

Project Manual  
Including Specifications for

GRINDSTONE CANYON DAM  
PRINCIPAL SPILLWAY AND  
NORTH DAM CREST  
CONCRETE REPAIR PROJECT  
OSE FILING NO. D-513  
LINCOLN COUNTY, NEW MEXICO

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Village of Ruidoso, New Mexico 88345

June 2023

IFB # 2023-017B

Date Issued: June 14, 2023

Due Date: July 20, 2023

**OWNER:**

Village of Ruidoso  
313 Cree Meadows Drive  
Ruidoso, New Mexico 88345

**ENGINEER:**

Yeh and Associates, Inc.  
391 Front Street, Suite D  
Grover Beach CA 93433

**GRINDSTONE CANYON DAM CONCRETE REPAIR  
PRINCIPAL SPILLWAY AND NORTH DAM CREST**

**CONTRACT DOCUMENTS AND SPECIFICATIONS**

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# **ADVERTISEMENT FOR BIDS**

VILLAGE OF RUIDOSO  
(Hereinafter also referred to as the Village)

INVITATION TO BID #2023-017B

Sealed Bids will be received by the Village of Ruidoso, at the office of the Purchasing Department, 313 Cree Meadows Drive, Ruidoso, NM 88345 until July 20, 2023 at 10:00 am local time, at which time the bids will be publicly opened and read. There will be two pre-bid conferences held.

Bids shall be in a sealed envelope, plainly marked "Bid No. 2023-017B, Grindstone Canyon Dam Concrete Repair Principal Spillway and North Dam Crest" and addressed to:

Village of Ruidoso  
Attn: Carol Kirkpatrick, Purchasing Agent  
313 Cree Meadows Drive  
Ruidoso, NM 88345  
Telephone: 575-258-4343 Extension 1081

Hand carried bids shall be delivered to the office of the Purchasing Agent, 313 Cree Meadows Drive, Ruidoso, NM 88345.

Please take caution when using an overnight delivery service. Ruidoso is a rural area and overnight delivery service cannot be relied upon for prompt delivery. It is the bidder's responsibility to ensure that bids are delivered on time.

Copies of the Contract documents may be obtained at the Village of Ruidoso's Purchasing office or via the Village's website at [www.ruidoso-nm.gov/purchasing](http://www.ruidoso-nm.gov/purchasing) or via email request at [purchasing@ruidoso-nm.gov](mailto:purchasing@ruidoso-nm.gov).

The work for which the proposal is requested consists of:

Removal and repair of deteriorated and damaged concrete on the Grindstone Canyon Dam Emergency Spillway and North Dam Crest. The dam is located in the Village of Ruidoso, New Mexico and supplies municipal and industrial water supply to the Village. The dam is a 133-foot high roller compacted concrete gravity structure that was constructed in 1987. The Contractor shall have experience performing concrete removal and repair projects for at least three concrete dams and spillways that have been in service for three years. Projects shall have been completed within the last ten (10) years.

The ENGINEER for the project is:  
Yeh and Associates, Inc.  
Attention: Gresham D. Eckrich, P.E. email: [GEckrich@yeh-eng.com](mailto:GEckrich@yeh-eng.com)

A resident bidder will be allowed a preference against a non-resident bidder from a state or foreign country equal to the preference given or required by the state or foreign country in which the non-resident bidder is a resident. The lowest responsive, responsible, and best bid will be accepted; provided, however, that the Village acting through its duly authorized representatives

shall have the right to reject any and all bids, to waive any informality or irregularities contained in said bids and to make awards as it may best serve the interest of the Village.

No bids will be considered which are received after the time mentioned, and any bids received after the scheduled closing time will be returned to the bidder unopened. No bid may be withdrawn within a period of 90 days after the date fixed for opening bids.

The first Pre-Bid Conference will be held via a VIRTUAL meeting 10:00 am (local time) on June 28, 2023 via ZOOM. This meeting is non-mandatory; however, potential bidders are encouraged to attend.

#### INSTRUCTIONS FOR ALL ATTENDEES:

Join the meeting using ZOOM from a desktop computer or mobile device on this link: <https://us06web.zoom.us/j/89917437824?pwd=Um5TWZTYVpObkRqZmZCRXJxeVRKZz09>

1. Click "JOIN THE MEETING"
2. Enter Meeting ID 899 1743 7824 passcode 034348
3. Click "JOIN" and follow the prompts

If audio capabilities are required, the meeting can be joined by conference call:

Conference Call Directions:

1. Dial Call-in Number: 1-669-900-6833
2. Enter Meeting ID: 89917437824# passcode 034348

The purpose of the first pre-bid conference will be to acquaint bidders with the conditions of the contracts and the scope of the project.

Representatives of the OWNER and ENGINEER will be present to discuss the Project. Contractors are encouraged to attend and participate in the conference. ENGINEER will transmit to all prospective CONTRACTORS of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

A **second MANDATORY** Pre-Bid Conference will be held in person at 10:00 am (local time) on July 7, 2023. The location will be at the Village of Ruidoso, 313 Cree Meadows Drive, Ruidoso, NM 88345. Any person or company wishing to submit a bid must attend this meeting.

The purpose of this pre-bid conference will be to take bidders on a site visit.

**PROJECT ADMINISTRATION:** All communications and questions relative to this WORK shall be submitted via email to the ENGINEER by July 11, 2023.

Yeh and Associates, Inc.

Gresham D. Eckrich, P.E. email: [GEckrich@yeh-eng.com](mailto:GEckrich@yeh-eng.com)

It shall be understood, however, that no verbal interpretation of the specifications will be made by telephone or otherwise, nor any "or equal to" products will be considered for approval prior to award of the contract.

Work on this project is located in Ruidoso, New Mexico. In order for a Bid to be acceptable, the General Contractor and any Subcontractor whose work is in excess of \$60,000 must be registered with the New Mexico Department of Workforce Solutions, Labor Enforcement. Each proposal shall be accompanied by a money order, certified check, or bid bond payable to the Village of Ruidoso in an amount not less than five percent (5%) of the total bid amount. No proposal will be considered unless accompanied by such deposit.

**VILLAGE'S RIGHTS RESERVED:** The Village, acting through its duly authorized representatives, reserves the right to reject any or all bids, to waive any informality or irregularity contained in a bid, and to make awards to the lowest responsive, responsible bidder as it may best serve the interest of the Village.

**Village of Ruidoso  
Procurement Manager**

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(For Contracting Agency's Use Only)

Newspaper: <u>Ruidoso News</u>	Publish Date: 06/14/2023
Newspaper: <u>Albuquerque Journal</u>	Publish Date: 06/14/2023
Newspaper: <u>Las Cruces Sun News</u>	Publish Date: 06/14/2023

Note: This Notice is issued pursuant to the requirements of §13-1-104 NMSA 1978 and §13-1-113 NMSA 1978 and must be published not less than 10 calendar days prior to the date set forth for the opening of bids or proposals and published in a newspaper of general circulation in the area.

# **INSTRUCTIONS TO BIDDERS**



# INSTRUCTIONS TO BIDDERS

## ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
  - A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

## ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidders can access active procurements at the following sites: <https://www.ruidoso-nm.gov/purchasing>
- 2.02 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the advertisement or invitation to bid may be obtained from the Issuing Office.
- 2.03 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.04 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.
- 2.05 Engineer can provide, upon request, “Grindstone Canyon Dam (D-513) Spillway and North Dam Crest Condition Assessment Report prepared by Hutton Consulting and dated November 30, 2022.
- 2.06 Construction drawings and technical specifications included in the Bidding Documents are “Issued for Bid” and made available for preparing Bids. Engineer will sign and stamp “Issued for Construction” drawings and technical specifications following Notice of Award.

## ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder’s qualifications to perform the Work, within 5 days of Owner’s request, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as requested by Owner.
- 3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder’s representations and certifications. For example, provide Contractor/Subcontractor qualifications and relevant project experience according to Section 03 01 10, Article 1.3.
- 3.03 Each Bidder must provide evidence of Bidder’s qualifications to do business in the State where the Project is located. In order for a Bid to be acceptable, the General Contractor and any Subcontractor whose work is in excess of \$60,000 must be registered with the New Mexico Department of Workforce Solutions, Labor Enforcement.

## ARTICLE 4—PRE-BID CONFERENCE

- 4.01 The first Pre-Bid Conference will be held via a VIRTUAL meeting at 10:00 am (local time) on June 28, 2023 via Zoom. This meeting is non-mandatory; however, potential bidders are encouraged to attend.

INSTRUCTIONS FOR ALL ATTENDEES

To join the meeting using ZOOM from your desktop computer or mobile device click on this link:  
<https://us06web.zoom.us/j/89917437824?pwd=Um5TW EZTYVpObkRqZmZCRXJxeVRKZz09>

1. Click "JOIN A MEETING"
2. Enter Meeting ID:  
Meeting ID: **899 1743 7824**  
Passcode: **034348**
3. Click "JOIN" and follow the prompts

If you require audio capabilities, you can join by conference call:

Conference Call Directions:

1. Dial Call-in Number: 1-669-900-6833
2. Enter Meeting ID: **89917437824#**  
Passcode: **034348**

\* PLEASE MUTE YOUR COMPUTER SPEAKERS IF YOU WILL BE VIEWING ON COMPUTER AND DIALING IN TO CONFERENCE CALL\*

Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

- 4.02 A second **MANDATORY** Pre-Bid Conference will be held in person at 10:00 am (local time) on July 7, 2023. The location will be at the Village of Ruidoso, 313 Cree Meadows Drive, Ruidoso, NM 88345. Any person or company wishing to submit a bid must attend this meeting.

The purpose of this pre-bid conference will be to take bidders on a site visit.

- 4.03 PROJECT ADMINISTRATION: All communications and questions relative to this WORK shall be submitted via email to the ENGINEER by July 11, 2023.

Yeh and Associates, Inc.  
Gresham D. Eckrich, P.E. email: GEckrich@yeh-eng.com

It shall be understood, however, that no verbal interpretation of the specifications will be made by telephone or otherwise, nor any "or equal to" products will be considered for approval prior to award of the contract.

## **ARTICLE 5—SITE AND OTHER AREAS; OWNER’S SAFETY PROGRAM**

### **5.01 *Site and Other Areas***

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

### **5.02 *Owner’s Safety Program***

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

## **ARTICLE 6—INTERPRETATIONS AND ADDENDA**

- 6.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing to: Gresham D. Eckrich, P.E. at [GEckrich@yeh-eng.com](mailto:GEckrich@yeh-eng.com) for interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 6.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

## **ARTICLE 7—BID SECURITY**

- 7.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder’s maximum Bid price and in the form of a certified check, bank money order, or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 7.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner’s exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 7.03 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

## **ARTICLE 8—CONTRACT TIMES**

- 8.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

## **ARTICLE 9—SUBSTITUTE AND “OR EQUAL” ITEMS**

- 9.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents. Where brand name or an “or-equal” specification is used in the Bidding Documents, the use of a brand name is for the purpose of describing the standard of quality, performance and characteristics desired, and is not intended to limit or restrict competition. When bidding a substitute or an “or-equal” the burden is on the Contractor to convince the Engineer that the supplier or manufacturer who has not been specified is in fact equal to the one specified. The Engineer is given the responsibility and judgment for making final determination on whether a proposed substitution is an “or-equal”. Whenever it is specified or described in the Bidding Documents that a substitute or “or-equal” item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.
- 9.02 If the Contractor bases their Bid on a substitute or an “or-equal” product, they do so at their own risk. In submitting a Bid, the Contractor agrees to furnish materials, equipment, and products that are acceptable to the Engineer for the price listed in the Bid.

## **ARTICLE 10—SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

- 10.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.
- 10.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.
- 10.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

## **ARTICLE 11—PREPARATION OF BID**

- 11.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Engineer by Plan Holders.
- 11.02 All blanks on the Bid Form must be completed in ink or type written, and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each Bid item listed therein.
- 11.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.
- 11.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- 11.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 11.06 A Bid by an individual shall show the Bidder's name and official address.
- 11.07 A Bid by a joint shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture must be shown.
- 11.08 All names shall be printed in ink or type written below the signatures.
- 11.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 11.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 11.11 Offeror must complete, sign, and return the Campaign Contribution Disclosure Form, as a part of their Bid. This requirement applies regardless whether a covered contribution was made or not made for the positions of Mayor and Village Councilors or other identified official. Failure to complete and return the signed unaltered form will result in disqualification.
- 11.12 Offeror must complete, sign, and return the Debarment Certification Form, as a part of their Bid.
- 11.13 Offeror must complete, sign, and return the Non-Collusion Affidavit, as a part of their Bid.
- 11.14 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder must covenant in writing that to obtain such authority and qualification prior to award of Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

## **ARTICLE 12—BASIS OF BID**

### 12.01 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid Schedule.

- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

#### 12.02 Allowances

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 11.02.B of the General Conditions.

### **ARTICLE 13—SUBMITTAL OF BID**

13.01 All Bidders who are submitting a Bid on this Project are required to submit the following documents:

- Bid
- Bid Security Bond
- List of Subcontractors for compliance with New Mexico Subcontractor's Fair Practices Act
- COVID-19 Response Plan. The Bidder shall submit with their Bid a COVID-19 Response Plan that outlines the effort Bidder will undertake to complete this project, without any time extensions, given the COVID-19 pandemic. Bidder shall outline company protocols they propose to undertake to follow state guidelines regarding social distancing, PPE, testing, contract tracing, potential quarantine conditions, and remain within the Contract Time. The plan shall also include employee social distancing encouraged during working and non-working hours.

13.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." (A mailed Bid shall be addressed to the location noted on the Advertisement for Bids.) The Bidding Documents shall include one separate unbound copy of the Bid Form and an external hard drive with electronic files of the bidding documents.

### **ARTICLE 14—MODIFICATION AND WITHDRAWAL OF BID**

14.01 A Bid Proposal may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid Proposal must be executed) and delivered to the place where Bid Proposals are to be submitted at any time prior to the scheduled closing time for the receipt of bids. Bids shall be unconditionally accepted for consideration of award without alteration or correction except as authorized by the Owner.

14.02 The Owner may allow a correction or withdrawal of a bid because of an inadvertent, nonjudgmental mistake in the bid, within the limitations below.

A. **Confirmation of Bid.** The **Owner** may require the apparent low Bidder to confirm its bid when obvious errors regarding the amount of the bid are apparent on the face of the bid or the bid amount is unreasonably lower than other bids submitted.

B. **Correction of Bid.** The **Owner** may allow a Bidder to correct mistakes discovered by either the Owner or Bidder after Bid Opening and prior to award of the Contract without forfeiture of bid security in the following circumstances:

- when technical irregularities exist that have no effect on the price, quantity, quality, delivery or contractual conditions.
- when mistakes exist and the intended correct bid is clearly evident on the face of the bid.

14.03 The Owner may allow a Bidder to correct mistakes discovered after Bid Opening or to withdraw a bid without forfeiture of bid security if a mistake is clearly evident on the face of the Bid or the intended correct bid is not evident and the low Bidder submits evidence within 24 hours after the Bids are opened which clearly and convincingly demonstrates that a mistake was made which:

- is of such a grave consequence that enforcement would be unconscionable and,
- relates to a material and fundamental feature of the bid and,
- the Bidder acted in good faith and the mistakes did not come about as a result of the violation of a positive legal duty or from gross negligence and,
- the Bidder gave prompt notice of the mistake prior to award of Bid and,
- the Owner's status has not been changed, or if changed, the Owner suffers no serious hardship or prejudice other than loss of the bargain.

Thereafter, if the Work is rebid, any Bidder that withdraws a Bid will be disqualified from further bidding on the Work

#### **ARTICLE 15—OPENING OF BIDS**

15.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

#### **ARTICLE 16—BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

16.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

#### **ARTICLE 17—EVALUATION OF BIDS AND AWARD OF CONTRACT**

17.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible.

Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

- 17.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 17.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 17.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 17.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 17.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project. Refer to Article 5 of the Bid Form for the basis of award.

#### **ARTICLE 18—CONTRACT SECURITY AND INSURANCE**

- 18.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 18.02 Reimbursement of Engineer's Cost for Reviewing Insurance and Bond Submissions. If the Bonds and/or Insurance Certificates are found not to be in accordance with the Contract Documents, the resubmission(s) of the Bonds and/or Insurance Certificates shall be accompanied by a purchase order from the Contractor to the Owner to cover any and all costs incurred by the Engineer in reviewing such resubmission(s).

#### **ARTICLE 19—SIGNING OF AGREEMENT**

- 19.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver



one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

**ARTICLE 20—WAGE RATE REQUIREMENTS**

20.01 The prevailing wage rates of the State of New Mexico apply to this Contract as do any requirements for the State of New Mexico associated with the use of these State Prevailing Wages.

# **BID FORM**

# BID FORM

PROJECT IDENTIFICATION: ITB #2023-017B Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repair Project

## ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to:                   Attn: Procurement Manager  
  Village of Ruidoso  
  313 Cree Meadows Drive  
  Ruidoso, New Mexico 88345
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

## ARTICLE 2—BIDDER’S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and submit the Agreement and the Bonds and other documents required by the Bidding Requirements within ten days after the date of Owner's Notice of Award.

## ARTICLE 3—BIDDER’S REPRESENTATIONS

- 3.01 In submitting this Bid, Bidder represents that:
- A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02, and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06.

- E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

#### **ARTICLE 4—BIDDER'S CERTIFICATION**

##### 4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
  - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

**ARTICLE 5—BASIS OF BID**

5.01 Bidder shall complete the Work in accordance with the Contract Documents for the following price(s):

<u>Item</u>	<u>Section</u>	<u>Work &amp; Material</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total Amount</u>
1	01 71 13	Mobilization and Demobilization	1	Lump sum	\$	\$
2	03 81 10	Saw cut perimeter of each repair area, approx. 1" deep, in areas S1 through S10 on principal spillway chute face	1100	Linear feet	\$	\$
3	03 81 10	Remove and dispose of damaged concrete and reinforcement, 1" to 3" deep, in areas S1 through S10 on principal spillway chute face	41	Cubic yard	\$	\$
4	03 81 10	Remove and dispose of damaged concrete and reinforcement, 6" deep", in area S11 at bottom of principal spillway chute face	34	Cubic yard	\$	\$
5	03 81 10	Remove and retain four survey monuments and remove and dispose of concrete and reinforcement in repair area D1 on north dam crest	8910	Square feet	\$	\$
6	03 81 10	Remove and dispose of concrete curbs and reinforcement in repair areas D2 on north dam crest	9	Cubic yard	\$	\$
7	03 01 10	Concrete Repair Type 1: Furnish and install materials for repair of damaged concrete in areas S1 through S10 on principal spillway chute face	41	Cubic yards	\$	\$
8	03 30 00	Concrete Repair Type 2: Furnish and install concrete and reinforcement for replacement of facing panels in repair area S11 on bottom of principal spillway chute face	34	Cubic yards	\$	\$
9	03 37 20	Concrete Repair Type 3: Furnish and install repair materials for placement of the epoxy polymer concrete overlay in repair area D1 on north dam crest. Reinstall four survey monuments.	1000	Square yards	\$	\$

10	03 30 00	Concrete Repair Type 4: Furnish and install concrete and reinforcement for replacement of curbs in areas D2 on north dam crest	9	Cubic yards	\$	\$
11	33 46 40	Furnish and install 12-inch wide prefabricated geocomposite drains behind the 6-inch thick facing panels over repair area S11 on the downstream face at the bottom of the principal spillway chute	450	Linear feet	\$	\$
12	03 01 10	Furnish and install waterproofing material over repair area S11 to control seepage	1350	Square feet	\$	\$
13	03 20 40	Optional Item - Furnish and install epoxy grouted anchor bars in area S11	25	Each	\$	\$
<b>TOTAL BID AMOUNT (Exclusive of NMGRT)</b>						<b>\$</b>

Unit Prices have been computed in accordance with Paragraph 11.03 of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

- 5.02 This Contract will be awarded on the basis of the lowest responsive Base Bid Option received from a responsive Bidder. A responsive Bidder will include Bids on Base Bid and ALL Additive Alternates. If the lowest acceptable Bid exceeds available funds, the Owner retains the right to reject all Bids. Owner may only negotiate up to 10% higher than the budgeted project funds. Such negotiation shall not be allowed if the lowest Bid is more than 10% over the budgeted project funds. If these conditions are not satisfied, the Owner is required to reject all Bids and re-bid the project to comply with State procurement requirements.
- 5.03 This Contract includes two (2) preferences for the award of the Bid: (1) New Mexico Resident Contractor Preference and (2) Resident Veterans Preference Certification.
- A. To receive a Resident Contractor preference pursuant to Section 13-4-2 NMSA 1978 or a Resident Veteran Contractor preference pursuant to Section 13-1-21 NMSA 1978, a Bidder shall submit with its Bid a copy of a valid Resident Contractor Certificate or Resident Veteran Contractor Certificate issued by the Taxation and Revenue Department. In addition, if the Bidder is seeking the Resident Veteran Contractor preference, the Bidder shall submit with its Bid the Resident Veterans Preference Certification form.
- B. For the purpose of awarding, the following shall apply:
1. A Bid submitted by a Resident Contractor shall be deemed to be five percent (5%) lower than the Bid actually submitted.

