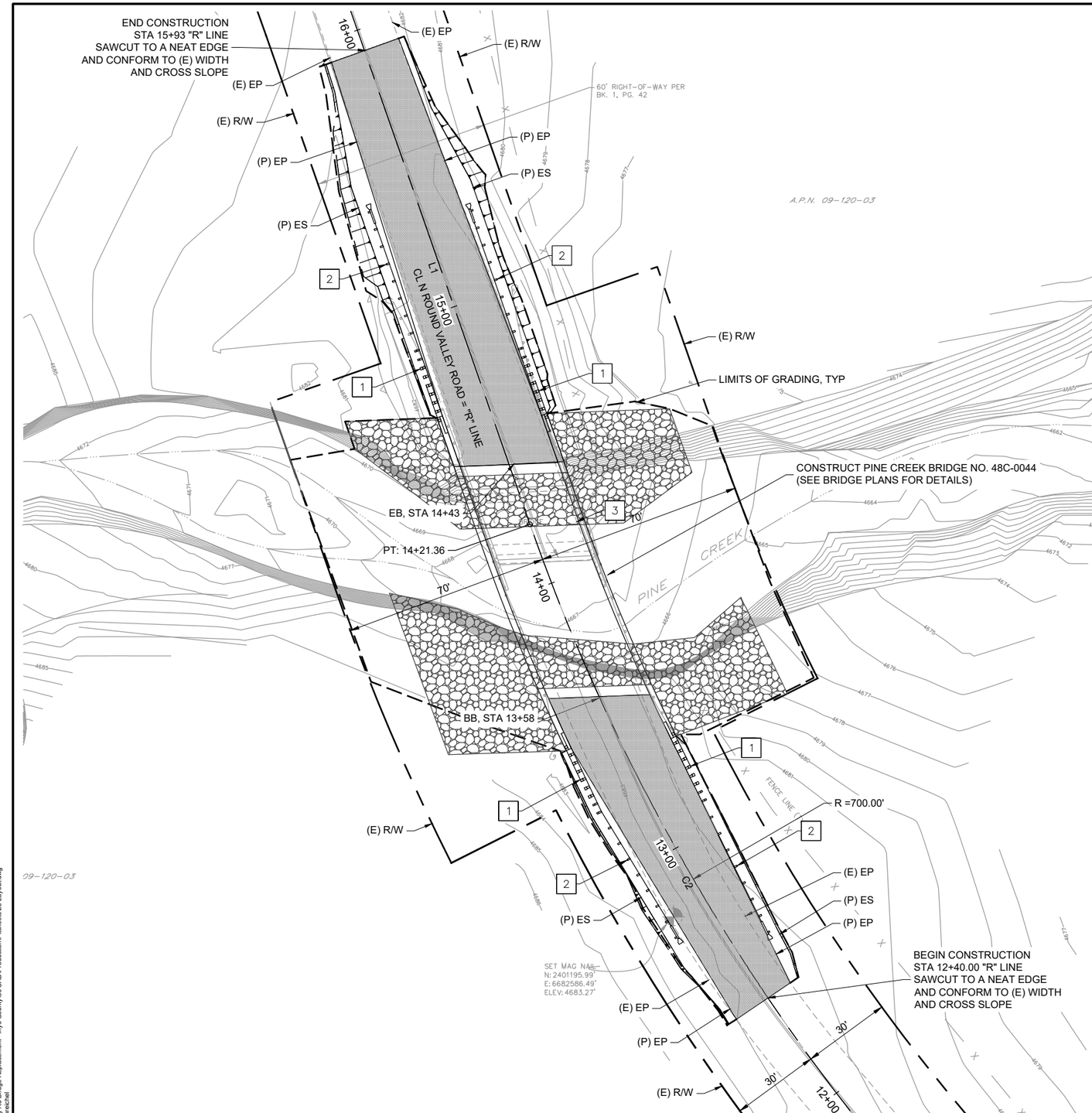
TYPICAL SECTIONS

SHEET 4 0F 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\09 CAD\Production\Plsheets\04 Typical Sections.dwg
Last Opened: Mar 31, 2020 - 4:42pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	5	33



0 20 40 60

SCALE 1"=20'

KEYNOTES

1. INSTALL MGS TRANSITION RAILING (TYPE WB-31) PER 2018 STANDARD PLANS, DETAIL A77U4, TYP.
2. INSTALL MSKT-SP-MGS (TL4) TERMINAL SYSTEM END TREATMENT PER STANDARD PLANS A77Q1 AND A77Q4, TYP.
3. REMOVE EXISTING BRIDGE AND GUARDRAIL.

LEGEND

INDICATES LIMITS OF APPROACH ROADWAY RECONSTRUCTION

INDICATES LIMITS OF ROCK SLOPE PROTECTION

CURVE TABLE - "R" LINE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C2	266.93'	700.00'	21° 51' 00"	N30° 10' 58.99"W	265.32

LINE TABLE - "R" LINE				
LINE #	LENGTH	DIRECTION	START POINT (NORTHING, EASTING)	END POINT (NORTHING, EASTING)
L1	187.220	N19° 15' 30.99"W	2401329.9249, 6682537.4894	2401506.6680, 6682475.7381

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RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

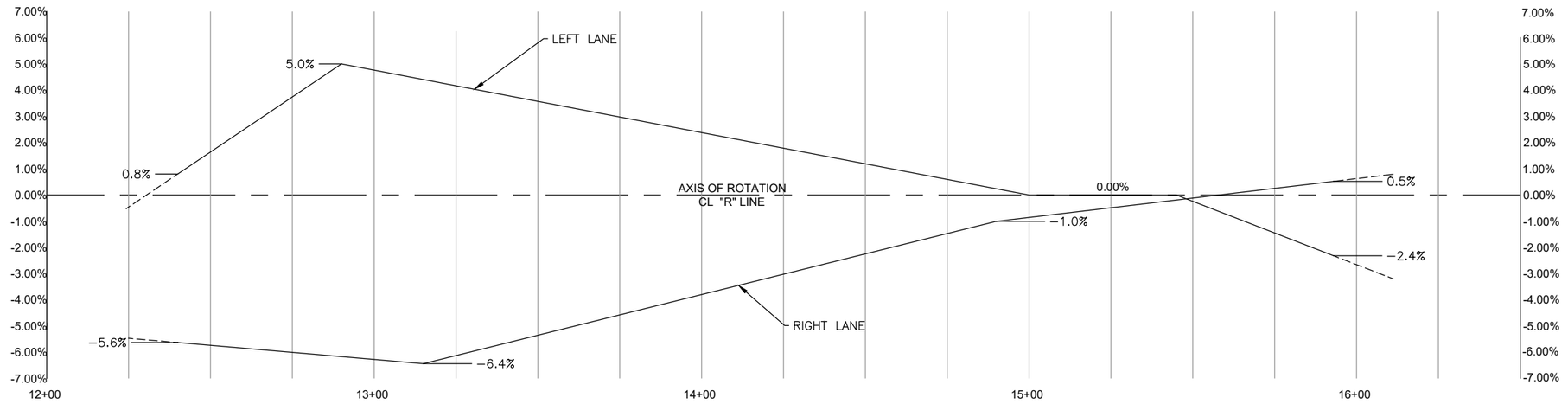
LAYOUT

SHEET 5 OF 33 SHEETS

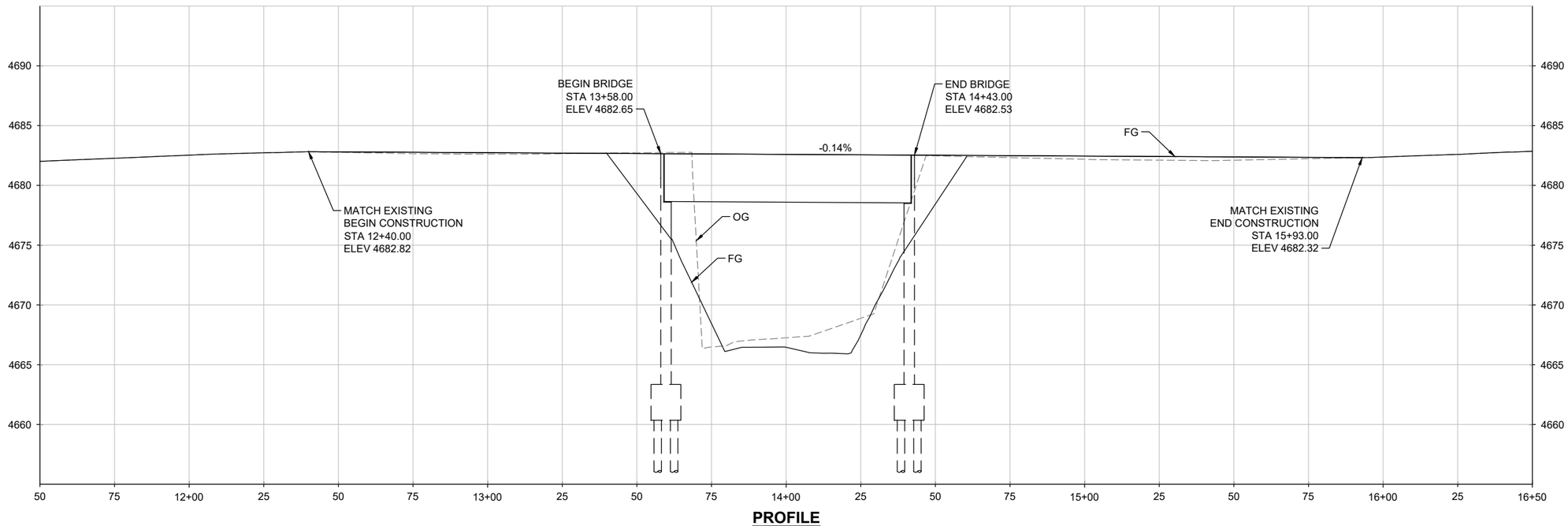
FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Pltsheets\05 Layout.dwg
Last Opened: Mar 31, 2020 - 4:42pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	6	33



SUPERELEVATION DIAGRAM



PROFILE

0 20 40 60

SCALE 1"=20' HORIZONTAL
1"=5' VERTICAL

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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
BRADLEY T. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	J. HELM	3/17/2020
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RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

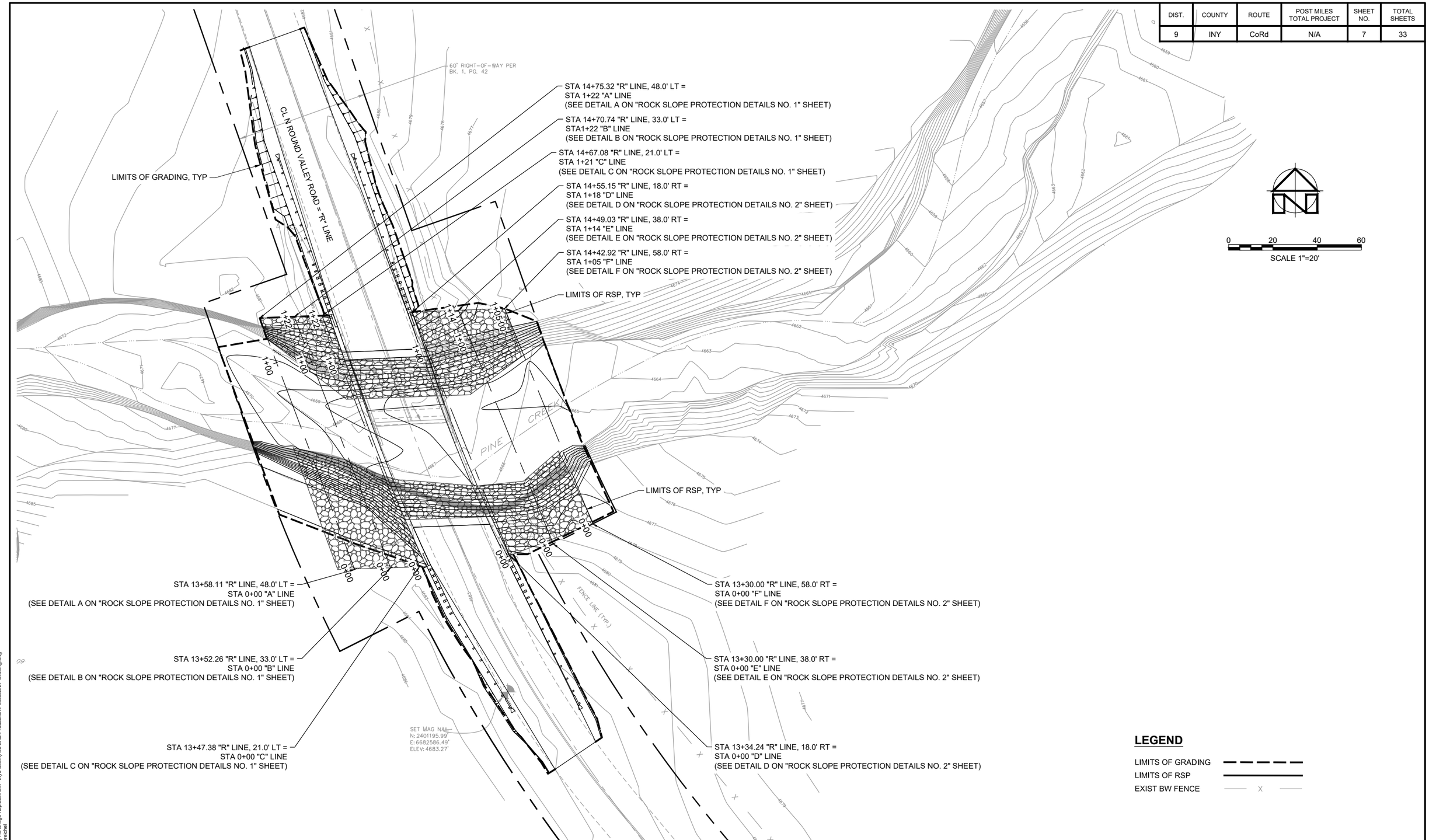
PROFILE

FED PROJ NO.: XXXX(XXX)

SHEET **6** OF **33** SHEETS

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plsheets\06 Profile.dwg
Last Opened: Mar 31, 2020 - 4:42pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	7	33



LEGEND

LIMITS OF GRADING
LIMITS OF RSP
EXIST BW FENCE

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PLANS APPROVAL DATE

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BRADLEY T. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

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RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

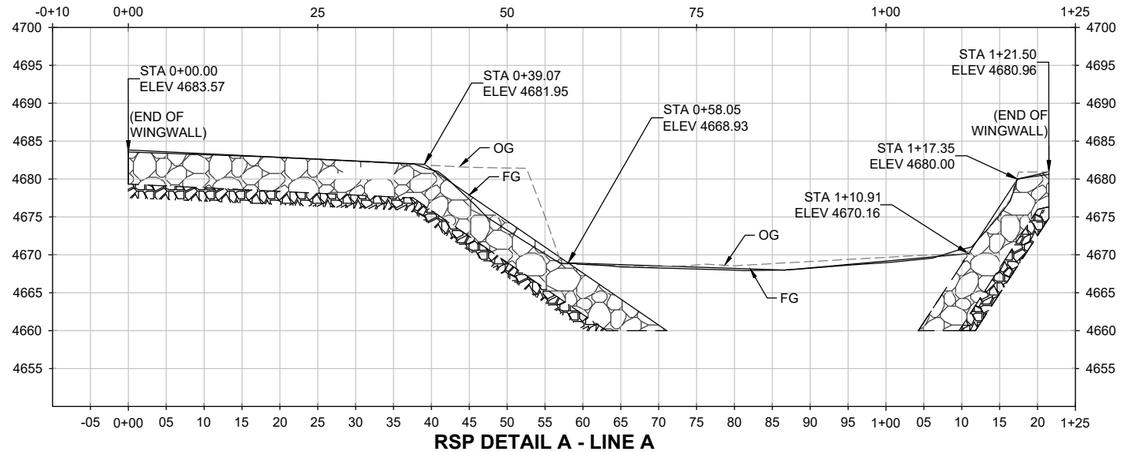
GRADING PLAN

SHEET 7 OF 33 SHEETS

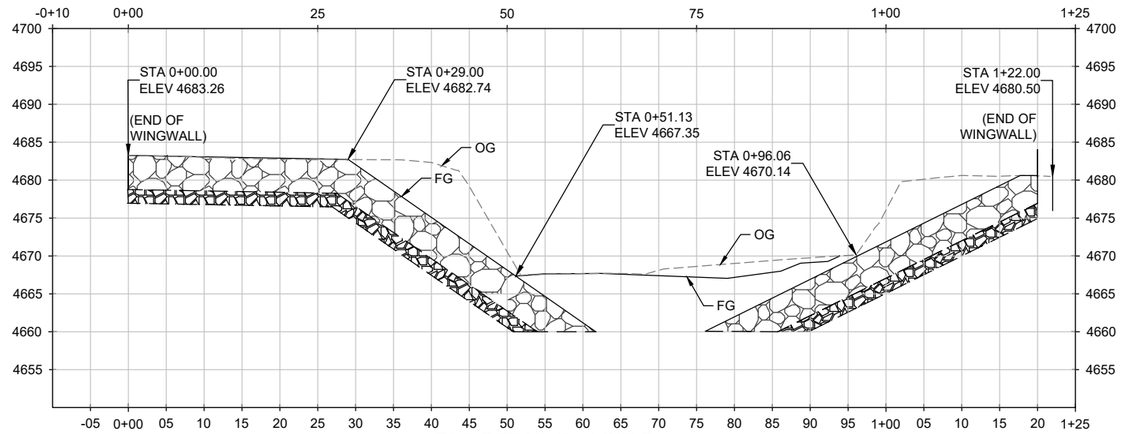
FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\07 Grading.dwg
Last Opened: Mar 31, 2020 - 4:42pm by breichel

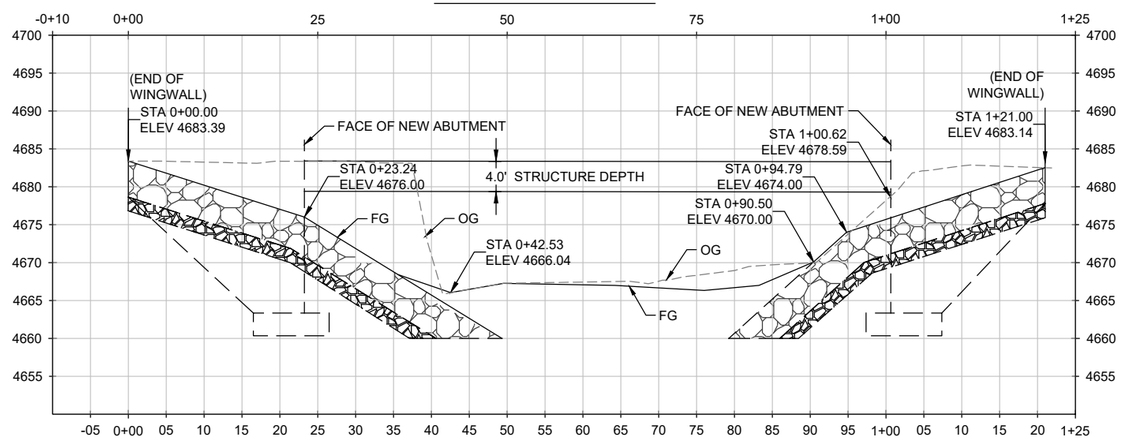
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	8	33



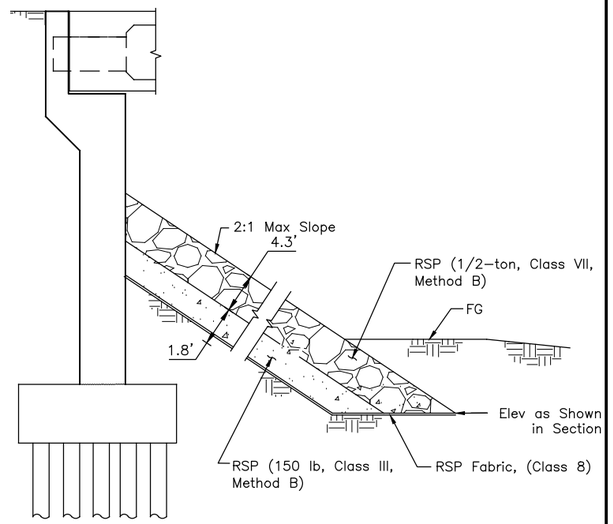
RSP DETAIL A - LINE A



RSP DETAIL B - LINE B



RSP DETAIL C - LINE C



RSP CONSTRUCTION DETAIL

0 10 20 30

SCALE 1"=10' HORIZONTAL
1"=10' VERTICAL

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plsheets\08-09 RSP Details.dwg
Last Opened: Apr 01, 2020 - 12:08pm by breichel

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TEL: (916) 421-1000

REGISTERED PROFESSIONAL ENGINEER
BRADLEY T. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

PREPARED FOR THE
COUNTY OF INYO
DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	3/17/2020
CHECKED	S. HAWKINS	3/17/2020
RECOMMENDED	R. SENNETT IV	3/17/2020

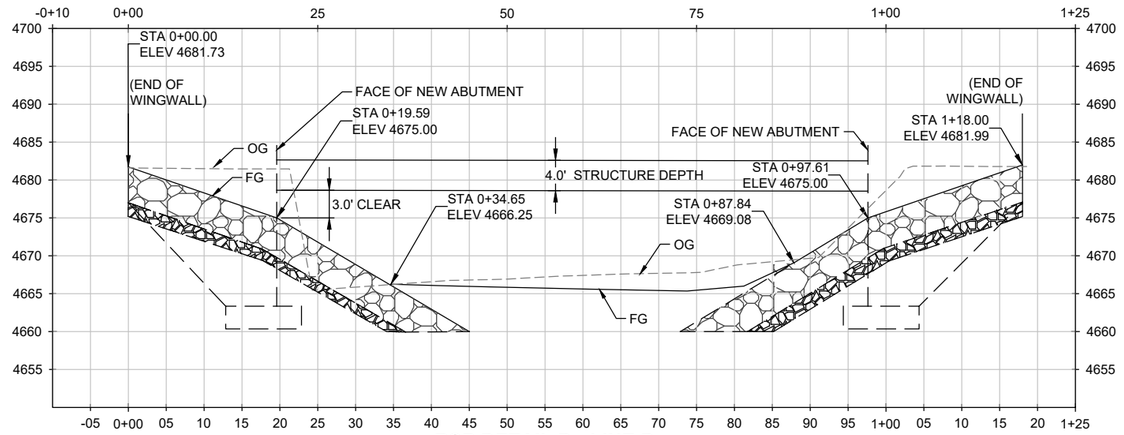
BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ROCK SLOPE PROTECTION DETAILS NO. 1

SHEET 8 OF 33 SHEETS

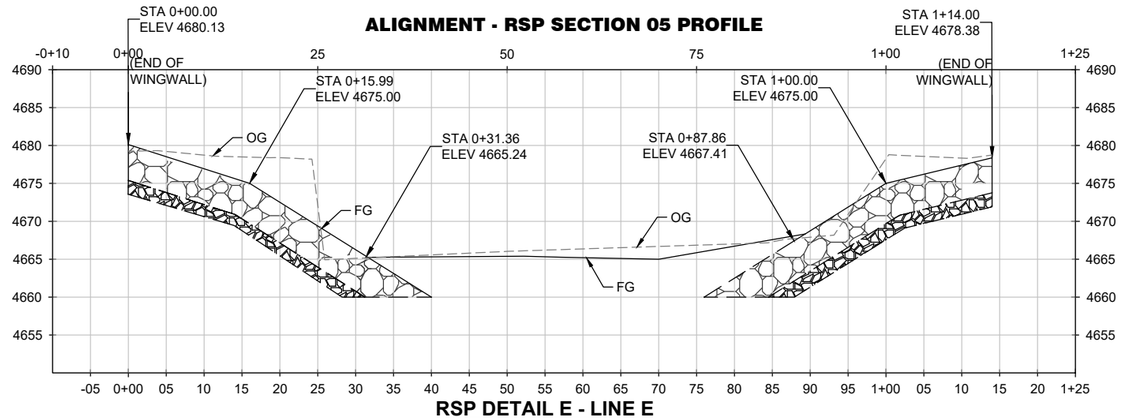
FED PROJ NO.: XXXX(XXX)

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	9	33

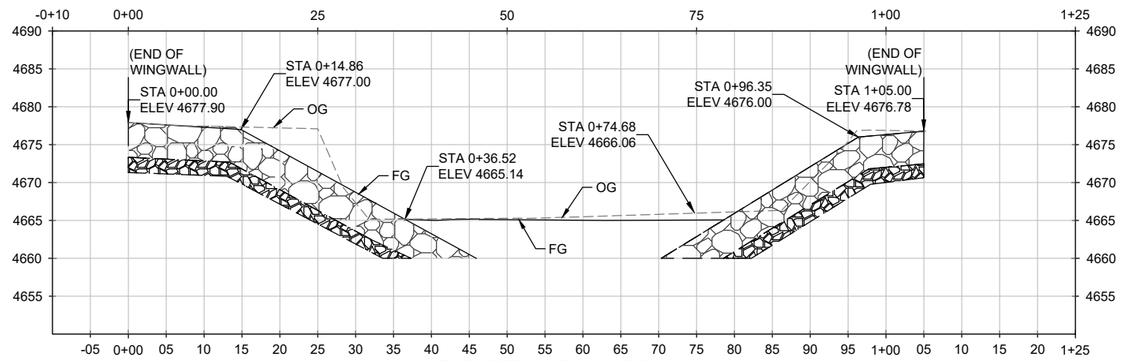


RSP DETAIL D - LINE D

ALIGNMENT - RSP SECTION 05 PROFILE



RSP DETAIL E - LINE E



RSP DETAIL F - LINE F

0 10 20 30

SCALE 1"=10' HORIZONTAL
1"=10' VERTICAL

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PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER BRADLEY I. REICHEL C80306 CIVIL STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	3/17/2020
CHECKED	S. HAWKINS	3/17/2020
RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

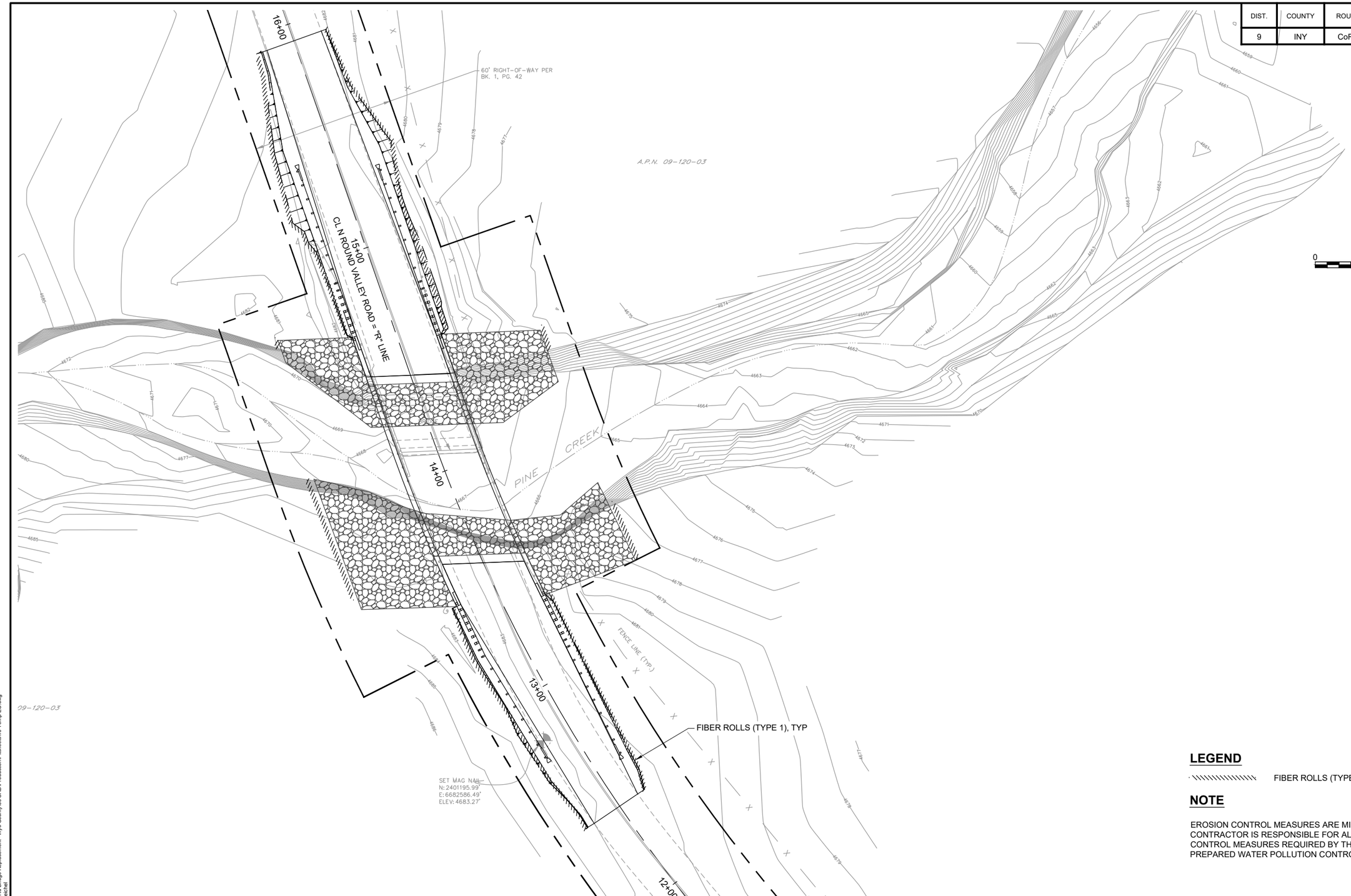
ROCK SLOPE PROTECTION DETAILS NO. 2

SHEET 9 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\PTsheets\08-09 RSP Details.dwg
Last Opened: Mar 31, 2020 - 4:42pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	10	33



LEGEND

FIBER ROLLS (TYPE 1)

NOTE

EROSION CONTROL MEASURES ARE MINIMUM REQUIRED. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY EROSION CONTROL MEASURES REQUIRED BY THE APPROVED CONTRACTOR PREPARED WATER POLLUTION CONTROL PLAN OR SWPPP.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — BRADLEY T. REICHEL — C80306 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	J. HELM	3/17/2020
CHECKED	S. HAWKINS	3/17/2020
RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