2. A Bid submitted by a Resident Veteran Contractor with annual revenues of up to Three Million Dollars (\$3,000,000) in the preceding tax year shall be deemed to be ten percent (10%) lower than the Bid actually submitted.
3. A public body shall not award a Bidder both a Resident Contractor preference and a Resident Veteran Contractor preference.
4. When a Joint Bid is submitted by a combination of Resident Veteran and Resident or Nonresident Contractor, the preference shall be calculated in proportion to the percentage of the Contract, based on the dollar amount of the Bid provided under the Contract that will be performed by each business as specified in the Joint Bid.

For information on obtaining a Resident Contractor Certificate or Resident Veteran Certificate, the potential Bidder should contact the State of New Mexico Taxation and Revenue Department, P.O. Box 5373, Santa Fe, New Mexico 87502-5374, telephone (505) 827-0951, or on the web at <http://www.tax.newmexico.gov/forms-and-publications/pages/recently-updated.aspx>.

Gross receipts tax rates will be adjusted by the Contractor during the construction period to reflect the actual applicable rates issued by the New Mexico Taxation and Revenue Department.

#### **ARTICLE 6—TIME OF COMPLETION**

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

#### **ARTICLE 7—ATTACHMENTS TO THIS BID**

- 7.01 The following documents are submitted with and made a condition of this Bid:
  - A. Required Bid Security
  - B. List of Proposed Subcontractors for compliance with New Mexico Subcontractor's Fair Practices Act
  - C. Resident Contractor Certificate issued by the Taxation and Revenue Department (if seeking preference)
  - D. Resident Veteran Contractor Certificate issued by the Taxation and Revenue Department (if seeking preference)
  - E. Equipment Suppliers List

#### **ARTICLE 8—DEFINED TERMS**

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

#### **ARTICLE 9—BID SUBMITTAL**

- 9.01 This Bid is submitted by:

Bidder:

\_\_\_\_\_  
*(typed or printed name of organization)*

By:

\_\_\_\_\_  
*(individual's signature)*

Name:

\_\_\_\_\_  
*(typed or printed)*

Title:

\_\_\_\_\_  
*(typed or printed)*

Date:

\_\_\_\_\_  
*(typed or printed)*

*If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.*

Attest:

\_\_\_\_\_  
*(individual's signature)*

Name:

\_\_\_\_\_  
*(typed or printed)*

Title:

\_\_\_\_\_  
*(typed or printed)*

Date:

\_\_\_\_\_  
*(typed or printed)*

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_

Bidder's Contact:

Name:

\_\_\_\_\_  
*(typed or printed)*

Title:

\_\_\_\_\_  
*(typed or printed)*

Phone:

Email:

Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Bidder's Contractor License No.: (if applicable) \_\_\_\_\_

## **ARTICLE 10—PREFERENCES**

10.01 Resident Contractor Preference:

Is Bidder claiming Resident Contractor Preference? \_\_\_\_\_



If Yes, provide a copy of your Resident Contractor Certificate issued by the Taxation and Revenue Department.

10.02 Resident Veteran Contractor Preference:

Is Bidder claiming Resident Veteran Contractor Preference? \_\_\_\_\_

If Yes, provide a copy of your Resident Veteran Contractor Certificate issued by the Taxation and Revenue Department.

# **BID BOND**

# BID BOND

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address): Village of Ruidoso  
313 Cree Meadows Drive  
Ruidoso, New Mexico 88345

BID

Bid Due Date:  
Description: Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repair  
Project, Ruidoso, New Mexico

BOND

Bond Number:  
Date (Not earlier than Bid due date):  
Penal sum \_\_\_\_\_ \$ \_\_\_\_\_  
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

\_\_\_\_\_  
Bidder's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.*

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
  - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2. All Bids are rejected by Owner, or
  - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

# **EQUIPMENT SUPPLIERS LIST**



**SUBCONTRACTOR'S FAIR  
PRACTICE ACT COMPLIANCE**

## SUBCONTRACTOR'S FAIR PRACTICE ACT COMPLIANCE

This project is subject to the provisions of the State of New Mexico Subcontractor's Fair Practice Act.

Listing Threshold: \$000.00

Portion of project to which requirements apply:

Complete Project.

For each category of the project, which the BIDDER will be subcontracting for an amount exceeding the listing threshold indicated above, the BIDDER shall define the subcontracting categories and list only one subcontractor for each category. The listing shall be in the format indicated on the following page, and shall be completed and submitted with the Bid.

No CONTRACTOR whose Bid is accepted shall sublet or subcontract any portion of the Work of the Project in an amount exceeding the threshold amount given above, where the original bid amount did not designate a subcontractor, unless 1) the CONTRACTOR received no bid for that category (note: the BIDDER must designate on the list of subcontractors that "no bid was received"), or 2) the Work is pursuant to a change order that causes changes or deviations from the original contract.

No CONTRACTOR whose Bid is accepted shall substitute any subcontractor in place of the subcontractor listed in the Bid except as provided for in the Subcontractor's Fair Practice Act.

Any changes or additions of subcontractors shall be promptly reported to the ENGINEER in writing within two (2) calendar days of the known change or addition to the submitted List of Project Subcontractors in the Bid.

All subcontractors with work in excess of \$60,000 must be registered with the New Mexico Department of Workforce Solutions, Labor Enforcement. On page SCFP-2, include the total of the subcontracted work and the subcontractor's New Mexico Department of Workforce Solutions Registration Number, if work is in excess of \$60,000.



LIST OF PROJECT SUBCONTRACTORS FOR  
AMOUNTS EXCEEDING THE LISTING THRESHOLD

---

Subcontract Category \_\_\_\_\_

Estimated Value of Work \_\_\_\_\_

Subcontractor's Name \_\_\_\_\_

    Business Address \_\_\_\_\_

    Phone Number \_\_\_\_\_

    E-mail Address \_\_\_\_\_

    Federal Identification No. (FEIN #) \_\_\_\_\_

    New Mexico Contractor's License No. \_\_\_\_\_

        License Categories \_\_\_\_\_

    New Mexico Dept. of Workforce Solutions Registration No. \_\_\_\_\_  
(list only if value of work is in excess of \$60,000)

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Subcontract Category \_\_\_\_\_

Estimated Value of Work \_\_\_\_\_

Subcontractor's Name \_\_\_\_\_

    Business Address \_\_\_\_\_

    Phone Number \_\_\_\_\_

    E-mail Address \_\_\_\_\_

    Federal Identification No. (FEIN #) \_\_\_\_\_

    New Mexico Contractor's License No. \_\_\_\_\_

        License Categories \_\_\_\_\_

    New Mexico Dept. of Workforce Solutions Registration No. \_\_\_\_\_  
(list only if value of work is in excess of \$60,000)

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Subcontract Category \_\_\_\_\_  
Estimated Value of Work \_\_\_\_\_  
Subcontractor's Name \_\_\_\_\_  
Business Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Phone Number \_\_\_\_\_  
E-mail Address \_\_\_\_\_  
Federal Identification No. (FEIN #) \_\_\_\_\_  
New Mexico Contractor's License No. \_\_\_\_\_  
License Categories \_\_\_\_\_  
New Mexico Dept. of Workforce Solutions Registration No. \_\_\_\_\_  
(list only if value of work is in excess of \$60,000)

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Subcontract Category \_\_\_\_\_  
Estimated Value of Work \_\_\_\_\_  
Subcontractor's Name \_\_\_\_\_  
Business Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Phone Number \_\_\_\_\_  
E-mail Address \_\_\_\_\_  
Federal Identification No. (FEIN #) \_\_\_\_\_  
New Mexico Contractor's License No. \_\_\_\_\_  
License Categories \_\_\_\_\_  
New Mexico Dept. of Workforce Solutions Registration No. \_\_\_\_\_  
(list only if value of work is in excess of \$60,000)

---

**Signature of Authorized Representative for BIDDER:**

\_\_\_\_\_ Date: \_\_\_\_\_

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*Duplicate, complete, and submit additional sheets as required.*

# **AGREEMENT**

# **AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

This Agreement is by and between Village of Ruidoso (“Owner”) and \_\_\_\_\_ (“Contractor”).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

## **ARTICLE 1—WORK**

### **1.01 CONTRACTOR SHALL COMPLETE ALL WORK AS SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS. THE WORK IS GENERALLY DESCRIBED AS FOLLOWS:**

- A. Saw cut around perimeter of drummy and spalled concrete areas on principal spillway chute face in specified locations and remove damaged concrete using mechanical methods, water blasting or other approved methods.
- B. Place specified concrete repair materials in damaged concrete areas on principal spillway chute face.
- C. Remove existing reinforced concrete facing panels on lower section of principal spillway chute using mechanical methods or water blasting.
- D. Install geocomposite chimney strips drawings and waterproofing and reconstruct reinforced concrete facing panels on lower section of principal spillway chute. Fabricate and install replacement anchor bars, if existing anchor bars are severely deteriorated.
- E. Remove damaged existing concrete and curbs on north dam crest in specified locations using abrasive blasting or other approved method.
- F. Perform concrete repairs, apply thin bonded polymer overlay, and reconstruct transverse joints on north dam crest surface between parapet wall and curbs.
- G. Construct new concrete curbs on north dam crest.
- H. Remove and reinstall four survey monuments on the north dam crest.

## **ARTICLE 2—THE PROJECT**

2.01 The Project, for which the Work under the Contract Documents is the whole or only a part, is generally described as follows: **Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repair.**

## **ARTICLE 3—ENGINEER**

3.01 The Project has been designed by Yeh & Associates, Inc. (Engineer), which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

**ARTICLE 4—CONTRACT TIMES**

4.01 *Time is of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

- A. The Work will be substantially complete 120 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within **120** days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$ 1,000 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$1,000 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

**ARTICLE 5—CONTRACT PRICE**

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents in current funds as follows:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

- A. For all Work at the prices stated in Contractor’s Bid, refer to Contractor’ Bid Form.
- B. Contract Price includes all overhead and profit.

**ARTICLE 6—PAYMENT PROCEDURES**

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor’s Applications for Payment on or about the 25<sup>th</sup> day of each month during

performance of the Work provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 14.07 of the General Conditions.

6.04 *Interest*

- A. Not applicable.

**ARTICLE 7—CONTRACT DOCUMENTS**

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
  - 1. This Agreement.
  - 2. Performance bond.
  - 3. Payment bond.
  - 4. Instructions to Bidders.
  - 5. General Conditions.
  - 6. Supplementary Conditions.
  - 7. Specifications as listed in the table of contents of the project manual.
  - 8. Drawings consisting of those listed in the List of Drawings.
  - 9. Addenda (numbers [number] to [number], inclusive).
  - 10. Contractor's Bid.
  - 11. Documentation submitted by Contractor prior to Notice of Award.
  - 12. Notice to Proceed.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

**ARTICLE 8—CONTRACTOR'S REPRESENTATIONS**

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

- B. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to federal, state and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data on such drawings.
- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

## **ARTICLE 9—MISCELLANEOUS**

### **9.01 Terms**

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

### **9.02 Assignment of Contract**

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that

the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 9.05:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.



IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Agreement).

Owner:

Village of Ruidoso

\_\_\_\_\_  
*(typed or printed name of organization)*

By:

\_\_\_\_\_  
*(individual's signature)*

Date:

\_\_\_\_\_  
*(date signed)*

Name:

\_\_\_\_\_  
*(typed or printed)*

Title:

\_\_\_\_\_  
*(typed or printed)*

Attest:

\_\_\_\_\_  
*(individual's signature)*

Title:

\_\_\_\_\_  
*(typed or printed)*

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Designated Representative:

Name:

\_\_\_\_\_  
*(typed or printed)*

Title:

\_\_\_\_\_  
*(typed or printed)*

Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone:

\_\_\_\_\_

Email:

\_\_\_\_\_

*(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*

Contractor:

\_\_\_\_\_  
*(typed or printed name of organization)*

By:

\_\_\_\_\_  
*(individual's signature)*

Date:

\_\_\_\_\_  
*(date signed)*

Name:

\_\_\_\_\_  
*(typed or printed)*

Title:

\_\_\_\_\_  
*(typed or printed)*

*(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest:

\_\_\_\_\_  
*(individual's signature)*

Title:

\_\_\_\_\_  
*(typed or printed)*

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Designated Representative:

Name:

\_\_\_\_\_  
*(typed or printed)*

Title:

\_\_\_\_\_  
*(typed or printed)*

Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone:

\_\_\_\_\_

Email:

\_\_\_\_\_

License No.:

\_\_\_\_\_  
*(where applicable)*

State:

\_\_\_\_\_

# **PERFORMANCE BOND**

## PERFORMANCE BOND

<b>Contractor (Name and Address)</b>	<b>Surety [Name and Address]</b>
<b>Owner</b> Village of Ruidoso 313 Cree Meadows Drive Ruidoso, New Mexico 88345	<b>Contract</b> Description <i>(name and location)</i> : Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repair Project  Contract Price: Effective Date of Contract:
<b>Bond</b> Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	Bond Number:
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal <hr/> <i>(Full formal name of Contractor and Corporate Seal)</i>	Surety <hr/> <i>(Full formal name of Surety and Corporate seal)</i>
By: _____ <div style="text-align: center;"><i>(Signature)</i></div>	By: _____ <div style="text-align: center;"><i>(Signature)(Attach Power of Attorney)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>	Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
  - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
  - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
  - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
  - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
  - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
  - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
  - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
    - 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
  - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
  - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
  - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
14. Definitions

- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
  - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
  - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
  - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
  - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

FOR INFORMATION ONLY – (Name, Address and Telephone)	
<b><i>Surety Agency or Broker:</i></b>	<b><i>Owner’s Representative</i></b> Yeh and Associates, Inc. 391 Front Street, Suite D Grover Beach CA 93433 Office: 805-616-0399

# **PAYMENT BOND**

## PAYMENT BOND

<b>Contractor (Name and Address)</b>	<b>Surety [Name and Address]</b>
<b>Owner</b> Village of Ruidoso 313 Cree Meadows Drive Ruidoso, New Mexico 88345	<b>Contract</b> Description <i>(name and location)</i> : Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repair Project  Contract Price: Effective Date of Contract:
<b>Bond</b> Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18	
Bond Number:	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor and Corporate Seal)</i>	<i>(Full formal name of Surety and Corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	



1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
  - 5.1. Claimants who do not have a direct contract with the Contractor
    - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
    - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
  - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
  - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
  - 7.2. Pay or arrange for payment of any undisputed amounts.
  - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
  - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
    - 16.1.1. The name of the Claimant;
    - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
    - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
    - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
  - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
  - 16.1.7. The total amount of previous payments received by the Claimant; and
  - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

# **NOTICE OF AWARD**

**NOTICE OF AWARD**

Date of Issuance:

Owner: Village of Ruidoso Owner’s Project No.: 2023-017B

Engineer: Yeh & Associates, Inc. Engineer’s Project No.: 219-218

Project:

Contract Name: Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repair Project

Bidder:

Bidder’s Address:

You are notified that Owner has accepted your Bid dated \_\_\_\_\_ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

**Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repair Project**

The Contract Price of the awarded Contract is \$\_\_\_\_\_. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

Two copies of unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner two copies of counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **[Describe other conditions that require Successful Bidder’s compliance]**

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **Village of Ruidoso**

By (signature): \_\_\_\_\_

Name (printed): \_\_\_\_\_

Title: \_\_\_\_\_

# **NOTICE TO PROCEED**

## NOTICE TO PROCEED

Owner: Village of Ruidoso Owner's Project No.: 2023-017B  
Engineer: Yeh and Associates, Inc. Engineer's Project No.: 219-218  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Project: Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repair Project

Contract Name: \_\_\_\_\_

Effective Date of Contract: \_\_\_\_\_

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is **120 days** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **120 days** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Before starting any Work at the Site, Contractor must comply with the following:

Access to the work shall be through Village of Ruidoso property via Resort Drive. The OWNER assumes no responsibility for the condition or maintenance of any existing road or structure that may be used by the Contractor for performing the work under these Specifications and for traveling to and from the site of the work. Existing roads and bridges altered or damaged by the Contractor's work, his workmen, or subcontractors, shall be restored to their original condition by the Contractor upon completion of the project. No direct payment will be made to the Contractor for constructing, improving, repairing or maintaining any existing road or structure that may be used by the Contractor for performance of the work under these Specifications.

Owner: Village of Ruidoso

By (signature): \_\_\_\_\_

Name (printed): \_\_\_\_\_

Title: \_\_\_\_\_

Date Issued: \_\_\_\_\_

Copy: Engineer

**CERTIFICATE OF  
LIABILITY INSURANCE**





# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Insurance Group Inc 1111 Insurance Blvd Albuquerque, NM		<b>CONTACT NAME:</b> <b>PHONE (A/C, No, Ext):</b> <b>E-MAIL ADDRESS:</b>		<b>FAX (A/C, No):</b>	
		<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAIC #</b>	
<b>INSURED</b> ABC Construction Company 1111 Construction Blvd Albuquerque, NM		INSURER A : Insurance Company A			
		INSURER B : Insurance Company B			
		INSURER C : Insurance Company C			
		INSURER D : Insurance Company D			
		INSURER E :			
		INSURER F :			

**COVERAGES****CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<b>GENERAL LIABILITY</b>			#####	01/01/20--	01/01/20--	EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY	<input checked="" type="checkbox"/>					DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						MED EXP (Any one person) \$ 10,000
	<input checked="" type="checkbox"/> Owners & Contractors Prot.						PERSONAL & ADV INJURY \$ 1,000,000
GEN'L AGGREGATE LIMIT APPLIES PER:							GENERAL AGGREGATE \$ 2,000,000
POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC <input type="checkbox"/>							PRODUCTS - COMP/OP AGG \$ 2,000,000
							\$
B	<b>AUTOMOBILE LIABILITY</b>		<input checked="" type="checkbox"/>	#####	01/01/20--	01/01/20--	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS	<input type="checkbox"/>	<input type="checkbox"/>				BODILY INJURY (Per accident) \$
<input checked="" type="checkbox"/> HIRED AUTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SCHEDULED AUTOS NON-OWNED AUTOS	PROPERTY DAMAGE (Per accident) \$			
							\$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB			#####	01/01/20--	01/01/20--	EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> EXCESS LIAB	<input checked="" type="checkbox"/>					AGGREGATE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE						\$
DED <input checked="" type="checkbox"/> RETENTION \$ 10,000							
D	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b>			#####	01/01/20--	01/01/20--	<input checked="" type="checkbox"/> WC STATUTORY LIMITS
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICE/MEMBER EXCLUDED? (Mandatory in NH)	Y/N <input type="checkbox"/>	N/A <input type="checkbox"/>				E.L. EACH ACCIDENT \$ 100,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 100,000
							E.L. DISEASE - POLICY LIMIT \$ 500,000
A	<b>Boiler &amp; Machinery Coverage</b>			#####	01/01/20--	01/01/20--	Equipment Breakdown: Contract Amount
	<b>Builders Risk Coverage</b>						Builders Risk: Contract Amount

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

"Project Name" Additional Insured: Owner, Engineer, and Engineering Consultants, [New Mexico Department of Transportation (for projects requiring NMDOT Utility Permits)], and each of their Officers, Agents, and employees.

**CERTIFICATE HOLDER****CANCELLATION**

Owner Name Owner's Address	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE
	SIGNATURE

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## OTHER INSURANCE CERTIFICATE/POLICY REQUIREMENTS

Owner's Protective Liability Insurance:

Certificate before execution of Agreement  
Policy before beginning work

Builder's All-Risk Insurances

Certificate before execution of Agreement

See Owner's Supplemental Conditions for other conditions regarding insurance, certificates, insureds, and other provisions.

See Information for Bidders for requirement to pay for review(s) of resubmittal of insurance certificates and/or bonds.