TEMPORARY EROSION CONTROL PLAN

SHEET 10 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\10 Temp EC.dwg
Last Opened: Mar 31, 2020 - 4:43pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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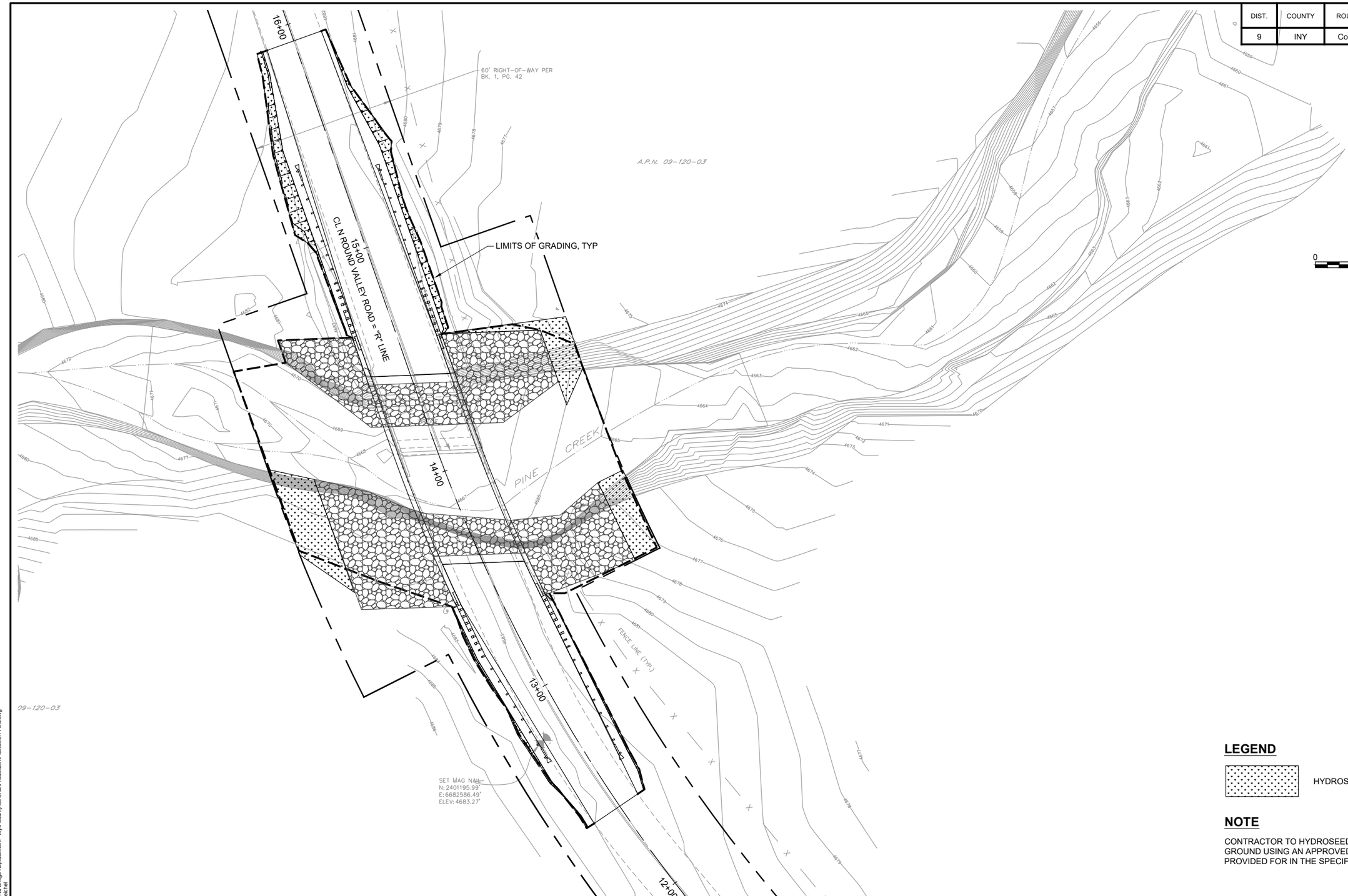

0 20 40 60

SCALE 1"=20'

LEGEND

HYDROSEED - 0.06 AC

NOTE

CONTRACTOR TO HYDROSEED ALL DISTURBED GROUND USING AN APPROVED SEED MIX, AS PROVIDED FOR IN THE SPECIFICATIONS

MGE ENGINEERING, INC.
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PLANS APPROVAL DATE

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PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
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CHECKED	S. HAWKINS	3/17/2020
RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

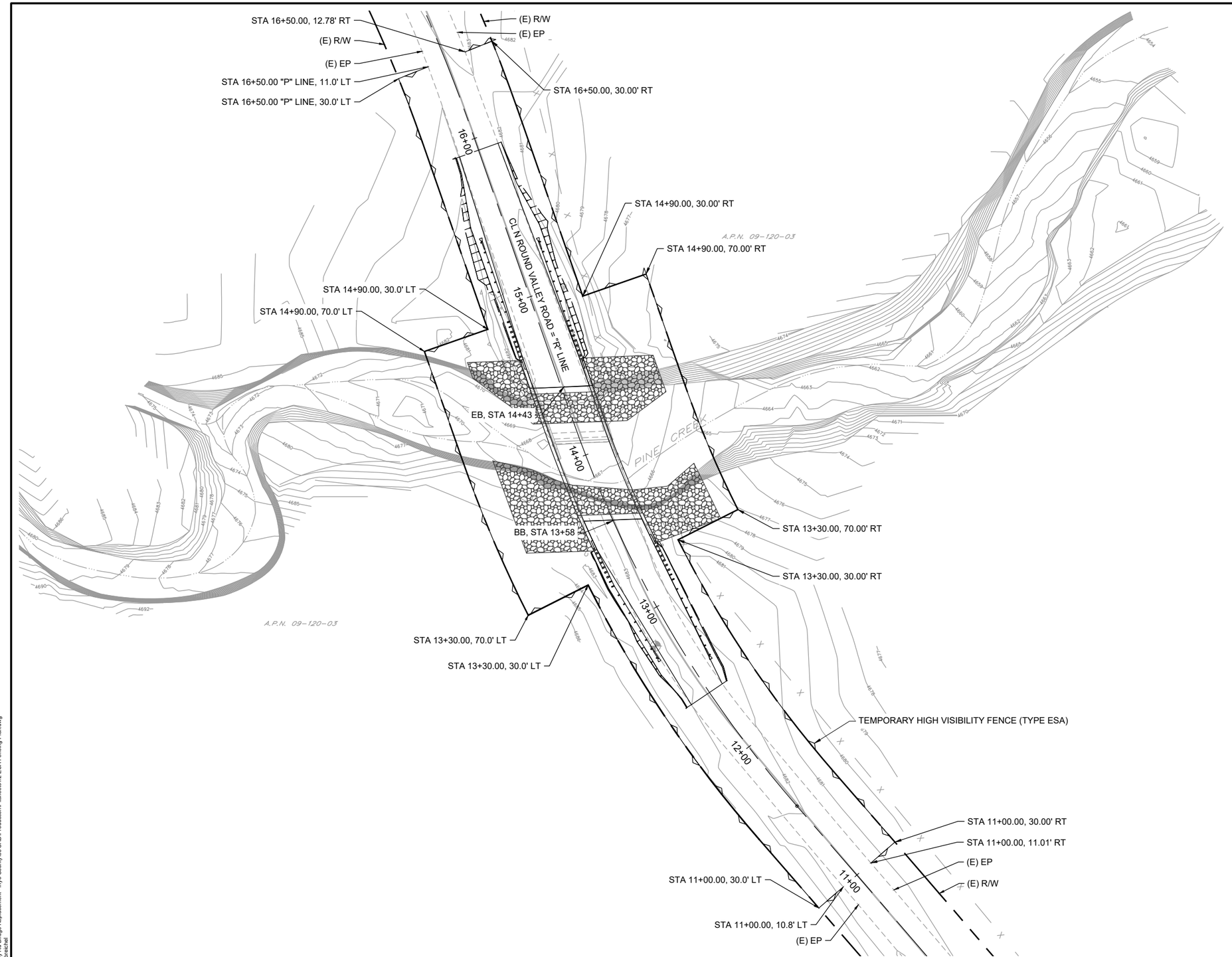
EROSION CONTROL PLAN

SHEET 11 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\11 EC.dwg
Last Opened: Mar 31, 2020 - 4:43pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	12	33



LEGEND

TEMPORARY HIGH-VISIBILITY FENCE (TYPE ESA)

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TEL: (916) 421-1000

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PLANS APPROVAL DATE

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PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

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		DATE
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CHECKED	S. HAWKINS	3/17/2020
RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

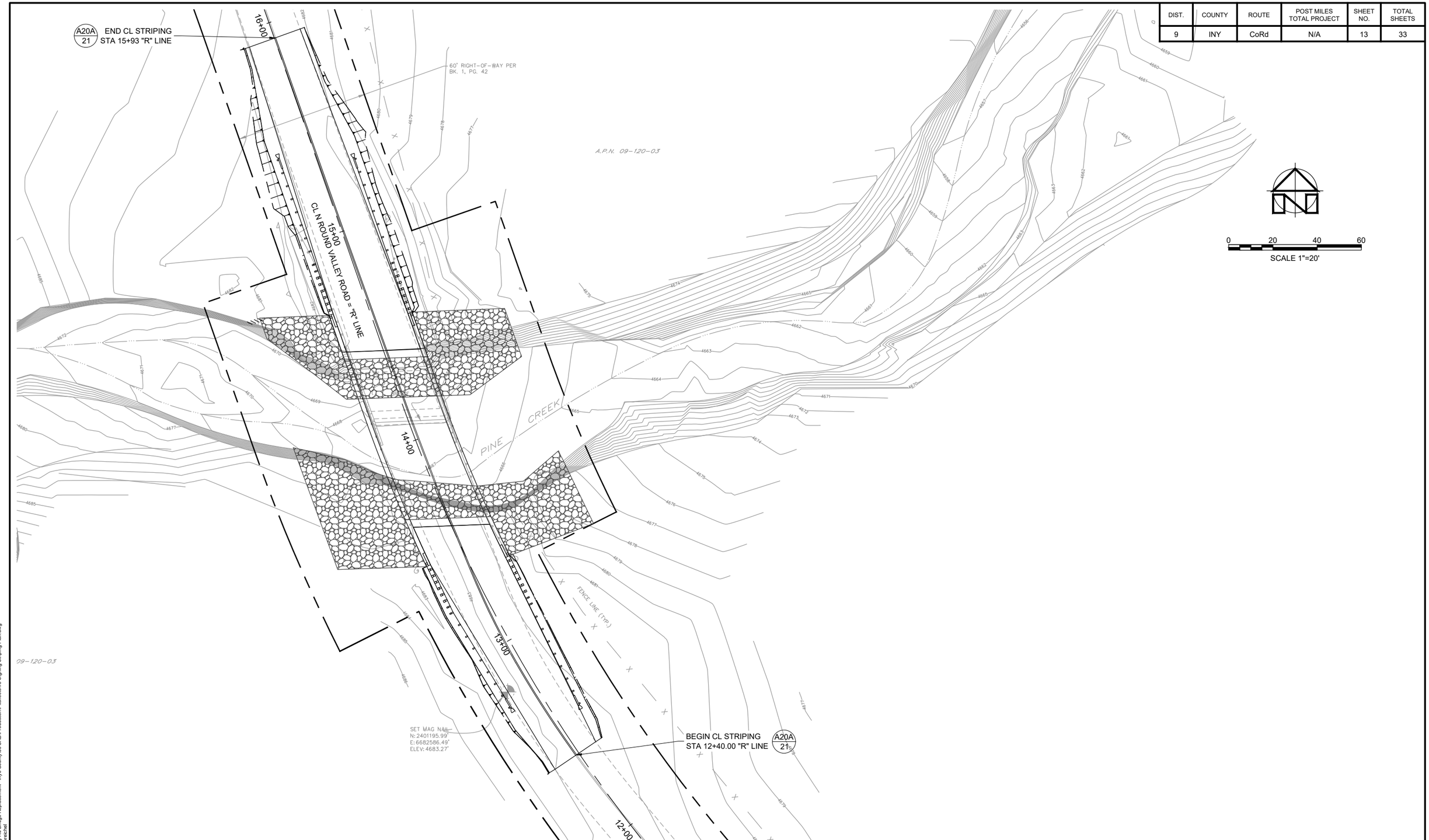
ESA FENCING PLAN

SHEET **12** OF **33** SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plsheets\12 ESA Fencing Plan.dwg
Last Opened: Mar 31, 2020 - 4:43pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	13	33



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PLANS APPROVAL DATE

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BRADLEY T. REICHEL
C80306
CIVIL
STATE OF CALIFORNIA

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		DATE
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RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

SIGNING AND STRIPING PLAN

SHEET 13 OF 33 SHEETS

FED PROJ NO.: XXXX(XXX)

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\13 Signing Striping Plan.dwg
Last Opened: Mar 31, 2020 - 4:43pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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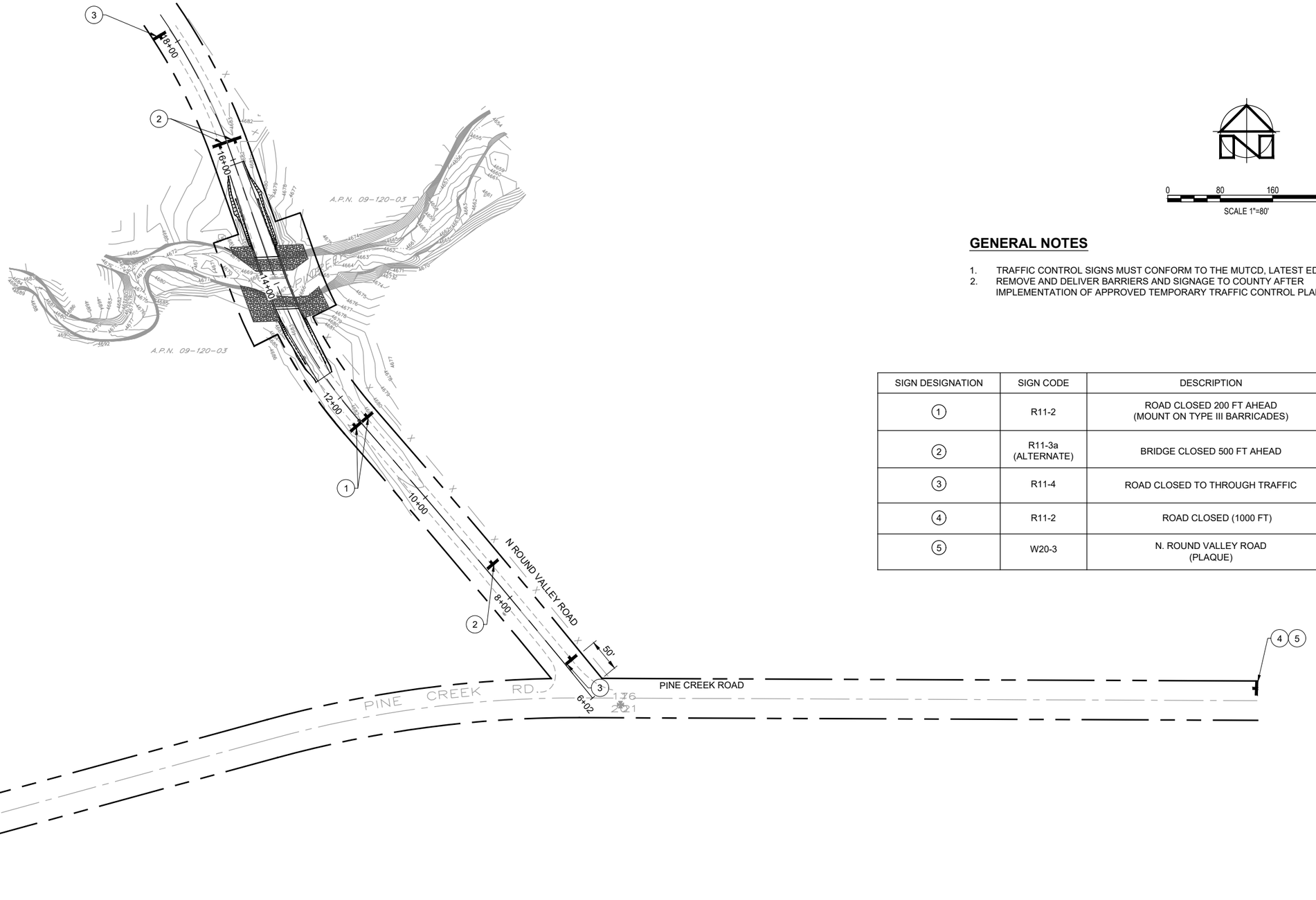

0 80 160 240

SCALE 1"=80'

GENERAL NOTES

1. TRAFFIC CONTROL SIGNS MUST CONFORM TO THE MUTCD, LATEST EDITION.
2. REMOVE AND DELIVER BARRIERS AND SIGNAGE TO COUNTY AFTER IMPLEMENTATION OF APPROVED TEMPORARY TRAFFIC CONTROL PLAN.

SIGN DESIGNATION	SIGN CODE	DESCRIPTION
(1)	R11-2	ROAD CLOSED 200 FT AHEAD (MOUNT ON TYPE III BARRICADES)
(2)	R11-3a (ALTERNATE)	BRIDGE CLOSED 500 FT AHEAD
(3)	R11-4	ROAD CLOSED TO THROUGH TRAFFIC
(4)	R11-2	ROAD CLOSED (1000 FT)
(5)	W20-3	N. ROUND VALLEY ROAD (PLAQUE)

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PLANS APPROVAL DATE

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PREPARED FOR THE COUNTY OF INYO DEPARTMENT OF PUBLIC WORKS

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		DATE
DRAWN	J. HELM	3/17/2020
CHECKED	S. HAWKINS	3/17/2020
RECOMMENDED	R. SENNETT IV	3/17/2020

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

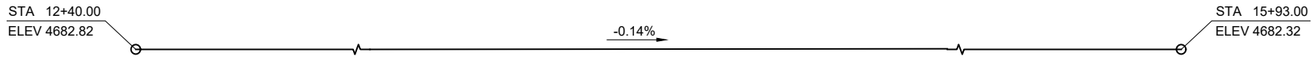
TRAFFIC CONTROL PLAN

FED PROJ NO.: XXXX(XXX)

SHEET **14** OF **33** SHEETS

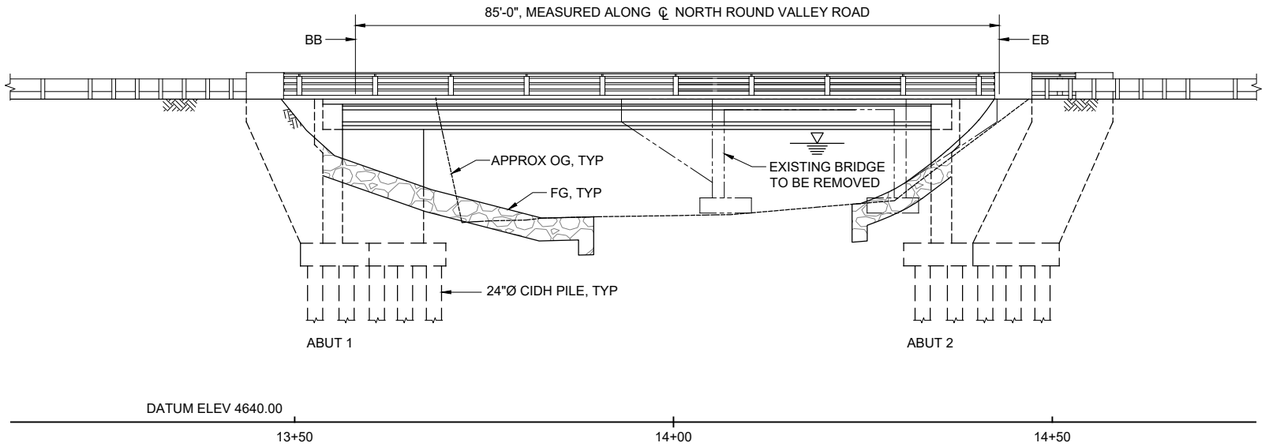
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Production\Plansheets\14 Traffic Control Plan.dwg
Last Opened: Mar 31, 2020 - 4:43pm by breichel

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	15	33



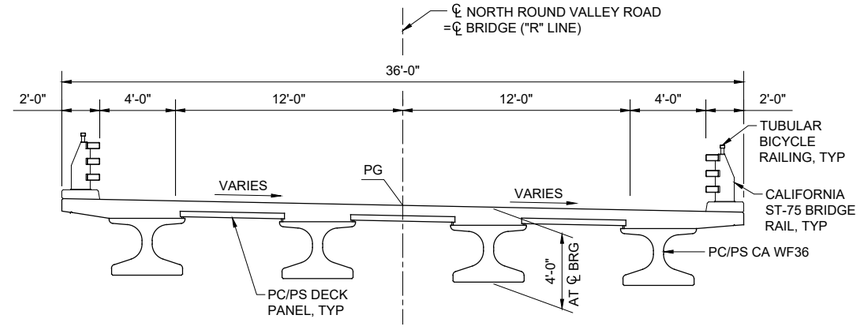
PROFILE GRADE

NO SCALE



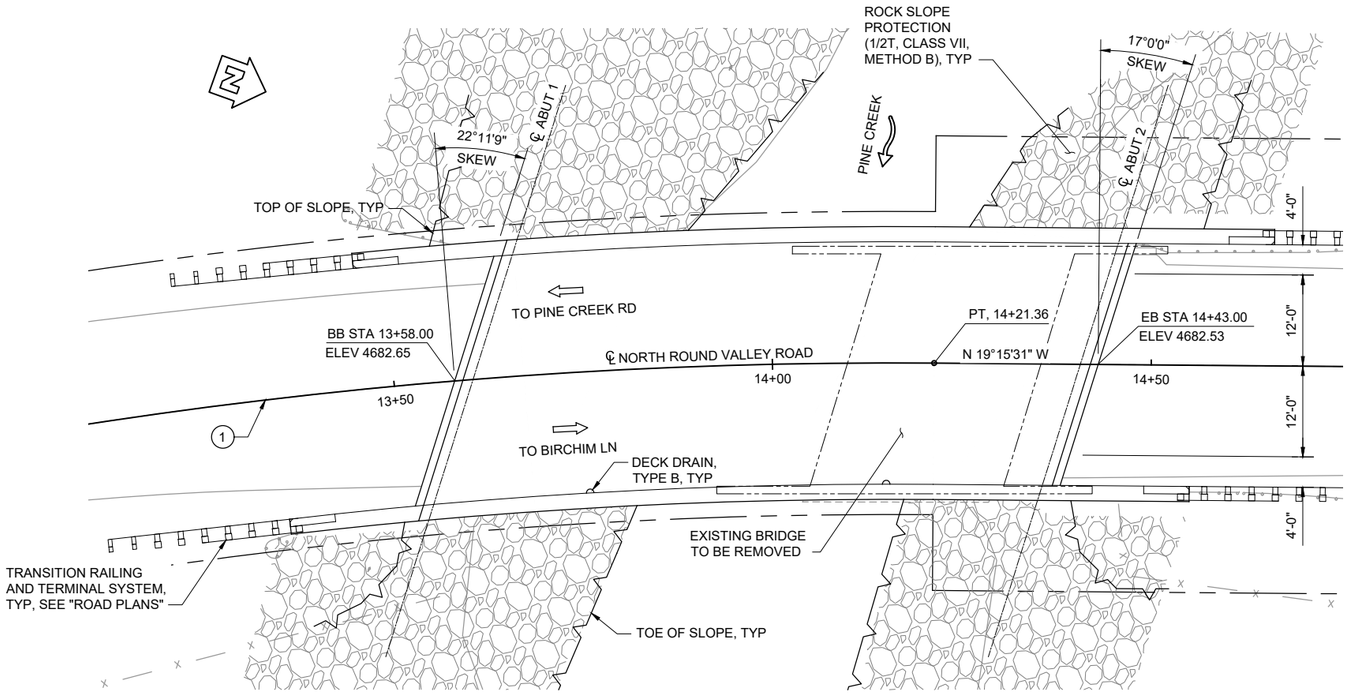
ELEVATION

1" = 10'



TYPICAL SECTION

1/4" = 1'-0"



PLAN

1" = 10'

LEGEND:

- INDICATES NEW CONSTRUCTION
- INDICATES EXISTING STRUCTURE
- INDICATES DIRECTION OF FLOW
- INDICATES DIRECTION OF TRAFFIC
- FOR HYDROLOGIC SUMMARY, SEE "FOUNDATION PLAN" SHEET

CURVE DATA

	RADIUS (FT)	DELTA (°)	LENGTH (FT)	TANGENT (FT)
(1)	700.00	21.849°	266.935	135.109

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

	DATE
DRAWN: P. ZHAO	01FEB20
CHECKED: Y. DENG	01FEB20
RECOMMENDED: W. SENNETT	01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

GENERAL PLAN

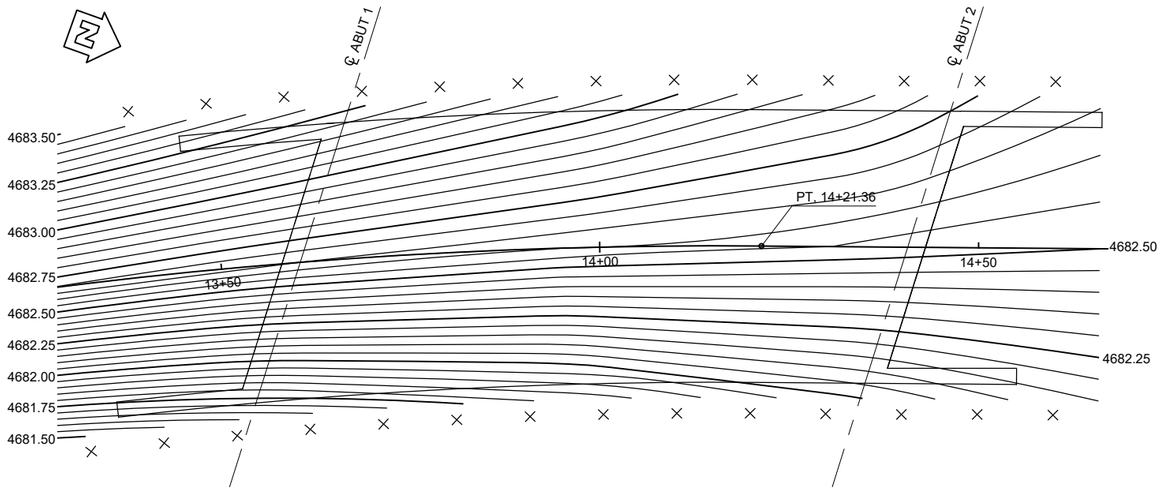
SHEET 15 OF 33 SHEETS

FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\GPs.dwg
Last Opened: Mar 09, 2020 - 9:48am by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	16	33

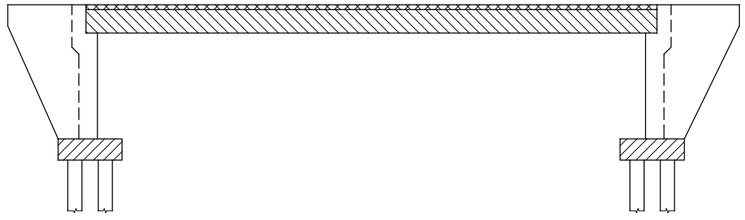


DECK CONTOURS

1" = 10'

NOTES:

1. CONTOUR INTERVAL = 0.05 FT
2. CONTOURS DO NOT INCLUDE CAMBER
3. ✕ INDICATES 10' STATION INTERVALS ALONG CENTER LINE



CONCRETE STRENGTH AND TYPE LIMITS

NO SCALE

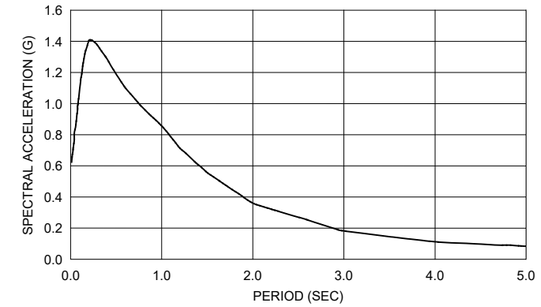
LEGEND

- STRUCTURAL CONCRETE, BRIDGE
  f'c = 4.0 KSI AT 28 DAYS
- STRUCTURAL CONCRETE, BRIDGE FOOTING
  f_c' = 4.0 KSI AT 28 DAYS
- STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER)
  f_c' = 4.0 KSI AT 28 DAYS
- PRECAST PRESTESSED GIRDER
  f_c' = SEE "GIRDER DETAILS" SHEET

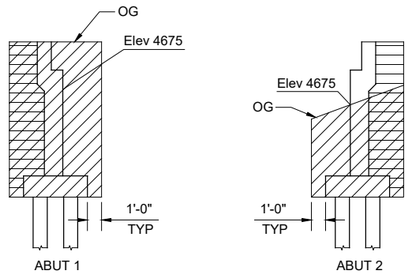
GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN

DESIGN:	AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION AND THE CALTRANS AMENDMENTS, PREFACE, DATED MARCH 2014
SEISMIC DESIGN:	CALTRANS SEISMIC DESIGN CRITERIA (SDC) VERSION 1.7, APRIL, 2013
DEAD LOAD:	INCLUDES 35 PSF FOR FUTURE WEARING SURFACE.
LIVE LOAD:	HL93 AND PERMIT DESIGN VEHICLE
SEISMIC LOAD:	SHEAR WAVE VELOCITY, V_{S30} = 400 M/S MAXIMUM MAGNITUDE = 6.89 PEAK GROUND ACCELERATION = 0.678g

REINFORCED CONCRETE:	fy = 60,000 PSI f'c = SEE 'CONCRETE STRENGTH AND TYPE LIMITS' n = VARIES
PRESTRESSING STEEL:	SEE 'PRESTRESSING NOTES' ON "GIRDER DETAILS" SHEET



RESPONSE SPECTRA



LIMITS OF PAYMENT - STRUCTURE EXCAVATION & BACKFILL

NO SCALE

- INDICATES LIMITS OF PAYMENT FOR STRUCTURE EXCAVATION (TYPE D)
- INDICATES LIMITS OF PAYMENT FOR STRUCTURE BACKFILL

STANDARD PLANS DATED 2018

	A3A	ABBREVIATIONS (SHEET 1 OF 3)
	A3B	ABBREVIATIONS (SHEET 2 OF 3)
	A3C	ABBREVIATIONS (SHEET 3 OF 3)
	A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL - BRIDGE
RSP	B0-1	BRIDGE DETAILS
	B0-13	BRIDGE DETAILS
	B6-21	JOINT SEALS (MAXIMUM MOVEMENT RATING = 2")
	B7-5	DECK DRAINS

MGE ENGINEERING, INC.
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SACRAMENTO, CALIFORNIA 95831
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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	DATE
P. ZHAO	01FEB20
CHECKED	DATE
Y. DENG	01FEB20
RECOMMENDED	DATE
W. SENNETT	01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

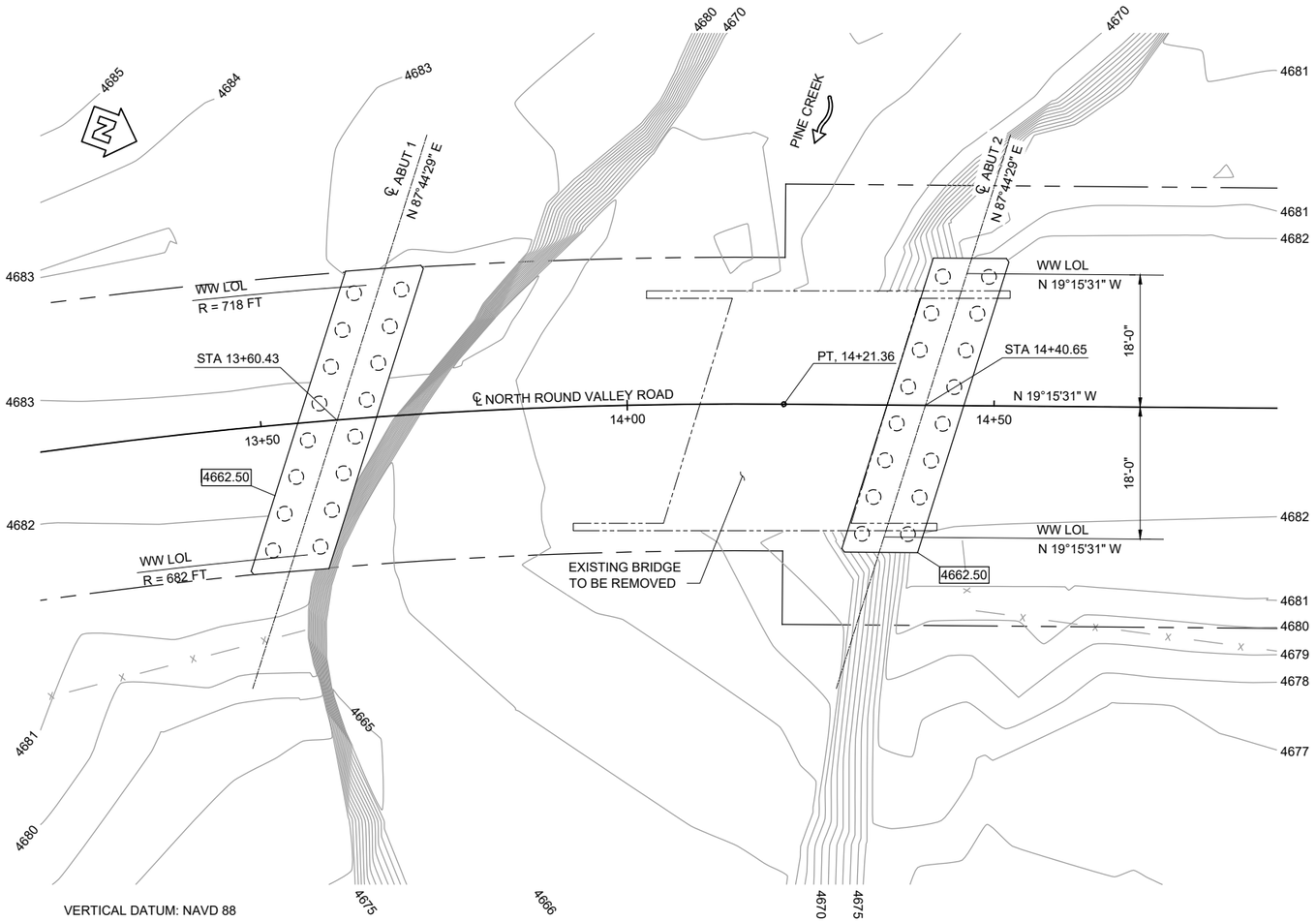
DECK CONTOURS AND GENERAL NOTES

SHEET 16 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P-574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\GPs.dwg
Last Opened: Mar 06, 2020 - 11:32am by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	17	33



FOUNDATION PLAN

1" = 10'

HYDROLOGIC SUMMARY

DRAINAGE AREA 37 SQUARE MILES

	DESIGN FLOOD	BASE FLOOD
FREQUENCY (YEARS)	50	100
DISCHARGE (CUBIC FEET PER SECOND)	420	460
WATER SURFACE (ELEVATION AT BRIDGE)	4669.40	4669.50

LEGEND

- INDICATES DIRECTION OF FLOW
- INDICATES 24" CIDH PILE
- xxxx.x — INDICATES BOTTOM OF FOOTING ELEVATION
- INDICATES EXISTING STRUCTURE

SCOUR DATA TABLE

LOCATION	LONG TERM (DEGRADATION AND CONTRACTION) SCOUR DEPTH (FT)	SHORT TERM (LOCAL) SCOUR DEPTH (FT)
ABUT 1	-0-	5.11
ABUT 2	-0-	5.28

PILE DATA TABLE

LOCATION	PILE TYPE	CUT-OFF ELEVATION (FT)	SERVICE-I LIMIT STATE LOAD PER SUPPORT (KIPS)		TOTAL PERMISSIBLE SUPPORT SETTLEMENT (IN)	NOMINAL RESISTANCE (KIPS)				DESIGN TIP ELEVATIONS (FT)	SPECIFIED TIP ELEVATIONS (FT)
						STRENGTH		EXTREME			
			TOTAL	PERMANENT		COMPRESSION φ = 0.7	TENSION φ = 0.7	COMPRESSION φ = 1.0	TENSION φ = 1.0		
ABUT 1	24" CIDH	4662.75	1714	1341	1	277	1	228	60	4633 (a) 4632 (a-I) 4646 (c) 4633 (d)	4632
ABUT 2	24" CIDH	4662.75	1714	1341	1	277	1	228	60	4633 (a) 4632 (a-I) 4646 (c) 4633 (d)	4632

NOTES:

(1) DESIGN TIP ELEVATIONS ARE CONTROLLED BY: (A) COMPRESSION (SERVICE LIMIT), (A-I) COMPRESSION (STRENGTH LIMIT), (B-I) TENSION (STRENGTH LIMIT), (A-II) COMPRESSION (EXTREME EVENT), (B-II) TENSION (EXTREME EVENT), (C) SETTLEMENT, (D) LATERAL LOAD.

(2) THE SPECIFIC TIP ELEVATION SHALL NOT BE RAISED ABOVE THE DESIGN TIP ELEVATIONS OF TENSION, LATERAL, AND TOLERABLE SETTLEMENT.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
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CHECKED	Y. DENG	01FEB20
RECOMMENDED	W. SENNETT	01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

FOUNDATION PLAN

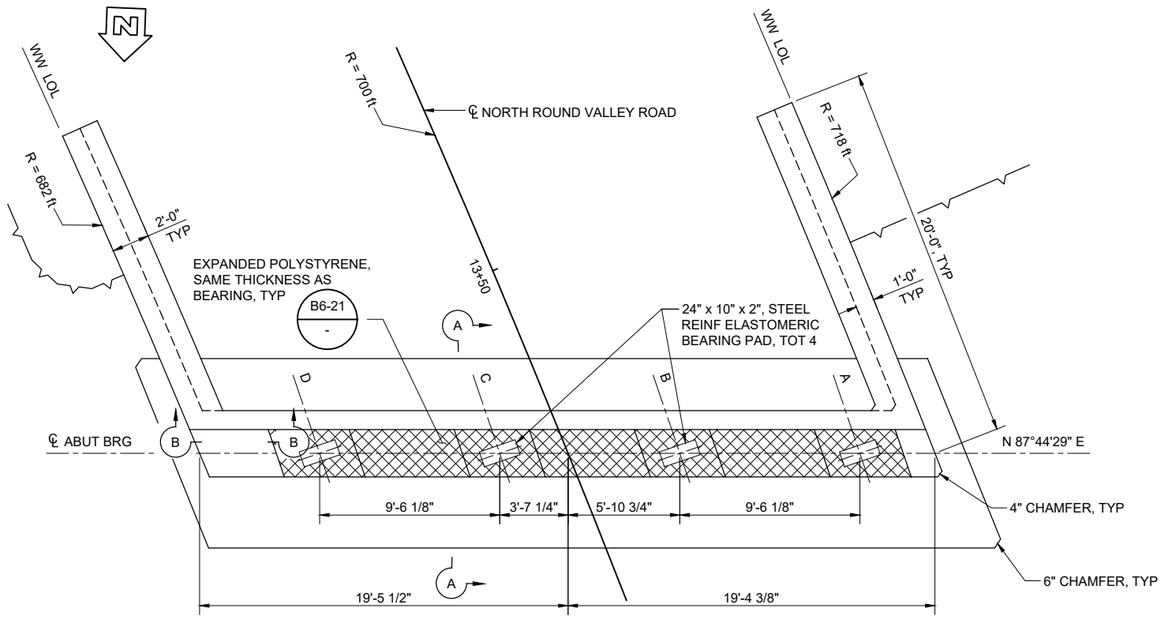
SHEET 17 OF 33 SHEETS

FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\GPs.dwg
Last Opened: Mar 03, 2020 - 1:11pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	18	33

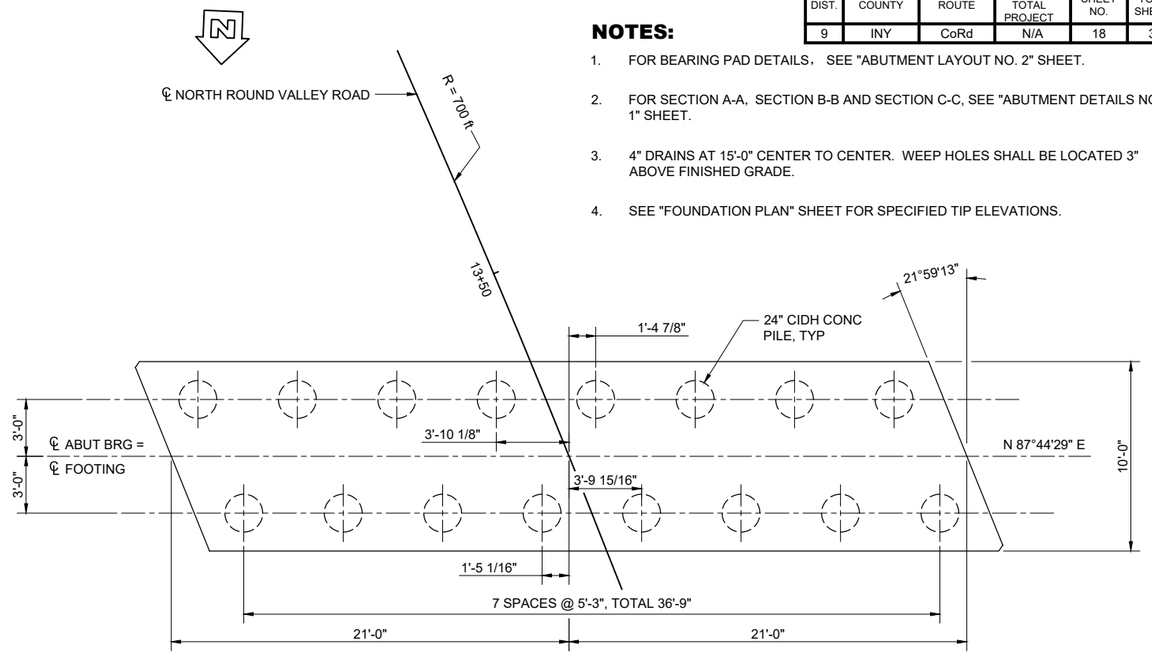


GIRDER	D	C	B	A
TOP OF BRG	4678.03	4678.49	4678.83	4679.09

ALL ELEVATIONS PROVIDED AT ℄ BRG PAD.

ABUTMENT 1 PLAN

1/4" = 1'-0'

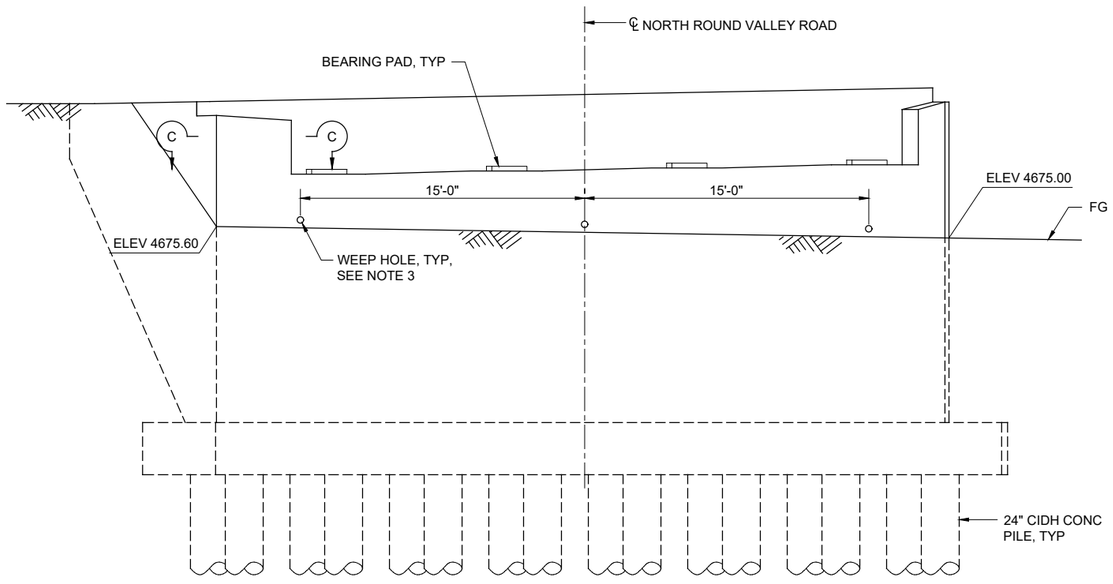


ABUTMENT 1 FOOTING

1/4" = 1'-0'

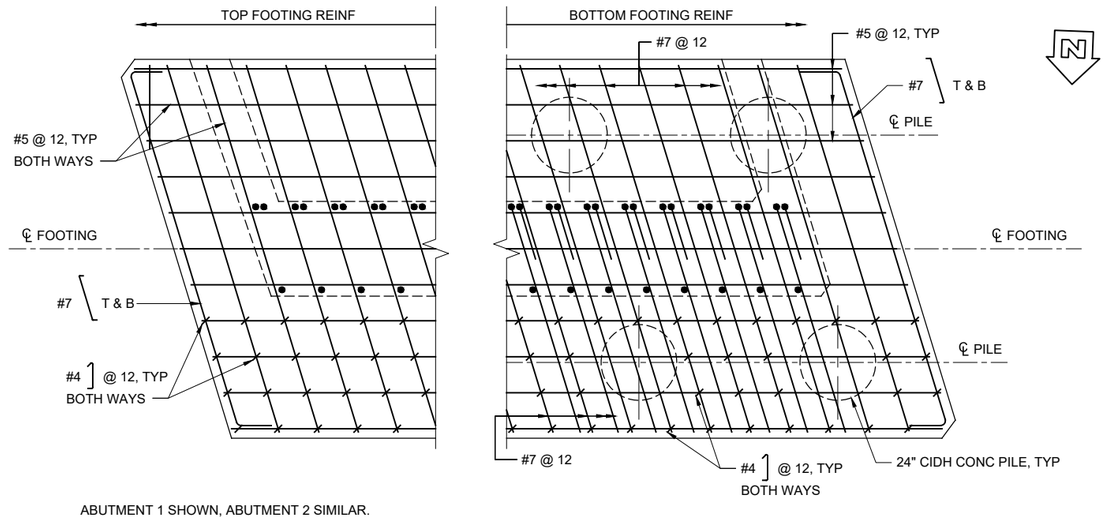
NOTES:

1. FOR BEARING PAD DETAILS， SEE "ABUTMENT LAYOUT NO. 2" SHEET.
2. FOR SECTION A-A, SECTION B-B AND SECTION C-C, SEE "ABUTMENT DETAILS NO. 1" SHEET.
3. 4" DRAINS AT 15'-0" CENTER TO CENTER. WEEP HOLES SHALL BE LOCATED 3" ABOVE FINISHED GRADE.
4. SEE "FOUNDATION PLAN" SHEET FOR SPECIFIED TIP ELEVATIONS.



ABUTMENT 1 ELEVATION

1/4" = 1'-0'



ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR.

FOOTING REINFORCEMENT LAYOUT

1/2" = 1'-0'

MGE ENGINEERING, INC.
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SACRAMENTO, CALIFORNIA 95831
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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

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PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 01FEB20
CHECKED	Y. DENG	DATE 01FEB20
RECOMMENDED	W. SENNETT	DATE 01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ABUTMENT LAYOUT NO. 1

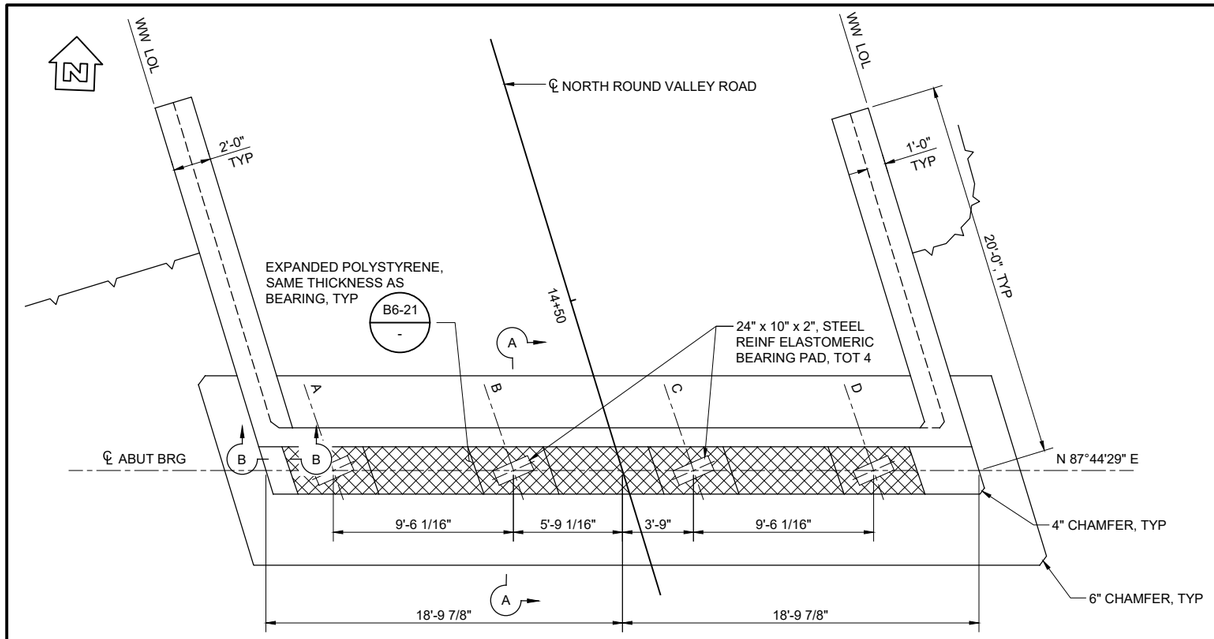
SHEET **18** OF **33** SHEETS

FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 10, 2020 - 3:54pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	19	33

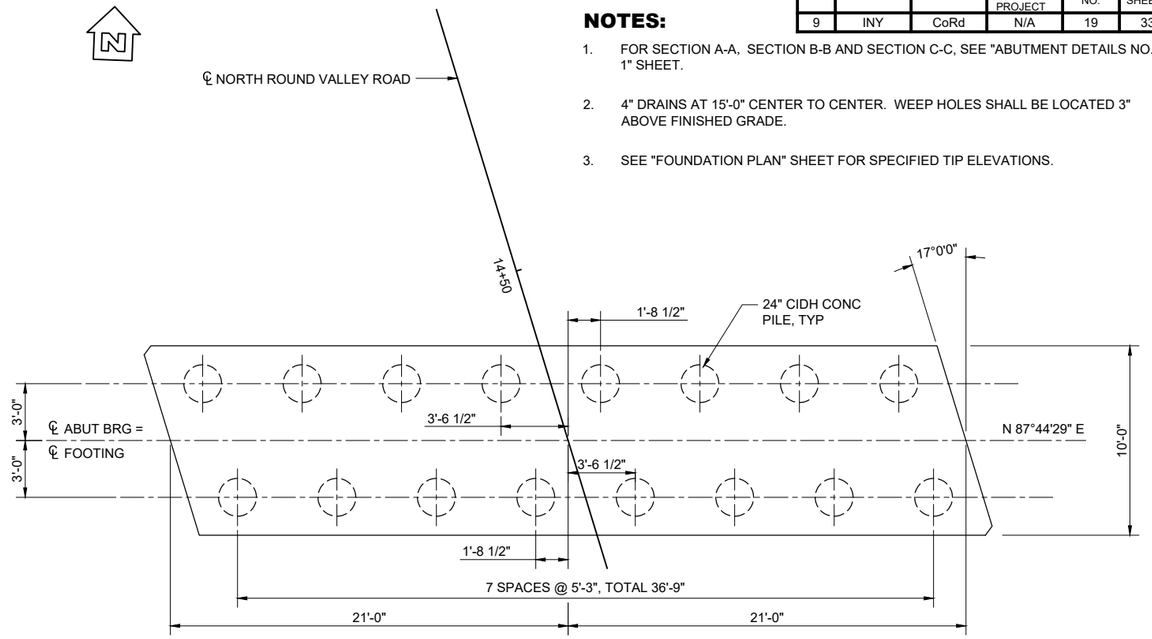


GIRDER	A	B	C	D
TOP OF BRG	4678.28	4678.47	4678.51	4678.33

ALL ELEVATIONS PROVIDED AT ℄ BRG PAD.

ABUTMENT 2 PLAN

1/4" = 1'-0'

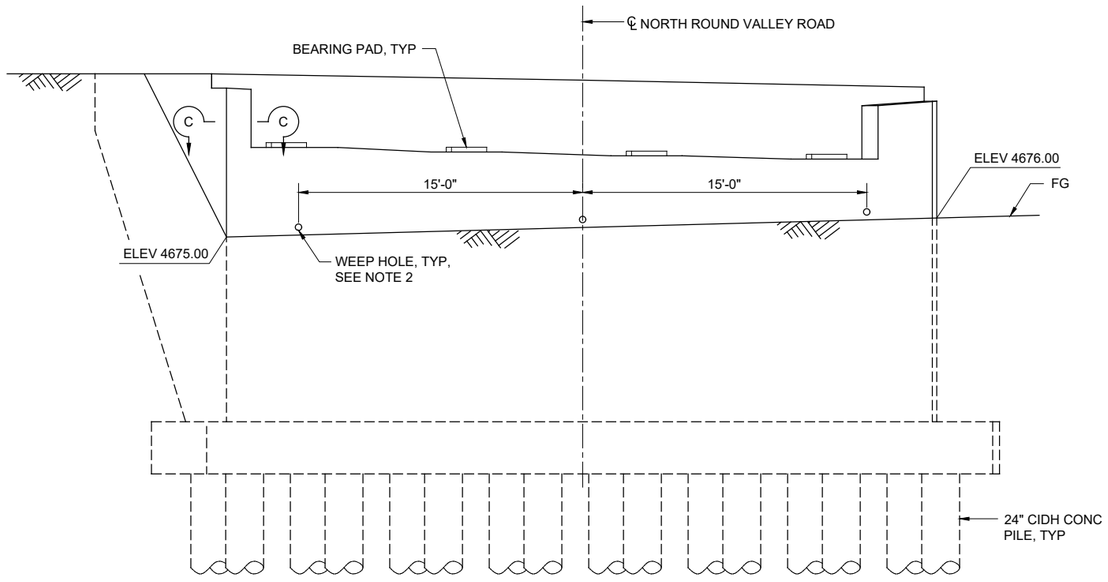


ABUTMENT 2 FOOTING

1/4" = 1'-0'

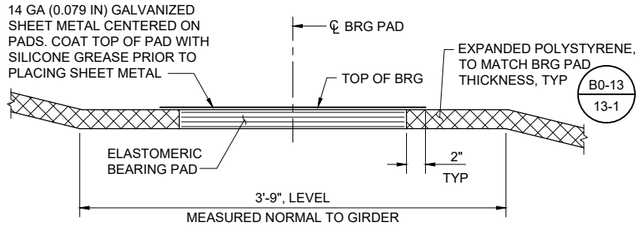
NOTES:

1. FOR SECTION A-A, SECTION B-B AND SECTION C-C, SEE "ABUTMENT DETAILS NO. 1" SHEET.
2. 4" DRAINS AT 15'-0" CENTER TO CENTER. WEEP HOLES SHALL BE LOCATED 3" ABOVE FINISHED GRADE.
3. SEE "FOUNDATION PLAN" SHEET FOR SPECIFIED TIP ELEVATIONS.



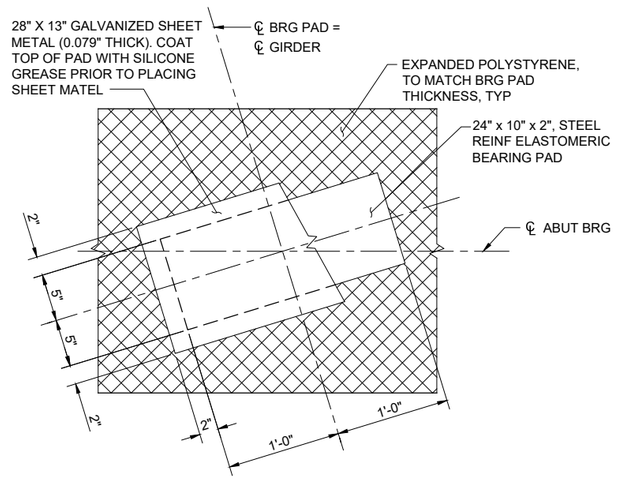
ABUTMENT 2 ELEVATION

1/4" = 1'-0'



ELEVATION

1 1/2" = 1'-0'



PLAN

1 1/2" = 1'-0'

BEARING PAD DETAILS

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
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REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 01FEB20
CHECKED	Y. DENG	DATE 01FEB20
RECOMMENDED	W. SENNETT	DATE 01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ABUTMENT LAYOUT NO. 2

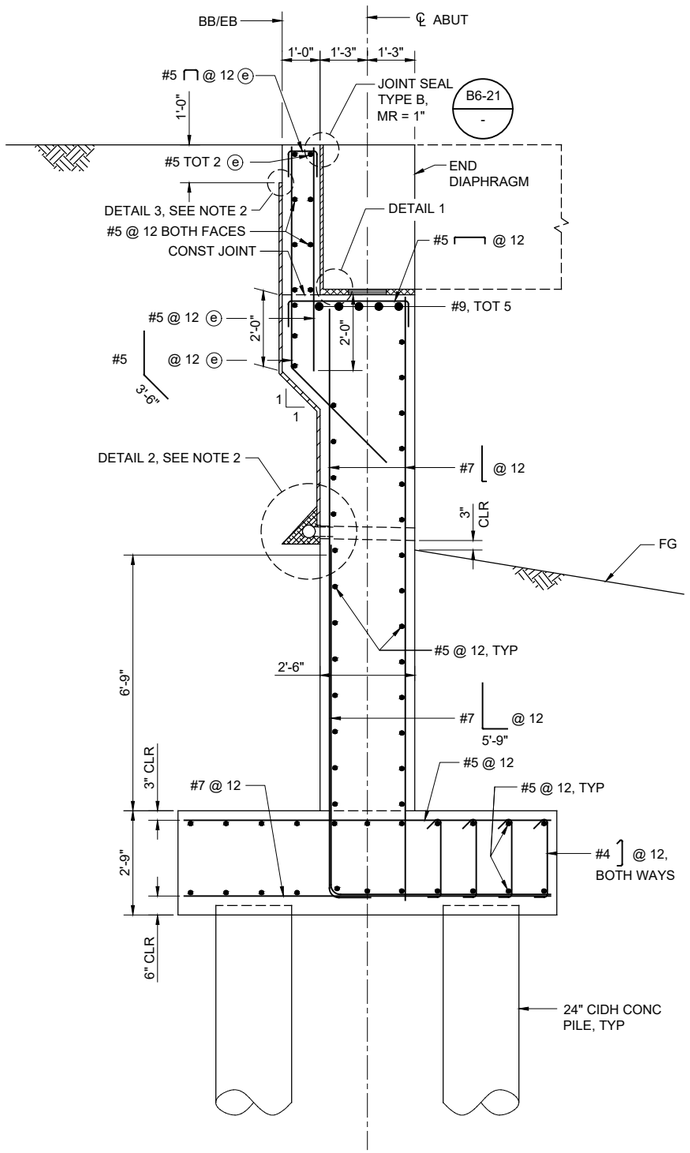
SHEET 19 OF 33 SHEETS

FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

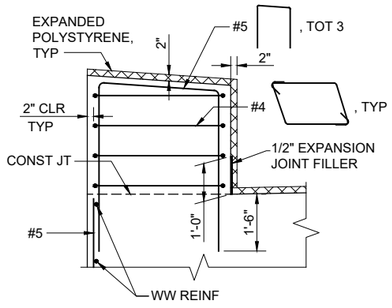
Drawing Name: P-574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 06, 2020 - 3:36pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	20	33



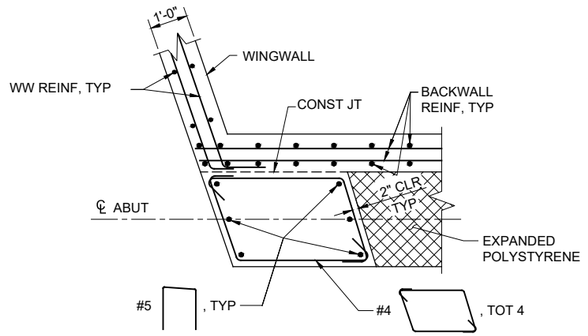
SECTION A-A

1/2" = 1'-0'



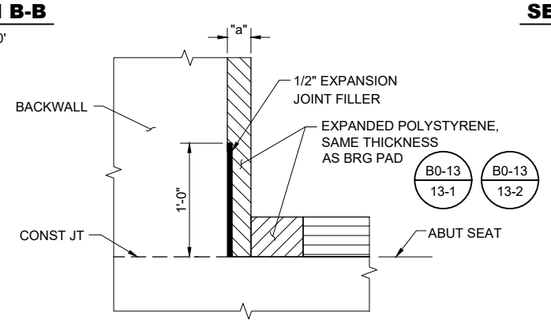
SECTION B-B

1/2" = 1'-0'



SECTION C-C

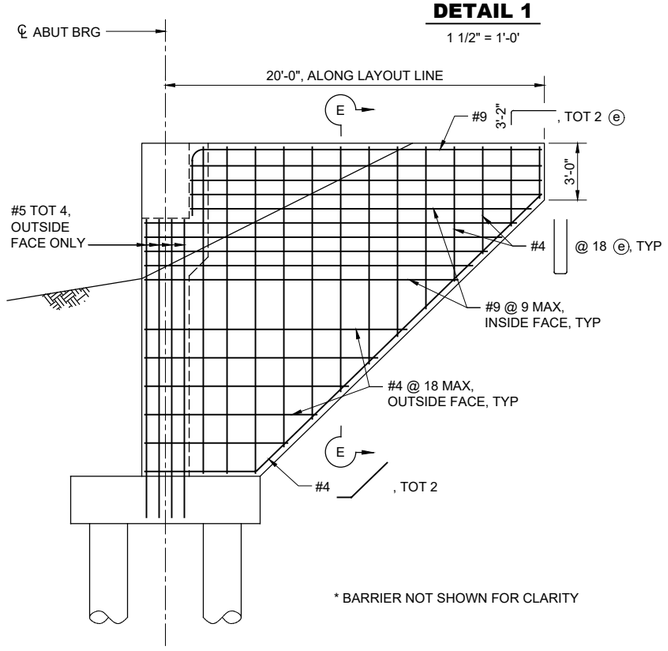
1/2" = 1'-0'



NOTE: FOR DIMENSION "a", SEE STANDARD PLAN B6-21

DETAIL 1

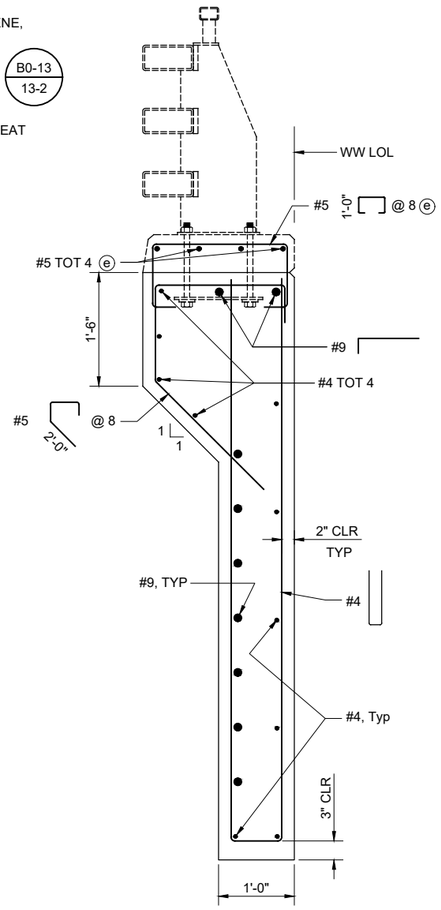
1 1/2" = 1'-0'



* BARRIER NOT SHOWN FOR CLARITY

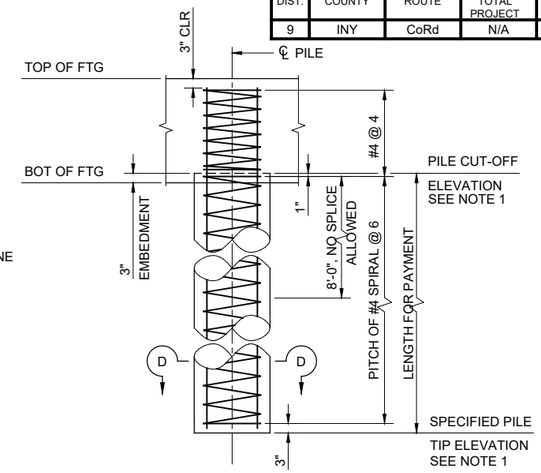
WINGWALL ELEVATION

1/4" = 1'-0'



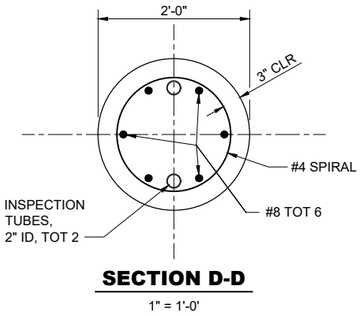
SECTION E-E

1" = 1'-0'



PILE ELEVATION

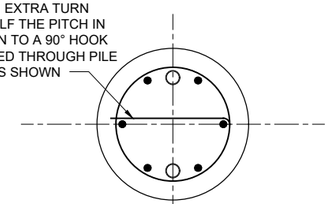
1/2" = 1'-0'



SECTION D-D

1" = 1'-0'

SPIRAL TERMINATIONS TO HAVE AN EXTRA TURN WITH HALF THE PITCH IN ADDITION TO A 90° HOOK EXTENDED THROUGH PILE CORE, AS SHOWN



SPIRAL TERMINATION DETAIL

1" = 1'-0'

LEGEND:

(e) INDICATES EPOXY COATED REINFORCEMENT

NOTES:

1. SEE "FOUNDATION PLAN" SHEET FOR SPECIFIED TIP ELEVATIONS.
2. FOR DETAIL 2 AND DETAIL 3, SEE "ABUTMENT DETAILS NO. 2" SHEET.