# **CHANGE ORDER**



# **CERTIFICATE OF SUBSTANTIAL COMPLETION**



# **STATE WAGE RATES**



**LABOR RELATIONS DIVISION**

401 Broadway NE  
Albuquerque, NM 87102  
Phone: 505-841-4400  
Fax: 505-841-4424

226 South Alameda Blvd  
Las Cruces, NM 88005  
Phone: 575-524-6195  
Fax: 575-524-6194

**WWW.DWS.STATE.NM.US**

**Wage Decision Approval Summary**

1) Project Title: Grindstone Canyon Dam Concrete Repair Principal Spillway and North Dam Crest  
Requested Date: 06/09/2023  
Approved Date: 06/12/2023  
Approved Wage Decision Number: LI-23-1713-H

**Wage Decision Expiration Date for Bids: 10/10/2023**

2) Physical Location of Jobsite for Project:  
Job Site Address: 535 Resort Drive  
Job Site City: Ruidoso  
Job Site County: Lincoln

3) Contracting Agency Name (Department or Bureau): Village of Ruidoso  
Contracting Agency Contact's Name: Carol Kirkpatrick  
Contracting Agency Contact's Phone: (575) 258-4343 Ext. 1081

4) Estimated Contract Award Date: 08/08/2023

5) Estimated total project cost: \$740,000.00  
a. Are any federal funds involved?: No  
b. Does this project involve a building?: No  
c. Is this part of a larger plan for construction on or appurtenant to the property that is subject to this project?: No  
d. Are there any other Public Works Wage Decisions related to this project?: No  
e. What is the ultimate purpose or functional use of the construction once it is completed?: Improve dam safety

6) Classifications of Construction:

<b>Classification Type and Cost Total</b>	<b>Description</b>
<b>Heavy Engineering (H) Cost: \$740,000.00</b>	Removal and repair of deteriorated and damaged concrete on the Grindstone Canyon Dam Emergency Spillway and North Dam Crest.



**STANDARD GENERAL CONDITIONS  
OF THE CONSTRUCTION CONTRACT**

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.



40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents; or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### *2.01 Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### *2.02 Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### *2.03 Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

## 2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

## 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

## 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

## 2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

#### **3.01 *Intent***

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02 *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

#### **3.03 *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
  1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
  2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### 4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or
- 3. differs materially from that shown or indicated in the Contract Documents; or



4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
  - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
  - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to

permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 – BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

#### 5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
    - b. by any other person for any other reason;
  - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
  - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
  - 1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners,

employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
  - a. Such insurance shall remain in effect for two years after final payment.
  - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

#### 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
  1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of

them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.



- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

#### 5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

#### 5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

#### 5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

### 6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### 6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

#### 6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
      - 3) it has a proven record of performance and availability of responsive service.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:
    - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
    - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - a) all variations of the proposed substitute item from that specified, and
    - b) available engineering, sales, maintenance, repair, and replacement services; and
  - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or

entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
  2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its

use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner



and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
  2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
  3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

## 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

## 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts

any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

##### 1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

##### 2. *Samples:*

- a. Submit number of Samples specified in the Specifications.

- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the

Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

## 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## **ARTICLE 7 – OTHER WORK AT THE SITE**

### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe

access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.



## ARTICLE 8 – OWNER’S RESPONSIBILITIES

### 8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

- A. Owner’s duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 8.06 *Insurance*

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

### 8.08 *Inspections, Tests, and Approvals*

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

### 8.09 *Limitations on Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws

and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

### 9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

### 9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

### 9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

### 9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

### 9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations

on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of,

and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

#### 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

#### 10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

#### 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
  - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of

executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

#### 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
  - 1. deny the Claim in whole or in part;
  - 2. approve the Claim; or
  - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
  - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
  - 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  - 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:



1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
  2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

## 11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
1. Contractor agrees that:
    - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
    - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in

the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

**ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
  3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
    - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
    - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
    - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

## 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

## 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## **ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### *13.01 Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### *13.02 Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### *13.03 Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

#### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers,

architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

### 13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. repair such defective land or areas; or
  - 2. correct such defective Work; or
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

### 13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.



- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## **ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION**

### *14.01 Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

### *14.02 Progress Payments*

#### *A. Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

#### *B. Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's

review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

#### 14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *Final Payment*

##### A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and

- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

*B. Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

*C. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

**14.08** *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

### **ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

#### 15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

#### 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

### 15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other



dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

### **ARTICLE 16 – DISPUTE RESOLUTION**

#### 16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 – MISCELLANEOUS**

### *17.01 Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
  2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### *17.02 Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### *17.03 Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

### *17.04 Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### *17.05 Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

### *17.06 Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

# **SUPPLEMENTARY CONDITIONS**

## SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

### SC-2.02 Copies of Documents

SC-2.02 Delete Paragraph 2.02.A of the General Conditions in its entirety and insert the following in its place:

- A. Owner shall furnish to Contractor up to two 11" x 17" size copies of the project drawings and project manual and one electronic file of the design base drawing, upon receipt of a signed release provided by the Engineer. Additional copies will be furnished, upon request, at the cost of reproduction.

### SC-3.01 Intent

SC-3.01 Add the following new paragraphs immediately after Paragraph 3.01C.

- D. This Agreement shall be binding upon, and shall inure to the benefit of, the parties hereto, their successors and assigns.
- E. If any provision of this Agreement is declared by any court of competent jurisdiction to be invalid for any reason, such invalidity shall not affect the remaining provisions. On the contrary, such remaining provisions shall be fully severable, and this Agreement shall be construed and enforced as if such invalid provisions never had been inserted in this Agreement.

### SC-4.06 Hazardous Environmental Conditions at Site

SC-4.06 Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to exist.

B. Not Used.

SC-5.04 Contractor's Insurance

SC-5.04 Add the following new paragraph immediately after Paragraph 5.04.B:

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverages for not less than the following amounts or greater where required by law or regulations:

1. Workers Compensation, etc., under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

- a. State: Statutory
- b. Applicable Federal (e.g. Longshoreman's): Statutory
- c. Employer's Liability: \$1,000,000

2. Contractors General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include complete operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor (including Premises-Operations; Independent Contractors' Protection; Products Liability and Completed Operations; Broad Form Property Damage):

- a. Bodily Injury (including completed operations and products liability):  
\$1,000,000.00 Each Occurrence
- b. Property Damage:  
\$1,000,000.00 Each Occurrence
- c. Or a combined single limit of \$1,000,000.00 each occurrence and \$2,000,000 in the aggregate.
- d. Excess/Umbrella Liability:  
\$1,000,000.00 Each Occurrence  
\$1,000,000.00 In the Aggregate
- e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages.

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

- a. Bodily Injury:  
\$1,000,000.00 Each Occurrence
  - b. Property Damage:  
\$1,000,000.00 Each Occurrence
  - c. Or a combined single limit of \$1,000,000.00.
4. Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following:
- a. Bodily Injury:  
\$1,000,000.00 Each Occurrence
  - b. Property Damage:  
\$1,000,000.00 Each Occurrence
5. Additional liability coverage for Owner and Engineer shall be provided:
- a. By endorsement as additional insureds on Contractor's General Liability Policy. Owner and Engineer shall be listed on certificate.

SC-5.05 Owner's Liability Insurance

SC-5.05 Delete Paragraph 5.05 of the General Conditions in its entirety and insert the following in its place:

- A. The Contractor shall be responsible for purchasing and maintaining through the life of the Contract, at no cost to the Owner, an Owner's Protective Liability Insurance policy in the name of the Owner with the Engineer and his consultants, and each of their officers, agents, and employees, as Additional Insureds. Such insurance shall have the same limits as the Contractor's Comprehensive General Liability Insurance Coverage.

SC-5.06 Delete Paragraph 5.06.B of the General Conditions in its entirety and insert the following in its place:

- A. Contractor shall purchase and maintain such boiler and machinery insurance and any other additional property insurance required by Laws and Regulations which insurance will include the interest of Owner, Contractor, Subcontractors, Engineer and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

SC-6.06      Concerning Subcontractors, Suppliers, and Others

SC-6.06      Add a new paragraph immediately after Paragraph 6.06.G:

- H.      Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor or Supplier.

SC-6.09      Laws and Regulations

SC-6.09      Add the following new paragraphs immediately after Paragraph 6.09C.

- D.      In signing this agreement, the Contractor certifies that this agreement is not the result of, or affected by, any unlawful act of collusion with any other person or company engaged in the same line of business or commerce, or any other fraudulent act punishable under New Mexico or United States law.
- E.      The State of New Mexico’s Procurement Code, Sections 13-1-28 through 13-1-199 NMSA 1978, imposes civil and criminal penalties for its violation. In addition, New Mexico criminal statutes impose felony penalties for illegal bribes, gratuities and kickbacks. As required by Section 13-1-191, NMSA, 1978, it is a third-degree felony under New Mexico law to commit the offense of bribery of a public officer or public employee (Section 30-24-1, NMSA, 1978); it is a third-degree felony to commit the offense of demanding or receiving a bribe by a public officer or public employee (Section 30-24-2, NMSA, 1978); it is a fourth-degree felony to commit the offense of soliciting or receiving illegal kickbacks (Section 30-41-1, NMSA, 1978); it is a fourth-degree felony to commit the offense of offering or paying illegal kickbacks (Section 30-41-2), NMSA, 1978).
- F.      In signing this agreement the parties certify that each is aware of the proscriptions and requirements contained in the State of New Mexico Governmental Conduct Act (NMSA 1978 10-16-1 through 10-16-18) and that the Act is applicable to this agreement and the conduct of the parties pursuant to the terms of this agreement. In performing the services hereunder, Contractor shall ensure that its employees and subcontractors comply with all applicable laws and regulations.
- G.      In performing the services hereunder, Contractor shall ensure that its employees and subcontractors comply with all applicable laws and regulations.

SC-6.13      Safety and Protection

SC-6.13      Add new subparagraph immediately after Paragraph 6.13C.

1. Owner's Confined Space Entry Program is included as Appendix A. Contractor's confined space entry program or protocol must meet or exceed the requirements of the Owner's program.

SC-6.17 Shop Drawings and Samples

SC-6.17 Add the following new paragraphs immediately after Paragraph 6.17.E:

- F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.
- G. In the event that Contractor requests a change of a previously approved item, Contractor shall reimburse Owner for Engineer's charges for its review time unless the need for such change is beyond the control of Contractor.

SC-6.19 Contractor's General Warranty and Guarantee

SC-6.19 Add the following new paragraphs immediately after Paragraph 6.19.A:

1. The Contractor shall guarantee all materials and equipment furnished and work performed for a period of one (1) year from the date of Substantial Completion. The Contractor warrants and guarantees for a period of one (1) year from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials or workmanship and the Contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The Contractor shall pay for any and all costs associated with correcting these defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments, or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

SC-6.20 Indemnification

SC-6.20 Add the following new paragraph immediately after Paragraph 6.20C.

- D. Contractor agrees to indemnify Village against all liability, demands, claims, suits, losses, damages, causes of action, or judgments, including costs, attorneys and



witness fees and expenses incident thereto for injury to persons or property arising out of Contractor's performance of duties under this Agreement.

SC-6.22 Add the following new paragraph immediately after Paragraph 6.21.

SC-6.22 Financial Records

- A. The Contractor shall maintain complete and accurate financial records of all fund raising and each and every expenditure made under this Agreement and upon request by the Village shall make available for inspection by the governing body of the Village or its designated agent all of Contractor's financial records with respect to this project within ten days of the date of request.

SC-8.09 Limitations on Owner's Responsibilities

SC-8.09 Add the following new paragraphs immediately after Paragraph 8.09A.

- B. NON-APPROPRIATION CLAUSE: Notwithstanding any other provision of this Agreement, all obligations of the Village under this Agreement which require the expenditure of funds are conditioned on the availability of funds appropriated for that purpose.
- C. By entering into this Agreement, the Village and its public employees as defined in the New Mexico Tort Claims Act, supra, do not waive sovereign immunity, do not waive any defenses and do not waive any limitations of liability pursuant to law. No provision in the Agreement shall be interpreted to modify or waive any provisions of the New Mexico Tort Claims Act, supra.

SC-9.03 Project Representative

SC-9.03 Add the following new paragraphs immediately after Paragraph 9.03.A:

- B. The Resident Project Representative (RPR) will be Engineer's employee or agent at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings in matters pertaining to the on-site work shall in general be with Engineer and Contractor keeping Owner advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner with the knowledge of and under the direction of Engineer. The RPR shall:

1. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.
2. Conferences and Meetings: Attend meetings with Contractor, such as pre-construction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
3. Liaison:
  - a. Serve as Engineer's liaison with Contractor, working principally through Contractor's authorized representative, assist in providing information regarding the intent of the Contract Documents.
  - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-site operations.
  - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
4. Shop Drawings and Samples:
  - a. Record date of receipt of Shop Drawings and samples.
  - b. Receive samples which are furnished at the site by Contractor, and notify Engineer of availability of samples for examination.
  - c. Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by Engineer.
5. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, to Engineer.
6. Review of Work and Rejection of Defective Work:
  - a. Conduct on-site observations of the Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
  - b. Report to Engineer whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
7. Inspections, Tests, and System Startups:

- a. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate record thereof.
  - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and startups.
  - c. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Engineer.
8. Records:
- a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
  - b. Keep a diary or log book, recording Contractor hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to engineer.
  - c. Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment.
9. Reports:
- a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawings and sample submittals.
  - b. Consult with Engineer in advance of scheduled major tests, inspections or start of important phases of the Work.
  - c. Recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
  - d. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, damage to property by fire or other causes, or the discovery of any Hazardous Environmental Condition.
10. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values. Work completed and

materials and equipment delivered at the site but not incorporated in the Work may be incorporated in the payment request if previously approved by Engineer.

11. Certificates: During the course of the Work, verify that materials and equipment certificates, and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
12. Completion:
  - a. Participate in a Substantial Completion inspection, assist in the determination of Substantial Completion and the preparation of lists of items to be completed or corrected.
  - b. Participate in a final inspection in the company of Engineer, Owner, and Contractor and prepare a final list of items to be completed and deficiencies to be remedied.
  - c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including “or-equal” items).
2. Exceed limitations of Engineer’s authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor’s superintendent.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor’s work unless such advice or directions are specifically required by the Contract Documents.
5. Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

SC-11.01 Cost of the Work

SC-11.01.A.5.c Delete Paragraph 11.01.A.5.c in its entirety and insert the following in its place:

*c. Construction Equipment and Machinery:*

- 1) Rentals of all construction equipment and machinery, and the parts thereof in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the Rental Rate Blue Book for Construction Equipment (Contractor will provide published documentation of Rental Rate). An hourly rate will be computed by dividing the monthly rates by 173.3. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than \$1,000 will be considered small tools.

SC-14.02 Progress Payments

SC-14.02 Delete Paragraph 14.02.A.3. in its entirety and insert the following in its place:

3. The Owner will not withhold any retainage of payments due and owing the Contractor.

SC-14.07 Final Payment

SC-14.07 Add the following new paragraphs immediately after Paragraph 14.07.A.3:

4. Contractor shall submit the following to receive Final Payment:
  - a. Certificate of Substantial Completion.
  - b. Record Drawing Markups.
  - c. Consent of Surety Company to Final Payment.
  - d. Final Payment Application
  - e. Affidavit of Payment and Release of Liens.

SC-14.07 Delete Paragraph 14.07.C.1 of the General Conditions in its entirety and insert the following in its place:

1. Forty-five days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

SC-17.01 Controlling Law

SC-17.01 Add the following new paragraph immediately after Paragraph 17.01A.

- B. This Agreement shall be governed and construed in all respects and the rights of the parties hereto shall be determined in accordance with the laws of the State of New Mexico. Any suits or claims arising out of this Agreement shall be filed in New Mexico.

**CAMPAIGN CONTRIBUTION  
DISCLOSURE FORM**

## **Campaign Contribution Disclosure Form**

Pursuant to NMSA 1978, § 13-1-191.1 (2006), any person seeking to enter into a contract with any state Village or local public body for professional services, a design and build project delivery system, or the design and installation of measures the primary purpose of which is to conserve natural resources must file this form with that state Village or local public body. This form must be filed even if the contract qualifies as a small purchase or a sole source contract. The prospective Engineer must disclose whether they, a family member or a representative of the prospective Engineer has made a campaign contribution to an applicable public official of the state or a local public body during the two years prior to the date on which the Engineer submits a proposal or, in the case of a sole source or small purchase contract, the two years prior to the date the Engineer signs the contract, if the aggregate total of contributions given by the prospective Engineer, a family member or a representative of the prospective Engineer to the public official exceeds two hundred and fifty dollars (\$250) over the two year period.

Furthermore, the state Village or local public body shall void an executed contract or cancel a solicitation or proposed award for a proposed contract if: 1) a prospective Engineer, a family member of the prospective Engineer, or a representative of the prospective Engineer gives a campaign contribution or other thing of value to an applicable public official or the applicable public official's employees during the pendency of the procurement process or 2) a prospective Engineer fails to submit a fully completed disclosure statement pursuant to the law.

**THIS FORM MUST BE FILED BY ANY PROSPECTIVE ENGINEER WHETHER OR NOT THEY, THEIR FAMILY MEMBER, OR THEIR REPRESENTATIVE HAS MADE ANY CONTRIBUTIONS SUBJECT TO DISCLOSURE.**

The following definitions apply:

“Applicable public official” means a person elected to an office or a person appointed to complete a term of an elected office, who has the authority to award or influence the award of the contract for which the prospective Engineer is submitting a competitive sealed proposal or who has the authority to negotiate a sole source or small purchase contract that may be awarded without submission of a sealed competitive proposal.

“Campaign Contribution” means a gift, subscription, loan, advance or deposit of money or other thing of value, including the estimated value of an in-kind contribution, that is made to or received by an applicable public official or any person authorized to raise, collect or expend contributions on that official's behalf for the purpose of electing the official to either statewide or local office. “Campaign Contribution” includes the payment of a debt incurred in an election campaign, but does not include the value of services provided without compensation or unreimbursed travel or other personal expenses of individuals who volunteer a portion or all of their time on behalf of a candidate or political committee, nor does it include the administrative or solicitation expenses of a political committee that are paid by an organization that sponsors the committee.

“Family member” means spouse, father, mother, child, father-in-law, mother-in-law, daughter-in-law or son-in-law.



“Pendency of the procurement process” means the time period commencing with the public notice of the request for proposals and ending with the award of the contract or the cancellation of the request for proposals.

“Person” means any corporation, partnership, individual, joint venture, association or any other private legal entity.

“Prospective Engineer” means a person who is subject to the competitive sealed proposal process set forth in the Procurement Code or is not required to submit a competitive sealed proposal because that person qualifies for a sole source or a small purchase contract.

“Representative of a prospective Engineer” means an officer or director of a corporation, a member or manager of a limited liability corporation, a partner of a partnership or a trustee of a trust of the prospective Engineer.

DISCLOSURE OF CONTRIBUTIONS:

Contribution Made By: \_\_\_\_\_

Relation to Prospective Engineer: \_\_\_\_\_

Name of Applicable Public Official: \_\_\_\_\_

Date Contribution(s) Made: \_\_\_\_\_

Amount(s) of Contribution(s):

Nature of Contribution(s): \_\_\_\_\_

Purpose of Contribution(s): \_\_\_\_\_

(Attach extra pages if necessary)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title (position)

—OR—

NO CONTRIBUTIONS IN THE AGGREGATE TOTAL OVER TWO HUNDRED FIFTY DOLLARS (\$250) WERE MADE to an applicable public official by me, a family member or representative.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title (Position)

# **DEBARMENT CERTIFICATION**

# DEBARMENT CERTIFICATION

## Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three year period preceding this proposal been convicted of all had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State Antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
4. Have not within a three-year period preceding this application/proposal had one or more public transaction (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be ground for rejection of this proposal or termination of award. Under 18USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

---

Typed Name & Title of Authorized Representative

---

Date

---

Signature of Authorized Representative

# **NON-COLLUSION AFFIDAVIT**

**NON-COLLUSION AFFIDAVIT**

STATE OF \_\_\_\_\_ )  
 )  
COUNTY OF \_\_\_\_\_ ) SS

\_\_\_\_\_, being first duly sworn, deposes and says:

That he/she is \_\_\_\_\_ of \_\_\_\_\_  
who submits herewith to the Village of Ruidoso, a proposal/bid:

That all statement of fact in such proposal/bid are true;

That said proposal/bid was not made in the interest of or on behalf of any undisclosed person,  
partnership, company, association, organization or corporation;

That said bidder has not, directly or indirectly by agreement, communication or conference with  
anyone attempted to induce action prejudicial to the interest of Village of Ruidoso, or any bidder  
of anyone else interested in the proposed contract; and further,

That prior to the public opening and reading or proposal/bid, said bidder:

1. Did not directly or indirectly, induce or solicit anyone else to submit a false or sham proposal/bid;
2. Did not directly or indirectly collude, conspire, connive or agree with anyone else that said bidder or anyone else would submit a false or sham proposal, or that anyone should refrain from bidding or withdraw his proposals/bids;
3. Did not in any manner, directly or indirectly, seek by agreement, communication or conference with anyone to raise or fix the proposal/bid price of said bidder or of anyone else, or to raise or fix any overhead, profit or cost element of their proposal/bid price, or of that of anyone else;
4. Did not directly or indirectly, submit his proposal/bid price or any breakdown thereof, or the contest thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository or to any member or agent thereof, or to any individual or group of individuals, except that Village of Ruidoso, or to any person or persons who have a partnership or other financial interests with said bidder in his business.