MGE ENGINEERING, INC.
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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	P. ZHAO	01FEB20
CHECKED	Y. DENG	01FEB20
RECOMMENDED	W. SENNETT	01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ABUTMENT DETAILS NO. 1

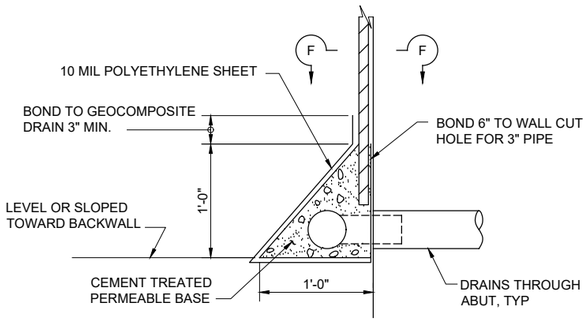
SHEET **20** OF **33** SHEETS

FED PROJ NO.: XXX(YYY)

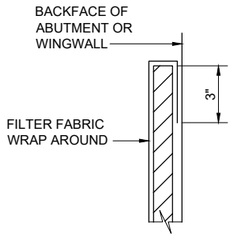
C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 09, 2020 - 4:19pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	21	33



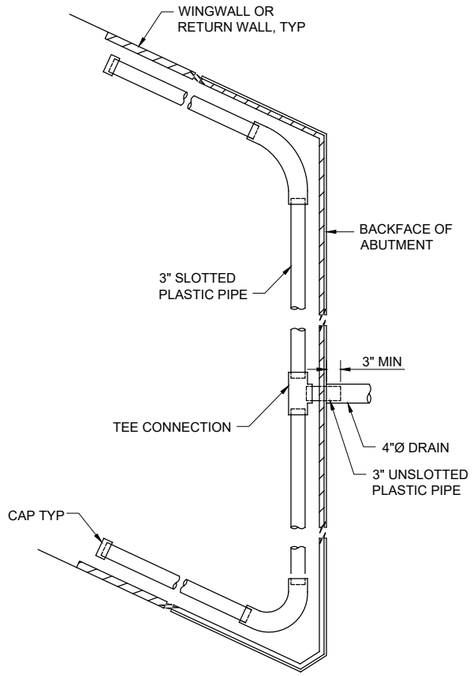
DETAIL 2



DETAIL 3

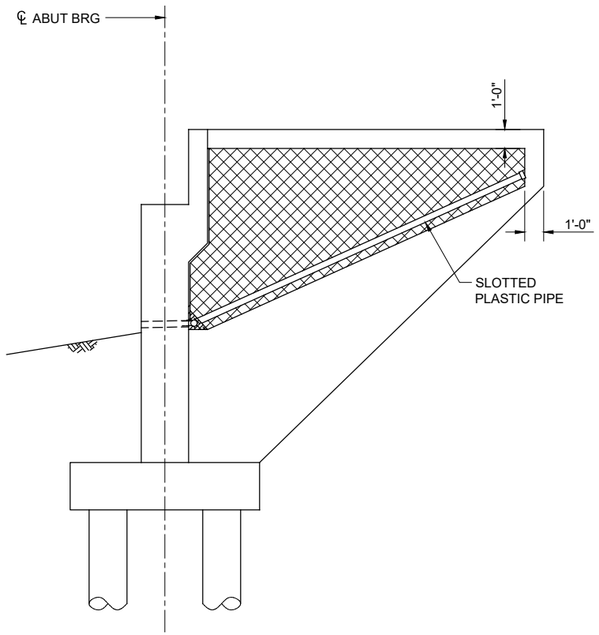
WEEP HOLE AND GEOCOMPOSITE DRAIN

NO SCALE



SECTION F-F

3/4" = 1'-0"



WINGWALL DRAIN ELEVATION VIEW

1/4" = 1'-0'

NOTES:

1. GEOCOMPOSITE DRAIN, CEMENT TREATED PERMEABLE BASE, AND 3"Ø SLOTTED PLASTIC PIPE CONTINUOUS BEHIND ABUTMENT & WINGWALLS. CAP ENDS OF PIPE. PROVIDE "TEE" CONNECTION AT EACH 4"Ø DRAIN.

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED PROFESSIONAL ENGINEER WESLEY M. SENNETT NO. 82031 CIVIL STATE OF CALIFORNIA

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

	DATE
DRAWN P. ZHAO	01FEB20
CHECKED Y. DENG	01FEB20
RECOMMENDED W. SENNETT	01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

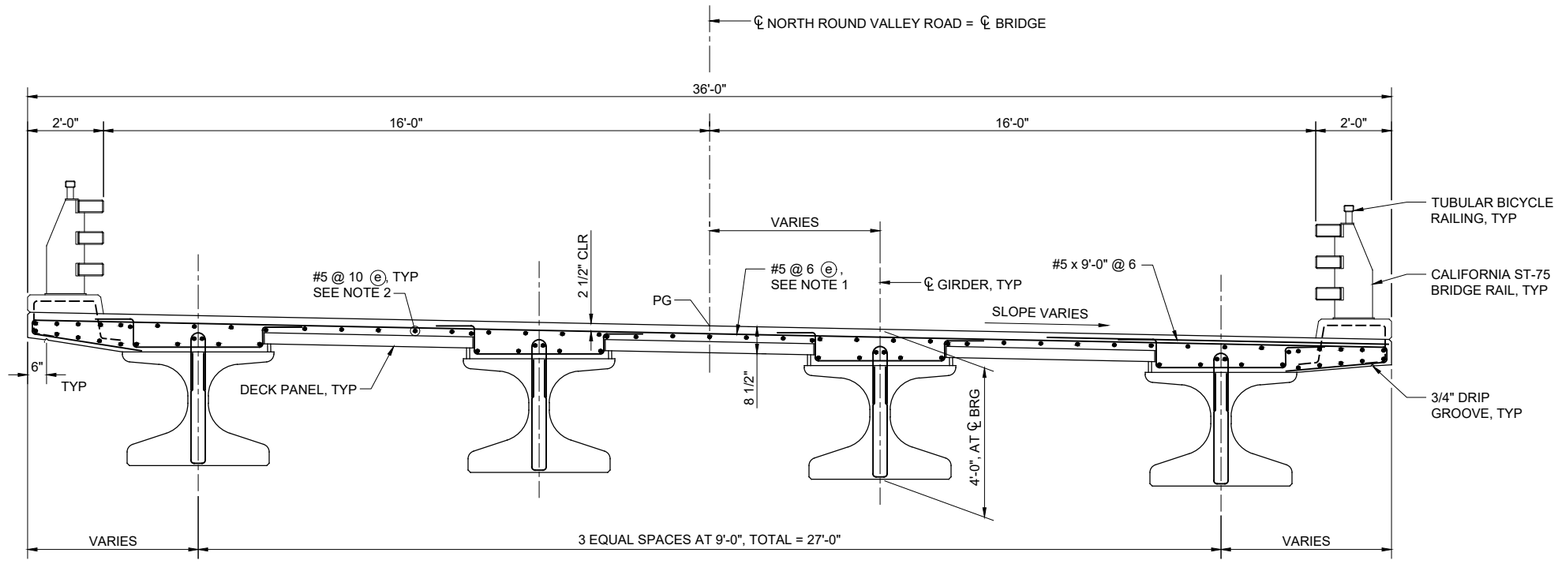
ABUTMENT DETAILS NO. 2

SHEET **21** 0F **33** SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

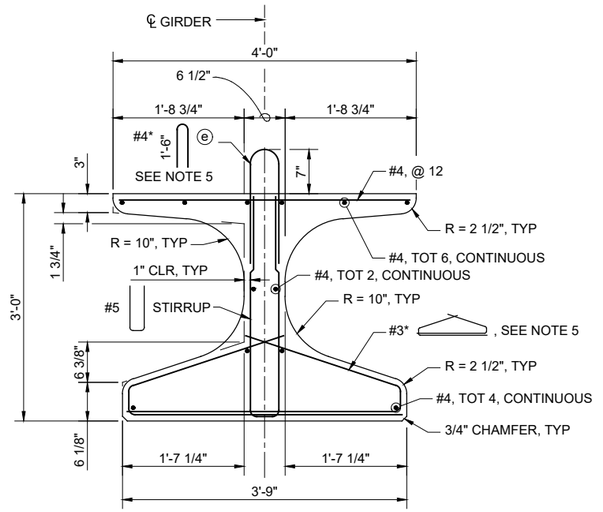
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 03, 2020 - 3:07pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	22	33



TYPICAL SECTION

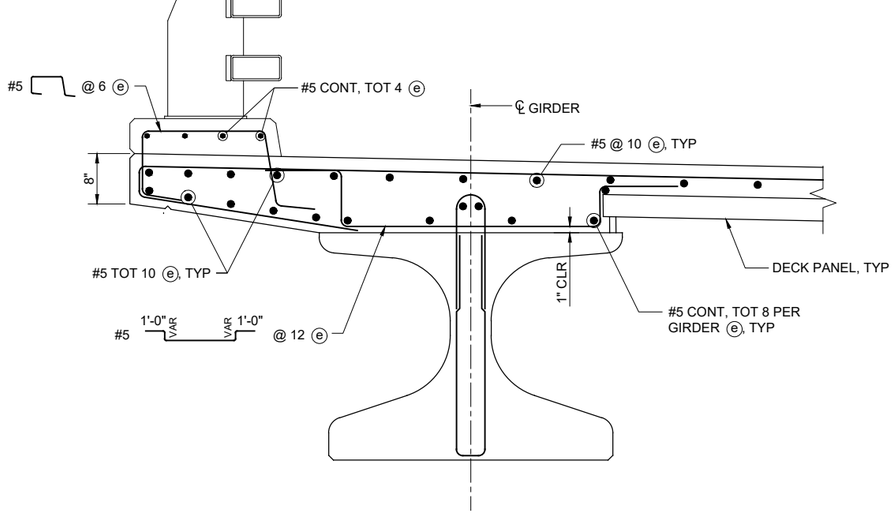
1/2" = 1'-0'



* MATCH STIRRUP SPACING.

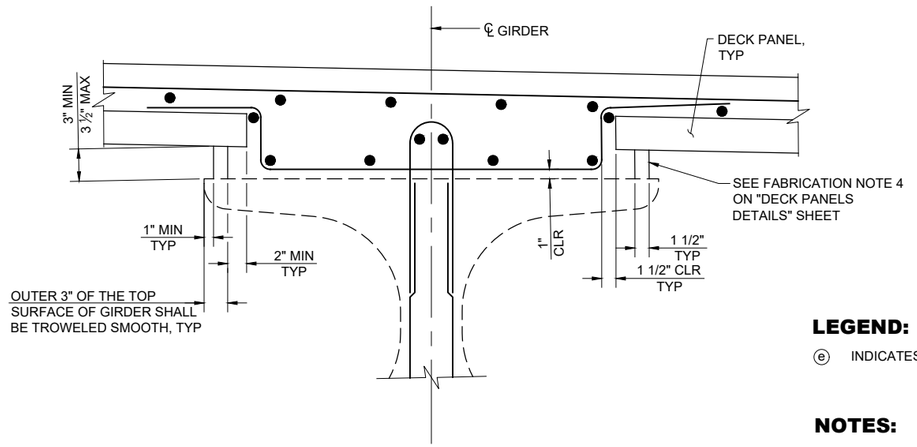
TYPICAL GIRDER SECTION

1" = 1'-0'



PARTIAL SECTION

1" = 1'-0'



CAMBER STRIP DETAILS

1 1/2" = 1'-0'

LEGEND:

ⓔ INDICATES EPOXY COATED REINFORCEMENT

NOTES:

1. PLACE REINF PARALLEL TO CENTER LINE ABUTMENT.
2. PLACE REINF PARALLEL TO CENTER LINE NORTH ROUND VALLEY ROAD.
3. FOR STIRRUP SPACING, SEE "GIRDER DETAILS" SHEET.
4. FOR DECK PANEL DETAILS NOT SHOWN, SEE "DECK PANEL DETAILS" SHEET.
5. SPACING TO MATCH STIRRUPS, SEE GIRDER ELEVATION ON "GIRDER DETAILS" SHEET.

MGE ENGINEERING, INC.
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SACRAMENTO, CALIFORNIA 95831
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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE
INYO COUNTY
DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	DATE
P. ZHAO	01FEB20
CHECKED	DATE
Y. DENG	01FEB20
RECOMMENDED	DATE
W. SENNETT	01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

TYPICAL SECTION

SHEET **22** OF **33** SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P-574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 09, 2020 - 10:15am by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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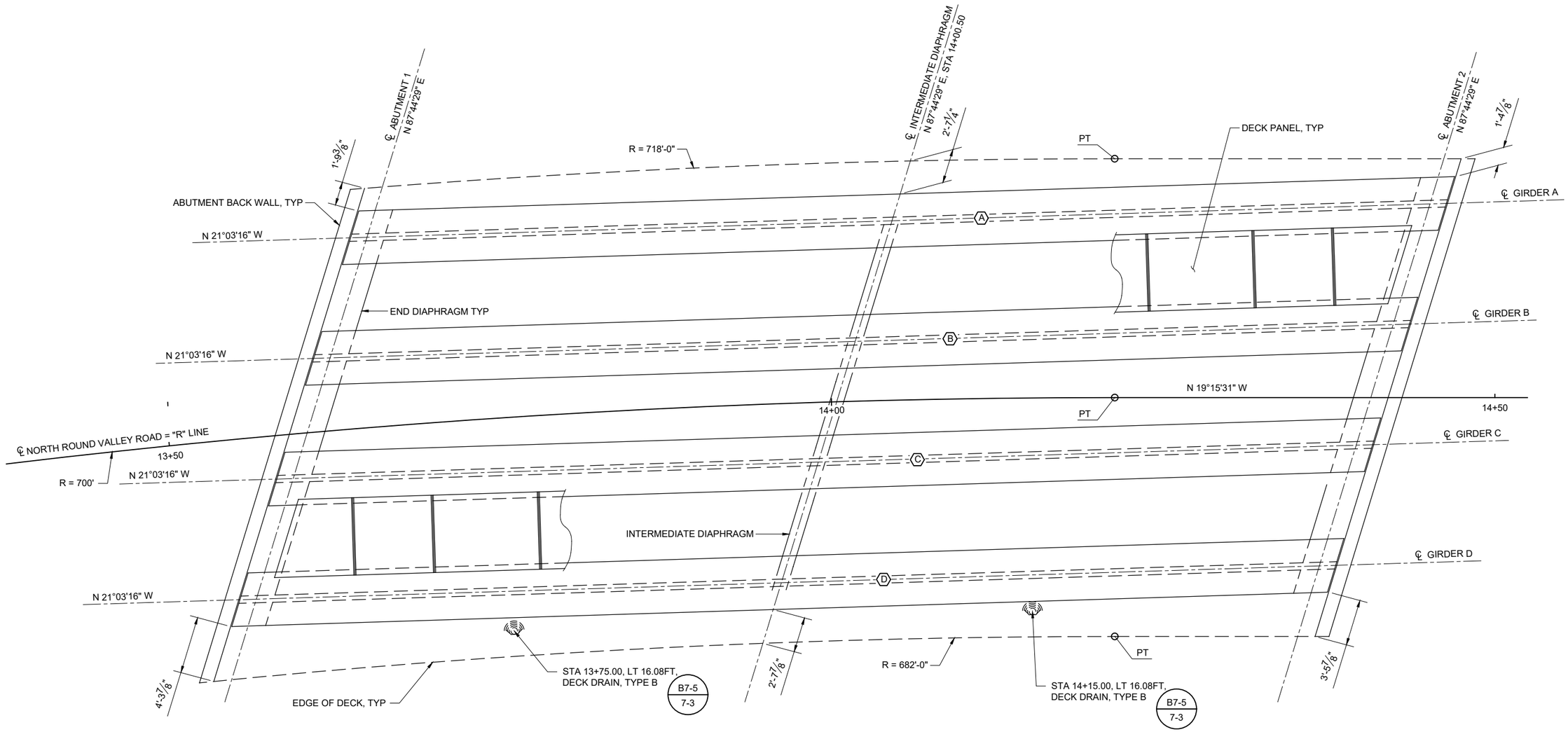

GIRDER LAYOUT

1/4" = 1'-0'

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SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
WESLEY M. SENNETT
NO. 82031
CIVIL
STATE OF CALIFORNIA

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BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

GIRDER LAYOUT

SHEET **23** OF **33** SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 03, 2020 - 3:35pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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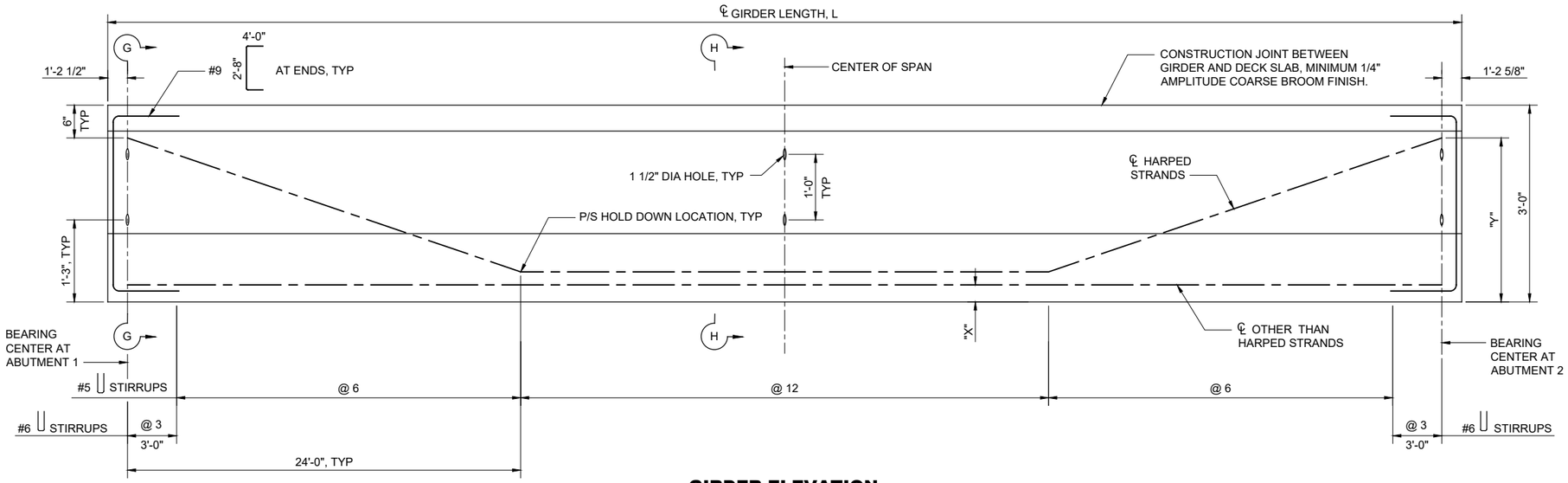


GIRDER ELEVATION

HORIZONTAL 1/4" = 1'-0'
VERTICAL 1" = 1'-0'

GIRDER SCHEDULE

LOCATION	GIRDER LENGTH (L)*	NO. OF 0.6" DIA. STRANDS	JACK FORCE (KIPS)	MIDSPAN DEFLECTION (IN)		
				DECK	BARRIER	WEARING
GIRDER A	82'-7 1/4"	40	1758	1.57	0.05	0.13
GIRDER B	82'-7 1/4"	40	1758	1.57	0.05	0.13
GIRDER C	82'-7 1/4"	40	1758	1.57	0.05	0.13
GIRDER D	82'-7 1/4"	40	1758	1.57	0.05	0.13

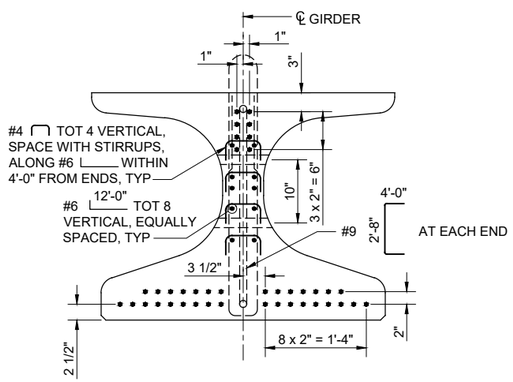
* GIRDER LENGTH IS PLAN LENGTH AND DOES NOT INCLUDE GRADE EFFECTS.

STRAND SCHEDULE

ROW NO.	NO. OF STRAIGHT STRANDS	NO. OF HARPED STRANDS	"X"	"Y"
4	-	2	8 1/2"	2'-9"
3	-	2	6 1/2"	2'-7"
2	14	2	4 1/2"	2'-5"
1	18	2	2 1/2"	2'-3"

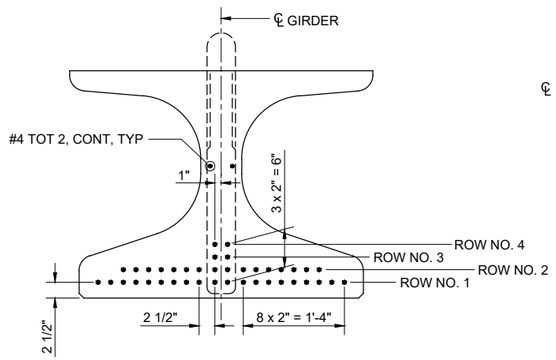
PRESTRESSING NOTES:

1. THE JACKING FORCE, P_{JACK}, IS THE JACKING FORCE REQUIRED AT THE POINT OF CONTROL ALONG THE SPAN. THE JACKING FORCE DOES NOT INCLUDE ANY FABRICATION SPECIFIC LOSSES.
2. THE MAXIMUM TEMPORARY TENSILE STRESS (JACKING STRESS) IN THE PRESTRESSING STEEL SHALL NOT EXCEED 75% OF THE SPECIFIED MINIMUM ULTIMATE TENSILE STRENGTH OF THE PRESTRESSING STEEL.
3. GIRDER CONCRETE STRENGTH:
   f'_{ci} = 7 KSI f'_c = 8 KSI
   f'_{ci} IS AT TIME OF INITIAL STRESSING; f'_c IS AT 28 DAYS
4. PRESTRESSING STRAND SHALL BE 270 KSI LOW RELAXATION.
5. FOR THE PRESTRESSING THERE SHALL BE A MINIMUM OF TWO HOLD DOWN PER GIRDER.
6. STRANDS SHALL BE PLACED AS LOW AS POSSIBLE IN THE STRAND TEMPLATE AND SYMMETRICAL ABOUT THE CENTER LINE OF GIRDER.
7. STRAND LOCATIONS MAY BE ADJUSTED AS APPROVED BY THE ENGINEER.



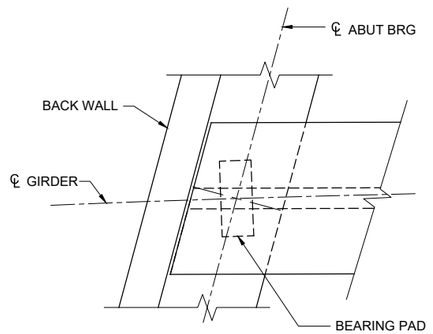
SECTION G-G

1" = 1'-0'



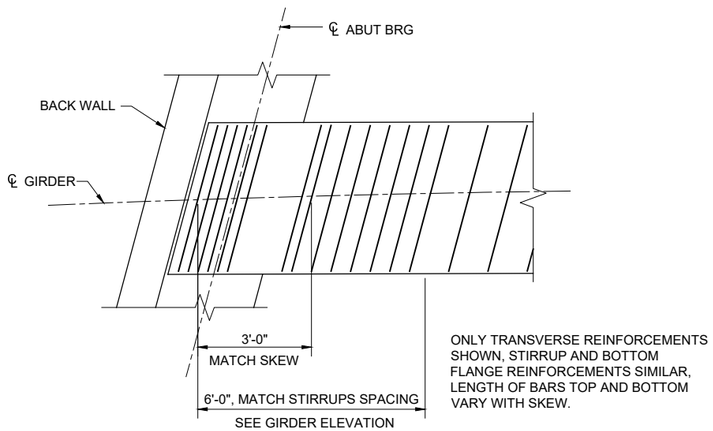
SECTION H-H

1" = 1'-0'



GIRDER DETAIL AT ABUTMENT

1/2" = 1'-0'



TRANSVERSE REINFORCING SKEWED ENDS

1/2" = 1'-0'

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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 01FEB20
CHECKED	Y. DENG	DATE 01FEB20
RECOMMENDED	W. SENNETT	DATE 01FEB20

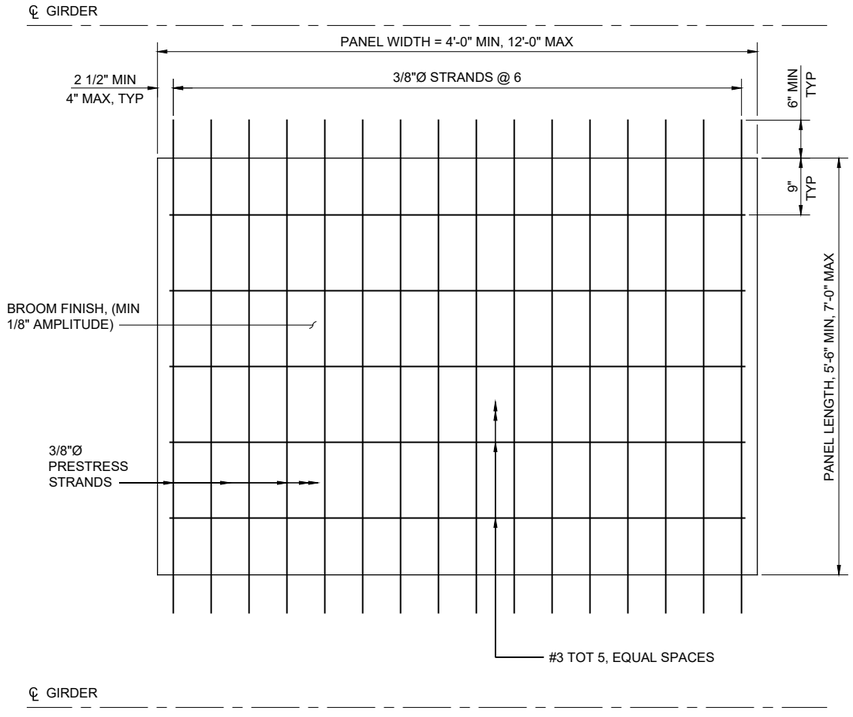
BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

GIRDER DETAILS

SHEET 24 OF 33 SHEETS

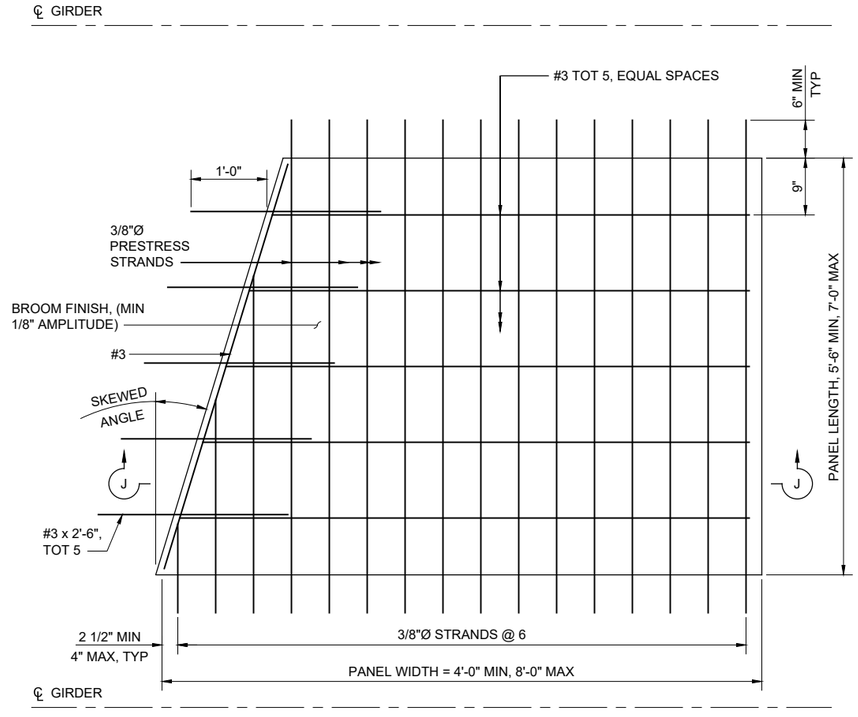
FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	25	33



PLAN - TYPICAL PANEL

1" = 1'-0'



SKEWED END PANEL

1" = 1'-0'

DESIGN NOTES:

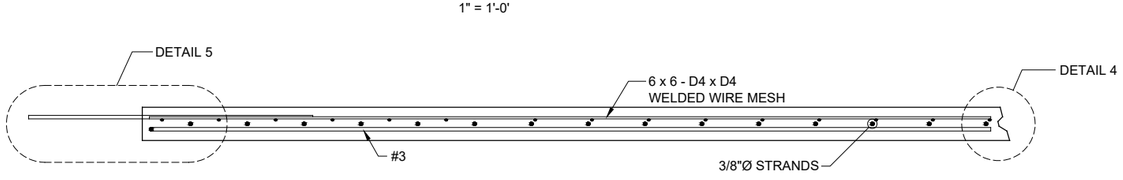
1. PANELS: DESIGN SHALL BE IN ACCORDANCE WITH AASHTO LRFD SPECIFICATIONS WITH CALTRANS AMENDMENTS AND STANDARD SPECIFICATIONS FOR CONSTRUCTION LOADS.
2. CONCRETE STRENGTH: PRECAST PRETENSIONED PANELS: f'_c = 5,000 PSI AT 28 DAYS; f'_{ci} = 4,000 PSI AT RELEASE. PRELIMINARY CONCRETE DECK POUR MATERIAL SHALL USE AN APPROVED MIX DESIGN TO ENSURE ADEQUATE STRENGTH AND FLOWABILITY FOR DECK PANEL SUPPORT.
3. PRESTRESSING STEEL: ALL STRANDS SHALL BE 3/8" Ø, GRADE 270, SEVEN WIRE LOW RELAXATION STRANDS CONFORMING TO ASTM A416. JACKING FORCE = 0.75 x 270 KSI x 0.085 IN^2 = 17.2 KIPS/STRAND. WORKING FORCE (AFTER LOSSES) = 15.6 KIPS/STRAND.
4. CAMBER STRIPS: MATERIAL FOR CAMBER STRIPS (SERVING AS PANEL SUPPORT AND DAMS) SHALL BE CONTINUOUS, HIGH-DENSITY, EXPANDED POLYSTYRENE STRIPS WITH A MINIMUM COMPRESSIVE STRENGTH OF 55 PSI. STRIPS SHALL CONSIST OF ONE LAYER WITH 1" WIDTH AND HEIGHT IN ACCORDANCE WITH DIMENSIONS, 1" MINIMUM AND 2" MAXIMUM.
5. WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A497, GRADE 70.

DECK PANEL SEQUENCE:

1. PLACE POLYSTYRENE CAMBER STRIPS (PANEL SUPPORT AND DAMS) WITH ADHESIVE ALONG TOP OF GIRDERS AFTER PLACEMENT OF GIRDERS.
2. PLACE DECK PANELS ON CAMBER STRIPS.
3. PLACE SUPPLEMENTARY U-BARS AND ASSOCIATED REBAR (WHERE REQUIRED).
4. PLACE AND VIBRATE HAUNCH AND DECK CONCRETE IN A CONTINUOUS POUR ENSURING THAT HAUNCH CONCRETE IS PLACED A MINIMUM OF THREE PANEL LENGTHS AHEAD OF THE LEADING EDGE OF THE DECK CONCRETE.

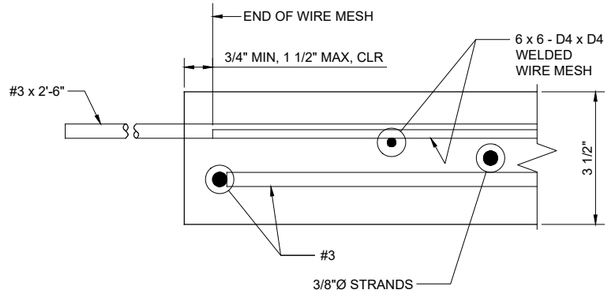
FABRICATION NOTES:

1. PANELS: CARE SHALL BE TAKEN TO AVOID APPLYING EXCESSIVE PRETENSIONING FORCE DURING FABRICATION. A PANEL LAYOUT WHICH IDENTIFIES THE LOCATION OF EACH PANEL SHALL BE DEVELOPED BY THE FABRICATOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. PANELS SHALL BE PERMANENTLY MARKED IN ACCORDANCE WITH PANEL LAYOUT. PANEL LENGTH SHALL BE SET TO PROVIDE A BEARING WIDTH OF 2" MINIMUM FOR THE BEDDING MATERIAL. PRESTRESSING STRANDS SHALL EXTEND 6" MINIMUM OUTSIDE THE PANEL ENDS AND SHALL BE LOCATED AT THE PANEL CENTROID AT THE REQUIRED SPACING. A MINIMUM OF 90% OF THE PANEL TOP SURFACE AREA SHALL BE BROOM FINISHED TO AN AMPLITUDE OF 1/8" MINIMUM. FINISH SHALL BE PARALLEL WITH STRAND. PANEL EDGES PARALLEL TO STRAND SHALL BE BEVELED.
2. CAMBER STRIP: POLYSTYRENE CAMBER STRIPS SHALL HAVE 1/2" x 1/2 " SLOTS. CAMBER STRIPS SHALL BE CUT AND PLACED TO MATCH THE REQUIRED PROFILE ALONG THE GIRDERS AND SHALL VARY IN HEIGHT ACROSS THE GIRDER TO ACCOUNT FOR ROADWAY CROSS SLOPE.



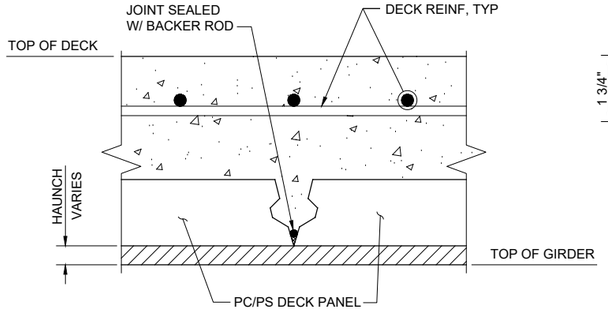
SECTION J-J

1 1/2" = 1'-0'



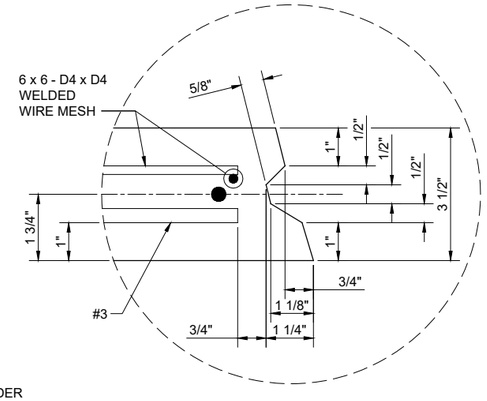
DETAIL 5

6" = 1'-0"



SECTION AT LONGITUDINAL DECK PANEL JOINT

3" = 1'-0"



DETAIL 4

6" = 1'-0"

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE CAMBER STRIP DURING CONSTRUCTION OPERATIONS.
2. THE ATTACHMENT OF THE CAMBER STRIP PER THE DETAILS SHOWN MAY BE OMITTED PROVIDED THE APPROVED ADHESIVE ATTACHMENT IS STABLE DURING THE PLACEMENT OF THE DECK POUR.

MGE ENGINEERING, INC.
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REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

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DRAWN	P. ZHAO	DATE 01FEB20
CHECKED	Y. DENG	DATE 01FEB20
RECOMMENDED	W. SENNETT	DATE 01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

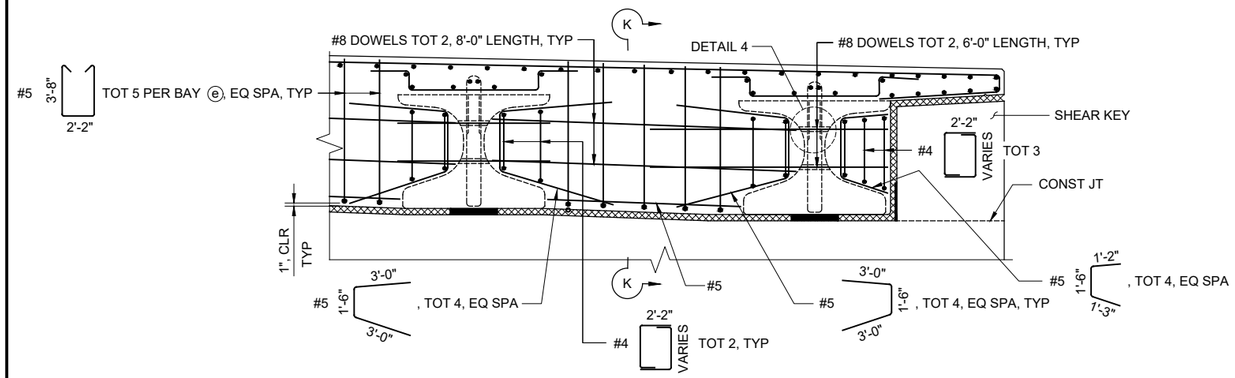
DECK PANEL DETAILS

SHEET 25 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

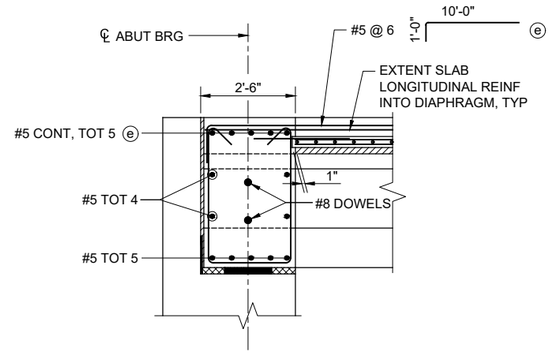
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 03, 2020 - 4:28pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	26	33



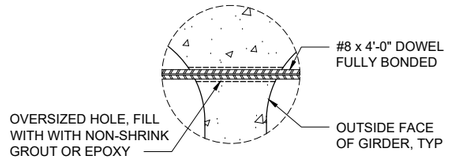
END DIAPHRAGM

1/2" = 1'-0"



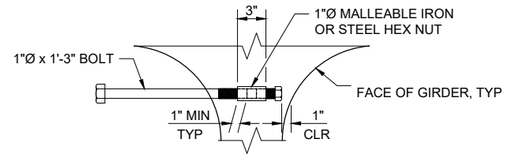
SECTION K-K

1/2" = 1'-0"



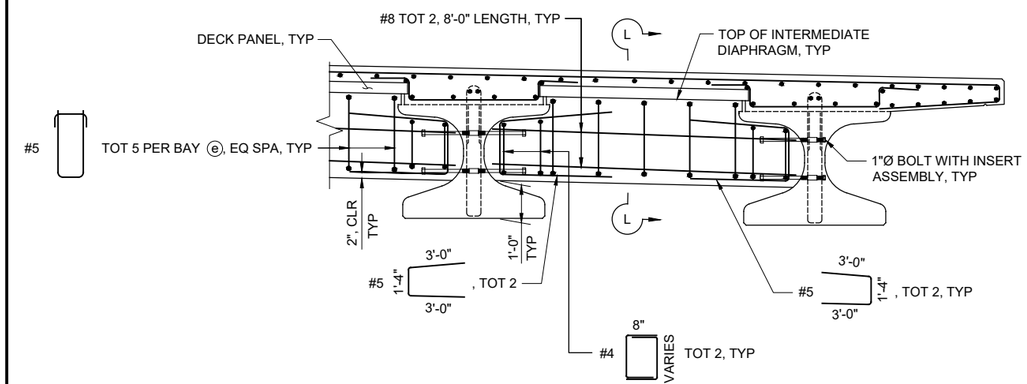
DETAIL 4

1 1/2" = 1'-0"



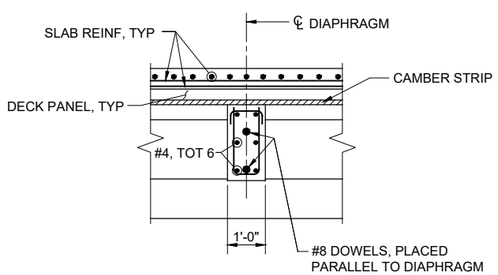
INSERT ASSEMBLY

NO SCALE



INTERMEDIATE DIAPHRAGM

1/2" = 1'-0"



SECTION L-L

1/2" = 1'-0"

LEGEND:

ⓔ INDICATES EPOXY COATED REINFORCEMENT

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
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REGISTERED ENGINEER - CIVIL

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BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

DIAPHRAGM DETAILS

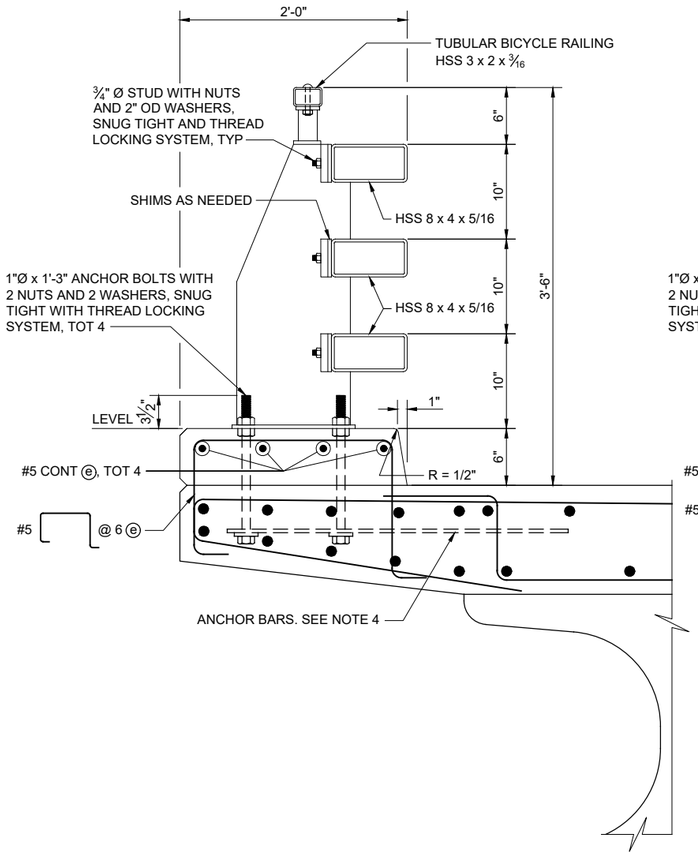
SHEET 26 OF 33 SHEETS

FED PROJ NO.: XXX(YYY)

C.R. XXXA, M.P. 0.00

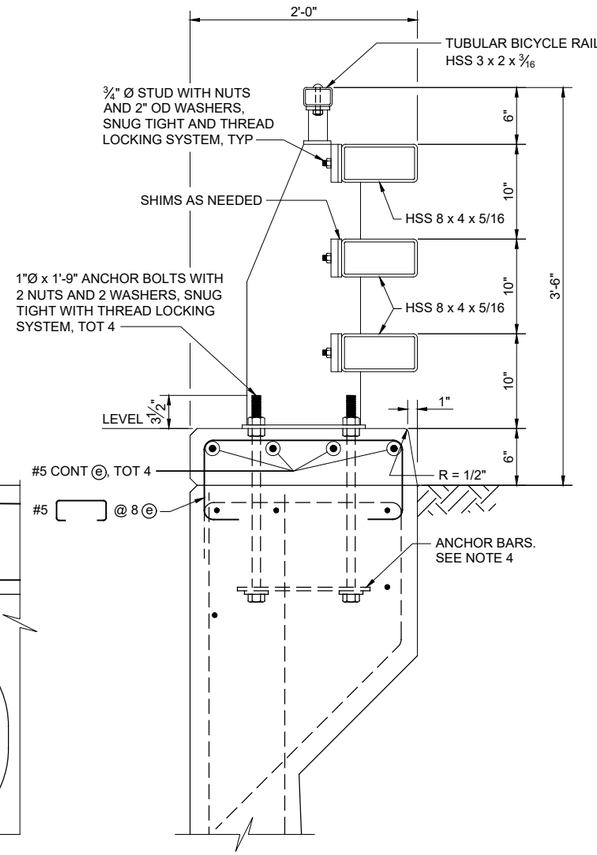
Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 09, 2020 - 10:20am by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	27	33



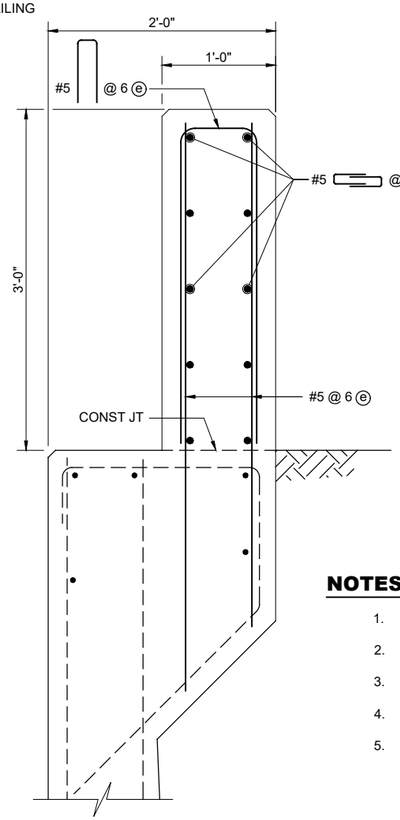
SECTION L-L

1 1/2" = 1'-0'



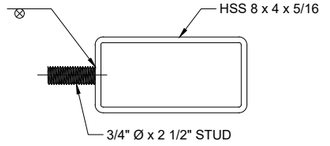
SECTION M-M

1 1/2" = 1'-0'



SECTION N-N

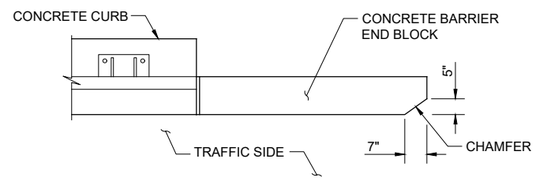
1 1/2" = 1'-0'



RAIL SECTION AT POST

3" = 1'-0'

⊗ INDICATES STUD WELD

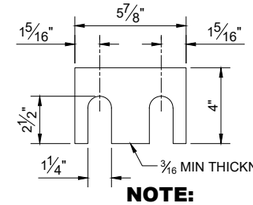


PLAN VIEW - END BLOCK

1/2" = 1'-0'

NOTES

1. ALL HORIZONTAL MEMBERS ARE PARALLEL TO LONGITUDINAL PROFILE GRADE.
2. POSTS ARE NORMAL TO PROFILE GRADE OF STRUCTURE.
3. POSTS ARE VERTICAL TO THE TRANSVERSE CROSS SECTION.
4. FOR ANCHOR BAR DETAILS, SEE "ST-75 BRIDGE RAIL DETAILS NO. 3" SHEET.
5. PLACE EXPANSION SPLICE AT THE BAY NEXT TO BRIDGE DECK JOINT.



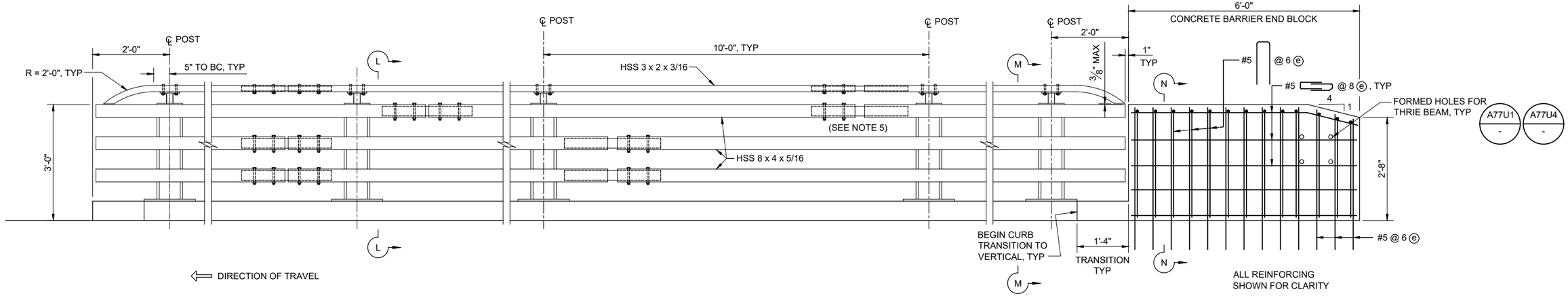
NOTE:
SHIMS AS NEEDED BETWEEN POSTS AND HSS RAIL TUBES.

SHIM DETAILS

3" = 1'-0'

LEGEND

(e) - INDICATES EPOXY COATED REINF.



ELEVATION

3/4" = 1'-0"

END BLOCK

(APPROACH)

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 01FEB20
CHECKED	Y. DENG	DATE 01FEB20
RECOMMENDED	W. SENNETT	DATE 01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ST-75 BRIDGE RAIL DETAILS NO. 1

SHEET 27 0F 33 SHEETS

FED PROJ NO.: XXX(YYY)

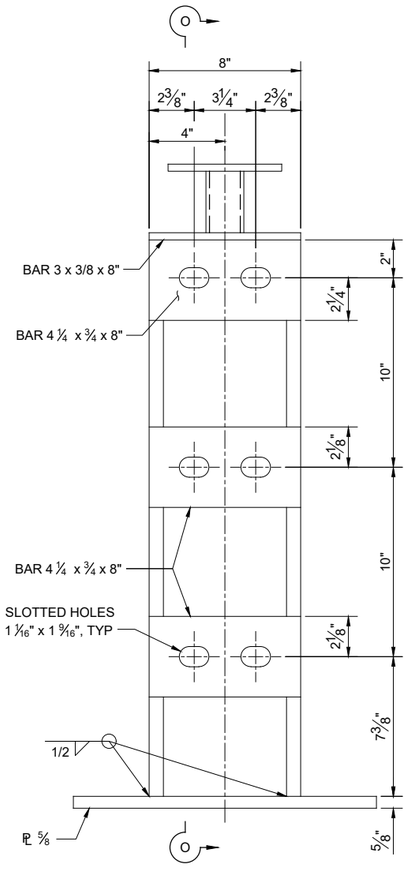
C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 09, 2020 - 10:22am by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	28	33

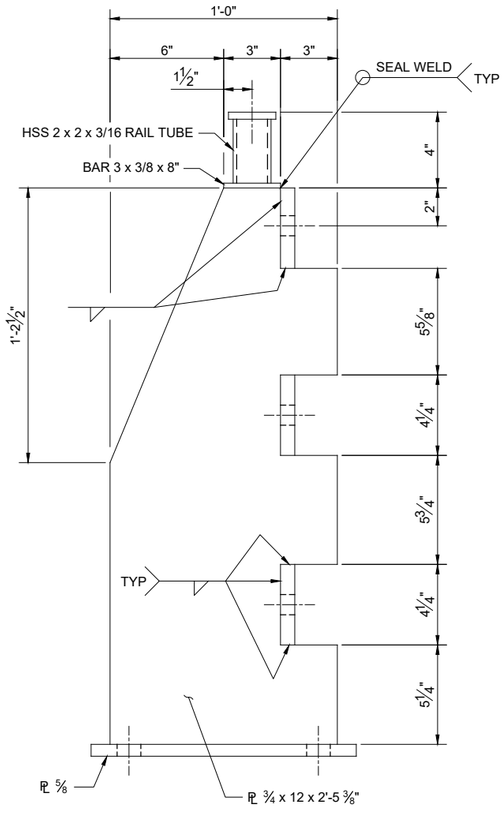
NOTES

1. ANCHOR BOLTS MAY BE TACK WELDED (SHOP OR FIELD) TO ANCHORAGE.
2. EACH RAIL LENGTH MUST BE CONTINUOUS OVER A MINIMUM OF TWO POSTS.
3. THE FABRICATOR MUST CHECK THAT THE TUBULAR SLEEVE SPLICES CONFORM TO THE DIMENSIONS INDICATED TO ASSURE PROPER CLEARANCE.
4. EXCEPT FOR EXPANSION SPLICES, NOT MORE THAN ONE SPLICE PERMITTED PER SAME SIDE OF POST.



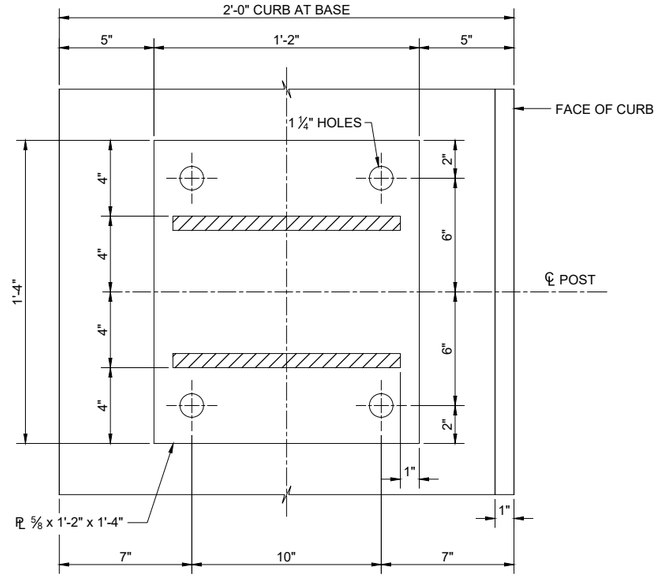
POST DETAIL

3" = 1'-0'



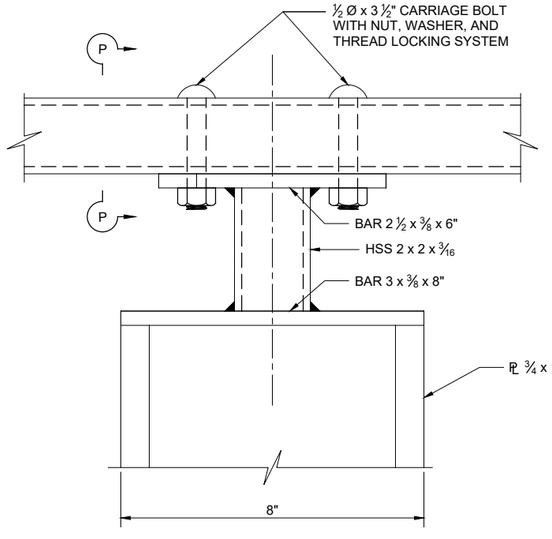
SECTION O-O

3" = 1'-0'

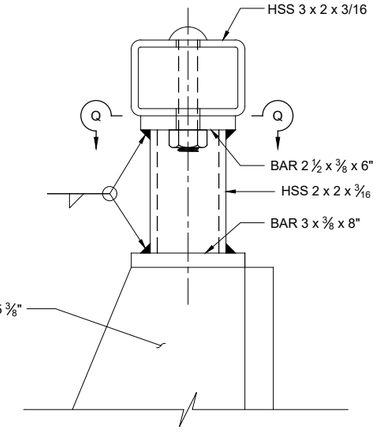


BASE PLATE

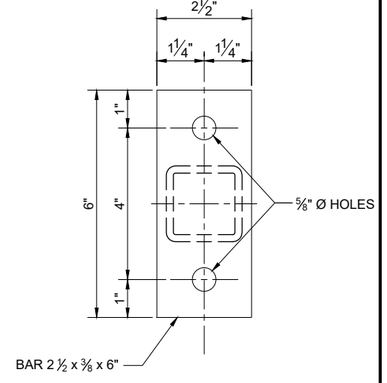
3" = 1'-0'



ELEVATION



SECTION P-P



SECTION Q-Q

RAIL CONNECTION DETAILS

6" = 1'-0"

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

		DATE
DRAWN	P. ZHAO	01FEB20
CHECKED	Y. DENG	01FEB20
RECOMMENDED	W. SENNETT	01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

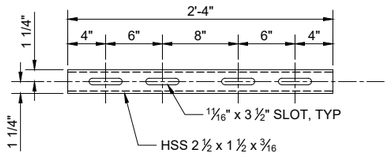
ST-75 BRIDGE RAIL DETAILS NO. 2

SHEET **28** OF **33** SHEETS

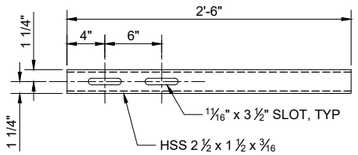
FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 03, 2020 - 4:56pm by Peter

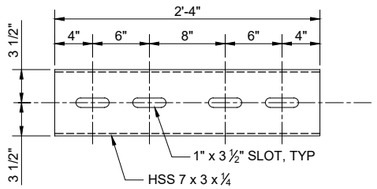
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	CoRd	N/A	29	33



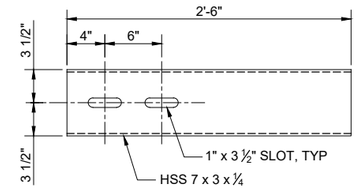
(FOR HSS 3 x 2 x ³⁄₁₆ RAIL)



(FOR HSS 3 x 2 x ³⁄₁₆ RAIL)