By: \_\_\_\_\_

SUBSCRIBED and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_.

Notary Public: \_\_\_\_\_

My commission expires: \_\_\_\_\_

## **LIST OF DRAWINGS**

## LIST OF DRAWINGS

The Drawings that form a part of the Contract Documents show the Work to be done under this Contract. The CONTRACTOR shall check all Drawings carefully and shall advise the ENGINEER of any errors or omissions discovered. The Drawings are as follows:

### GRINDSTONE CANYON DAM PRINCIPAL SPILLWAY AND NORTH DAM CREST CONCRETE REPAIR PROJECT

<u>Sheet No.</u>	Sheet ID	<u>DRAWING TITLE</u>
1 OF 13	1	TITLE SHEET, LIST OF DRAWINGS AND SITE MAPS
2 OF 13	2	GENERAL NOTES
3 OF 13	3	GRINDSTONE CANYON DAM SITE ACCESS AND STAGING PLAN
4 OF 13	4	GRINDSTONE DAM PRINCIPAL SPILLWAY REPAIR PLAN SHEET (1 OF 2)
5 OF 13	5	GRINDSTONE DAM PRINCIPAL SPILLWAY REPAIR PLAN SHEET (1 OF 2)
6 OF 13	6	GRINDSTONE DAM PRINCIPAL SPILLWAY REPAIR SCHEDULE, SECTIONS, AND NOTES
7 OF 13	7	NORTH DAM CREST REPAIR PLAN SHEET
8 OF 13	8	NORTH DAM CREST REPAIR SCHEDULE, SECTIONS, AND NOTES
9 OF 13	9	RECORD DRAWING 4 (FOR INFORMATION ONLY)
10 OF 13	10	RECORD DRAWING 12 (FOR INFORMATION ONLY)
11 OF 13	11	RECORD DRAWING 14 (FOR INFORMATION ONLY)
12 OF 13	12	RECORD DRAWING 15 (FOR INFORMATION ONLY)
13 OF 13	13	RECORD DRAWING 16 (FOR INFORMATION ONLY)

# **TECHNICAL SPECIFICATIONS**



## SECTION 01 11 00

### SUMMARY OF WORK

#### PART 1 - GENERAL

##### 1.1. SCOPE

- A. The Work to be performed under this Contract consists of furnishing all plant, tools, equipment, materials, supplies, and manufactured articles; and for furnishing all transportation and services, including fuel, power, temporary facilities, and essential communications; and for performance of all labor, work, or other operations required for fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be complete and all Work, materials, and services not expressly shown or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be performed, furnished, and installed by the CONTRACTOR as though originally specified or shown, at no increase in cost to the OWNER.

##### 1.2. RELATED SECTIONS

- A. All sections.

##### 1.3. WORK COVERED BY CONTRACT DOCUMENTS

- A. The principal components of Work to be performed under this Contract include the following:
  - 1. Remove damaged concrete on principal spillway chute face in specified locations.
  - 2. Construct new concrete repairs on principal spillway chute face.
  - 3. Remove damaged existing concrete and curbs on north dam crest in specified locations.
  - 4. Construct new concrete repairs, dam crest overlay and transverse joints on north dam crest surface between parapet wall and curbs.
  - 5. Construct new concrete curbs on north dam crest.
  - 6. Remove and reinstall four survey monuments on the north dam crest.

##### B. Site Location

The Work is located at Grindstone Canyon Dam on Grindstone Canyon Creek a tributary to Corrizo Creek in the Village of Ruidoso, New Mexico. The project is accessed from Resort Drive in the Village of Ruidoso, New Mexico. Access to the

site is by dedicated streets and OWNER rights-of-way. The project site is secured by a chain link fence and locked gate.

C. Project Background and History

The roller compacted concrete dam was completed in 1987 and is 133 feet high with a crest length of 1,300 feet. A water treatment plant is located near the downstream toe of the dam.

1.4. CONTRACT METHOD

- A. The Work hereunder will be constructed under a unit priced contract.
- B. The CONTRACTOR shall include the General Conditions and Supplementary Conditions of the Contract as a part of all of its subcontract agreements.

1.5. WORK SEQUENCE

- A. The CONTRACTOR's schedule shall be in accordance with Section 01 32 13 – Construction Schedule, of these Specifications.

1.6. CONTRACTOR USE OF PROJECT SITE

- A. Contractor shall limit the use of the premises for the performance of the Work and storage of materials and equipment to allow for the OWNER's use in operating and maintaining the dam and water treatment plant.
- B. Contractor shall coordinate with OWNER, access for normal operation and maintenance requirements.
- C. Contractor shall assume full responsibility for security of all of his and his subcontractor's materials and equipment stored on the site.
- D. If directed by the OWNER, Contractor shall move stored items which interfere with operations of OWNER.
- E. Contractor shall obtain and pay for use of additional storage or work areas if needed to perform the Work.

1.7. PROJECT MEETINGS

- A. Preconstruction Meeting
  - 1. Prior to the commencement of WORK at the Site, a preconstruction meeting will be held at a mutually agreed time and place. The meeting will be attended by the CONTRACTOR'S Project Manager, its

superintendent, and its subcontractors as the CONTRACTOR deems appropriate. Other attendees will be:

- a. OWNER: Village of Ruidoso
  - b. ENGINEER: Yeh and Associates
  - c. Others as requested by CONTRACTOR, OWNER or ENGINEER.
2. The purpose of the meeting is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR by the ENGINEER prior to the meeting date, which may include the following:
- a. CONTRACTOR's tentative schedules.
  - b. Transmittal, review, and distribution of CONTRACTOR's submittals.
  - c. Processing applications for payment.
  - d. Maintaining record documents.
  - e. Critical work sequencing.
  - f. Field decisions and Change Orders.
  - g. Use of project site, office and storage areas, security, house-keeping, and OWNER's needs.
  - h. Major equipment deliveries and priorities.
  - i. CONTRACTOR's assignments for safety and first aid.
  - j. Coordination of Work with Village of Ruidoso.
3. The ENGINEER will preside at the preconstruction meeting and the CONTRACTOR will arrange for keeping and distributing copies of the detailed minutes to all persons in attendance within 3 days following the meeting.

- B. Progress Meetings: The CONTRACTOR shall schedule and host regular on-site progress meetings at least weekly and at other times as requested by the ENGINEER or as required by progress of the Work. The CONTRACTOR, ENGINEER, and all subcontractors active on the site shall be represented at each

meeting. CONTRACTOR may at its discretion request attendance by representatives of its suppliers, manufacturer's, and other subcontractors.

1. The CONTRACTOR shall preside at the Progress Meetings and arrange for recording and distribution of copies of the detailed minutes within 3 days after the meeting. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**PART 4 - MEASUREMENT AND PAYMENT**

4.1 GENERAL

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION

## SECTION 01 14 10

### SITE ACCESS AND STORAGE

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. CONTRACTOR's Access routes, crossings, temporary bridges and road use.
- B. CONTRACTOR's requirements for temporary storage and on-site parking.

##### 1.2 RELATED REQUIREMENTS

- A. Section 01 11 00 – Summary of Work
- B. Section 01 51 00 – Construction Facilities and Temporary Utilities

##### 1.3 DELIVERY, STORAGE AND HANDLING

###### A. General

1. The CONTRACTOR shall deliver, handle and store products in accordance with manufacturer's written recommendations and by methods and means which shall prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long term storage of products at Site and overcrowding of construction spaces. In particular, the CONTRACTOR shall provide delivery/installation coordination to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.
2. The CONTRACTOR shall make its own arrangements for any other off-Site storage or shop areas necessary for the proper execution of the WORK.
3. Lands to be furnished by the OWNER for trailer sites, stockpiles, construction operation, roads and other purposes shall be indicated by the OWNER.

###### B. Transportation and Handling

1. Products shall be transported by methods to avoid product damage and shall be delivered in undamaged condition in manufacturer's unopened containers or packaging, dry. Trucking time restrictions given elsewhere in these documents shall be strictly observed.

2. The CONTRACTOR shall provide equipment and personnel to handle products, materials, and equipment by methods to prevent soiling and damage.
3. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

C. Storage and Protection

1. Products shall be stored in accordance with manufacturer's or applicable procedure written instructions, with seals and labels intact and legible. Sensitive products shall be stored in weather tight enclosures and temperature and humidity ranges shall be maintained within those required by manufacturer's written instructions.
2. Storage shall be arranged to provide access for inspection. The CONTRACTOR shall periodically inspect to assure products are undamaged and are maintained under required conditions.

D. Enclosed Storage

1. Products subject to damage by the elements shall be stored in substantial, weather tight enclosures.
2. Temperature and humidity shall be maintained within ranges stated in manufacturer's written instructions.
3. The CONTRACTOR shall provide humidity control and ventilation for sensitive products as required by manufacturer's written instructions.
4. Unpacked and loose products shall be stored on shelves, in bins, or in neat groups of like items.

E. Exterior Storage

1. The CONTRACTOR shall provide substantial platforms, blocking, or skids to support fabricated products above ground and provide drainage. Products shall be protected from soiling and staining.
2. Products subject to discoloration or deterioration from exposure to the elements shall be covered with impervious sheet material. Ventilation shall be provided to avoid condensation.

3. Loose granular materials shall be stored on clean, solid surfaces such as pavement, or on rigid sheet materials to prevent mixing with foreign matter.
4. Surface drainage shall be provided to prevent erosion and ponding of water.
5. The CONTRACTOR shall prevent mixing of refuse or chemically injurious materials or liquids.

F. Maintenance of Products in Storage

1. The CONTRACTOR shall verify that storage facilities comply with manufacturer's product storage requirements.
2. The CONTRACTOR shall verify that manufacturer required environmental conditions are maintained.
3. The CONTRACTOR shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes is acceptable under requirements of Construction Documents.

G. Hazardous Material

1. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK. For the purpose of this paragraph, hazardous materials to be stored in the proper storage containment in a separate area, are all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
3. The separate storage area and secondary containment, if required, shall meet all of the requirements of all authorities having jurisdiction over the storage of hazardous materials.
4. If required, the separate storage area shall be inspected by the proper authorities prior to construction of the area, upon completion of construction of the area, and upon cleanup and removal of the area.

5. All hazardous materials that are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

#### 1.4 PROJECT/SITE CONDITIONS

- A. The CONTRACTOR shall conduct its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits and other limitations affecting transportation and ingress and egress to the Site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

- B. Primary Access Route

1. Access to the work shall be through Village of Ruidoso property via Resort Drive.

The OWNER assumes no responsibility for the condition or maintenance of any existing road or structure that may be used by the Contractor for performing the work under these Specifications and for traveling to and from the site of the work. Existing roads and bridges altered or damaged by the Contractor's work, his workmen, or subcontractors, shall be restored to their original condition by the Contractor upon completion of the project. No direct payment will be made to the Contractor for constructing, improving, repairing or maintaining any existing road or structure that may be used by the Contractor for performance of the work under these Specifications.

- C. The hauling of materials over public highways, roads or bridges shall be in compliance with the applicable local regulations and shall be such as to minimize interference with or congestion of local traffic.
- D. Access roads at and about the Site shall be as shown on the Drawings. It shall also be the responsibility of the CONTRACTOR to maintain, plan, reconfigure construction access roadways to meet construction access requirements and coordinate access with the OWNER.



E. Entry Control

1. The CONTRACTOR shall:

- a. Coordinate access of OWNER'S personnel to Site.
- b. Coordinate with other contractors, access of personnel and vehicles to Site.

F. Parking

1. The CONTRACTOR shall use parking areas as established on site by the OWNER.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 – EXECUTION (NOT USED)**

**PART 4 - MEASUREMENT AND PAYMENT**

4.1 GENERAL

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION

## SECTION 01 14 19

### CONTRACTOR USE OF FACILITIES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. The CONTRACTOR's use of the project Site shall be limited to its construction operations that are necessary for conducting the WORK, including on-site storage of materials, on-site fabrication and field offices.
- B. The CONTRACTOR shall only use the indicated portions of the Site for its construction operations, as described herein and shown on Drawings.

##### 1. Project Site:

- a. General Limits of Construction – These areas are generally available to the CONTRACTOR during performance of the WORK.
- b. Area of OWNER Operations – These areas are generally not available to the CONTRACTOR during performance of the WORK. CONTRACTOR shall provide the OWNER ingress/egress to the “Area of OWNER Operations” at all times.
- c. CONTRACTOR's Work and Staging Areas – These areas are only to be utilized for construction office trailers and assigned parking only. The CONTRACTOR shall provide security fencing around the perimeter of these sites.
- d. Parking – CONTRACTOR personnel may utilize areas within the General Limits of Construction.

##### 1.2 RELATED REQUIREMENTS

- A. Section 01 14 10 – Site Access and Storage
- B. Section 01 57 20 – Temporary Environmental Controls

##### 1.3 SEQUENCING

##### A. OWNER's Use of Site

- 1. The OWNER may utilize all or part of the Site during the entire period of construction for the conduct of the OWNER's normal construction administration and coordination purposes. The CONTRACTOR shall cooperate and coordinate

with the OWNER to facilitate the OWNER's operations and to minimize interference with the CONTRACTOR's operations at the same time. In any event, the OWNER shall be allowed access to the Site during the period of construction.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**PART 4 - MEASUREMENT AND PAYMENT**

4.1 GENERAL

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION

## SECTION 01 32 10

### CONSTRUCTION SCHEDULE

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. The CONTRACTOR shall develop the WORK schedule in accordance with the requirements of this Section.

##### 1.2 RELATED REQUIREMENTS

- A. All Sections

##### 1.3 SUBMITTALS

###### A. Baseline Construction Schedule

1. Within 10 days after the Notice to Proceed, the CONTRACTOR shall submit for acceptance by the OWNER and the ENGINEER a 'Proposed Baseline Construction Schedule:'
  - a. All WORK activities clearly defined with starting and completion dates, duration, float, and critical path.
  - b. The mobilization details with clarifications, where required.
  - c. Proposed 'Project Completion Date.'
2. The CONTRACTOR shall revise the 'Proposed Baseline Construction Schedule' as required, and resubmit to the OWNER and the ENGINEER.
3. The revised 'Proposed Baseline Construction Schedule' shall be accepted or rejected by the OWNER and the ENGINEER within 10 calendar days after receipt.
4. The Baseline Construction Schedule shall only be revised due to delays beyond the control and without fault or negligence of the CONTRACTOR as approved by the OWNER.

###### B. Ongoing WORK Schedule Revisions:

1. The CONTRACTOR shall monitor the progress of the WORK and adjust the schedule each week to reflect actual progress and any changes in planned future activities in relation to the proposed Baseline Construction Schedule. Weekly, the

CONTRACTOR shall give the OWNER and the ENGINEER a copy of the revised schedule. Each update shall continue to show all work activities including those already completed. Completed activities shall accurately reflect "as built" information by indicating when the work was actually started and completed.

2. These revised WORK Schedules shall be clearly labeled with the revision date. Necessary modifications shall be made to any portions of the detailed WORK schedule that becomes infeasible because of portions of the WORK falling behind schedule, changes in sequencing of activities, or for any valid reason that is beyond the control of the CONTRACTOR such as delays due to inclement weather over and above the days for inclement weather stipulated in the Construction Documents.
3. The CONTRACTOR shall be obliged to present updated schedules with any Change Order request that includes a request for time extension. These updated schedules shall clearly demonstrate how the Change Order(s) affect the substantial completion of the project.
4. Any portion of the WORK that cannot be completed by its originally scheduled completion date shall be deemed to be behind schedule.

#### C. Acceptance

1. Acceptance of the CONTRACTOR'S schedules by the ENGINEER and OWNER shall be based solely upon compliance with the requirements. By way of the CONTRACTOR assigning activity durations and proposing the sequence of the WORK, the CONTRACTOR agrees to utilize sufficient and necessary management and other resources to perform the work in accordance with the schedule.
2. Submission and acceptance of the CONTRACTOR'S schedules to the OWNER or ENGINEER shall not relieve the CONTRACTOR of total responsibility for scheduling, sequencing, and pursuing the WORK to comply with the requirements of the Construction Documents, including adverse effects such as delays resulting from ill-timed WORK.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION (NOT USED)**

### **PART 4 - MEASUREMENT AND PAYMENT**

#### 4.1 GENERAL

- A. The items as specified herein shall be considered incidental to completion of the Work. No measurement for payment or payment will be made for these items.

END OF SECTION

## SECTION 01 33 00

### SUBMITTALS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. This Section specifies the general methods and requirements of submissions applicable to the following work-related submittals; CONTRACTOR Submittals, Shop Drawings, Product Data and Samples, Construction Photographs, and Record Drawings. Additional general submission requirements are contained within the General Conditions of this Contract. Detailed submittal requirements if required, shall be specified in the individual technical Specifications Sections.

1. The ENGINEER's review of CONTRACTOR submittals shall not relieve the CONTRACTOR of the sole and entire responsibility of each submittal.

##### B. CONTRACTOR submittals

1. Wherever submittals are required in the Construction Documents, submit them to the OWNER and the ENGINEER.
2. Within 10 days after the effective date of the AGREEMENT the CONTRACTOR shall submit to the OWNER and the ENGINEER a "SUBMITTAL SCHEDULE" for review and approval. This schedule shall include, but is not limited to:
  - a. A Detailed Baseline Work Schedule in accordance with Section 01 32 10 Construction Schedule.
  - b. A detailed schedule listing all submittals, including shop drawings, samples and proposed 'or equal' substitutes. This schedule shall clearly indicate the timely delivery of the submittals to meet the target dates per the Construction Schedule. It shall also indicate the applicable Specification Section or Drawing Number, an estimated procurement time and blank spaces for received (initial and follow up) dates, transmittal dates and approval.
  - c. A list of all permits and licenses the CONTRACTOR shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and required date for receipt of the permit.
  - d. The CONTRACTOR shall provide a videotape or photographic record of the pre- and post- construction conditions of the Site.

### C. Product Data

1. Product data as specified in individual Specification Sections, includes, but is not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data); manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, and recommended spare parts listing, and printed product warranties, as applicable to the WORK.

### D. Samples

1. Samples, as specified in individual Specification Sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and units of work to be used by the ENGINEER for independent inspection and testing, as applicable to the WORK.
  - a. Whenever in the Specifications samples are required, the CONTRACTOR shall submit a sample of each such item or material to the ENGINEER for acceptance at no additional cost to the OWNER.
  - b. Samples, as required herein, shall be submitted for acceptance a minimum of 14 days prior to ordering such material for delivery to the job-site, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the WORK.
  - c. All samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and Supplier's names for identification and submittal to the ENGINEER for acceptance. Upon acceptance by the ENGINEER, the samples shall be signed and dated by the ENGINEER and shall remain at the job site until completion of the WORK.
  - d. Unless otherwise specified, all colors and textures of specified items shall be selected by the OWNER from the manufacturer's standard colors and standard materials, products, or equipment lines.

### E. CONTRACTOR's Responsibilities

1. The CONTRACTOR shall review product data and samples prior to submission to determine and verify the following:
  - a. Catalog numbers and similar data

b. Conformance with the Specifications

2. Each sample and catalog data submitted by the CONTRACTOR is to have affixed to it the following Certification Statement, signed by the CONTRACTOR:

“Certification Statement: By this submittal, I hereby represent that I have determined and verified all materials, dimensions, catalog numbers and similar data affecting this submittal and I have checked and coordinated this submittal with other applicable accepted submittals and Contract requirements.”

All Submittals without the Certification shall not be reviewed and shall be returned to the CONTRACTOR for proper submission.

3. Notify the ENGINEER in writing, at the time of submittal, of any deviations in the submittal(s) from the requirements as specified within the Construction Documents.
4. The review and approval of samples or catalog data by the ENGINEER is not to relieve the CONTRACTOR from its responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the CONTRACTOR, and the ENGINEER shall have no responsibility therefore. ENGINEER shall not be liable to CONTRACTOR for any claim, loss, expense, damage or delay arising out of or resulting from any such error or omission, even if due to the negligence, other fault, breach of contract or warranty, or strict liability without regard to fault of ENGINEER.
5. No portion of the work requiring a sample or catalog data is to be started nor any materials be installed prior to the approval or qualified approval of such item. Materials purchased or on-site construction accomplished which does not conform to accepted data shall be at the CONTRACTOR’s Risk. Owner shall not be liable to CONTRACTOR for any claim, loss, expense, damage or delay arising out of or resulting from any such correction or remedy required to accomplish conformity, even if due to the negligence, other fault, breach of contract or warranty, or strict liability without regard to fault of OWNER or ENGINEER.
6. Project work, materials, and installation to conform with accepted applicable samples, and catalog data.