(FOR HSS 8 x 4 x ⁵⁄₁₆ RAIL)



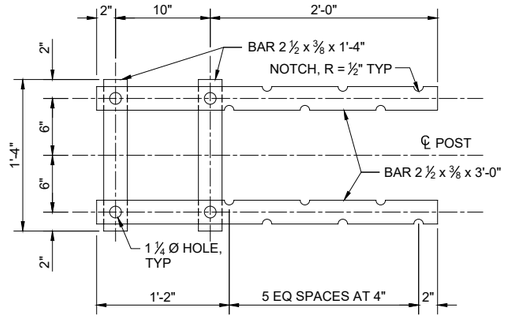
(FOR HSS 8 x 4 x ⁵⁄₁₆ RAIL)

STANDARD SLEEVE DETAILS

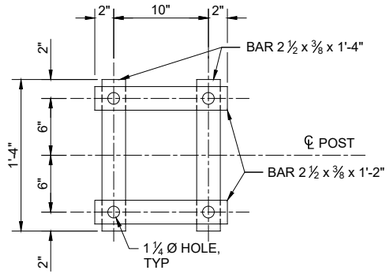
1 1/2" = 1'-0"

EXPANSION SLEEVE DETAILS

1 1/2" = 1'-0"



(AT DECK)



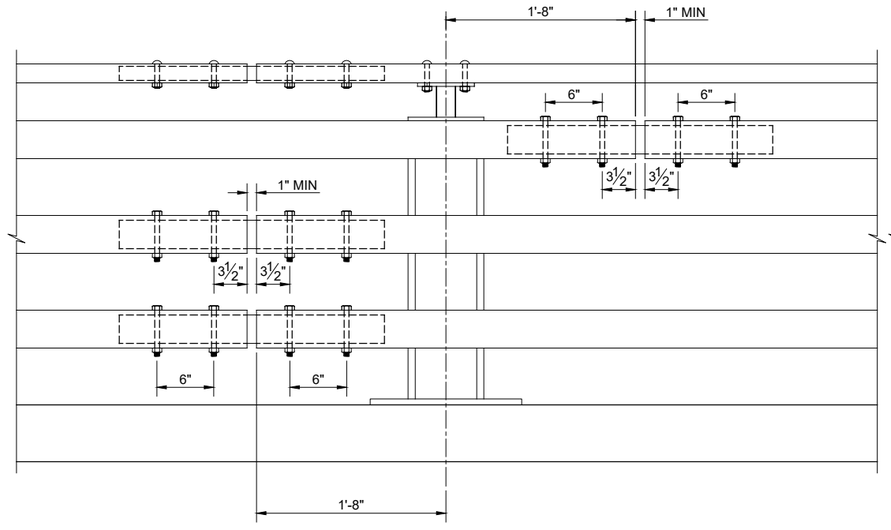
(AT WINGWALL OR RETURN WALL)

ANCHOR BAR DETAILS

1 1/2" = 1'-0"

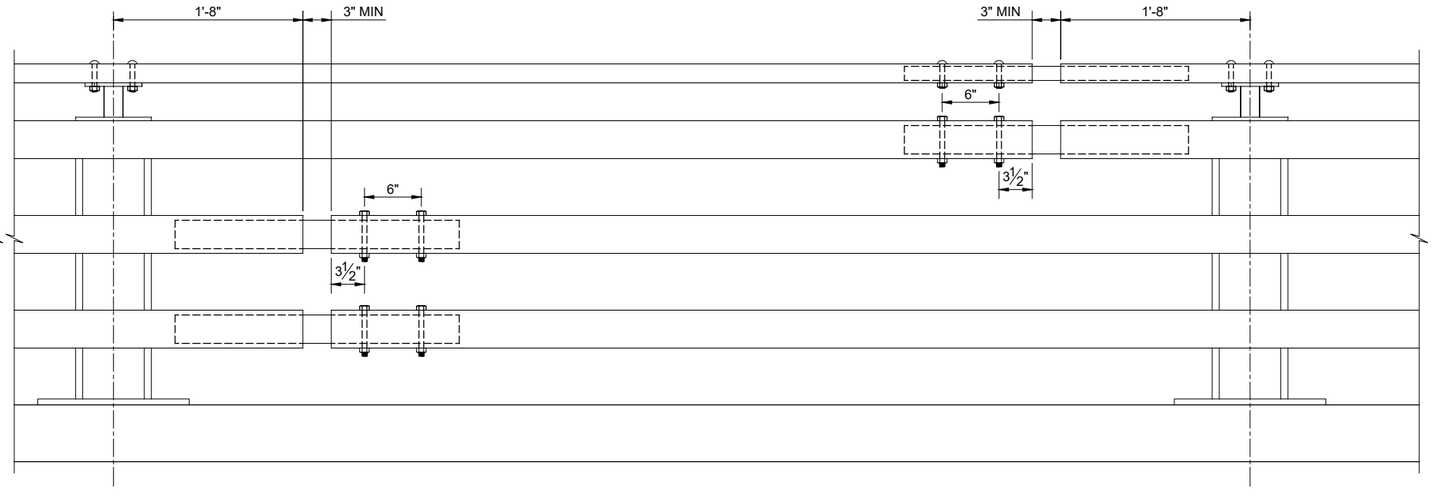
NOTES

1. HS BOLTS WITH NUT AND WASHERS, SNUG TIGHTENED, AND THREAD LOCKING SYSTEM.
2. USE ½ Ø x 3 ⁵⁄₁₆ (HSS 3 x 2 x ³⁄₁₆)
   USE ¾ Ø x 5 ⁵⁄₁₆ (HSS 8 x 4 x ⁵⁄₁₆)



STANDARD SPLICE

1 1/2" = 1'-0"



EXPANSION SPLICE

1 1/2" = 1'-0"

MGE ENGINEERING, INC.
7415 GREENHAVEN DRIVE, SUITE 100
SACRAMENTO, CALIFORNIA 95831
TEL: (916) 421-1000

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — WESLEY M. SENNETT — NO. 82031 — CIVIL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	P. ZHAO	DATE 01FEB20
CHECKED	Y. DENG	DATE 01FEB20
RECOMMENDED	W. SENNETT	DATE 01FEB20

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
OVER PINE CREEK
BRIDGE NO. 48C0044

ST-75 BRIDGE RAIL DETAILS NO. 3

SHEET 29 0F 33 SHEETS

FED PROJ NO.: XXX(YYY)

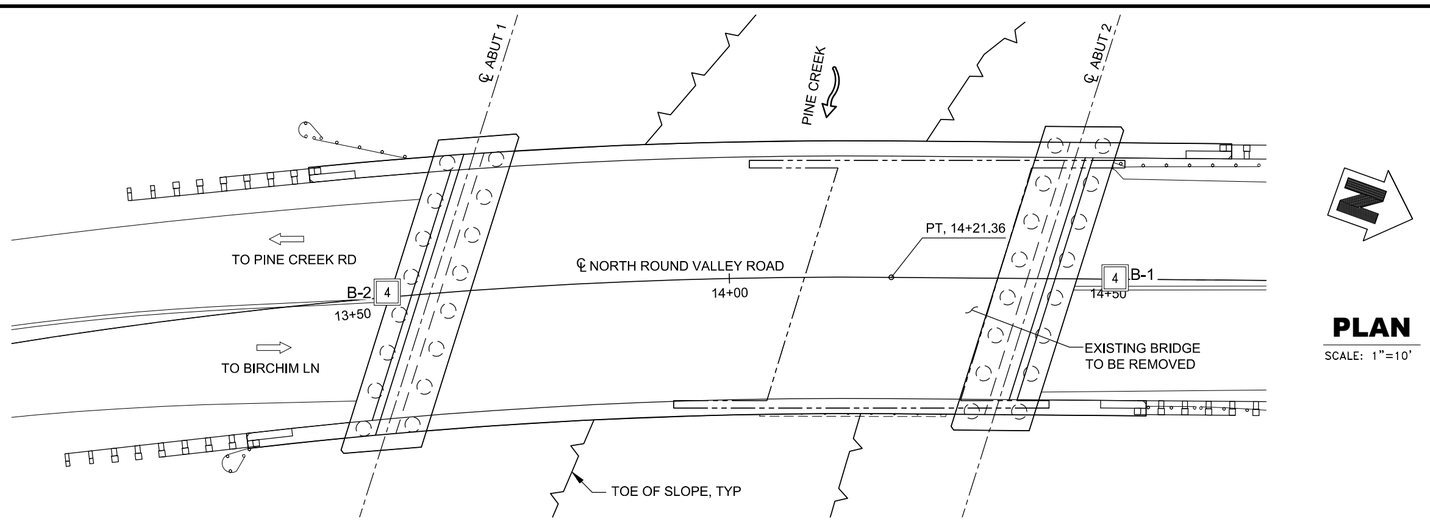
C.R. XXXA, M.P. 0.00

Drawing Name: P:\574 North Round Valley Rd Bridge Replacement - Inyo County\06 CAD\Structure\574 DETAILS.dwg
Last Opened: Mar 03, 2020 - 4:59pm by Peter

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	N/A	N/A	30	33

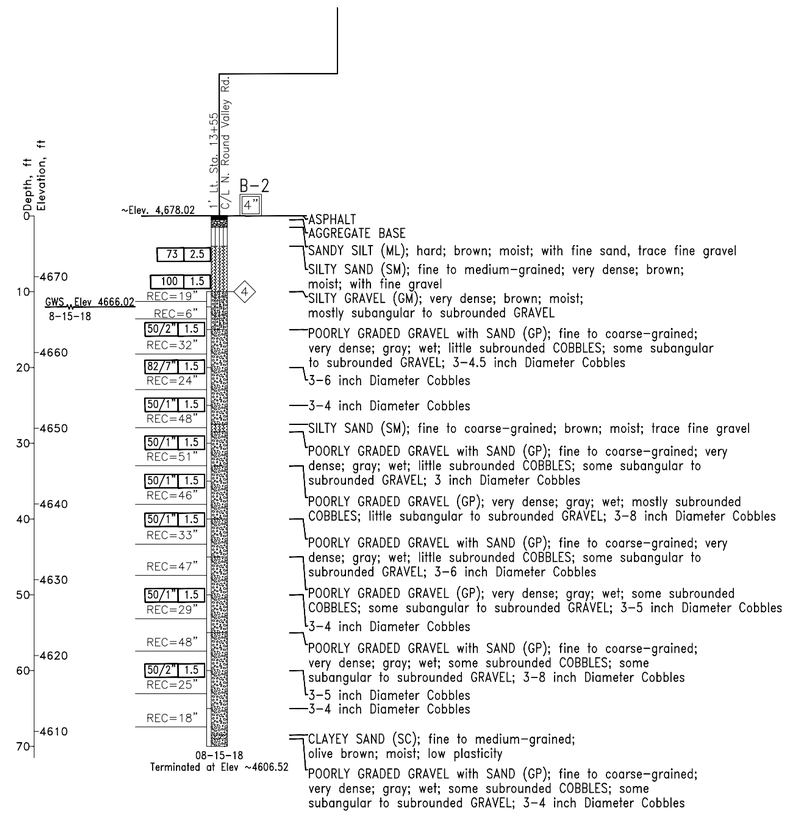
NOTES:

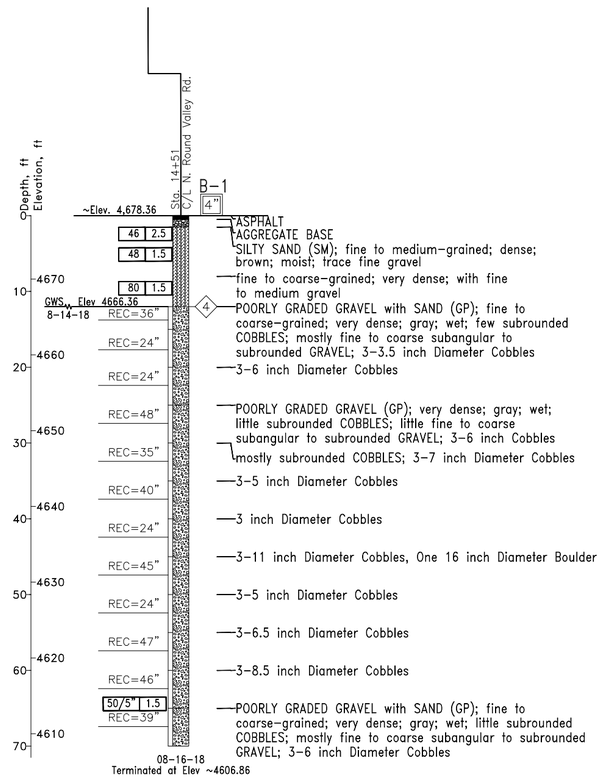
1. 1.5–INCH DIAMETER SAMPLES WERE TAKEN USING A STANDARD PENETRATION TEST (SPT) SPLIT BARREL SAMPLER WITH AN INSIDE DIAMETER (ID) OF 1.5 INCHES AND AN OUTSIDE DIAMETER (OD) OF 2.0 INCHES.
2. 2.5–INCH DIAMETER RING SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT BARREL SAMPLER WITH AN ID OF 2.5 INCHES AND AN OD OF 3.0 INCHES.
3. ALL DRIVE SAMPLES WERE DRIVEN WITH 140 LB HAMMER WITH A FALLING HEIGHT OF 30 INCHES.



PLAN

SCALE: 1"=10'





PROFILE

SCALE: 1"=10' HORIZONTAL
SCALE: 1"=10' VERTICAL

KLEINFELDER
Bright People. Right Solutions.
2280 Market Street, Suite 300
Riverside, CA 92501
www.kleinfelder.com PH. 951.801.3681 FAX. 951.682.0192

REGISTERED ENGINEER - GEOTECHNICAL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

	DATE
DRAWN D. FAHRNEY	10/2018
CHECKED A. AhTye	10/2018
RECOMMENDED S. PLAUSON	10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044
LOG OF TEST BORING

SHEET 30 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\20191324\20191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:06pm by DFahrney

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	N/A	N/A	31	33

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

CEMENTATION OF SOILS

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

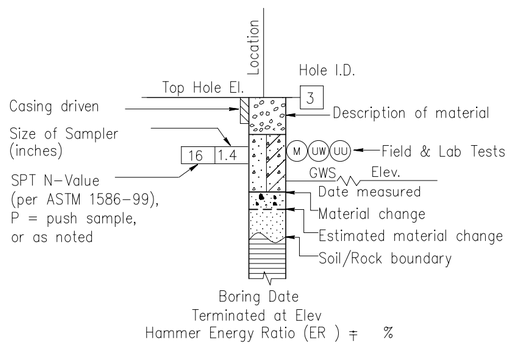
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778)
	O	Other (note on LOTB)

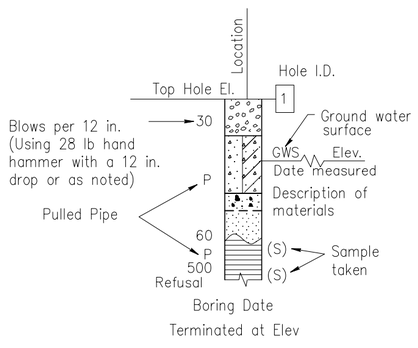
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

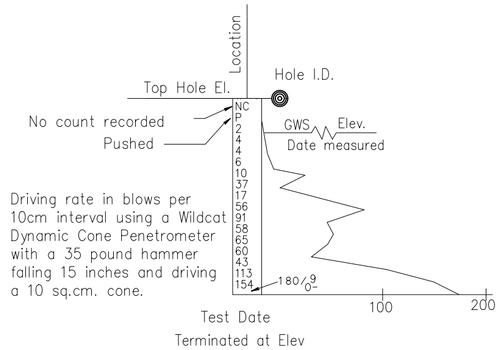
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 – 0.25	0.25 – 0.5	0.12 – 0.25	0.12 – 0.25
Medium Stiff	0.25 – 0.5	0.5 – 1	0.25 – 0.5	0.25 – 0.5
Stiff	0.5 – 1	1 – 2	0.5 – 1	0.5 – 1
Very Stiff	1 – 2	2 – 4	1 – 2	1 – 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



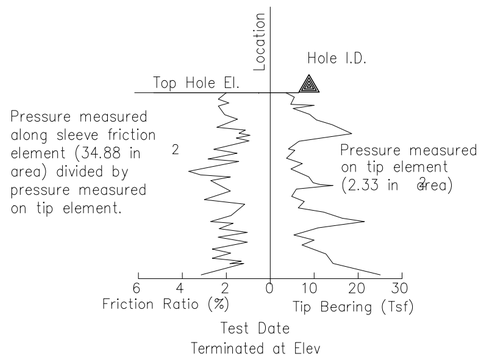
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

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2280 Market Street, Suite 300
Riverside, CA 92501
www.kleinfelder.com PH. 951.801.3681 FAX. 951.682.0192

REGISTERED ENGINEER - GEOTECHNICAL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — STEPHEN P. PLAUSON — No. 2731 Exp. 09/30/2021 — GEOTECHNICAL — STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	D. FAHRNEY	DATE 10/2018
CHECKED	A. AhTye	DATE 10/2018
RECOMMENDED	S. PLAUSON	DATE 10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - SOIL LEGEND 1

SHEET 31 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\20191324\20191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:09pm by DFahrney

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	N/A	N/A	32	33

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content–% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90)
Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression–Soil (ASTM D 2166)
Unconfined Compression–Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 – 5
Loose	5 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% – 10%
Little	15% – 25%
Some	30% – 45%
Mostly	50% – 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 – 12
Gravel	Coarse	3/4 – 3
	Fine	1/5 – 3/4
Sand	Coarse	1/16 – 1/5
	Medium	1/64 – 1/16
	Fine	1/300 – 1/64
Silt and Clay		Less than 1/300

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REGISTERED ENGINEER - GEOTECHNICAL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
STEPHEN P. PLAUSON
No. 2731
Exp. 09/30/2021
GEOTECHNICAL
STATE OF CALIFORNIA

PREPARED FOR THE INYO COUNTY DEPARTMENT OF PUBLIC WORKS

REV	DESCRIPTION	BY	DATE

DRAWN	D. FAHRNEY	DATE 10/2018
CHECKED	A. AhTye	DATE 10/2018
RECOMMENDED	S. PLAUSON	DATE 10/2018

BRIDGE REPLACEMENT
NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - SOIL LEGEND 2

SHEET 32 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\2019\1324\2019\1324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:09pm by DFahrney

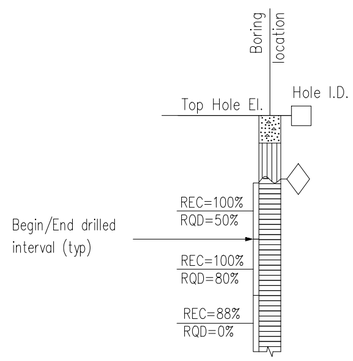
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
9	INY	N/A	N/A	33	33

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

$$REC = \frac{\sum \text{Length of the recovered core pieces (in.)}}{\text{Total length of core run (in.)}} \times 100\%$$

$$RQD = \frac{\sum \text{Length of intact core pieces} \geq 4 \text{ in.}}{\text{Total length of core run (in.)}} \times 100\%$$



RQD* Indicates soundness criteria not met.

BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft – 10 ft
Thickly Bedded	1 ft – 3 ft
Moderately Bedded	4 in. – 1 ft
Thinly Bedded	1 in. – 4 in.
Very Thinly Bedded	1/4 in. – 1 in.
Laminated	Less than 1/4 in.

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

WEATHERING DESCRIPTORS FOR INTACT ROCK

Description	Diagnostic Features					General Characteristics
	Chemical Weathering–Discoloration and/or Oxidation		Mechanical Weathering–Grain Boundary Conditions (Disaggregation) Primarily for Granitics and Some Coarse–Grained Sediments	Texture and Leaching		
	Body of Rock	Fracture Surfaces		Texture	Leaching	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change	No leaching	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved	Minor leaching of some soluble minerals.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe–Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe–Mg minerals are altered to clay to some extent; or chemical alteration produces in–situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe–Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

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NORTH ROUND VALLEY ROAD BRIDGE
ON PINE CREEK
BRIDGE NO. 48C0044

LOG OF TEST BORING - ROCK LEGEND

SHEET 33 OF 33 SHEETS

FED PROJ NO.: XXX(YYY) C.R. XXXA, M.P. 0.00

Drawing Name: U:\Projects\CADD\CADD 2019\20191324\20191324_LOTB.dwg
Last Opened: Feb 05, 2020 - 1:10pm by DFahrney

Enclosure 1: NATIONWIDE PERMIT NUMBER(S) NWP 14 Linear Transportation Projects

1. Nationwide Permit(s) NWP 14 Linear Transportation Projects Terms:

14. Linear Transportation Projects. Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project. This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate. This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars. Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404) Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d). Note 2: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under section 404(f) of the Clean Water Act (see 33 CFR 323.4). Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, Â¿District EngineerÂ¿s Decision.Â¿ The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

2. General Conditions: The following general conditions must be followed in order for any authorization by an NWP to be valid:

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for

such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that

issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based

on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where

riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner

by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project,

and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse

environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation

recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

3. Regional Conditions for the Los Angeles District:

1. For all activities in waters of the U.S. that are suitable habitat for federally listed fish species, including designated critical habitat for such species, the permittee shall design all new or substantially reconstructed linear transportation crossings (e.g. roads, highways, railways, trails, bridges, culverts) to ensure that the passage and/or spawning of fish is not hindered. In these areas, the permittee shall employ bridge designs that span the stream or river, including pier- or pile-supported spans, or designs that use a bottomless arch culvert with a natural stream bed, unless determined to be impracticable by the Corps.

2. Nationwide Permits (NWP) 3, 7, 12-15, 17-19, 21, 23, 25, 29, 35, 36, or 39-46, 48-54 cannot be used to authorize structures, work, and/or the discharge of dredged or fill material that would result in the "loss" of wetlands, mudflats, vegetated shallows or riffle and pool complexes as defined at 40 CFR Part 230.40-45. The definition of "loss" for this regional condition is the same as the definition of "loss of waters of the United States" used for the Nationwide Permit Program. Furthermore, this regional condition applies only within the State of Arizona and within the Mojave and Sonoran (Colorado) desert regions of California. The desert regions in California are limited to four USGS Hydrologic Unit Code (HUC) accounting units (Lower Colorado -150301, Northern Mojave-180902, Southern Mojave-181001, and Salton Sea-181002).

3. When a pre-construction notification (PCN) is required, the Los Angeles District shall be notified in accordance with General Condition 32 using either the South Pacific Division PCN Checklist or a signed application form (ENG Form 4345) with an attachment providing information on compliance with all of the General and Regional Conditions. The PCN Checklist and application form are available at: http://www.spl.usace.army.mil/Missions/Regulatory/PermitProcess.aspx. In addition, unless specifically waived by the Los Angeles District, the PCN shall include:

    a. A written statement describing how the activity has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States;

    b. Drawings, including plan and cross-section views, clearly depicting the location, size and dimensions of the proposed activity as well as the location of delineated waters of the U.S. on the site. The drawings shall contain a title block, legend and scale, amount (in cubic yards) and area (in acres) of fill in Corps jurisdiction, including both permanent and temporary fills/structures. The ordinary high water mark or, if tidal waters, the mean high water mark and high tide line, should be shown (in feet), based on National Geodetic Vertical Datum (NGVD) or other appropriate referenced elevation. All drawings shall follow the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Feb 2016), or most recent update (available at the South Pacific Division website at: http://www.spd.usace.army.mil/Missions/Regulatory/PublicNoticesandReferences.aspx/);

c. Numbered and dated pre-project color photographs showing a representative sample of waters proposed to be impacted on the project site, and all waters proposed to be avoided on and immediately adjacent to the project site. The compass angle and position of each photograph shall be documented on the plan-view drawing required in subpart b of this regional condition.

d. Delineation of aquatic resources in accordance with the current Los Angeles District's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (available at: http://www.spl.usace.army.mil/Missions/Regulatory/Jurisdictional-Determination/).

4. Submission of a PCN pursuant to General Condition 32 and Regional Condition 3 shall be required for specific regulated activities in the following locations:

a. All perennial waterbodies and special aquatic sites throughout the Los Angeles District as well as intermittent waters within the State of Arizona for any regulated activity that would result in a loss of waters of the United States. The definition of "loss of waters of the United States" for this regional condition is the same as the definition used for the Nationwide Permit Program.

b. All areas designated as Essential Fish Habitat (EFH) by the Pacific Fishery Management Council, and that would result in an adverse effect to EFH, in which case the PCN shall include an EFH assessment and extent of proposed impacts to EFH. EFH Assessment Guidance and other supporting information can be found at: http://www.westcoast.fisheries.noaa.gov/habitat/fish_habitat/efh_consultations_go.html.

c. All watersheds in the Santa Monica Mountains in Los Angeles and Ventura counties bounded by Calleguas Creek on the west, by Highway 101 on the north and east, and by Sunset Boulevard and Pacific Ocean on the south.

d. The Santa Clara River watershed in Los Angeles and Ventura counties, including but not limited to Aliso Canyon, Agua Dulce Canyon, Sand Canyon, Bouquet Canyon, Mint Canyon, South Fork of the Santa Clara River, San Francisquito Canyon, Castaic Creek, Piru Creek, Sespe Creek and the main-stem of the Santa Clara River.

e. The Murrieta and Temecula Creek watersheds in Riverside County, California for any regulated activity that would result in a loss of waters of the U.S. The definition of "loss of waters of the United States" for this regional condition is the same as the definition used for the Nationwide Permit Program.

f. All waterbodies designated by the Arizona Department of Environmental Quality as Outstanding Arizona Waters (OAWs), within 1600 meters (or 1 mile) upstream and/or 800 meters (1/2 mile) downstream of a designated OAW, and on tributaries to OAWs within 1600 meters of the OAW (see http://www.azdeq.gov/index.html).

g. All waterbodies designated by the Arizona Department of Environmental Quality as 303(d)-impaired surface waters, within 1600 meters (or 1 mile) upstream and/or 800 meters (1/2 mile) downstream of a designated impaired surface water, and on tributaries to impaired waters within 1600 meters of the impaired water (see http://www.azdeq.gov/index.html).

5. Individual Permits shall be required for all discharges of fill material in jurisdictional vernal pools, with the exception that discharges for the purpose of restoration, enhancement, management or scientific study of vernal pools may be authorized under NWPs 5, 6, and 27 with the submission of a PCN in accordance with General Condition 32 and Regional Condition 3.

6. Within the Murrieta Creek and Temecula Creek watersheds in Riverside County the use of NWPs 29, 39, 42 and 43, and NWP 14 combined with any of those NWPs shall be restricted. The loss of waters of the U.S. cannot exceed 0.25 acre. The definition of "loss of waters of the United States" for this regional condition is the same as the definition used for the Nationwide Permit Program.

7. Individual Permits (Standard Individual Permit or 404 Letter of Permission) shall be required in San Luis Obispo Creek and Santa Rosa Creek in San Luis Obispo County for bank stabilization projects, and in Gaviota Creek, Mission Creek and Carpinteria Creek in Santa Barbara County for bank stabilization projects and grade control structures.

8. In conjunction with the Los Angeles District's Special Area Management Plans (SAMPs) for the San Diego Creek Watershed and San Juan Creek/Western San Mateo Creek Watersheds in Orange County, California, the Corps' Division Engineer, through his discretionary authority has revoked the use of the following 26 selected NWPs within these SAMP watersheds: 03, 07, 12, 13, 14, 16, 17, 18, 19, 21, 25, 27, 29, 31, 33, 39, 40, 41, 42, 43, 44, 46, 49, and 50. Consequently, these NWPs are no longer available in those watersheds to authorize impacts to waters of the United States from discharges of dredged or fill material under the Corps' Clean Water Act section 404 authority.

9. Any requests to waive the applicable linear foot limitations for NWPs 13, 21, 29, 39, 40 and 42, 43, 44, 51, 52, and 54, must include the following:

   a. A narrative description of the affected aquatic resource. This should include known information on: volume and duration of flow; the approximate length, width, and depth of the waterbody and characters observed associated with an Ordinary High Water Mark (e.g. bed and bank, wrack line, or scour marks) or Mean High Water Line; a description of the adjacent vegetation community and a statement regarding the wetland status of the associated vegetation community (i.e. wetland, non-wetland); surrounding land use; water quality; issues related to cumulative impacts in the watershed, and; any other relevant information.
   b. An analysis of the proposed impacts to the waterbody in accordance with General Condition 32 and Regional Condition 3;

   c. Measures taken to avoid and minimize losses, including other methods of constructing the proposed project; and

   d. A compensatory mitigation plan describing how the unavoidable losses are proposed to be compensated, in accordance with 33 CFR Part 332.

10. The permittee shall complete the construction of any compensatory mitigation required by special condition(s) of the NWP verification before or concurrent with commencement of construction of the authorized activity, except when specifically determined to be impracticable by the Corps. When mitigation involves use of a mitigation bank or in-lieu fee program, the permittee shall submit proof of payment to the Corps prior to commencement of construction of the authorized activity.

4. Further information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
   ( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
   (x) Section 404 of the Clean Water Act (33 U.S.C. 1344).
   ( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.
   (a) This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
   (b) This permit does not grant any property rights or exclusive privileges.
   (c) This permit does not authorize any injury to the property or rights of others.
   (d) This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
   (a) Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
   (b) Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
   (c) Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
   (d) Design or construction deficiencies associated with the permitted work.
   (e) Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
   (a) You fail to comply with the terms and conditions of this permit.
   (b) The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
   (c) Significant new information surfaces which this office did not consider in reaching the original public interest decision.

   Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 330.5 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the

issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. This letter of verification is valid for a period not to exceed two years unless the nationwide permit is modified, reissued, revoked, or expires before that time.

7. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition H below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

8. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of your permit.

Section 7

North Round Valley Road Crossing Pine Creek Bridge Replacement Project Hydrology and Hydraulics Report **D**ated September 4, 2020

North Round Valley Road Crossing Pine Creek Bridge Replacement

Prepared for:

Inyo County Department of Public Works

P.O. Drawer Q
Independence, CA 93526

Prepared by:

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T 916.421.1000; Email: breichel@mgeeng.com

7415 Greenhaven Drive, Suite 100
Sacramento, CA 95831

September, 2020

This report has been prepared by or under the direction of the following registered civil engineer. The undersigned civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Bradley Reichel
Registered Civil Engineer

October 19, 2020
Date

Table of Contents

Section 1 General

1.1 Background

North Round Valley Road crosses Pine Creek in Inyo County, California. The bridge sustained embankment damage during high stream flows in June and July of 2017. The bridge was washed out during a high flow event during this period in which the south abutment was flanked and undercut. Anecdotally, a large tree had become lodged just upstream of the bridge opening, resulting in flow being directed at the south abutment. Caltrans bridge inspection reports did not indicate the bridge as scour critical as recently as 2016. As a result of the failure, the stream has migrated to a new channel to the south of the failed abutment location.