F. Proposed Substitutes or “or equal” Item Submittal

1. Whenever materials are specified or described in the Construction Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or equal" indicating that a



substitution is permitted, materials of other Suppliers may be accepted by the ENGINEER if sufficient information is submitted by the CONTRACTOR to allow the ENGINEER to determine that the material proposed is equivalent or equal to that named, subject to the following requirements:

- a. The burden of proof as to the type, function, and quality of any such substitute material shall be upon the CONTRACTOR.
  - b. The ENGINEER shall be the sole judge as to the type, function, and quality of any such substitute material and the ENGINEER's decision shall be final.
  - c. The ENGINEER may require the CONTRACTOR to furnish additional data about the proposed substitute at the CONTRACTOR's expense.
  - d. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
  - e. Acceptance by the ENGINEER of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Construction Documents and for adequacy of the substitute item.
  - f. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR's work, the work of its subcontractors and of other CONTRACTOR's, and shall effect such changes without cost to the OWNER.
2. The procedure for review by the ENGINEER shall include the following:
- a. If the CONTRACTOR wishes to furnish or use a substitute item of material, the CONTRACTOR shall make written application to the ENGINEER on the "Substitution Request Form" for acceptance thereof.
  - b. Unless otherwise provided by law or authorized in writing by the ENGINEER the "Substitution Request Form(s)" shall be submitted within the 35-day period after issue of the Notice to Proceed.
  - c. Wherever a proposed substitute material has not been submitted within said 35-day period, or wherever the submission of a proposed substitute material has been judged to be unacceptable by the ENGINEER, the CONTRACTOR shall provide the material named in the Construction Documents.
  - d. The CONTRACTOR shall certify that the proposed substitute shall perform adequately the functions and achieve the results called for by the general

design, be similar and of equal substance to that specified, and be suited to the same use as that specified.

- e. The ENGINEER shall be allowed a reasonable time within which to evaluate each proposed substitute.
  - f. As applicable, no item shall be ordered, installed, or utilized without the ENGINEER's prior written acceptance of the CONTRACTOR's "Substitution Request Form" which shall be evidenced by a Change Order.
  - g. The ENGINEER shall record the time required by the ENGINEER in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Construction Documents occasioned thereby. Regardless of whether or not the ENGINEER accepts a proposed substitute, the CONTRACTOR shall reimburse the OWNER for the charges of the ENGINEER for evaluating each proposed substitute.
3. The CONTRACTOR's application using the "Substitution Request Forms" shall contain the following statements and/or information, which shall be considered by the ENGINEER in evaluating the proposed substitution:
- a. The evaluation and acceptance of the proposed substitute shall not prejudice the CONTRACTOR's achievement of substantial completion on time.
  - b. Whether or not acceptance of the substitute for use in the WORK shall require a change in any of the Construction Documents to adopt the design to the proposed substitute.
  - c. Whether or not incorporation or use of the substitute in connection with the WORK is subject to payment of any license fee or royalty.
  - d. All variations of the proposed substitute for that specified shall be identified.
  - e. Available maintenance, repair, and replacement service shall be indicated.
  - f. Itemized estimate of all costs that shall result directly or indirectly from acceptance of such substitute, including cost of redesign and claims of other contractors affected by the resulting change.

#### G. Submission Requirements

- 1. Make submittals promptly in accordance with accepted schedule and in such sequence as to cause no delay in the work.
- 2. Number of submittals required:

- a. Product Data: Submit 2 copies
  - b. Samples: Submit one or the number stated within each respective Specification Section
3. Submittals to contain:
- a. The date of submission and the dates of all previous submissions
  - b. The Project title and number
  - c. CONTRACTOR identification
  - d. The names and addresses of:
    - 1) CONTRACTOR
    - 2) Supplier
    - 3) Manufacturer
  - e. Identification of the product, with the Specification Section number
  - f. Field dimensions, clearly identified
  - g. Relation to adjacent or critical features of the work or materials
  - h. Applicable standards, such as ASTM or Federal Specification (etc) numbers
  - i. Identification of deviations from Construction Documents
  - j. Identification of revisions on resubmittals
  - k. An 8-inch x 3-inch blank space for CONTRACTOR and ENGINEER stamps
4. ENGINEER shall attempt to review each submittal and act upon it within 30 calendar days after receipt. Neither ENGINEER nor OWNER shall be responsible for any delays in the review and return of a submittal. Neither OWNER nor ENGINEER shall be liable to CONTRACTOR for any claim, loss, expense, damage or delay arising out of or resulting from any such delay, even if due to the negligence, other fault, breach of contract or warranty, or strict liability without regard to fault of OWNER or ENGINEER.
5. Resubmission Requirements

- a. Make any corrections or changes in the submittals required by the ENGINEER or the OWNER and resubmit until accepted.
  - b. Samples: Submit new samples as required for initial submittal.
  - c. Product Data:
    - 1) Indicate any changes which have been made other than those requested by the ENGINEER.
6. Actions Possible
- a. Submittals shall be returned with one of the following notations:
    - 1) “No Exceptions Taken” authorizes the CONTRACTOR to proceed with the WORK covered.
    - 2) “Make Corrections Noted” authorizes the CONTRACTOR to proceed with the WORK as noted provided the CONTRACTOR takes no exception to the notations.
    - 3) “Revise and Resubmit” or “Rejected” indicates the submittal is incomplete or does not comply with the design concept or the requirements of the Construction Documents and is to be resubmitted with appropriate changes.
    - 4) “Submit Specified Item” indicates an item was missing or is requested for the support of the Approval and is to be resubmitted with the requirements specified.

7. Reviewed Submittals

The ENGINEER’s review of submittals shall not be construed as a complete check, but shall indicate only that the general method of construction, materials, detailing and other information are satisfactory. The ENGINEER’s review shall not relieve the CONTRACTOR of the responsibility for any error or omission which may exist. Once submittals are returned to the CONTRACTOR by the ENGINEER marked “No Exceptions Taken” or “Make Corrections Noted”, no re-submittal for the purpose of substituting materials or equipment shall be considered unless accompanied by an explanation of why a substitution is necessary.

H. Construction Photographs

1. The CONTRACTOR shall provide the OWNER with videotape or photographic records of pre-construction conditions; construction progress and post-construction conditions as follows:

#### IH. Record Drawings

1. The CONTRACTOR is to furnish the OWNER a complete set of "Record" Drawings clearly marked in red. If information is not legible, the Drawings shall be rejected and the CONTRACTOR shall resubmit them legibly.
2. The CONTRACTOR is to maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Submittal Transmittal, Written Amendments, Change Orders, Work Change Directives, Field Orders and written interpretations and clarifications in good order and annotated to show all changes made during construction. These documents are not to be used for Construction usage purposes. These record documents together with all accepted Samples and a copy of all accepted Shop Drawings shall be available to OWNER for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings shall be delivered to the OWNER.

#### 1.2 RELATED REQUIREMENTS

- A. All Sections requiring CONTRACTOR submittals.

#### **PART 2 – PRODUCTS (NOT USED)**

#### **PART 3 – EXECUTION (NOT USED)**

#### **PART 4 - MEASUREMENT AND PAYMENT**

##### 4.1 GENERAL

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION

## SECTION 01 40 00

### QUALITY CONTROL

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. The CONTRACTOR shall be responsible for the quality of all materials and equipment furnished and used in the WORK and for the workmanship used in performing all WORK in accordance with the plans and specifications. The CONTRACTOR and the ENGINEER shall work together to control the quality of the materials furnished and used in the WORK. The OWNER reserves the right to inspect WORK, either routinely or when he considers the WORK suspect to non-compliance with the plans and specifications. The CONTRACTOR shall provide access for inspections as may be directed by the OWNER, at no additional cost.
- B. Inspections or performance of any quality control activities by the OWNER or ENGINEER shall not relieve the CONTRACTOR of the sole and entire responsibility for the correctness of the WORK. The CONTRACTOR shall assume all responsibility and risk for any discrepancies of the WORK. The ENGINEER shall have full authority to order remediation of any part of the WORK at any time. Any approval or acceptance by the OWNER or ENGINEER shall not relieve the CONTRACTOR of his responsibility.

The quality control and testing program herein is in addition to testing and quality control specified in other sections of these Specifications.

##### 1.2 RELATED REQUIREMENTS

- A. All Sections.

##### 1.3 SUBMITTALS

###### A. Quality Control Plan

1. Prior to the start of any construction activity associated with this project, the CONTRACTOR shall prepare a written Quality Control Plan (QCP) which shall contain, as a minimum, the following:
  - a. WORK shall not be performed unless the ENGINEER or OWNER is present, or unless the CONTRACTOR has been given permission by the OWNER to perform the WORK in his or the ENGINEER's absence. The CONTRACTOR may perform his own inspections at his cost and for his convenience.

2. The Quality Control Plan shall be submitted by the CONTRACTOR and reviewed by the OWNER prior to the start of any permanent construction WORK.

#### 1.4 QUALITY ASSURANCE

- A. The ENGINEER shall provide quality assurance and shall monitor the quality of WORK for compliance with the plans and specifications. The ENGINEER reserves the right to inspect any WORK which, in his opinion, may not comply with requirements.

### **PART 2 - PRODUCTS**

### **PART 3 - EXECUTION**

#### 3.1 FIELD QUALITY CONTROL

##### A. Work Inspection

1. The CONTRACTOR shall ensure that his WORK conforms to the contract requirements. All WORK shall be conducted under the direction of the CONTRACTOR and shall be subject to inspection by the OWNER and ENGINEER at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the Contract.
2. Inspections by the ENGINEER do not:
  - a. Relieve the CONTRACTOR of responsibility for damage to or loss of the material before acceptance;
  - b. Constitute or imply acceptance; or
  - c. Affect the continuing rights of the OWNER after acceptance of the completed WORK.
3. The CONTRACTOR shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections as may be required by the ENGINEER. The ENGINEER shall perform all inspections in a manner that shall not unnecessarily delay the WORK.

##### B. Non-Compliance and Remediation

1. The CONTRACTOR shall document all WORK which is not in compliance with the plans and specifications that can not be corrected by immediate change in construction operations. He shall prepare and submit a non compliance report for review of the OWNER. Any corrective action or remediation recommended by

the OWNER shall be performed at no additional cost. No remediation or corrective action shall be made until it is recommended by the OWNER.

2. The CONTRACTOR shall make a conscientious effort to correct all deficiencies in the WORK while the WORK is in progress such that unacceptable WORK is avoided. Deficiencies in the WORK shall be avoided by proper inspection. Construction supervisors shall be responsive to comments by the ENGINEER on the quality of WORK and take immediate remedial measures when required.

#### **PART 4 - MEASUREMENT AND PAYMENT**

##### **4.1 GENERAL**

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION



## SECTION 01 42 10

### REFERENCE SPECIFICATIONS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

###### A. Section Includes

1. Applicable Publications: Whenever in these specifications references are made to published specifications, codes, standards, or other requirements, it will be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the WORK is advertised for bids, will apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings will be waived because of any provision of, or omission from, said standards or requirements. Referenced specifications, codes, standards, or other requirements will be considered part of these Construction Documents.
2. Specialists, Assignments: In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that WORK. Such assignments will be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements will not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also, they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of WORK is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of requirements in the Construction Documents remains with the CONTRACTOR.

###### B. Reference Specifications, Codes, and Standards

1. Without limiting the generality of other requirements of the specifications, all WORK specified herein will conform to or exceed the requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of these Specifications nor the applicable codes.
2. References herein to "Building Code" or UBC will mean the Uniform Building Code of the International Conference of Building Officials (ICBO). The latest edition of the code as approved and used by the local agency as of the date of bidding, as adopted by the agency having jurisdiction, will apply to the WORK

herein, including all addenda, modifications, amendments, or other lawful changes thereto.

3. In case of conflict between codes, reference standards, drawings and the other Construction Documents, the most stringent requirements will govern. All conflicts will be brought to the attention of the ENGINEER for clarification and directions prior to ordering or providing any materials or labor. The CONTRACTOR will bid the most stringent requirements.
4. Applicable Standard Specifications: The CONTRACTOR will construct the WORK specified herein in accordance with the requirements of the Construction Documents and the referenced portions of those referenced codes, standards, and specifications listed herein; except, that wherever references to "Standard Specifications" are made, the provisions therein for measurement and payment will not apply.
5. References herein to "OSHA Regulations for Construction" will mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
6. References herein to "OSHA Standards" will mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

#### C. Trade Names and Alternatives

1. For convenience in designation in the Construction Documents, materials to be incorporated in the WORK may be designated under a trade name or the name of a manufacturer and its catalog information. The use of alternative material, which is equal in quality and of the required characteristics for the purpose intended, will be permitted, subject to the following requirements:
  - a. The burden of proof as to the quality and suitability of such alternative equipment, products, or other materials will be upon the CONTRACTOR.
  - b. The ENGINEER will be the sole judge as to the comparative quality and suitability of such alternative equipment, products, or other materials and its decision will be final.
2. Wherever in the Construction Documents the name or the name and address of a manufacturer or distributor is given for a product or other material, or if any other source of a product or material is indicated, such information is given for the convenience of the CONTRACTOR only, and no limit, restriction, or direction is indicated or intended thereby, nor is the accuracy or reliability of such information guaranteed. It will be the responsibility of the CONTRACTOR to determine the accurate identity and location of any such manufacturer, distributor,

or other source of any product or material called for in the Construction Documents

## 1.2 RELATED REQUIREMENTS

A. All Sections.

### **PART 2 – PRODUCTS (NOT USED)**

### **PART 3 – EXECUTION (NOT USED)**

### **PART 4 - MEASUREMENT AND PAYMENT**

#### 4.1 GENERAL

A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION

## SECTION 01 42 10

### ABBREVIATIONS AND DEFINITIONS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Standard abbreviations, acronyms, and definitions used throughout the Construction Documents.

##### 1.2 RELATED REQUIREMENTS

- A. All Sections.

##### 1.3 REFERENCES

- A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these specifications, the following acronyms or abbreviations, which may appear in these specifications, shall have the meanings, indicated herein, unless otherwise indicated.

##### B. ABBREVIATIONS AND ACRONYMS

AASHTO	American Association of the State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AGC	Associated General Contractors
AI	The Asphalt Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute, Inc.
API	American Petroleum Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
CGA	Compressed Gas Association

CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
DCDMA	Diamond Core Drill Manufacturer's Association
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
ICRI	International Concrete Repair Institute
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
MTI	Marine Testing Institute
MUTCD	Manual on Uniform Traffic Control Devices for Streets and Highways, U. S. Department of Transportation
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NLGI	National Lubricating Grease Institute
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
RWMA	Resistance Welder Manufacturer's Association
SPR	Simplified Practice Recommendation
SSPWC	Standard Specifications for Public Works Construction
TFI	The Fertilizer Institute
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
WCRSI	Western Concrete Reinforcing Steel Institute
WRI	Wire Reinforcement Institute, Inc.

#### 1.4 DEFINITIONS

- A. Wherever the terms defined herein are used in the Construction Documents, they have the following definitions:

1. Construction Documents: The Drawings and Specifications for the Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repairs as signed by the engineer of record.
2. Drawings: The set of drawings showing the Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repairs as signed by the engineer of record.
3. Specifications: The set of specification documents, Divisions 1 and 3, describing Grindstone Canyon Dam Emergency Spillway and North Dam Crest Concrete Repairs project as signed by the engineer of record.
4. OWNER: To be defined in the Agreement between the OWNER and CONTRACTOR.
5. CONTRACTOR: To be defined in the Agreement between the OWNER and CONTRACTOR.
6. ENGINEER: To be defined in the Agreement between the OWNER and CONTRACTOR.
7. Site: The area shown on the Drawings as the location of the Grindstone Canyon Dam and Water Treatment Plant.
8. WORK: The work specified in the Construction Documents and all other work related to Grindstone Canyon Dam Principal Spillway and North Dam Crest Concrete Repairs.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**PART 4 - MEASUREMENT AND PAYMENT**

4.1 GENERAL

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION

## SECTION 01 51 00

### CONSTRUCTION FACILITIES AND TEMPORARY UTILITIES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. The CONTRACTOR shall provide temporary utilities including electric power service, water supply and sanitary facilities.
- B. The facilities specified in this section are considered minimum for the Project. The CONTRACTOR shall provide additional facilities for the proper execution of the WORK and to meet CONTRACTOR'S responsibilities for protection of persons and property.
- C. Project Construction Trailer Area: Temporary utility service as defined in paragraph 1.1.A above, are to be provided within the Potential Staging Areas by the CONTRACTOR. The CONTRACTOR shall be responsible to make service connections to each temporary utility according to this specification. All other temporary utilities required to complete the WORK shall be provided by the CONTRACTOR in accordance with the Construction Documents.

#### PART 2 – PRODUCTS

##### 2.1 MATERIALS

- A. The CONTRACTOR shall provide either new or used materials and equipment, without significant deterioration and which are recognized in the construction industry, by compliance with appropriate standards, as being suitable for intended use in each case. Where a portion of temporary utility is provided by utility OWNER, the CONTRACTOR shall provide the remaining portion with matching and compatible materials and equipment and shall comply with recommendations of utility OWNER.

#### PART 3 - EXECUTION

##### 3.1 GENERAL

- A. CONTRACTOR'S Responsibility
  - 1. The CONTRACTOR is responsible for providing temporary utilities as described in the Construction Documents in order to adequately perform the WORK under this Contract.

2. Following the job progress schedule, the CONTRACTOR shall establish a schedule for implementation and termination of service for each temporary utility at the earliest feasible time.
  - a. The CONTRACTOR shall maintain and operate temporary facilities and systems to assure continuous service.
    - 1) The CONTRACTOR shall modify and extend systems as WORK progress requires.
    - 2) The CONTRACTOR shall completely remove temporary materials and equipment when acceptable to the OWNER.
    - 3) The CONTRACTOR shall restore existing facilities used for temporary services to specified or original condition.
    - 4) The CONTRACTOR shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Construction Documents.
3. The CONTRACTOR shall be responsible for utility service costs until the WORK is substantially complete. Included are fuel, power, light, heat, and other utility services necessary for execution, completion, testing, and initial operation of the WORK.

## B. POWER

1. The CONTRACTOR shall provide power required for its operations under the Contract, and shall provide and maintain all temporary power lines required to perform the WORK in a safe and satisfactory manner.
  - a. Temporary Power Distribution: The CONTRACTOR shall provide a weatherproof, grounded, temporary power distribution system sufficient for performance of entire WORK of project, including temporary electrical heating where indicated, operation of test equipment and test operation of building equipment and systems which cannot be delayed until permanent power connections are operable, temporary operation of other temporary facilities, including permanent equipment and systems which must be placed in operation prior to use of permanent power connections (pumps, HVAC equipment, and similar equipment), and power for temporary operation of existing facilities (if any) at the Site during change-over to new permanent power system. Provide circuits of adequate size and proper power characteristics for each use; run



circuit wiring generally overhead, and rise vertically in locations where it shall be least exposed to possible damage from construction operations and shall result in minimal interference with performance of the WORK; provide rigid steel conduit or equivalent raceways for wiring which must be exposed on grade, floors, decks, or other exposures to damage or abuse.

#### C. LIGHTING

1. Construction Lighting: WORK conducted at night or under conditions of deficient daylight shall be suitably lighted to ensure proper WORK and to afford adequate facilities for inspection and safe working conditions.
2. Temporary Lighting: The CONTRACTOR shall provide a general, weatherproof, grounded temporary lighting system in every area of construction work, as soon as overhead floor/roof deck structure has been installed to provide sufficient illumination for safe work and traffic conditions. Run circuit wiring generally overhead, and rise vertically in locations where it shall be least exposed to possible damage from construction operations on grade, floors, decks, or other areas of possible damage or abuse.

#### D. WATER SUPPLY

1. General: The CONTRACTOR shall provide an adequate supply of water of a quality suitable for all domestic and construction purposes.
2. CONTRACTOR's Field Office Trailer. If needed, the CONTRACTOR shall furnish and install buried water piping to the CONTRACTOR's field office/administration trailer.
3. Water for Construction. The CONTRACTOR shall not make connection to or draw water from any pipeline, reservoir or stilling basin without first obtaining permission of the OWNER. CONTRACTOR is responsible for construction water service connection or pumping and meter costs, and CONTRACTOR shall pay for water used for construction. CONTRACTOR shall be judicious in using water to prevent wasting.

#### E. FIRE PROTECTION

1. Fire Protection: The construction plant and all other parts of the WORK shall be connected with the CONTRACTOR's temporary water supply system and shall be adequately protected against damage by fire. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires in the temporary structures and other portions of the WORK, and responsible persons shall be designated

and instructed in the operation of such fire apparatus so as to prevent or minimize the hazard of fire. The CONTRACTOR's fire protection program shall conform to the requirements of Subpart F of the OSHA Standards for Construction.

## F. COMMUNICATIONS

### 1. Telephone Services

- a. The CONTRACTOR shall provide and maintain at all times during the progress of the WORK telephone service in good working order at the CONTRACTOR's field trailers.

### 2. CONTRACTOR's Telephone

- a. CONTRACTOR shall be responsible to provide, coordinate and install all CONTRACTOR phones. All telephone installation and service costs for the CONTRACTOR's phones shall be the responsibility of the CONTRACTOR.

### 3. Telephone Use

- a. The CONTRACTOR shall permit the ENGINEER, the OWNER, or their authorized representatives or employees free and unlimited use of said telephone facilities for all calls that do not involve published toll charges. Calls originated by the OWNER, which involve toll or message unit charges shall be billed to the OWNER by the CONTRACTOR at the rates charged by the telephone OWNER. Calls originated by the ENGINEER, which involve toll or message unit charges shall be billed to the ENGINEER by the CONTRACTOR at the rates charged by the telephone OWNER.

## G. OPERATIONS AND TERMINATIONS

1. Inspections: Prior to placing temporary utility services into use, the CONTRACTOR shall inspect and test each service and arrange for governing authorities' required inspection and tests, and obtain required certifications and permits for use thereof.
2. Protection: The CONTRACTOR shall maintain distinct markers for underground lines, and protect from damage during excavating operations.
3. Termination and Removal: When need for a temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than time of substantial completion, the CONTRACTOR shall promptly remove installation unless

requested by ENGINEER to retain it for a longer period. The CONTRACTOR shall complete and restore WORK which may have been delayed or affected by installation and use of temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces.

4. Removal of Water Connections: Before final acceptance of the WORK on the project, all temporary connections and piping installed by the CONTRACTOR shall be entirely removed, and all affected improvements shall be restored to original condition or better, to the satisfaction of the OWNER and to the agency owning the affected utility.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION

## SECTION 01 57 20

### TEMPORARY ENVIRONMENTAL CONTROLS

#### PART 1 - GENERAL

##### 1.1 SCOPE

The CONTRACTOR shall comply with the requirements specified herein for maintaining the environment during construction activities.

##### 1.2 RELATED SECTIONS

A. All Sections

##### 1.3 REFERENCES

OSHA Safety and Health Standards for Construction

##### 1.4 SITE PROTECTION

- A. Best management practices (BMPS) published by Environmental Protection Agency or other recognized agencies shall be used to minimize the area and the extent of the disturbance areas, control erosion, protect water quality, and enhance restoration of areas disturbed by construction.
- B. The CONTRACTOR'S construction activities, shall be performed by construction methods that will minimally impact the environment surrounding the Project, including dust, air and noise pollution and prevention of entrance or accidental spillage of solid matter, contaminants, debris and other pollutants and wastes into the reservoir, Grindstone Canyon Creek, and/or any underground water sources. Such wastes include, but are not limited to, eroded soils, refuse, garbage, cement, concrete, sanitary waste, industrial waste, oil and other petroleum products, mineral salts and spirits, and thermal pollution.
- C. The CONTRACTOR shall be responsible for meeting all Federal, State, and County environmental regulations governing construction activities, impacts and waste control.

##### 1.5 SANITARY FACILITIES

- A. Toilet Facilities: Portable chemical toilets shall be provided by the CONTRACTOR wherever needed for the use of CONTRACTOR's employees. Toilets at construction job sites will conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.

- B. Sanitary and other organic wastes: the CONTRACTOR will establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations will be disposed of away from the site in a manner satisfactory to the OWNER and in accordance with all laws and regulations pertaining thereto.

## 1.6 RUBBISH CONTROL

- A. During the progress of the Work, the CONTRACTOR shall keep the site of the Work and other areas used by the CONTRACTOR in a neat and clean condition, and free from any accumulation of rubbish.
- B. The CONTRACTOR shall dispose of all rubbish and waste materials of any nature occurring at the Work site, and shall establish regular intervals of collection and disposal of such materials and waste. The CONTRACTOR shall provide trash bins or otherwise control the collection, storage and transport of rubbish and waste materials so as to preclude blowing of loose trash due to high winds.
- C. The CONTRACTOR shall also keep its haul roads free from dirt, rubbish and unnecessary obstructions resulting from its operations. The CONTRACTOR shall dispose of all rubbish off-site, in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.
- D. The CONTRACTOR shall furnish, at a minimum, one covered dumpster at the Project site. The dumpster shall be emptied at least once per week or more frequently, as needed, when the dumpster is full.

## 1.7 CHEMICALS

- A. All approved chemicals used during Project construction or furnished for Project operation, whether disinfectant, polymer, reactant or of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the chemical manufacturer.
- B. Storage and handling of flammable and combustible materials, provisions for fire prevention, and control of dust shall be in accordance with the latest applicable OSHA requirements.
- C. The CONTRACTOR shall submit Materials Safety Data Sheets (MSDS) for any hazardous material proposed to be utilized in the construction of the Work in

accordance with Section 00240 - Materials Safety Data Sheets. The CONTRACTOR shall follow the information on the MSDS to assure safe use, handling, storage and environmentally acceptable disposal of the material used.

- D. All chemicals stored in drums or tanks on site shall be provided with secondary containment facilities meeting Federal, State, and local laws, ordinances, regulations and permit conditions. All spigots shall be positioned so that secondary containment facilities catch any drips or spills.

## 1.8 PETROLEUM BASED PRODUCTS AND SPILLS

- A. All waste petroleum-based products shall be contained in sealed containers and disposed of at approved recycling facilities, and, if not recyclable, shall be disposed of at an approved disposal facility. Any spills shall be promptly cleaned up and waste, spillage, and contaminated materials disposed of at an approved disposal facility.. The CONTRACTOR shall comply with applicable Federal and State laws, orders, regulations, permit conditions, and water quality standards concerning the control and abatement of water pollution. When laws are inconsistent, the more stringent shall apply. Violations of these applicable laws and regulations may result in the OWNER stopping all Work on site. All costs resulting from this Work stoppage shall be the responsibility of the CONTRACTOR.
- B. All petroleum based products stored in drums or tanks on site shall be provided with secondary containment facilities meeting Federal, State, and local laws, ordinances, regulations and permit conditions. All spigots shall be positioned so that secondary containment facilities catch any drips or spills

## 1.9 NOISE CONTROL

- A. The CONTRACTOR shall comply with the requirements of the Contract Documents and with the applicable Federal, State and local laws, permit conditions, and regulations concerning the prevention, control, and abatement of excessive noise. Wherein there are inconsistencies in the regulations and these contract documents, the more stringent shall apply. If required, the CONTRACTOR shall be responsible for obtaining an interpretation of such laws and regulations.
- B. All construction equipment operated at the site shall be equipped with manufacturer's standard noise control devices such as mufflers, lagging, and/or engine enclosures that normally achieve compliance with noise limits. The CONTRACTOR shall inspect construction equipment regularly to ensure proper maintenance and presence of noise control devices such as mufflers and shrouding.

## 1.10 WILDLIFE AND WATERFOWL PROTECTION

- A. The CONTRACTOR, its employees, and workers associated with the Work shall not kill, injure, or collect any wildlife or waterfowl that may be encountered on or near the site. When possible, the wildlife or waterfowl shall be removed, unharmed, to nearby safe areas. The CONTRACTOR shall comply with all applicable Federal, State and local laws, and permit conditions and regulations concerning the protection of wildlife and waterfowl.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - PART 3 EXECUTION (NOT USED)**

### **PART 4 - MEASUREMENT AND PAYMENT**

#### 4.1 GENERAL

- A. The items as specified herein shall be considered incidental to completion of the Work. No measurement for payment or payment will be made for these items.

END OF SECTION

## **SECTION 01 71 13**

### **MOBILIZATION AND DEMOBILIZATION**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

- A. Requirements for CONTRACTOR mobilization and demobilization.

##### **1.2 RELATED REQUIREMENTS**

- A. Section 01 33 00 – Submittals
- B. Section 01 51 00 – Construction Facilities and Temporary Utilities
- C. Section 01 77 00 – Project Closeout

##### **1.3 SUBMITTALS**

- A. Submittals for mobilization shall include the Baseline Construction Schedule and other submittals required in Section 01 33 00 – Submittals prior to commencement of construction.
- B. Submittals for demobilization shall include all submittals required in Section 01 77 00 – Project Closeout.

#### **PART 2 – PRODUCTS (NOT USED)**

#### **PART 3 - EXECUTION**

##### **3.1 MOBILIZATION**

- A. Mobilization shall include the obtaining of all permits; moving onto the Site of all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities; all as required for the proper performance and completion of the WORK.
- B. Mobilization shall include but not be limited to the following items:
  - 1. Moving on to the Site of all CONTRACTOR's plant and equipment for operations.
  - 2. Installing temporary construction power, wiring, and lighting facilities.



3. Establishing fire protection system and training of field personnel for fire protection.
  4. Providing on site sanitary facilities and potable water facilities as specified.
  5. Providing temporary field office facilities for the CONTRACTOR and the ENGINEER, if needed, complete with all specified furnishings and utility services including telephone appurtenances, and copying machine.
  6. Providing all on-site communication facilities.
  7. Arranging for and erection of CONTRACTOR's work and storage yard.
  8. Obtaining all required permits.
  9. Posting all OSHA required notices and establishment of safety programs.
  10. Requiring the CONTRACTOR's superintendent at the job Site full time.
  11. Submitting the submittals required in Section 01300 prior to commencement of construction.
- C. All construction equipment being mobilized shall be thoroughly washed to remove all dust, dirt, and mud prior to arriving at Site to preclude importing seeds of noxious weeds into the project area. This requirement shall apply to all equipment used during the entire duration of the project.

### 3.2 Demobilization

- A. Demobilization shall include moving off the Site of all plant equipment and surplus materials, grading and dressing of the CONTRACTOR's equipment yard(s), final cleanup and all other project closeout items including all items referenced in Section 01770 – Project Closeout.

## **PART 4 - MEASUREMENT AND PAYMENT**

### 4.1 GENERAL

- A. No measurement for payment of mobilization and demobilization will be made.
- B. Payment for mobilization and demobilization for the field construction and installation work will be made at the lump sum price stated in the Bid Schedule for mobilization and demobilization.

- C. Payment for mobilization for the field construction and installation work will be in accordance with the following schedule:
  - 1. 50 percent upon complete mobilization of all items specified in Paragraph 3.1, herein.
  - 2. Final 50 percent upon demobilization.
- D. Partial payment for demobilization will not be allowed.
- E. Any additional mobilization and demobilization costs shall be included in other bid items as appropriate.

END OF SECTION

## **SECTION 01 74 00**

### **CLEANUP AND DISPOSAL REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

- A. Summary of the cleanup and disposal procedures that the CONTRACTOR shall follow during the performance of the Contract.

##### **1.2 RELATED REQUIREMENTS**

- A. Section 01 71 13 – Mobilization and Demobilization
- B. Section 01 51 00 – Construction Facilities and Temporary Utilities

#### **PART 2 – PRODUCTS (NOT USED)**

#### **PART 3 - EXECUTION**

##### **3.1 GENERAL**

- A. The CONTRACTOR shall be responsible for cleanup and for disposal of waste materials or rubbish. The disposal of waste materials and rubbish shall be in accordance with this section and all applicable Federal, State, and local laws, regulations, standards, and codes. Where there are inconsistencies in the laws and regulations, etc., the more stringent shall apply.
- B. If required by the OWNER, the CONTRACTOR shall maintain records of all the types and amounts of waste materials produced and the disposal locations of these materials, on or off the Site. These records shall be made available for the OWNER's review when requested.
- C. The CONTRACTOR shall at all times keep the construction area, including storage areas used by the CONTRACTOR, free from accumulations of waste materials and rubbish. Prior to completion of the Work, the CONTRACTOR shall remove from the vicinity of the Work all temporary construction facilities, buildings, rubbish, unused materials, concrete forms, and other like materials, belonging to the CONTRACTOR, or used under the CONTRACTOR's direction during the performance of the work. All work areas shall be graded and left in a neat manner conforming to the natural appearance of the landscape.
- D. Hazardous materials as defined by applicable Federal, State, and local regulations, codes, and standards, used by the CONTRACTOR or discovered on the Site, shall be disposed of in accordance with the applicable Federal, State, and local

regulations, codes, and standards. Waste materials that may be hazardous shall be tested by the CONTRACTOR, and test results submitted to the OWNER prior to disposal.

- E. Other waste materials, including but not limited to, refuse, garbage, sanitary waste, industrial waste, oils and other petroleum products, shall be removed from the Site and disposed of by the CONTRACTOR at appropriate and approved disposal Sites, except as otherwise approved by the appropriate agencies or entities having jurisdiction. It shall be the responsibility of the CONTRACTOR to make any and all necessary arrangements with private parties and county officials pertinent to locations and regulations for such disposal. Any fees required or charged shall be the responsibility of the CONTRACTOR. Any disposal, burying, or burning on Site shall be approved by the OWNER after documentation indicating authorization and requirements from the appropriate agencies or entities have been obtained by the CONTRACTOR.

#### **PART 4 - MEASUREMENT AND PAYMENT**

##### **4.1 GENERAL**

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

END OF SECTION

## **SECTION 01 77 00**

### **PROJECT CLOSEOUT**

#### **PART 1 GENERAL**

##### **1.1 SCOPE**

The CONTRACTOR shall comply with the specified requirements for Project closeout included herein.

##### **1.2 RELATED SECTIONS**

- A. General Conditions
- B. Section 01 33 00 - Submittals

##### **1.3 FINAL CLEANUP**

- A. The CONTRACTOR shall promptly remove from the vicinity of the completed work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction.
- B. Final acceptance of the Work by the OWNER will be withheld until the CONTRACTOR has satisfactorily complied with the foregoing requirements for final cleanup of the Project site.

##### **1.4 CONTRACTOR SUBMITTALS**

- A. Final Submittals: The CONTRACTOR, prior to requesting final payment, shall obtain and submit the following items to the ENGINEER for transmittal to the OWNER.
  - 1. Completed record drawings.
  - 2. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
  - 3. Releases from all parties who are entitled to claims against the subject Project, property, or improvement pursuant to the provisions of law.

##### **1.5 MAINTENANCE AND GUARANTEE**

- A. The CONTRACTOR shall comply with the maintenance and guarantee requirements contained in the General Conditions.

- B. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the OWNER. If the CONTRACTOR fails to make such repairs or replacements promptly, the OWNER reserves the right to do the Work and the CONTRACTOR and its surety shall be liable to the OWNER for the cost thereof.

#### 1.6 TESTING

- A. Final acceptance of the WORK by the OWNER will be withheld until the CONTRACTOR has satisfactorily completed all tests as required within the Construction Documents.

### PART 2 PRODUCTS (NOT USED)

### PART 3 EXECUTION (NOT USED)

### PART 4 MEASUREMENT AND PAYMENT

#### 4.1 GENERAL

The items as specified herein shall be considered incidental to completion of the Work. No measurement for payment or payment will be made for these items.

END OF SECTION

**SECTION 03 01 10**  
**CONCRETE REPAIR**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Scope: This section covers the materials, techniques, and workmanship requirements for repairing areas of deteriorated concrete.
- B. Related Sections:
  - 1. Section 03 11 10 Concrete Formwork
  - 2. Section 03 20 00 Concrete Reinforcement.
  - 3. Section 03 20 40 Epoxy Grouted Rebar Dowels
  - 4. Section 03 30 00 Cast-In-Place Concrete.
  - 5. Section 03 81 10 Concrete Removal
  - 6. Section 03 37 20 Thin Bonded Polymer Overlay
  - 7. Section 33 46 40 Prefabricated Geocomposite Drains

**1.2 REFERENCES**

- A. ASTM International (ASTM):
  - 1. ASTM C33, Specification for Concrete Aggregates.
  - 2. ASTM C39, Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  - 3. ASTM C78, Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading).
  - 4. ASTM C109, Standard Test Method for Compressive strength of Hydraulic Cement Mortars (Using 2-in. [or-50mm] Cube Specimens).
  - 5. ASTM C293, Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading).
  - 6. ASTM C307, Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfaces.
  - 7. ASTM C348, Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars.
  - 8. ASTM C496, Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens.
  - 9. ASTM C882, Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.

10. ASTM C1202, Standard Test Method for Electrical Indication of Concretes Ability to Resist Chloride Ion Penetration.
  11. ASTM D1042, Standard Test Method for Linear Dimensional Changes of Plastics Caused by Exposure to Heat and Moisture.
  12. ASTM D638, Standard Test Method for Tensile Properties of Plastics.
  13. ASTM D695, Standard Test Method for Compressive Properties of Rigid Plastics.
  14. ASTM E96, Standard Test Methods for Water Vapor Transmission of Materials.
- B. NSF/ANSI 61, Drinking Water System Components – Health Effects.
- C. The Society for Protective Coatings (SSPC) 1. SSPC-SP-6, Commercial Blast Cleaning.
- D. International Concrete Repair Institute (ICRI), Selecting and Specifying Concrete Surface Preparation for Sealers, Coating, Polymer Overlays, and Concrete Repair.

### **1.3 SUBMITTALS**

- A. Concrete Repair CONTRACTOR/SUBCONTRACTOR Qualifications (to be submitted with the Bid):
1. Submit references, including brief project description, contact persons' name and telephone number, of at least three similar projects that have been in service for three years. Projects shall have been completed within the last ten (10) years by the proposed Concrete Repair CONTRACTOR/SUBCONTRACTOR using the specified products of the approved Concrete Repair Products Manufacturer.
  2. Submit relevant experience in concrete repair for individuals that will work on the project. Do not make changes in approved personnel without prior approval of the engineer.
- B. Product Data: Submit manufacturer's published product data, catalog cuts, specifications, installation/application instructions and such other data as required to provide complete descriptive information for each material at least 14 calendar days before ordering the product. No materials shall be placed without prior approval from the ENGINEER.
- C. Submit samples of proposed materials when requested by the ENGINEER. If more than one color is available, submit color options in which materials are available.
- D. Concrete Repair Plan:
1. Submit in accordance with the requirements of Article 3.1.A of this Section within thirty (30) calendar days following Award.
  2. The CONTRACTOR shall include the approved Concrete Repair Product Manufacturer on the distribution of all Schedule of Repairs submittals and re-submittals made to the ENGINEER, including all enclosures.



- E. As-Built Repair Drawings. The As-Built Repair Drawings shall be submitted following completion of the Concrete Repairs. The As-Built Repair Drawings shall be prepared using the Design Drawings. The As-Built Repair Drawings shall depict any approved field changes to the locations, dimensions, and types of concrete repairs made during the performance of the repair Work. Submit five (5) hardcopies and three (3) duplicate copies of electronic AutoCAD files of the As-Built Drawings on CD or DVD, including the necessary reference files, color tables and other pertinent information that is needed to properly view the electronic format of the drawing. ENGINEER will provide electronic AutoCAD files prior to the Work.
- F. Certification from the CONTRACTOR that all repair materials installed for each of the repair types were supplied by the same approved Concrete Repair Product Manufacturer.
- G. Certification from the CONTRACTOR that all surfaces were properly prepared and that specified repair materials were installed in accordance with manufacturer's recommendations, the Contract Documents, the approved Drawings, and the approved Concrete Repair Plan.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- A. Delivery and Handling: Deliver repair materials to job site in their original unopened containers with labels intact and legible at time of use.
- B. Storage: Store the specified product as recommended by the manufacturer.

#### **1.5 PROJECT/SITE CONDITIONS**

- A. CONTRACTOR is responsible for identifying the limit of repairs in the presence of the ENGINEER.
- B. Environmental Requirements:
  - 1. Do not apply repair products when the ambient and surface temperatures are lower than 45 degrees Fahrenheit or such manufacturer's limitations which may be more restrictive.
  - 2. Do not attempt to apply repair products when it is raining or water is flowing over the principal spillway.
- C. Steel reinforcement may be encountered within repair regions.
- D. Precautions should be taken to protect surrounding items from damages related to concrete repair.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- A. All repair and restoration materials used shall conform to ANSI 61 standard for potable water.
- B. Repair system materials for a repair type shall be produced by a single approved Concrete Repair Product Manufacturer.
- C. Concrete Repair Type 1 - Principal Spillway Chute Concrete Repairs in repair areas S1 to S10: two-component, polymer-modified cementitious mortar.
  - 1. Compressive properties: ASTM C109 at 28 days.
    - a. Compressive strength: 6000 psi minimum.
  - 2. Tensile properties: ASTM C496 at 28 days.
    - a. Tensile strength: 600 psi minimum.
  - 3. Flexural properties: ASTM C293.
    - a. Flexural strength: 1400 psi minimum.
  - 4. Shrinkage: ASTM C157
    - a. Shrinkage: Less than 0.05% at 28 days.
  - 5. Chloride Permeability: ASTM C1202
    - a. Permeability: Less than 500 coulombs.
  - 6. Acceptable Manufacturer:
    - a. Sika Corporation: SikaTop® 123 Plus for hand placed.
    - b. Sika Corporation: SikaTop® 111 Plus for poured.
    - c. Or Approved Equal.
- D. Concrete Repair Type 2 – Principal Spillway Chute Concrete Facing Panels Replacement and Seepage Control in repair area S11: cast-in-place reinforced concrete, prefabricated geocomposite strip drains and surface waterproofing.
  - 1. Acceptable Manufacturer:
    - a. American Wick Drain: SITEDRAIN C-186, see Section 33 46 40
    - b. Xypex Chemical Corporation: CONCENTRATE
    - c. Xypex Chemical Corporation: PATCH'N PLUG
    - d. Or Approved Equal
- E. Concrete Repair Type 3 – North Dam Crest Overlay: epoxy polymer concrete overlay in repair area D1.
  - 1. Compressive properties: ASTM C-579 at 28 days.
    - a. Compressive strength: 9000 psi minimum.