Figure 1 – *North Round Valley Round with failed south abutment (looking west/upstream)*

1.2 Objective

The bridge will be replaced with a longer span to accommodate the widened stream and to protect against the potential for future channel migration.

1.3 Project Location

The project location is northwest of Bishop, CA and approximately 2 miles east of Rovana, CA in Inyo County (Figure 2). It is accessed via U.S. Route 6 from the north and U.S. Route 395 from the south. The area is the eastern edge of the Owens Valley in the Sierra Nevada foothills.

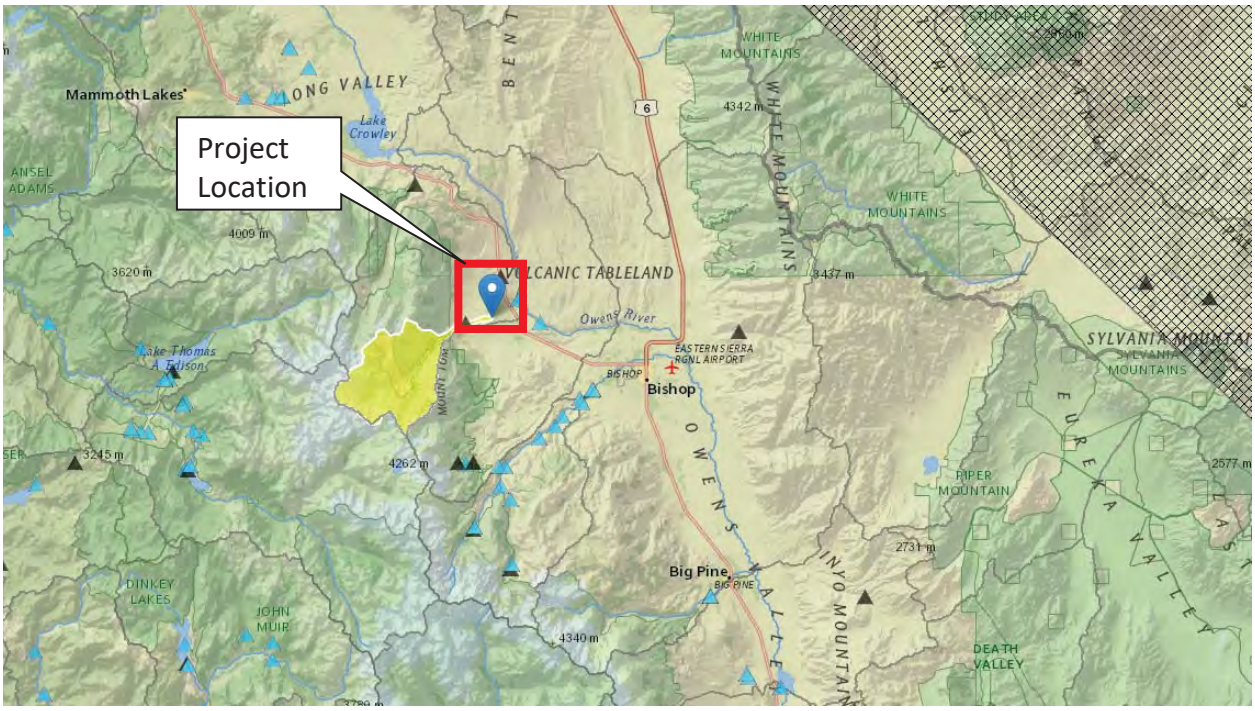

Figure 2 – *Project Location*

Section 2 Existing Conditions

2.1 Site Description

The location of the creek crossing is approximately 4 miles downstream of the mouth of Pine Creek Canyon. This mountain foothills stream is moderately steep, exceeding 3 percent upstream and downstream of the crossing. The creek meanders with moderate sinuosity and high potential for migration and cutoffs. Riffles and runs are common features in the stream. The crossing location is in a relatively long run reach.

Visual inspection of the creek and surrounding area geology suggest poorly graded cohesionless soil consisting of a range of small to large cobbles mixed with sands. The geotechnical analysis confirms that the soil is mostly cobbles, gravel, and sands. This composition is subject to a high level of erosion and transport when exposed to the high shear stresses and stream power associated with high energy streams such as this reach of Pine Creek.

Review of the topography and historic aerials suggests that the stream is moderately stable, exhibiting a tendency towards chutes and bifurcation during high flows, while maintaining a consistent main channel path (Figure 3).

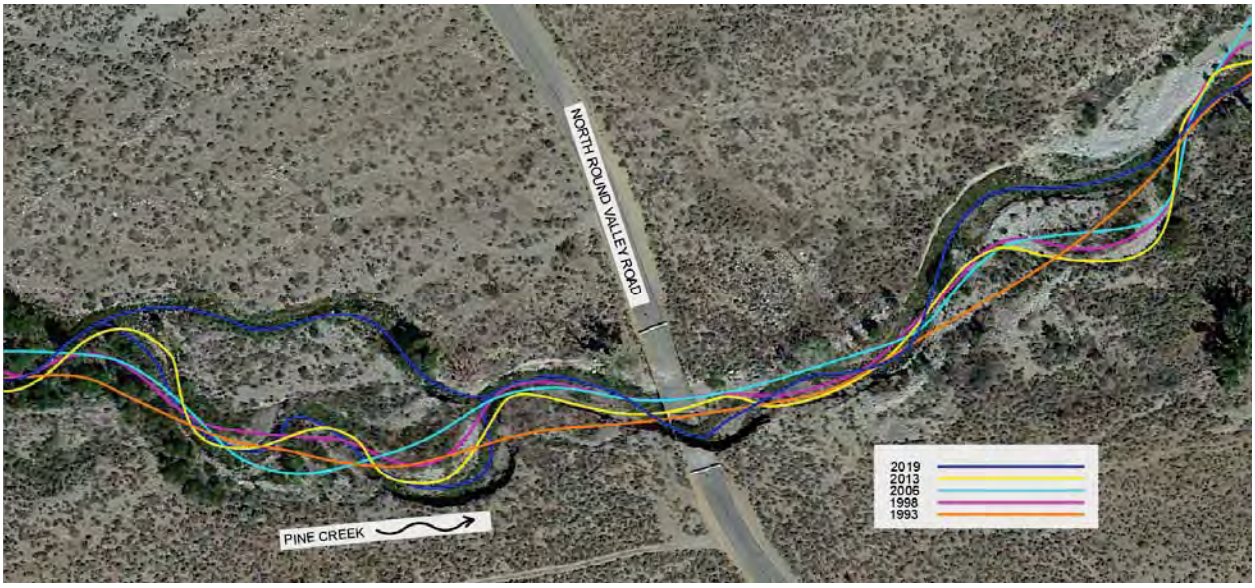

Figure 3 – *Project Site with channel centerline*

At the North Round Valley Road crossing, fill was placed to construct the existing bridge and to elevate the roadway. This fill constricted and reduced the creek from an apparent upstream and downstream bankfull width of approximately 40 feet to less than 22 feet at the crossing. Inspection of the landforms surrounding the stream suggest that it has potential for avulsion spanning 80 to 100 feet.

2.2 Existing Bridge

The existing structure was constructed in 1987 and is not considered to be salvageable. Full as-built information is not available. The apparent opening confined the channel, restricting migration. Review of bridge inspection reports revealed the inclusion of a grade control structure through and at the downstream opening of the bridge. It appears that the channel bed was flattened through the opening with inspection reports noting the grouted rock formed a 'checkdam' (Figure 4).

Figure 4 – *Downstream Face with Grade Control prior to Failure, 2008*

Shortly after construction of the bridge, a 1990 inspection report noted issues with grouted rock invert requiring repair. It was repaired without any issues noted after. Since the abutment failure, the stream has fully migrated to the south of the failed abutment and the thalweg has dropped significantly, matching the natural upstream and downstream grade of the creek (Figure 5).

Figure 5 – *Failed South Abutment, 2018*

Section 3 Hydrologic Analysis

3.1 Drainage Basin Characterization

The Pine Creek drainage basin above Round Valley sits in the Sierra Nevada east of the Sierra Crest. The basin is undeveloped and mountainous with elevations exceeding 13,000 feet. The basin was delineated at the Round Valley Road crossing near elevation 4,667 feet and totals approximately 37 square miles. Streamflow is heavily reliant on depression storage in the form of high country lakes and a persistent snowpack.

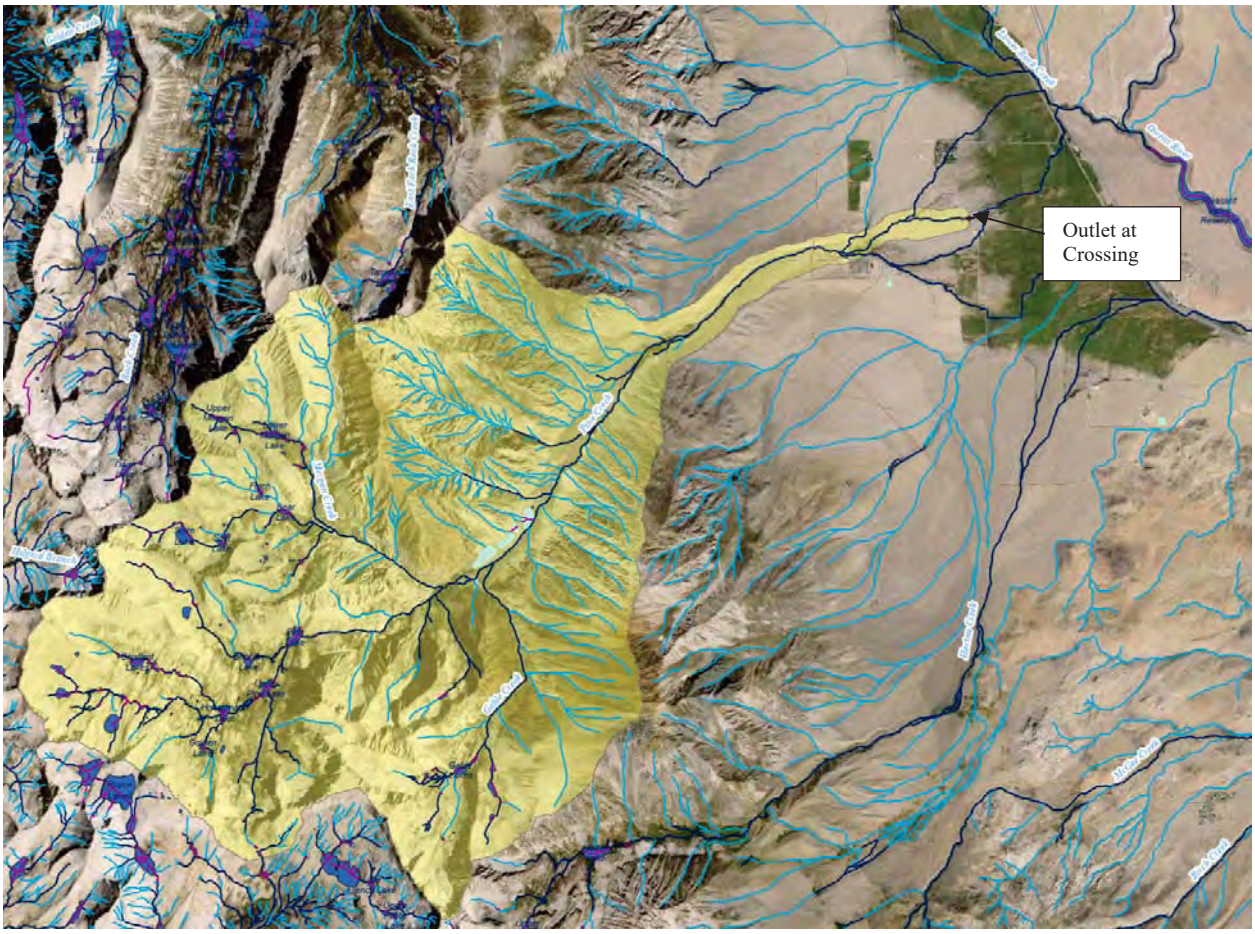

Figure 6 – *Drainage Basin*

The upper basin maintains snowpack for much of the year with large number of small lakes and tributary mountain streams. The basin is almost entirely a part of the Inyo National Forest and the John Muir Wilderness. The creek outlets from the upper basin into a canyon immediately downstream of the abandoned Pine Creek Tungsten Mine. The mining facility appears to have had utilized some amount of the runoff for operations with what appear to be tailings ponds visible offline of the stream.

A checkdam structure acts as grade control for the creek near the mouth of the canyon, just west of the town of Rovana. At Rovana, the creek begins to bifurcate into multiple forks that devolve into an alluvial fan west of Highway 395. The main steam of the creek crosses under North Round Valley Road before continuing northeasterly where during high flows it eventually joins Lower Rock Creek draining to the Owens River.

3.2 Design Flows

Hydrologic Modeling

Hydrologic modeling of flows at the North Round Valley Road crossing is challenging. The basin is complex with many tributary streams and lakes at elevations above 10,000 feet. The range upon which these streams and ponds sit is characterized by its heavy snowpack and runoff. Further, calibration and verification of such a model is infeasible due to the lack of reliable measurements. As such, development of a hydrologic model was discarded as a reliable option for design flows.

Pine Creek Tungsten Mine

The Pine Creek Tungsten Mine operated in the watershed immediately adjacent to Pine Creek from 1922 to 2001. While mining operations utilized runoff from the creek, it is assumed that the overall effects on peak flows were minimal. This observation is based in part on knowledge of the operating years of the mine and review of available gage data as described below.

Gage Data

Gage number 10267000 (Pine Creek at Division Box near Bishop CA) was located approximately 2 miles upstream of the crossing and operated continuously between 1922 to 1979. While this is a substantial number of years for estimation of the flows expected at the site, a number of issues complicate the development of design flows. Peak flows at the gage are considered to be low compared to the size of the watershed (Figure 7). However, consideration of the basin characteristics suggests this may be a result of the extreme nature of the elevation and substantial snowpack. It was also noted that the gage data was recorded during operation of mining activities at the mouth of the Pine Creek Canyon. Peak flows from this record were used to develop the design flows at the crossing.

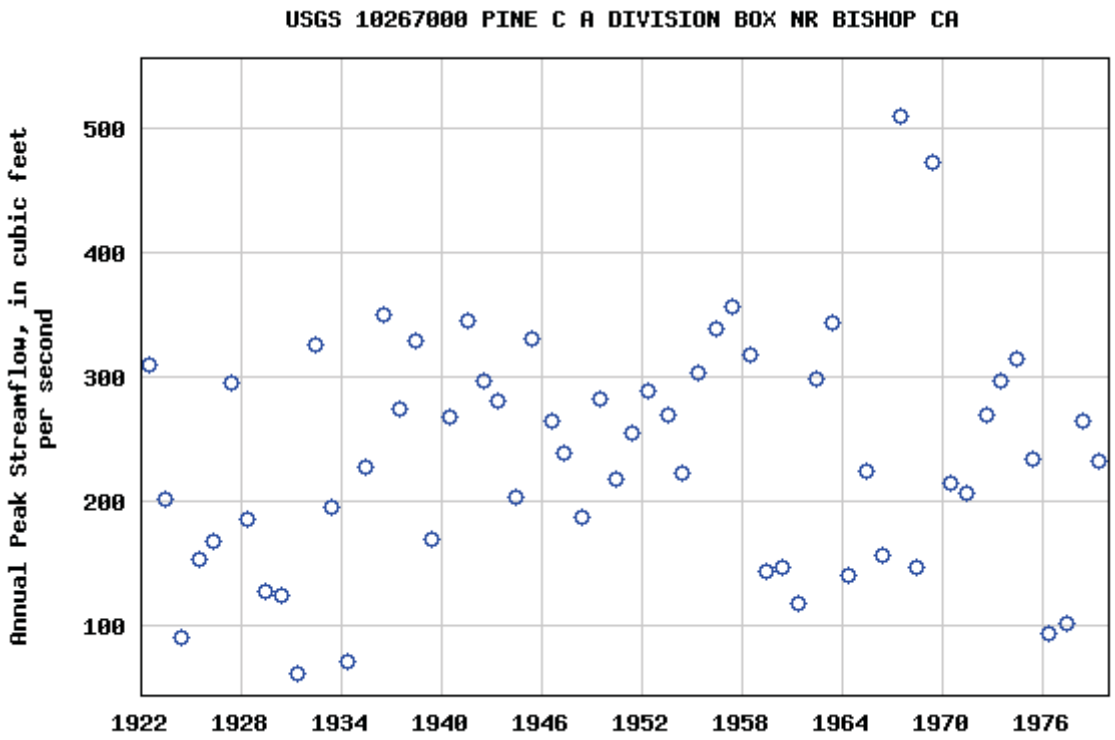

Figure 7 – Upstream gage 10267000 (36.4 square miles)

Gage number 10267500 (Pine Creek Near Round Valley CA) was located approximately 2 miles downstream of the crossing and operated continuously from 1904 to 1940. Peak flow data for the gage was reviewed to help substantiate the recordings of upstream gage 10267000. Flows were found to be consistent with upstream readings and the pre 1922 record helped to alleviate concerns about impact on flows due to operation of the Pine Creek Tungsten Mine. Peak flows shown in Figure 8.

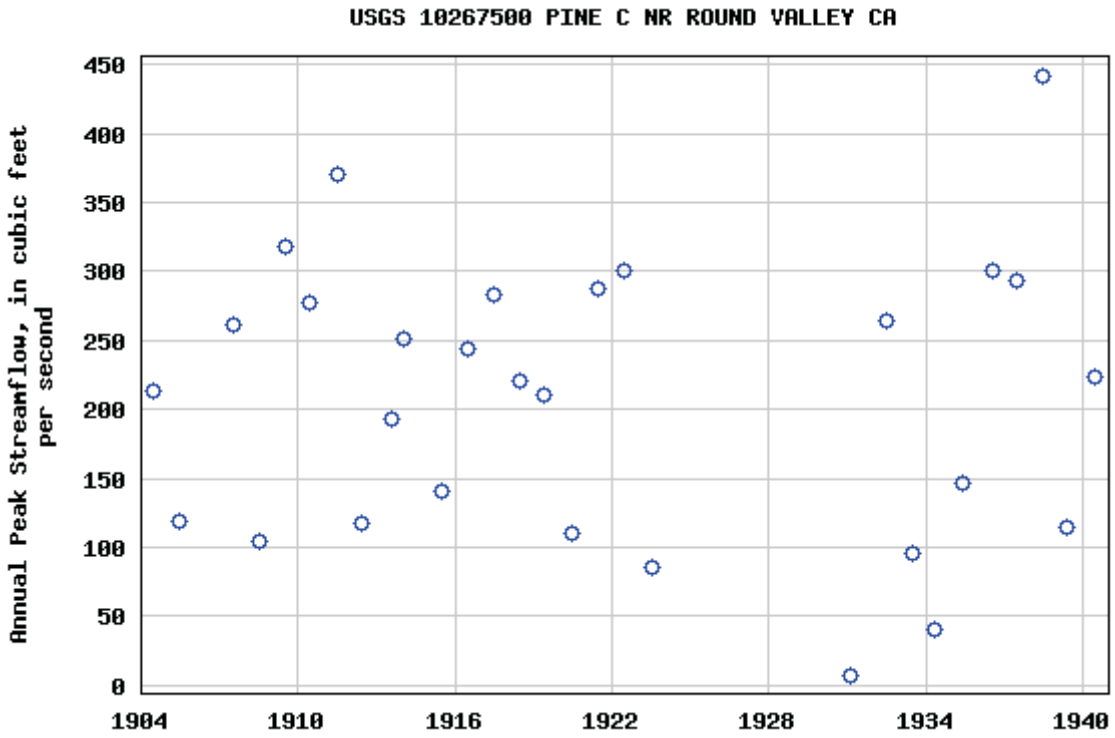

Figure 8 – Upstream gage 10267500 (37 square miles)

Nearby gages recording peak flows on Rock Creek (10266500) and Bishop Creek (10271200). were also reviewed and compared against the upstream and downstream Pine Creek gages. These streams drain adjoining basins with similar characteristics. Flows were found to be consistent with the record for Pine Creek, with similarly low peak flows in relation to basin size. While water management on these creeks may be related to the low flows, the consistency of the low flows helps validate the flows recorded by gage 10267000.

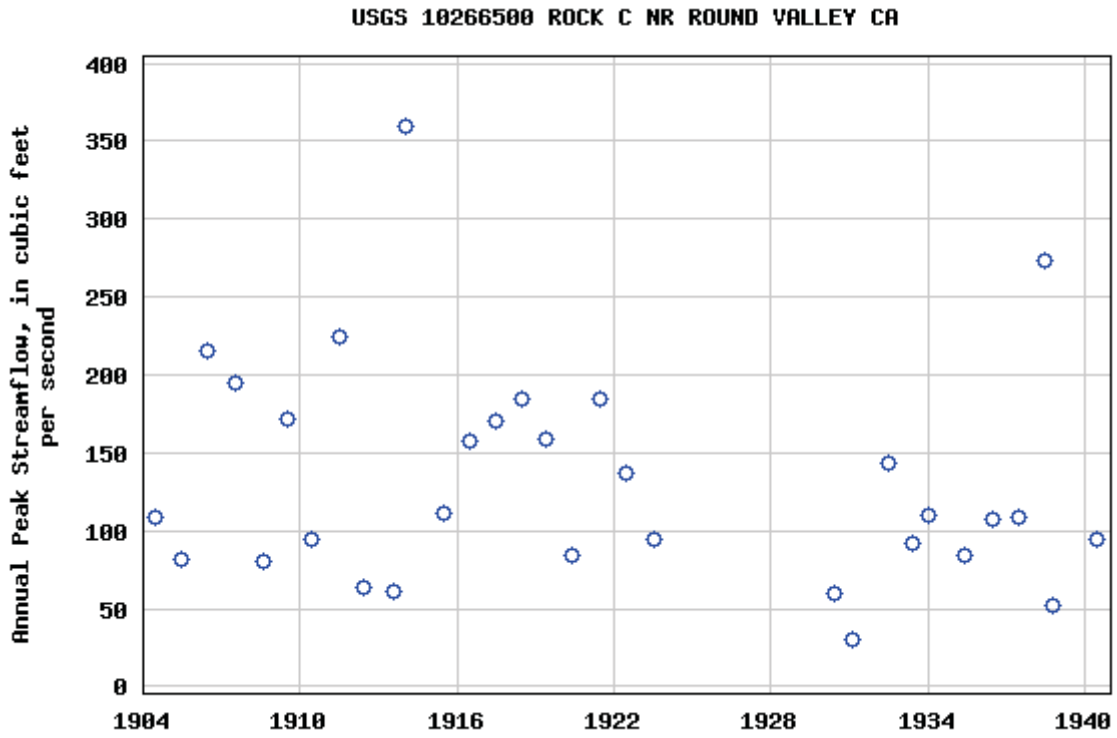

Figure 9 – Upstream gage 10266500 (96 square miles)

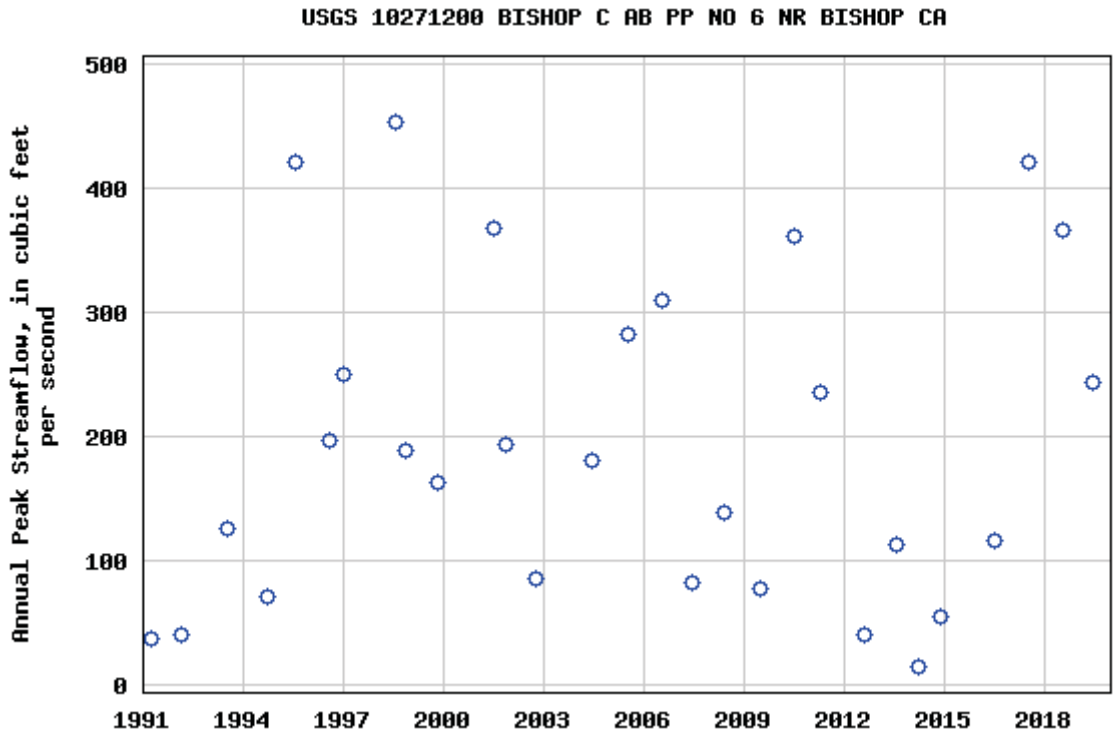

Figure 10 – Upstream gage 10271200 (104 square miles)

USGS Regression Equations

The site is located within an indeterminate area for USGS regression equations. As such, these USGS Regression equations are not applicable.

Analysis of Upstream Gage 10267000

Flood Frequency Analysis (FFA) was performed on gage 10267000 and results published as part of the Caltrans Improved Highway Design Methods for Desert Storms study. The study also presented modified regression equations applicable to the site. Equations from the study identified for California's Owens Valley/Mono Lake desert region are shown below.

$$Q_2 = 0.007\,A^{1.839}\left[\frac{ELEV}{1000}\right]^{1.485}\left[\frac{LAT-28}{10}\right]^{-0.680} \quad (6.8)$$

$$Q_5 = 0.212\,A^{1.401}\left[\frac{ELEV}{1000}\right]^{0.882}\left[\frac{LAT-28}{10}\right]^{-0.030} \quad (6.9)$$

$$Q_{10} = 1.28\,A^{1.190}\left[\frac{ELEV}{1000}\right]^{0.531}\left[\frac{LAT-28}{10}\right]^{0.525} \quad (6.10)$$

$$Q_{25} = 9.70\,A^{0.962}\left[\frac{ELEV}{1000}\right]^{0.107}\left[\frac{LAT-28}{10}\right]^{1.199} \quad (6.11)$$

$$Q_{50} = 34.5\,A^{0.829}\left[\frac{ELEV}{1000}\right]^{-0.170}\left[\frac{LAT-28}{10}\right]^{1.731} \quad (6.12)$$

$$Q_{100} = 111\,A^{0.707}\left[\frac{ELEV}{1000}\right]^{-0.429}\left[\frac{LAT-28}{10}\right]^{2.241} \quad (6.13)$$

Results of the FFA for the gage were compared against the application of the modified regression equations. Flows from the FFA were higher than predicted by the regression equations. The upper 5% confidence interval (CI) results were selected as design flows to both account for uncertainty and the minor increase in runoff area between the gage and the crossing. Flows are included in Table 1.

Table 1 – *Design Flows (cubic feet per second)*

Return Interval	Modified Regression Equations	Flood Frequency Analysis	Flood Frequency Analysis – Upper CI
Q_2	182	228	250
Q_5	264	319	357
Q_{10}	317	375	425
Q_{25}	376	441	509
Q_{50}	420	488	567
Q_{100}	460	533	624
Q_{200}	NA	575	678

Section 4 Hydraulic Analysis

4.1 Design Considerations

Proposed work includes removal of the failed bridge and replacement with a longer span bridge. A longer span was selected rather than attempting to rebuild the failed abutment in place which would require training the stream into its original course. This approach also allows for potential stream migration. The proposed geometry includes vertical abutments, no piers, and the soffit set well above the elevation to pass the 50 year event with 2 feet of freeboard and pass the 100 year event.

4.2 Site Characteristics

Pine Creek is characteristic of a mountain stream with material primarily consisting of sand, gravel, and cobbles. The channel is deeply incised with nearly vertical banks upstream and downstream of the site. This is likely a transition condition for the channel as it reforms in the new alignment with the failed bridge abutment. Bank vegetation is sparse and largely outside of the flow area.

4.3 Analysis

The crossing was analyzed through use of surface model produced from the site survey which was imported as cross sections into a 1D HEC-RAS 5.0.7 model. The simulation was run as a steady state model with proposed geometry under a mixed flow regime. An existing conditions model was not modeled due to the failed bridge. The proposed condition was modeled based on the final design drawings.

4.4 Water Surface Elevations

The model was constructed with a range of bridge widths. Velocities and water surface elevations were evaluated with 65, 85, and 100 bridge spans. It quickly became apparent that water surface elevations were little changed due to the relatively low flow volumes and steep channel slope. Review of velocities found a 65 foot span resulted in considerably higher velocities compared to the 85 foot span. There was little benefit in increasing the span to 100 feet from 85 feet. Therefore, an 85 foot span was selected. The resulting water surface elevations are included in Table 2.

Table 2 – *Results of Proposed Condition (Upstream Bridge Face)*

Return Period	Design Flow (ft^3/s)	Water Surface Elevation (ft)
50-year	567	4669.9
100-year	624	4670.0

Section 5 Scour

5.1 General

Scour was evaluated for a range of flows ranging from a 2-year return to 100-year return. As the stream remains supercritical through all ranges of flows, the 100-year return period resulted in the largest scour depths due to high velocities. The widened channel section should prevent further contraction and abutment scour. However, there is high potential for long term scour due to the composition of the soil and lack of cohesion.

5.2 Long-Term Scour

It is evident that the channel is incised. In order to estimate the potential for long-term scour, the as-built drawings were compared with the existing condition. Caltrans Bridge Inspection Reports were also reviewed.

The streambed between the existing abutments was considered as an indication of long-term scour that occurred between the time of bridge construction in 1987 and at the time of failure in 2018. The streambed elevation through the existing abutments was surveyed at approximately 4669.5'. This indicates that the channel degraded by 4.5' over 31 years. However, this rate neglects to consider the effect of the now failed grade control structure at the outlet.

Since the failure of the abutment, the thalweg has migrated to the south of the opening and was surveyed at 4667 feet in elevation. Comparison with the 1987 as-built elevation of 4674 feet suggests a degradation of 7 feet over 31 years. This rate suggests a potential for a long scour depth of greater than 16 feet over the 75 year service life of the bridge. However, review of the geotechnical investigation identified a change in geomorphic conditions at or around the current stream bed elevation, with silty sand and gravel transitioning into poorly graded gravel with varying amounts of cobble and sand extending of 70 feet below the ground surface. This suggests that the stream bed may be nearing a nearing a new state of equilibrium in which the degradation process slows as the channel bed armors itself with a matrix of gravel and small to mid-size cobbles.