2. Tensile properties: ASTM D-638 at 7 days.
    - a. Tensile strength: 1200 psi minimum.
  3. Flexural properties: ASTM C-579 at 28 days.
    - a. Modulus of Elasticity in Compression: 40,000 psi minimum.
  4. Tensile Adhesion properties: ASTM C-1583 at 7 days
    - a. Tensile Adhesion Strength: Greater than 570 psi neat.
  5. Shear properties: ASTM D-732 at 7 days
    - a. Shear Strength: 2600 psi mortar, 3430 psi neat.
  6. Application Method:
    - a. Broadcast Overlay with aggregate
  7. Acceptable Manufacturer:
    - a. Sika Corporation: SikaDur-22 Lo-Mod FS, see Section 03 37 20
    - b. Or Approved Equal
- F. Concrete Repair Type 4 – North Dam Crest Curb Replacement: cast-in-place reinforced concrete in repair area D2, See Section 03 20 00 and Section 03 30 00.
- G. Bonding and Anti-corrosion Compound
1. Provide Bonding Compound on exposed reinforcing steel.
  2. Acceptable Manufacturer:
    - a. Sika Corporation: Sika Armathec 110 EpoCem
    - b. Or Approved Equal.
- H. Material Substitutions: The use of other than the specified products will be considered providing the CONTRACTOR request their use in writing to the ENGINEER. This request shall also be accompanied by the following:
1. A certificate of compliance from an approved independent testing laboratory denoting the proposed substitute products meet or exceed the specified performance criteria when tested in accordance with the specified test standards.
  2. Documented proof that the proposed substitute products have a five year proven record of performance, confirmed by actual field tests and five successful installations the ENGINEER can investigate.

## **PART 3 EXECUTION**

### **3.1 GENERAL PREPARATION**

- A. Concrete Repair Plan: After the Award and prior to performing the repair work, the CONTRACTOR shall prepare and submit a Concrete Repair Plan, which shall include but is not necessarily limited to the following:

1. Details of pertinent information associated with each repair type shown on the Drawings.
  2. Information needed to measure each repair type for payment in accordance with the provisions of the Bid Schedule, including but not limited to updated quantity estimates (areas, linear feet of repair, etc.) and projected cost of the repair types based upon the applicable Unit Prices or Lump Sum prices contained in the Bid Schedule.
  3. Individual steps proposed to be followed by the CONTRACTOR in performing each type of repair, and the CONTRACTOR's proposed sequencing of each repair type relative to other repair types. Include specific information regarding surface preparation, installation and curing methods and durations for each repair type.
  4. Proposed calendar schedule for performing permanent repairs.
- B. Protective Measures: Prior to performance of surface preparation work, provide in-place protection to properly protect existing structures from debris that results from concrete removal and materials being used to restore concrete structures.
- C. Repair Area Surface Preparation: It shall be the CONTRACTOR's responsibility to ensure that all repair surfaces are properly prepared in accordance with the approved Concrete Repair Product Manufacturer's recommendations. All efflorescence, calcite leaching residue, loose and deteriorated concrete and accumulations of organic or non-organic materials shall be thoroughly removed from concrete repair surfaces by abrasive blast cleaning, or other equally effective mechanical cleaning methods to sound concrete substrate prior to performing the concrete repairs. All demolition residue, concrete fragments and dust shall be vacuumed or hydro washed, as appropriate, immediately prior to application of concrete repair products. See Specification Section 03 81 10 – Concrete Removal for additional information.
- D. Repair procedures are defined in this Section with additional guidelines given on the Drawings.

### **3.2 PREPARATION REQUIREMENTS FOR SPECIFIC CONCRETE REPAIRS**

- A. In addition to the general preparation requirements specified in Article 3.1 in this Section, the following preparation requirements shall be performed for the repair method specified at the area receiving the repairs as determined by the Pre-Repair Inspection.
- B. Surface Preparation for Concrete Repair Type 1 – Principal Spillway Chute Concrete Repairs for repair areas S1 to S10: Exercise reasonable care in removing the unsound concrete to the limits which were determined prior to removal operations. See Specification Section 03 81 10 – Concrete Removal for additional information. Additional requirements as follows:

1. Areas to be repaired must be clean, sound, and free of contaminants. All loose and deteriorated concrete shall be removed by mechanical means or other approved methods. Clean surfaces of dirt, oil, grease, or other bond-inhibiting substances. Repair areas must be kept clean and protected from damage until repair materials can be placed and cured.
  2. Remove unsound concrete material in a manner to facilitate uniform placement of mortar; slope upper area of excavated voids evenly to within one inch of the surface, the upper outline shall be essentially normal (perpendicular) to the surface.
  3. Reinforcement – See Specification Section 03 81 10 – Concrete Removal.
  4. Blast reinforcing steel in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale and apply anti-corrosion coating material.
  5. Mechanically prepare the concrete substrate to obtain a surface profile of CSP 5 or greater as per ICRI Guidelines with a new exposed aggregate surface. Area to be patched shall not be less than 1½" in depth.
  6. Form excavated areas on sloping and vertical surfaces of concrete members in accordance with Section 03 11 10 Concrete Formwork, as required.
  7. Do not use bonding compounds for placement of concrete. Dampen exposed concrete surfaces immediately prior to placement of repair materials. Small holes may be drilled into forms to permit air to escape during pouring and consolidation.
- C. Surface Preparation for Concrete Repair Type 2 – Principal Spillway Chute Facing Panels Concrete Removal and Replacement for repair area S11: cast-in-place reinforced concrete: Exercise reasonable care in removing the damaged and unsound concrete to the limits that were determined prior to removal operations. See Specification Section 03 81 10 – Concrete Removal for additional information. Additional requirements as follows:
1. Area to be repaired must be clean, sound, and free of contaminants. All loose and deteriorated concrete shall be removed by mechanical means. Clean surfaces of dirt, oil, grease, or other bond-inhibiting substances. Repair areas must be kept clean and protected from damage until repair materials can be placed and cured.
  2. Remove unsound concrete in existing facing panels in a manner to facilitate uniform placement of concrete.
  3. Preserve reinforcement – See Specification Section 03 81 10 – Concrete Removal.
  4. Blast existing exposed anchors in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale and apply anti-corrosion coating material.
  5. Replace severely deteriorated anchors with epoxy grouted rebar dowels, see specification Section 03 20 40.

6. Mechanically prepare the concrete substrate to obtain a surface profile of CSP 5 or greater as per ICRI Guidelines with a new exposed aggregate surface. Replacement facing panels shall not be less than 6 inches in depth.
  7. Control seepage with Xypex concrete waterproofing products in accordance with manufacturer's product data sheets and as directed by the ENGINEER.
  8. Install prefabricated geocomposite drains on substrate according to the drawings and specifications Section 33 46 40 as directed by the ENGINEER.
  9. Support and install welded wire fabric according to Section 03 20 00 Concrete Reinforcement.
  10. Form sloping replacement facing panels in accordance with Section 03 11 10 Concrete Formwork.
  11. Do not use bonding compounds for placement of concrete. Dampen exposed concrete surfaces immediately prior to placement of fresh concrete. Small holes may be drilled into forms to permit air to escape during placement and consolidation.
- D. Surface Preparation for Concrete Repair Type 3 – North Dam Crest Overlay: epoxy polymer concrete overlay for repair area D1. Exercise reasonable care in removing the damaged and unsound concrete to the limits that were determined prior to removal operations. See Specification Section 03 37 20 –Thin Bonded Polymer Overlay for additional information. Additional requirements as follows:
1. Remove and reinstall four existing survey monuments on the north dam crest.
  2. Mechanically prepare the concrete substrate to obtain a surface profile of CSP 5 per ICRI Guidelines with a new exposed aggregate surface.
  3. Substrate Preparation: Surface must be clean, sound and dry. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants.
  4. Preparation Work: Concrete - Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface by abrasive blast cleaning or equivalent mechanical means.
  5. Apply two coats of epoxy polymer concrete broadcast overlay with a maximum combined thickness of 7/16 inch.
  6. Follow manufacturer's application instructions for a broadcast overlay.
- E. Surface Preparation for Concrete Repair Type 4 – North Dam Crest Curb Replacement: cast-in-place reinforced concrete in repair area D2. See Specification Section 03 81 10 – Concrete Removal for additional information. Additional requirements as follows:
1. Area to be repaired must be clean, sound, and free of contaminants. All loose and deteriorated concrete shall be removed by mechanical means. Clean surfaces of

dirt, oil, grease, or other bond-inhibiting substances. Repair areas must be kept clean and protected from damage until repair materials can be placed and cured.

2. Remove deteriorated reinforced concrete curbs in a manner to facilitate uniform placement of concrete. Existing guardrail posts to remain in place. Existing chain link fencing fabric may be temporarily removed and replaced to provide access to remove and replace deteriorated curbs.
3. Blast existing exposed reinforcement in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale and apply anti-corrosion coating material.
4. Mechanically prepare the concrete substrate to obtain a surface profile of CSP 5 or greater as per ICRI Guidelines with a new exposed aggregate surface.
5. Form replacement facing panels in accordance with Section 03 11 10 Concrete Formwork.
6. Do not use bonding compounds for placement of concrete. Dampen exposed concrete surfaces immediately prior to placement of fresh concrete.

### **3.3 MATERIAL APPLICATION**

- A. General: Mix and prepare material in accordance with manufacturer's written application instructions and direction.
- B. Concrete Repair Type 1 – Principal Spillway Chute Concrete Repairs in areas S1 to S10: Repair as follows:
  1. Hand-Placement:
    - a. At time of placement, surfaces shall be water saturated but surface dry with no standing water. Immediately upon completion of mixing operation, place repair mortar in strict accordance with manufacturer's recommended procedures.
    - b. Allow mortar to set to desired stiffness then finish with wood or sponge float for a smooth surface.
    - c. Curing: On open repair areas, cure with wet burlap and polyethylene, a fine mist of water. Moist curing should commence immediately after finishing and continue for 7 days. If necessary, protect newly applied material from rain, sun, wind, and frost until compressive strength is 70% of the 28-day compressive strength. To prevent from freezing, cover with insulating material.
    - d. Adhere to all limitations and cautions for the material in the manufacturer's current printed literature.

2. Pouring Placement:
  - a. At time of placement, surfaces shall be water saturated but surface dry with no standing water. Immediately upon completion of mixing operation, place repair mortar in strict accordance with manufacturer's recommended procedures.
  - b. Allow mortar to set to desired stiffness then finish with wood or sponge float for a smooth surface.
  - c. Curing: On open repair areas, cure with wet burlap and polyethylene, a fine mist of water. Moist curing should commence immediately after finishing and continue for 7 days. If necessary, protect newly applied material from rain, sun, wind, and frost until compressive strength is 70% of the 28-day compressive strength. To prevent from freezing, cover with insulating material.
  - d. Adhere to all limitations and cautions for the material in the manufacturer's current printed literature.
- C. Concrete Repair Type 2 – Principal Spillway Chute Facing Panels Concrete Removal and Replacement in repair area S11: Repair as follows:
  3. Replace anchors that are severely deteriorated with epoxy grouted rebar dowels, see specification Section 03 20 40.
  4. Place Xypex concrete waterproofing products to control seepage, as directed by the ENGINEER. Follow manufacturer's application instructions.
  5. Install prefabricated geocomposite drains on substrate according to the drawings and specification section 33 46 40.
  6. Install welded wire fabric reinforcement – See Specification Section 03 20 00 – Concrete Reinforcement.
  7. Form replacement facing panels in accordance with Section 03 11 10 Concrete Formwork.
  8. Place concrete according to section 03 30 00 Cast-in-Place Concrete.
  9. Curing: Follow curing procedures in section 03 30 00 Cast-in-Place Concrete
- D. Concrete Repair Type 3 – North Dam Crest Overlay for repair area D1: Repair according to Specification Section 03 37 20 –Thin Bonded Polymer Overlay.
- E. Concrete Repair Type 4 – North Dam Crest Curb Replacement: cast-in-place reinforced concrete in repair area D2. Repair as follows:
  1. Install longitudinal reinforcement bars – See Specification Section 03 20 00 – Concrete Reinforcement.



2. Form replacement curbs in accordance with Section 03 11 10 Concrete Formwork. Replacement curbs shall be reconstructed to the same dimensions as the original curbs as shown on the plans.
3. Place concrete according to section 03 30 00 Cast-in-Place Concrete.
4. Curing: Follow curing procedures in section 03 30 00 Cast-in-Place Concrete.

### **3.4 CONCRETE REPAIR FINISHES**

- A. All concrete repairs shall be finished to produce a surface which is true and uniform without any conspicuous offsets or bulges. The concrete surface shall be inspected for honeycombs and rock pockets, areas of concrete where voids are left due to failure of the paste or concrete to completely fill spaces around coarse aggregate or reinforcing steel. If these defects are considered minor by the ENGINEER, they may be repaired with Portland cement mortar if less than 24 hours has passed since form removal and not more than 72 hours has passed since concrete placement. If repair is delayed beyond this timeframe or if the defects are extensive, the defective concrete must be removed and replaced with dry pack mortar.
- B. Rubbed finish shall be applied to freshly-hardened concrete repairs. The rubbing shall be completed no later than one day after forms are removed. Surfaces shall be wetted and rubbed with a carborundum brick, or other abrasive, and plenty of water until all form marks, projections and irregularities have been removed and a smooth surface, texture, and color are produced. The surface shall be washed clean.
- C. Where concrete repairs are performed without the use of forms, the finish shall be obtained by working a "float" finish with a steel trowel. The finish troweling shall not start until bleed water has disappeared from the surface and the surface has hardened sufficiently to prevent an excess of fine material from being drawn to the surface. Steel troweling shall be performed with firm pressure to produce a dense, smooth, uniform surface.
- D. Exposed Edges: Exposed edges of concrete repairs shall match the exposed edges of the existing concrete structures. Where existing exposed edges are chamfered or rounded, exposed edges of repairs shall be chamfered or rounded to match existing concrete. If existing exposed edges are square, exposed edges of repairs shall be square.

### **3.5 CLEANING**

- A. Leave finished work area in clean condition without evidence of spill over onto adjacent areas.
- B. Remove all repair procedures debris from site.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.1 MEASUREMENT**

- A. Measurement for Principal Spillway Chute repairs in repair areas S1 to S10 will be made of the in-place volume of repair mortar based on neat lines as indicated on the plans and measured in the field.
- B. Measurement for Principal Spillway Chute Facing Panel Replacement and Seepage Repairs in repair areas S11 will be made of the in-place volume of cast-in-place concrete based on neat lines as indicated on the plans and measured in the field, and volume of Xypex concrete waterproofing measured in the field.
- C. Measurement for North Dam Crest Overlay Repairs in repair area D1 will be made of the in-place area of overlay material placed and measured in the field.
- D. Measurement for North Dam Crest Curb Replacement in repair area D2 will be made of the in-place volume of concrete based on neat lines as indicated on the plans and measured in the field.

### **4.2 PAYMENT**

- A. Compensation to the CONTRACTOR for all costs associated with furnishing materials for and performing concrete repairs on the principal spillway chute in repair areas S1 to S10 shall be made at the unit price in the Bid Schedule for Concrete Repair Type 1 – Principal Spillway Chute Concrete Repairs. Includes all labor, equipment and materials for cleaning surfaces, placing repair materials, finishing, curing and all other Work as required by the Contract Documents for this repair type as shown on the Drawings.
- B. Compensation to the CONTRACTOR for all costs associated with furnishing materials for and performing Principal Spillway Chute Facing Panel Replacement and Seepage Repairs in repair area S11 shall be made at the unit sum prices in the Bid Schedule for Concrete Repair Type 2 – Principal Spillway Chute Facing Panels and Seepage Repairs on the bottom of principal spillway chute face. Includes all labor, equipment and materials required for placement of waterproofing materials, installation of prefabricated geocomposite strip drains, placement of welded wire fabric, and furnishing and placing cast-in-place concrete, curing and all other Work as required by the Contract Documents for this repair type as shown on the Drawings.
- C. Compensation to the CONTRACTOR for all costs associated with furnishing materials for and performing North Dam Crest Overlay in repair area D1 shall be made at the unit price in the Bid Schedule for Concrete Repair Type 3 – North Dam Crest Overlay Repairs. Includes all labor, equipment and material required for cleaning and preparing surfaces, placing the thin bonded polymer overlays and all other Work as required by the Contract Documents for this repair type as shown on the Drawings.

- D. Compensation to the CONTRACTOR for all costs associated with furnishing materials for and performing North Dam Crest Curb Replacement in repair areas D2 shall be made at the unit price in the Bid Schedule for Concrete Repair Type 4 –North Dam Crest Curb Replacement. Includes all labor, equipment and material required for cleaning and preparing surfaces, placing replacement reinforced concrete curbs, finishing, curing and all other Work as required by the Contract Documents for this repair type as shown on the Drawings.

**END OF SECTION**

**SECTION 03 11 10**  
**CONCRETE FORMWORK**

**PART 1 GENERAL**

**1.1 WORK INCLUDED**

- A. Design, manufacture, install and remove concrete formwork.

**1.2 RELATED WORK**

- A. Section 03 20 00 Concrete Reinforcement and Anchor Bars
- B. Section 03 30 00 Cast-in-Place Concrete
- C. Section 03 81 00 Concrete Removal

**1.3 DESIGN**

- A. Design formwork for loads, lateral pressure and allowable stresses in accordance with ACI 347.
- B. Ensure that forms have sufficient strength to withstand the pressure resulting from concrete placement and vibration and sufficient rigidity to maintain specified construction tolerances.

**1.4 REFERENCES**

- A. ACI 117 - Standard Tolerances for Concrete Construction and Materials.
- B. ACI 347 - Recommended Practice for Concrete Formwork.

**PART 2 PRODUCTS**

**2.1 MATERIALS AND FABRICATION OF FORMS**

- A. All forms shall be of good sound material, free from defects that will impair the strength of the form or appearance of the concrete after forms are removed.
- B. Wood Forms: Wood sheathing for concrete to receive a smooth form or better finish shall be Class 1 Exterior B-B Plyform, or better.
- C. Steel Forms: The sheathing of steel forms shall be steel plate not less than 1/8-inch thick. All bolt and rivet heads shall be countersunk. Clamps, pins or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete.
- D. Forms for Sloped or Battered Surfaces: Forms for sloped or battered surfaces shall be fabricated so that the sheathing can be placed section by section immediately

ahead of concrete placement so as to enable ready access for placement and for inspection of the concrete.

- E. Forms for Curved or Battered Surfaces: The Contractor shall construct the forms so as to maintain the original curvature. Where necessary to meet requirements for curvature, the form lumber shall be built up of laminated splines cut to make tight, smooth form surfaces. The forms shall be constructed so that the joint marks on the concrete surfaces generally will follow the line of water flow. After the forms have been constructed, all surface imperfections shall be corrected, and all surface irregularities at matching faces of form material shall be dressed to the specified curvature.
- F. Form Hardware: Bolts or rods, twist ties, or other approved devices in common use by the industry, shall be used to hold the forms in place. Form tie wire shall not be used for this purpose.

## **PART 3 EXECUTION**

### **3.1 FORM CONSTRUCTION**

- A. Forms shall be erected straight, plumb and true in every respect or shaped as necessary to secure the configuration required. Horizontal or near horizontal construction joints shall be finished smooth and true to line or may be formed by the use of rigid grade strips.
- B. Forms shall be tightened to fit snugly and firmly against the hardened concrete in the previous lift and shall overlap the hardened concrete not more than one inch. Supplementary bolts or form ties shall be used as necessary to prevent form spread causing irregularities or loss of mortar.
- C. Temporary openings shall be provided at the base of the wall forms and at other points where necessary to facilitate cleaning and inspection immediately before and during depositing of concrete.
- D. Do not re-use forms if there is any evidence of surface wear and tear or defects which would impair the quality of the surface.
- E. Clean all surfaces of forms and embedded materials of any mortar from previous concreting and of all other foreign material before concrete is placed in the forms.
- F. After the ends or end fasteners have been removed, terminate the embedded portion of ties not less than two inches from any concrete surface either exposed to view or exposed to water. Construct form ties so that the ends or end fasteners can be removed without spalling the concrete.