Furthermore, the design crossing width has been increased to double that of the typical channel width of Pine Creek. It is expected that the channel will continue to incise, confined to the bridge opening with embankment material protected by rock slope protection. The rock slope protection has been designed with over 5 feet of embedment, allowing for a substantial amount of time to mitigate excessive scour. Regular bridge inspection is advised. A downstream grade control structure may be warranted if the channel continues to degrade at the rate previously observed.

5.3 Contraction Scour

The proposed bridge span has been selected to match the upstream and downstream channel. Without constriction, contraction scour was found to be negligible.

5.4 Abutment Scour

Abutment scour was predicted based on equations from NHRCP 24-20, as directed by HEC-18. Condition 'A' was applied to analyze the crossing with new abutment embankments in place. Abutment scour was determined to be negligible in this condition. This is a result of the expansion in the 100-year WSE channel top width from approximately 47 feet to 64 feet as the stream approaches the bridge crossing.

5.5 Total Scour

Scour prediction is subject to a large degree of uncertainty and the assumptions made about the behavior of the stream's interaction with the encroachment. Therefore, the elevations indicated in Table 3 should be used as a guideline for designers considering potential scour depths.

Table 3 – *Results of Scour Analysis for 100-year return (feet)*

Long-Term Scour	Contraction Scour	Abutment Scour	Total Scour Elevation
16	0	0	4651

Section 6 Scour Mitigation

6.1 Rock Slope Protection for Bank and Abutment Protection

The size of Rock Slope Projection (RSP) to be placed along the bridge abutments and adjacent banks was calculated with HEC-23 Design Guidelines 14 (Equation 14.2).

$$\frac{D_{50}}{y} = \frac{K}{(S_s - 1)}\left[\frac{V^2}{gy}\right]^{0.14} \qquad (14.2)$$

where:

D_{50} = median stone diameter, ft (m)
V = characteristic average velocity in the contracted section (explained below), ft/s (m/s)
S_s = specific gravity of rock riprap
g = gravitational acceleration, 32.2 ft/s^2 (9.81 m/s^2)
y = depth of flow in the contracted bridge opening, ft (m)
K = 0.61 for spill-through abutments
K = 0.69 for vertical wall abutments

Conditions for the 200-year event were used to select the median stone diameter, D_{50}. A factor of safety of 1.5 was applied. This value was used to select the minimum class of RSP from the Caltrans Highway Design Manual (Table 5).

Table 4 – *RSP for Banks and Abutment Protection for 200-year*

Flow Velocity (ft/s)	Flow Depth (ft)	Mininmum D_{50} (inch)	RSP Class	Minimum Thickness (inch)
11.2	2.8	26.3	VII	48

Section 7 Conclusion

This high energy stream poses no issues related to water surface elevation and the proposed bridge design. Freeboard in excess of 9 feet during the 100-year event (Table 5).

Table 5 – *Summary Table*

Hydrologic and Hydraulic Summary			
Drainage Area: 37 mi^2			
Frequency	**Design Flood**	**Base Flood**	**Countermeasure**
	50-year	100-year	200-year
Discharge (cfs)	567	624	678
Water Surface Elevation (ft) at Bridge	4669.90	4670.04	4670.16
Floodplain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.			

The doubling of the existing bridge span to reduce encroachment on the creek mitigates the potential for abutment and contraction scour. Inclusion of heavy rock slope protection to confine the creek channel will reduce the potential for migration. While there is potential for long-term degradation scour, design of the bridge abutment foundation for up to 16 feet of degradation over 75 yeras is likely excessive for this case. Regular bridge inspection should be performed and countermeasures such as the addition of downstream grade control may be warranted should the creek continue to degrade.

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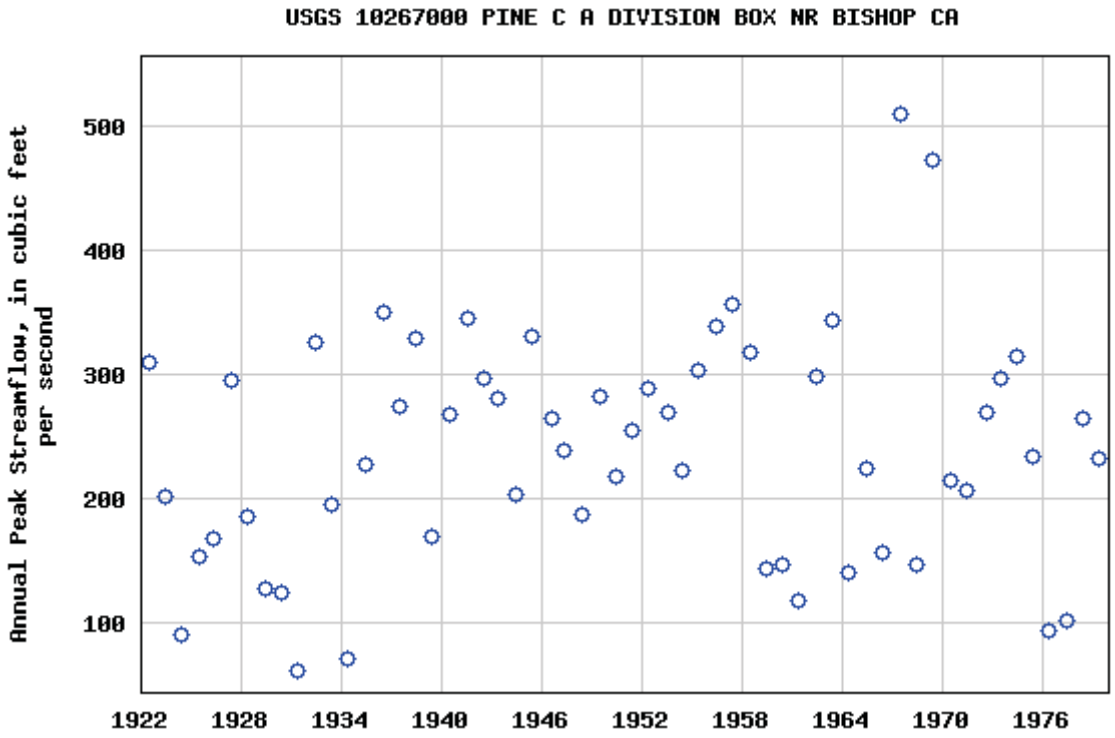
https://www.mtnmouse.com/california/sng11_pine_creek_mine_story_blog.html

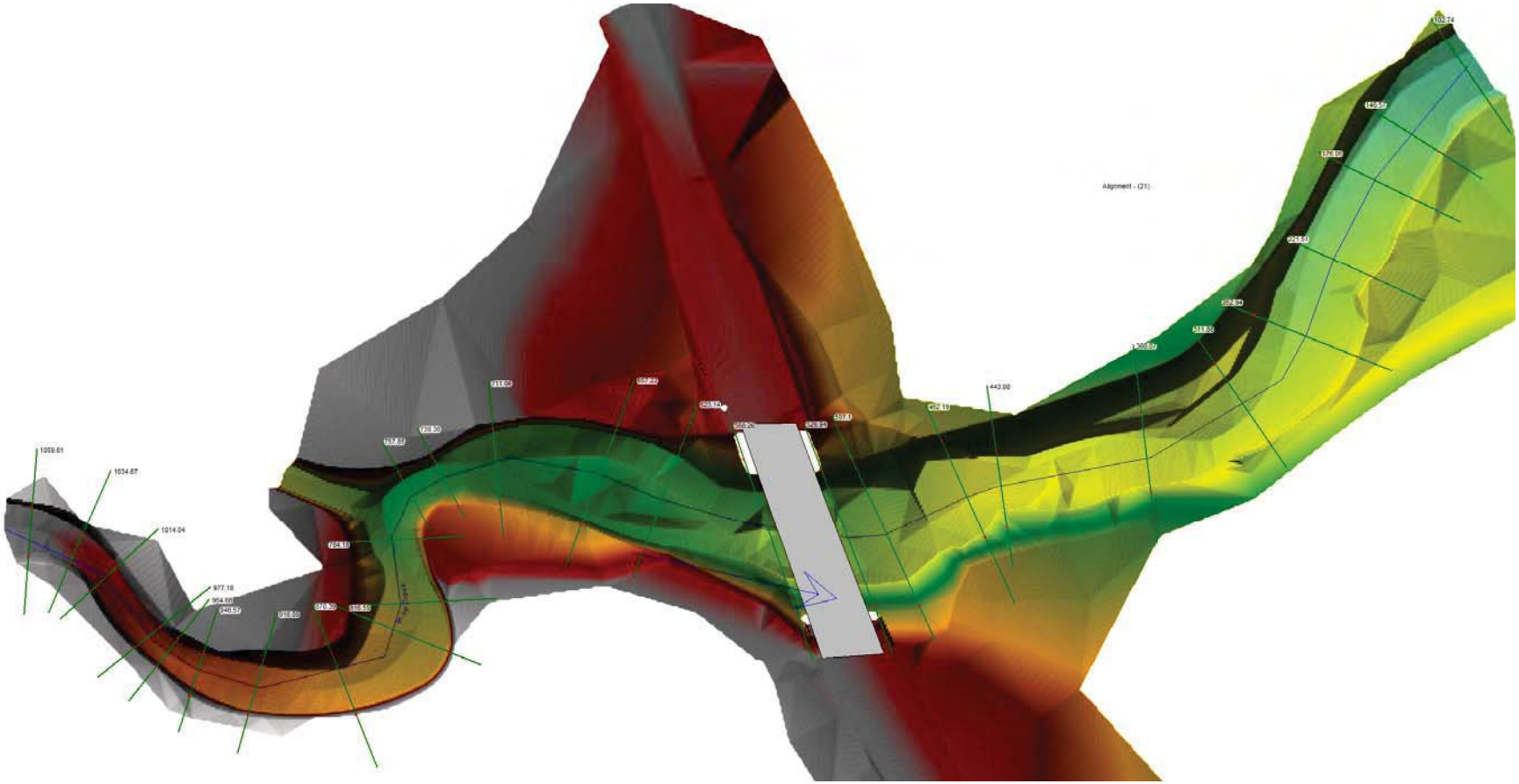
Appendix

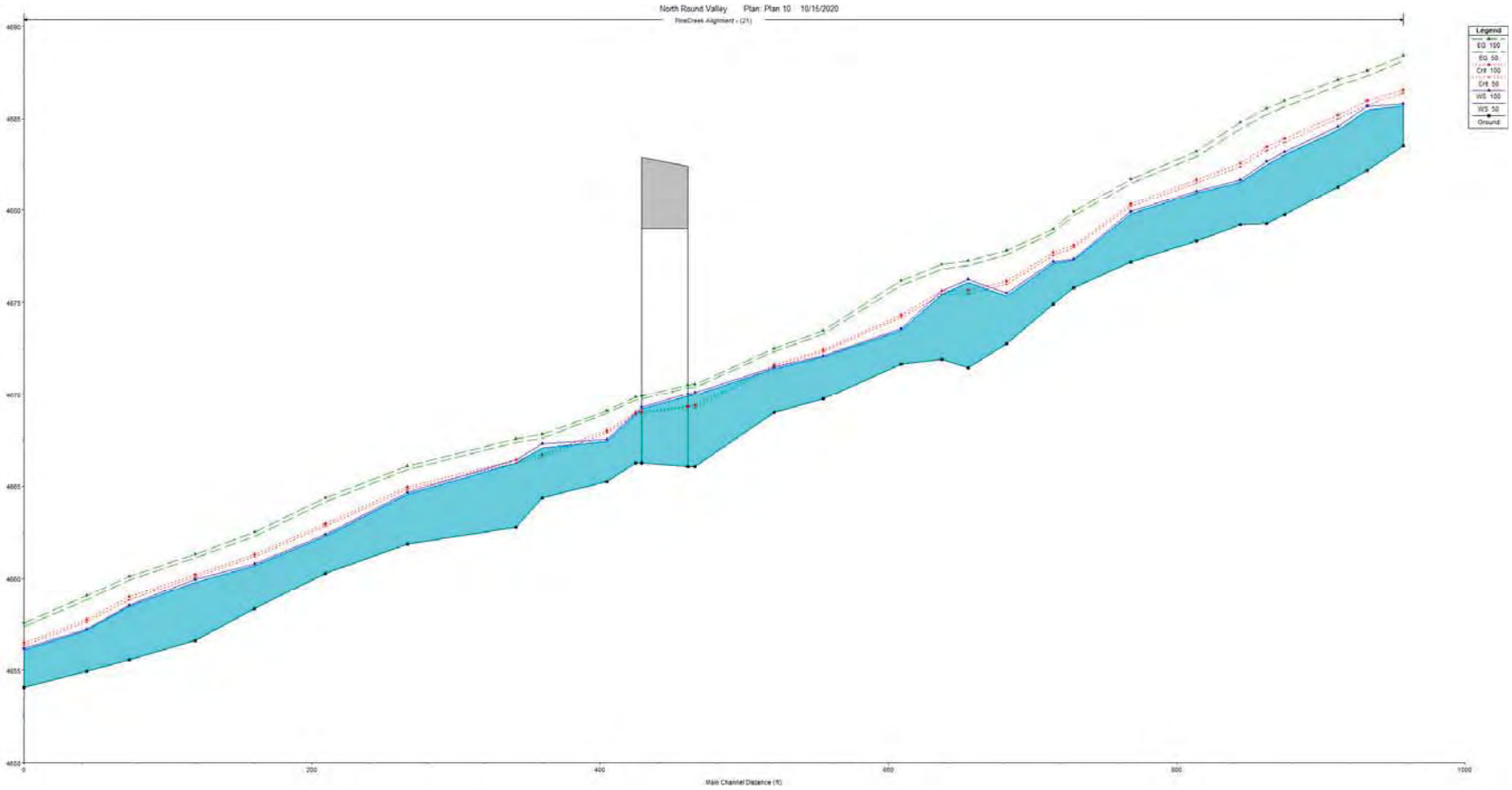
USGS 10267000 PINE C A DIVISION BOX NR BISHOP CA

Inyo County, California
Hydrologic Unit Code 18090102
Latitude 37°24'59", Longitude 118°37'15" NAD27
Drainage area 36.4 square miles
Gage datum 5,280.00 feet above NGVD29



HEC-RAS Plan, Profile, and Cross Sections

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PineCreek Alignment (21)
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EG 50
Crit 100
Crit 50
WS 100
WS 50
Ground
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4675
4670
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4650
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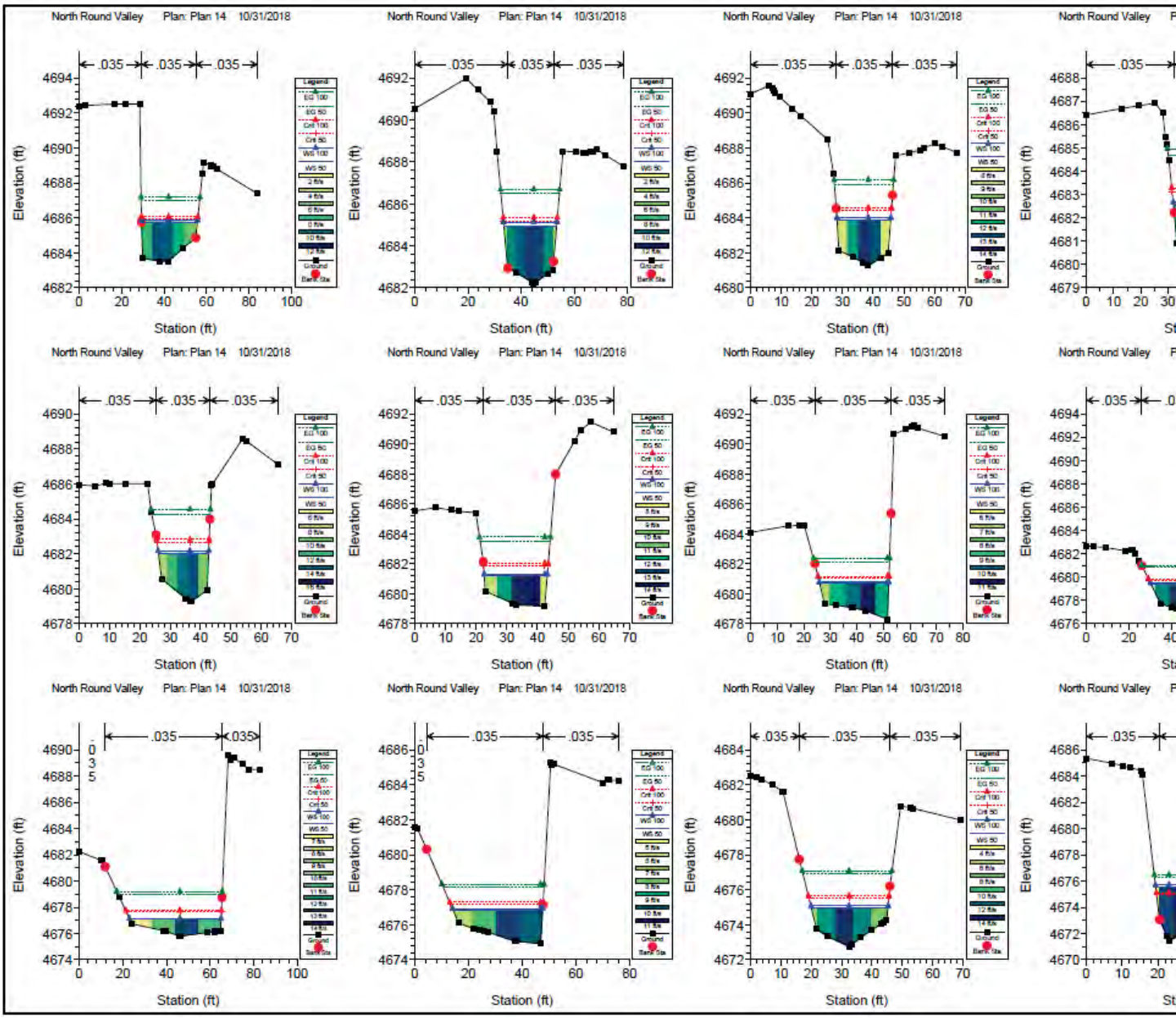
200
400
600
800
1000
Main Channel Distance (ft)


North Round Valley Plan: Plan 14 10/31/2018
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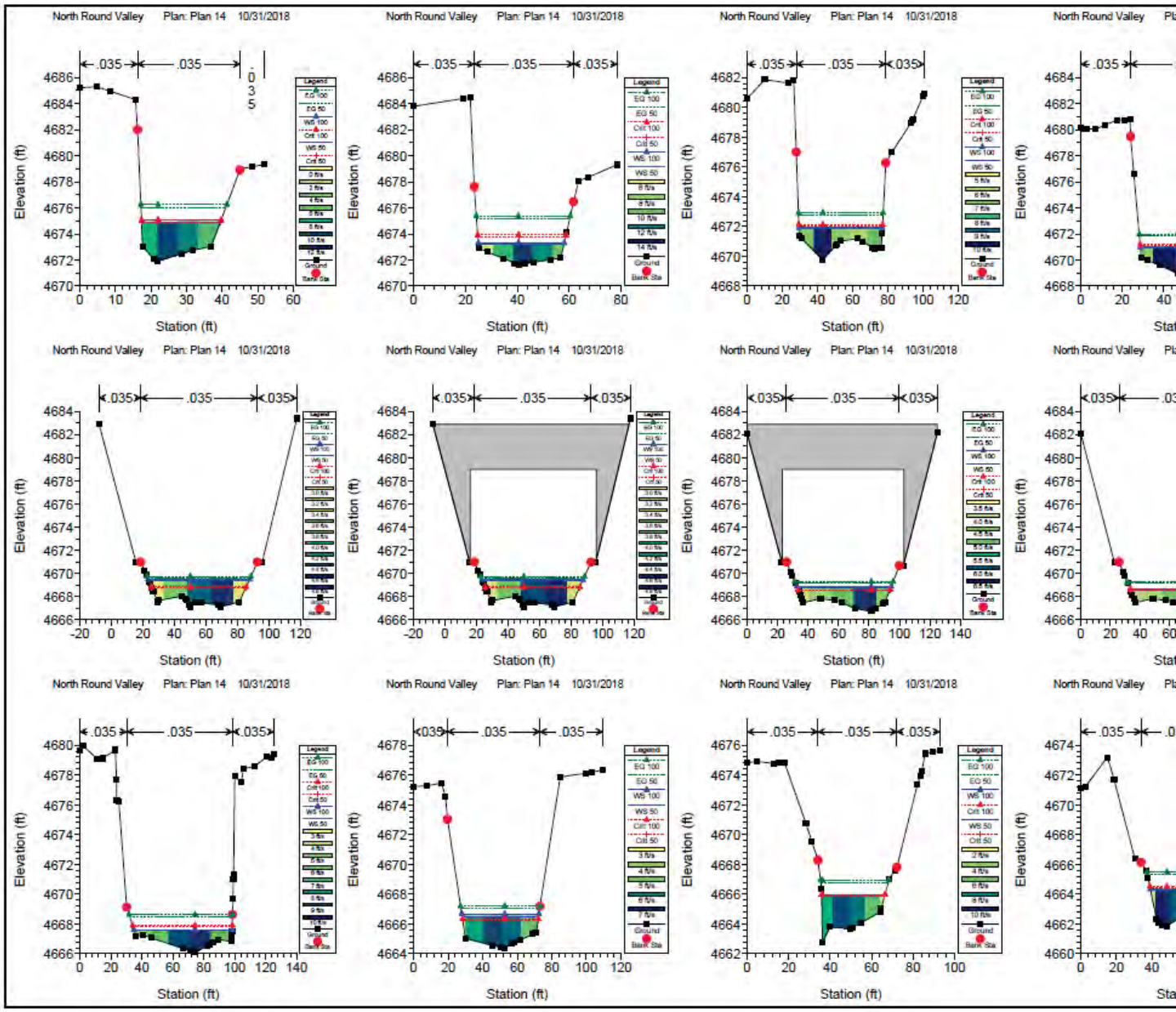
WS 100
WS 50
Ground
Bank Sta


North Round Valley Plan: Plan 14 10/31/2018
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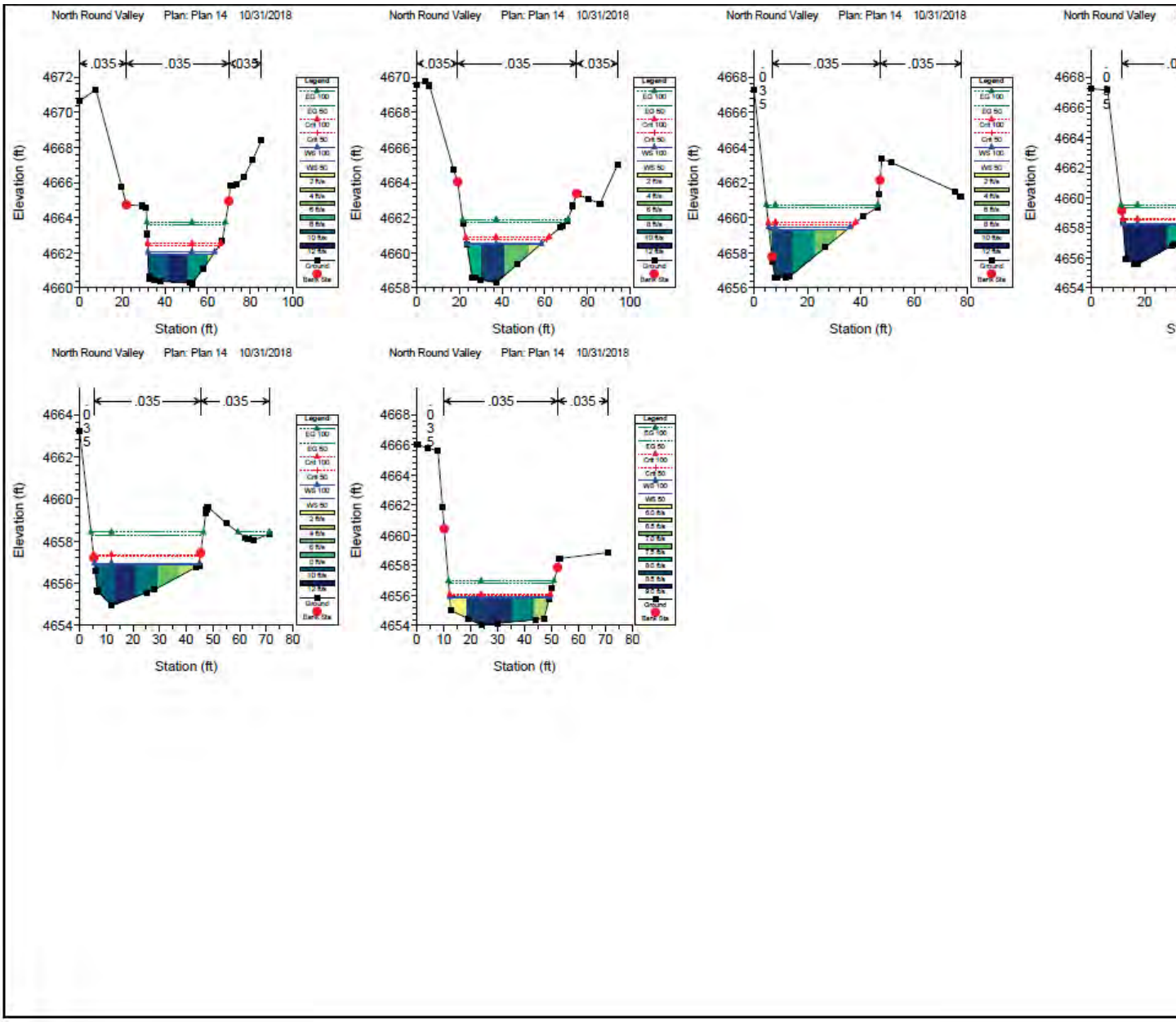
WS 100
Crit 100
WS 50
Crit 50
Ground
Bank Sta


North Round Valley Plan: Plan 14 10/31/2018
Elevation (ft)
Station (ft)
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.035
.035
Legend

Bridge Output

File Type Options Help

River: PineCreek Profile: 50

Reach Alignment - (21) RS: 540 Plan: Plan 10

Plan: Plan 10 PineCreek Alignment - (21) RS: 540 Profile: 50

		Element	Inside BR US	Inside BR DS
E.G. US. (ft)	4670.38	E.G. Elev (ft)	4670.35	4669.74
W.S. US. (ft)	4669.95	W.S. Elev (ft)	4669.90	4669.17
Q Total (cfs)	567.00	Crit W.S. (ft)	4669.28	4668.93
Q Bridge (cfs)	567.00	Max Chl Dpth (ft)	3.84	2.92
Q Weir (cfs)		Vel Total (ft/s)	5.38	6.03
Weir Sta Lft (ft)		Flow Area (sq ft)	105.31	93.98
Weir Sta Rgt (ft)		Froude # Chl	0.67	0.80
Weir Submerg		Specif Force (cu ft)	228.12	202.90
Weir Max Depth (ft)		Hydr Depth (ft)	2.03	1.75
Min El Weir Flow (ft)	4682.91	W.P. Total (ft)	53.40	54.62
Min El Prs (ft)	4679.00	Conv. Total (cfs)	7031.4	5728.7
Delta EG (ft)	0.69	Top Width (ft)	52.00	53.68
Delta WS (ft)	1.06	Frctn Loss (ft)		
BR Open Area (sq ft)	736.61	C & E Loss (ft)		
BR Open Vel (ft/s)	6.03	Shear Total (lb/sq ft)	0.80	1.05
BR Sluice Coef		Power Total (lb/ft s)	4.31	6.35
BR Sel Method	Momentum			

Errors, Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
	1.4. This may indicate the need for additional cross sections.

Select Profile

Bridge Output

File Type Options Help

River: PineCreek Profile: 100

Reach Alignment - (21) RS: 540 Plan: Plan 10

Plan: Plan 10 PineCreek Alignment - (21) RS: 540 Profile: 100

		Element	Inside BR US	Inside BR DS
E.G. US. (ft)	4670.55	E.G. Elev (ft)	4670.52	4669.89
W.S. US. (ft)	4670.10	W.S. Elev (ft)	4670.04	4669.29
Q Total (cfs)	624.00	Crit W.S. (ft)	4669.35	4669.03
Q Bridge (cfs)	624.00	Max Chl Dpth (ft)	3.97	3.04
Q Weir (cfs)		Vel Total (ft/s)	5.54	6.22
Weir Sta Lft (ft)		Flow Area (sq ft)	112.63	100.36
Weir Sta Rgt (ft)		Froude # Chl	0.68	0.81
Weir Submerg		Specif Force (cu ft)	255.69	228.60
Weir Max Depth (ft)		Hydr Depth (ft)	2.09	1.84
Min El Weir Flow (ft)	4682.91	W.P. Total (ft)	55.28	55.67
Min El Prs (ft)	4679.00	Conv. Total (cfs)	7684.7	6311.0
Delta EG (ft)	0.71	Top Width (ft)	53.83	54.69
Delta WS (ft)	1.09	Frctn Loss (ft)		
BR Open Area (sq ft)	736.61	C & E Loss (ft)		
BR Open Vel (ft/s)	6.22	Shear Total (lb/sq ft)	0.84	1.10
BR Sluice Coef		Power Total (lb/ft s)	4.65	6.84
BR Sel Method	Momentum			

Errors, Warnings and Notes

Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
	1.4. This may indicate the need for additional cross sections.

Select Profile

Cross Section Output

File Type Options Help

River: PineCreek Profile: 200

Reach Alignment - (21) RS: 568.26 Plan: Plan 10

Plan: Plan 10 PineCreek Alignment - (21) RS: 568.26 Profile: 200

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	4670.85	Wt. n-Val.		0.035	
Vel Head (ft)	1.94	Reach Len. (ft)	5.00	5.00	5.00
W.S. Elev (ft)	4668.91	Flow Area (sq ft)		60.64	
Crit W.S. (ft)	4669.51	Area (sq ft)		60.64	
E.G. Slope (ft/ft)	0.042507	Flow (cfs)		678.00	
Q Total (cfs)	678.00	Top Width (ft)		40.95	
Top Width (ft)	40.95	Avg. Vel. (ft/s)		11.18	
Vel Total (ft/s)	11.18	Hydr. Depth (ft)		1.48	
Max Chl Dpth (ft)	2.84	Conv. (cfs)		3288.5	
Conv. Total (cfs)	3288.5	Wetted Per. (ft)		42.01	
Length Wtd. (ft)		Shear (lb/sq ft)		3.83	
Min Ch El (ft)	4666.07	Stream Power (lb/ft s)		42.83	
Alpha	1.00	Cum Volume (acre-ft)	0.00	0.70	0.00
Frctn Loss (ft)		Cum SA (acres)	0.00	0.38	0.00
C & E Loss (ft)					

Errors, Warnings and Notes

Warning:	The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Select River Station