### **3.2 CHAMFERING**

- A. Chamfer all exposed joints, edges and external corners with molding placed in the forms unless the drawings specifically state that chamfering is to be omitted.
- B. Chamfered joints will not be required where earth or rockfill is placed in contact with concrete surfaces.

- C. Terminate chamfered joints a sufficient distance outside the limit of the earth, gravel or stone protection so that the ends of the joints will be clearly visible.

### **3.3 COATING**

- A. Coat forms for exposed surfaces with form oil or form-release agent before the form or reinforcement is placed in final position.
- B. Use the coating as recommended in the coating manufacturer's printed or written instructions.
- C. Forms for unexposed surfaces may be wet with water, in lieu of coating, immediately before placing concrete, except that in cold weather with probable freezing temperatures, coating will be mandatory.
- D. Remove surplus coating on form surfaces before placing concrete.
- E. Coating material shall not be allowed to be deposited onto or to come into contact with reinforcing steel, construction joints and other embedded items. Areas where contact has occurred shall be cleaned thoroughly as approved by the Engineer.

### **3.4 REMOVAL**

- A. Unless otherwise directed by the Engineer, remove all forms as soon as possible and in a manner that will prevent damage to the concrete and impairment to the safety of the structure.
- B. When conditions on the work are such as to justify the requirement, forms will be required to remain in place for longer periods of time at the discretion of the Engineer.
- C. In general, do not remove forms until 24 to 48 hours after concrete placement.
- D. ACI 347 will apply as directed.
- E. Do not remove supporting forms until minimum time has elapsed and control test specimens have attained at least 50 percent of strength required for the structure.

### **3.5 SURFACE REQUIREMENTS**

- A. Defects in the structure or finish caused by offsets resulting from displaced, misplaced or mismatched forms or sheathing or loose knots in sheathing and other similar form defects will be classified as "abrupt" irregularities.
- B. Irregularities resulting from warping, unplaneness or similar uniform variations from planeness or true curvature will be classified as "gradual" irregularities.
- C. Comply with the corresponding requirements in ACI 117 for tolerances for the specified finish.
- D. "Gradual" irregularities will be checked for compliance with the prescribed limits using a 5-foot template, consisting of a straightedge for plane surfaces and a shaped template for curved surfaces. In measuring irregularities, the straightedge or template

may be placed anywhere on the surface in any direction, with the testing edge held parallel to the intended surface.

- E. Perform repair of irregularities in accordance with Section 03 30 00.

#### **PART 4 MEASUREMENT AND PAYMENT**

- A. No separate payment will be made for work required under this section. All costs of concrete formwork shall be included in the prices quoted for the applicable concrete work.

**END OF SECTION**

**SECTION 03 20 40**  
**EPOXY GROUTED ANCHOR BARS**

**PART 1 GENERAL**

**1.1 WORK INCLUDED**

- A. Drilling holes for anchor bars
- B. Detail, furnish, cut, bend install and grout anchor bars as shown on the drawings or as directed.

**1.2 REFERENCE STANDARDS**

- A. American Concrete Institute (ACI)
  - 1. ACI 355.4-11 Qualification of Post-Installed Adhesive Anchors in Concrete
- B. ASTM International (ASTM)
  - 1. ASTM C 881/C 881M-10 Epoxy-Resin-Base Bonding Systems for Concrete
  - 2. ASTM D 4435-08 Rock Bolt Anchor Pull Test
- C. International Code Council (ICC)
  - 1. ICBO ES AC58 Acceptance Criteria for Adhesive Anchors in Concrete and Masonry Elements, 2012

**1.3 SUBMITTALS**

- A. Submit the following in accordance with Section 01 33 00 - Submittals.
- B. Approval Data:
  - 1. Grout manufacturer's product data.
- C. Instructions:
  - 1. Grout manufacturer's environmental, product storage, preparation, mixing, and installation instructions.
- D. Qualifications:
  - 1. Installer and inspector.
- E. Pull Out Test Procedures:
  - 1. Equipment name and model number.
  - 2. Equipment manufacturer's operational instructions.



- F. Test Data and Results:
  - 1. Date and weather conditions.
  - 2. Test location.
  - 3. Deformations and loading.
  - 4. Result of test, pass or fail.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver epoxy materials to jobsite in manufacturer's original unopened packaging with labels and seals intact.
- B. Store epoxy materials in protected area in accordance with manufacturer's instructions.

#### **1.5 QUALIFICATIONS**

- A. Installed anchors on three similar projects within the last 5 years.

### **PART 2 PRODUCTS**

#### **1.6 ANCHOR BARS**

- A. Anchor bars: Deformed steel reinforcing bar in accordance with Section 03 20 00 – Concrete Reinforcing.
- B. Fabricate to required shape before placement.

#### **1.7 EPOXY GROUT**

- A. Hilti HIT-RE 100, manufactured by Hilti North America, 7250 Dallas Parkway, Plano TX 75024 or approved equal.

### **PART 3 EXECUTION**

#### **1.8 LOCATION**

- A. Install as shown on the drawings for the principal spillway concrete repair Area S11.

#### **1.9 PREPARATION**

- A. Clean bar before placement.
  - 1. Remove heavy flaky rust, loose mill scale, dirt, grease, and other foreign substances.
  - 2. Epoxy Grouted Anchor Bars: Clean and prepare in accordance with grout manufacturer's instructions.

## 1.10 INSTALLATION

- A. Drill holes for anchor bars where indicated on drawings.
  - 1. Drill, clean, and prepare anchor hole in accordance with grout manufacturer's instructions.
  - 2. Make hole diameter as recommended by grout manufacturer for bar size.
  - 3. Remove dust and standing water from hole.
  - 4. Limit pollutants to the stream: Vacuum dust/water immediately or by other method as approved by the ENGINEER.
- B. Mix and install grout in accordance with manufacturer's instructions.
- C. Remove grout from exposed end of anchor bar by methods recommended by grout manufacturer.

## 1.11 CONTRACTOR QUALITY TESTING

- A. Pull-out Test:
  - 1. Test one of every 10 anchor bars installed. The ENGINEER will select anchor bars to be tested.
  - 2. Test anchors after epoxy is fully cured in accordance with manufacturer's recommendation.
  - 3. Notify ENGINEER at least 24 hours before performing tests.
  - 4. Application of load shall not damage bar. Replace damaged bars at Contractor's expense.
  - 5. Testing Apparatus: In accordance with ASTM D 4435.
  - 6. Test Load:
    - a. 60 percent of yield strength of bar.
    - b. Apply load smoothly and rapidly.
    - c. Maintain load for at least 10 minutes.
  - 7. Load Measurement System:
    - a. Calibrated by an independent testing laboratory within past 6 months.
    - b. Accuracy: Plus or minus 5 percent of actual load.
  - 8. Record Data for Each Test:
    - a. Record load, deformation, and time at three times during the test.
    - b. Record at approximately 1 minute, 5 minutes, and 10 minutes of the test.

9. Acceptance Criteria:
  - a. Tested bar holds at least 60 percent of yield strength of bar during test period.
  - b. Failure:
    - 1) Application of test load is not possible.
    - 2) Total bar movement between 1 minute and 10 minutes of test exceeds 0.08 inches.
10. Replace anchor bar that fails test with a new anchor bar and test two additional adjacent anchor bars as determined by the ENGINEER.

#### **1.12 PROTECTION**

- A. Maintain installed bar in correct position and protect from movement until epoxy grout has fully cured.

#### **PART 4 MEASUREMENT AND PAYMENT**

- A. Measurement for payment for No. 4 epoxy grouted anchor bars furnished, bent, and installed as shown on the drawings, or as directed, will be the number of anchor bars installed, if required.
- B. The price for No. 4 epoxy grouted anchor bars shall include the cost of all materials, equipment and labor required to complete the work, including furnishing, bending and installing anchor bars in repair area S11. Payment will be made at the unit price per each bar bid therefor in the Bid Schedule, which shall include all costs.

**END OF SECTION**

## SECTION 03 30 00

### CAST-IN-PLACE CONCRETE

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. The work covered by this section of the Specifications includes furnishing all labor, supervision, equipment and materials to manufacture, transport, place, finish, protect and cure cast-in-place concrete to repair the principal spillway.
- B. The ENGINEER will designate the concrete surfaces and areas to be repaired.
- C. The CONTRACTOR shall perform mix tests to establish the optimum proportions of ingredients that will produce uniform concrete of high workability, durability and strength with minimum shrinkage.

##### 1.2 RELATED REQUIREMENTS

- A. Section 01 33 00 – Submittals
- B. Section 01 40 00 – Quality Control
- C. Section 03 81 10 - Concrete Removal
- D. Section 03 11 10: Concrete Formwork
- E. Section 03 20 00: Concrete Reinforcement

##### 1.3 REFERENCES

The latest revisions of the documents listed below are hereby incorporated into this specification to the extent referenced. If there is a conflict between the requirements of this Specification and any of the referenced documents, the matter will be referred to the ENGINEER for resolution.

- A. ACI 117 - Standard Tolerances for Concrete Construction and Materials.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
- C. ACI 301 - Specifications for Structural Concrete for Buildings.
- D. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- E. ACI 304.2 - Placing Concrete by Pumping Methods.

- F. ACI 305 - Hot Weather Concreting.
- G. ACI 306 - Cold Weather Concreting.
- H. ACI 309 - Standard Practice for Consolidation of Concrete.
- I. ACI 318 - Building Code Requirements for Reinforced Concrete.
- J. ASTM C29 - Test for Unit Weight and Voids in Aggregate.
- K. ASTM C31 - Specification for Making and Curing Concrete Test Specimens in the Field.
- L. ASTM C33 - Specification for Concrete Aggregates.
- M. ASTM C39 - Test for Compressive Strength of Cylindrical Concrete Specimens.
- N. ASTM C94 - Specification for Ready-Mixed Concrete.
- O. ASTM C143 - Test for Slump of Portland Cement Concrete.
- P. ASTM C150 - Specification for Portland Cement.
- Q. ASTM C231 - Test for Air Content of Freshly Mixed Concrete by the Pressure Method.
- R. ASTM C260 - Specification for Air-Entraining Admixtures for Concrete.
- S. ASTM C309 - Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- T. ASTM C494 - Specification for Chemical Admixtures for Concrete.
- U. EM 1110-2-2002 – Evaluation and Repair of Concrete Structures, U.S. Army Corps of ENGINEERS, 30 June 1993.
- V. M-47 – Standard Specifications for Repair of Concrete, U.S. Bureau of Reclamation, 1996.

#### 1.4 SUBMITTALS

Submit the following in accordance with Section 01 33 00 - Submittals:

- A. Mix designs along with supporting test data for all concrete mixes.
- B. The ENGINEER will require approved manufacturer's certification of all curing compound prior to use. Copies of the purchase orders will be furnished far enough in advance of planned use so samples of curing compound, if required, will be available to the ENGINEER to allow a testing period of at least 30 days.

## 1.5 QUALITY ASSURANCE

- A. The CONTRACTOR is fully responsible for the quality of the work and for correction of concrete work which does not conform to the specified requirements, including strength, tolerances and finishes. The CONTRACTOR will correct deficient concrete as required by these Specifications.
- B. The CONTRACTOR will submit a quality control program for concrete work meeting the requirements of Section 01 40 00 and as specified herein.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. All materials will be handled and stored in such a manner as to prevent deterioration or intrusion of foreign matter.
- B. All materials will be handled and stored so as to produce a minimum amount of segregation.
- C. Storage of aggregate on a natural ground surface will be permitted if bottom six inches of pile is discarded.
- D. Ready-mix concrete will be produced and delivered in conformance with the "Standard Specification for Ready-Mixed Concrete," ASTM C 94, as applicable, with limitations as specified in subparagraph 3.3.B.1.
- E. Concrete will meet the specified requirements for strength, mix design, and consistency. In the event the concrete as delivered does not meet the slump requirements, it will be the responsibility of the CONTRACTOR to make corrections in the mix to bring the concrete to the specified consistency. No water will be added after batching without approval of the ENGINEER.
- F. The slump of the concrete will be tested at the placement site prior to placing and if the specified slump is exceeded, the concrete is unacceptable. If, however, the slump is within the specified limits and unusual placing conditions indicate the need for additional slump, the CONTRACTOR will be allowed to increase the slump to an amount appropriate for the placing conditions, by the addition of an approved high-range water reducing chemical admixture conforming to ASTM C 494, Type F.
  - 1. The admixture will be added at the placement site and mixed with the previously mixed concrete, in accordance with the manufacturer's recommendations, only after the slump has been tested as specified above. Any addition of the high-range water reducer will require the prior written approval of the ENGINEER. Concrete will be rejected if the admixture is added prior to testing the slump at the placement site. In no case will the slump be increased by the addition of water. The addition of high-range water reducing chemical admixtures will be at the CONTRACTOR's expense.

- G. Batch out time of trucks will be indicated on the delivery tickets at the concrete plant. A copy of the delivery ticket will be given to the ENGINEER at the time of delivery. The ENGINEER will reject concrete deliveries without the batch out time indicated on the delivery ticket.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS AND/OR EQUIPMENT**

#### **A. Portland Cement**

1. Cement will conform to the "Standard Specification for Portland Cement," ASTM C 150, type II with alkali content not to exceed 0.6% (calculated as  $\text{Na}_2\text{O} + 0.658 \text{K}_2\text{O}$ ).
2. Certifications and mill-test reports for each lot of cement from which shipments are drawn will be made available upon request from the ENGINEER.

#### **B. Aggregates**

1. Fine aggregates will conform to the "Standard Specification for Concrete Aggregates," ASTM C 33.
2. Coarse aggregate will conform to the "Standard Specification for Concrete Aggregates," ASTM C 33, except coarse aggregate will not contain any materials that are deleteriously reactive with the alkalis in the cement in an amount sufficient to cause expansion of the concrete as determined by the "Standard Test for Potential Alkali-Silica Reactivity of Aggregates," ASTM C 289.
3. Coarse aggregate size will conform to ASTM C 33 size 67.
4. The CONTRACTOR will submit certified laboratory results from sieve analysis tests performed in accordance with ASTM C 136 for both the coarse and fine aggregates.

#### **C. Water**

1. Water for washing aggregates and for mixing concrete will be potable and will be free from deleterious amounts of acids, alkalis, oils, organic materials or other foreign substances. If water is not potable, a testing laboratory designated by the ENGINEER will perform a chemical analysis of the water. The costs for the chemical analysis will be at the expense of the CONTRACTOR.

#### D. Ready-Mixed Concrete

1. Unless otherwise specified herein, the concrete will comply with the standard specification for ready-mixed concrete, ASTM C 94. Where conflicts exist between the above publications and this specification, the ENGINEER will be notified and this specification will govern.

#### E. Admixtures

1. Admixtures may be used, provided the ENGINEER approves the types and amounts used.
2. Air-entraining admixtures will conform to the "Standard Specification for Air-Entraining Admixtures for Concrete," ASTM C 260. The air content will be 6 percent plus or minus 1 percent for aggregate size 67.
3. Water reducing type admixtures will conform to the "Standard Specification for Chemical Admixtures for Concrete," ASTM C 494.
4. Retarding type admixtures will conform to the "Standard Specification for Chemical Admixtures for Concrete," ASTM C 494.
5. Admixtures containing calcium chloride will not be used.

#### F. Fly ash

1. Fly ash may be used with prior approval of the ENGINEER and will be Type F, according to ASTM C 618.

#### G. Cure

1. Materials used for curing will meet the following requirements:
  - a. Water. Water used for curing will meet the applicable requirements of paragraph 2.02.C for water used in mixing and curing concrete.
  - b. Curing compound.
    - 1) Wax-base will conform to ASTM C 309, Type 2, Class A.
    - 2) Water-Emulsified, Resin-Base will conform to ASTM C 309, Type 2, Class B.
  - c. Curing compounds will be of uniform consistency and quality within each container and from shipment to shipment.



## PART 3 - EXECUTION

### 3.1 GENERAL

#### A. Proportioning of Mix

1. Concrete will be homogenous, cohesive, readily placeable and uniformly workable. The proportioning of ingredients will be such as to produce the necessary consistency, durability, strength and other required properties for the intended usage. All mix designs will be in accordance with the "Building Code Requirements for Structure Concrete and Commentary," ACI 318.
2. The mix design will be developed in accordance with the "Specifications for Structural Concrete for Buildings," ACI 301. The various mix designs will be based upon the following criteria:

USE	SPECIFIED COMPRESSIVE STRENGTH $f_c$ (PSI)	Gradation SIZE NO. <sup>1/</sup>	COARSE AGGREGATE		MAXIMUM W/C RATIO (BY WEIGHT)	ADMIXTURES
			NOMINAL SIZE RANGE	MAXIMUM SLUMP		
GENERAL USAGE	4,500	67	3/4" TO NO. 4	4	0.45	AIR ENTRAINING

<sup>1/</sup> GRADATION SIZE NUMBERS IN ACCORDANCE WITH "STANDARD SPECIFICATION FOR CONCRETE AGGREGATES", ASTM C 33, TABLE 2.

3. No change in the source, character or gradation of materials will be made without approval of the ENGINEER. The CONTRACTOR will assign mix design ID numbers to each mix type. These mix design ID's will not be changed without prior written authorization from the ENGINEER.
4. All materials will be measured in accordance with the "Standard Specification for Ready-Mixed Concrete," ASTM C 94.

#### B. Mixing of Concrete

1. Mixing of concrete at the plant site will follow procedures in the "Standard Specification for Ready-Mixed Concrete," ASTM C 94. Each plant to be used will hold a current certification meeting the national ready-mix concrete association requirements.
2. Mixing of concrete at plant off jobsite
  - a. Concrete will be mixed in a central mixer or a truck mixer and transported in a truck mixer turning at agitation speeds only, as specified by the truck manufacturer.

- b. The truck mixer(s) will conform to "Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers Bureau," of the national ready-mix concrete association.
- c. Cement may be added at the jobsite if the CONTRACTOR has submitted and received approval from the ENGINEER in writing for the proposed method of adding the cement. If approved, the CONTRACTOR will have a sufficient quantity of acceptable cement on-site to finish a complete pour.

### 3.2 PREPARATION

- A. No concrete will be placed until all formwork, installation of items to be embedded, and preparation of surfaces involved in the placement have been approved by the ENGINEER.
- B. All surfaces of forms and embedded materials will be free from curing compound, dried mortar from previous placements, and other foreign substances before the adjacent or surrounding concrete placement is begun.
- C. Prior to beginning concrete placement, the CONTRACTOR will make ready a sufficient number of properly operating vibrators and operators, and will have readily available additional vibrators to replace defective ones during the progress of the placement. The ENGINEER may require that the CONTRACTOR delay the start of the concrete placement until the number of working vibrators available is acceptable.
- D. Foundation surfaces upon or against which concrete is to be placed will be free from frost, water, mud, and debris.
- E. After this initial cleanup and at the last opportunity prior to placing concrete, concrete surface will be thoroughly washed with water or air-water jets, and will be moist, but not wet when covered with fresh concrete.
- F. The CONTRACTOR will apply epoxy bonding adhesive where shown on the drawings or when directed by the ENGINEER. The application of epoxy bonding adhesive will be in accordance with the manufacturer's instructions.

### 3.3 ERECTION/INSTALLATION/APPLICATION AND/OR CONSTRUCTION

#### A. Placing

- 1. The CONTRACTOR will notify the ENGINEER at least 24 hours before batching begins for placement of concrete. Unless inspection is waived for that specific placement, placing will be performed only in the presence of the ENGINEER. Placement will not begin until all preparations are complete.

2. All surfaces upon or against which concrete is to be placed will be prepared in accordance with Article 3.2, Preparation.
3. Retempering of concrete will not be permitted. Concrete that has become so stiff that proper placing cannot be assured will be wasted.
4. Concrete will not be placed in standing water. Concrete will not be placed in running water, and will not be subjected to running water until after the concrete has hardened.
5. Concrete will be deposited as nearly as practical in its final position and will not be allowed to flow in such a manner that the lateral movement will cause segregation of the coarse aggregate from the concrete mass. Methods and equipment employed in depositing concrete in forms will minimize clusters of coarse aggregate. Clusters that occur will be scattered before the concrete is vibrated.
6. Forms will be constantly monitored and their position adjusted as necessary during concrete placement in accordance with Section 03 11 10 – Concrete Formwork.
7. To facilitate consolidation and bond at construction joints, concrete placements will either be started with an oversanded mix or the concrete immediately beyond the joint will be vibrated with twice as much time and effort as normally needed for concrete of that consistency. The oversanded mix will be placed 2 to 6 inches deep on the joint and will contain 3/4-inch-nominal maximum size aggregate; a maximum net water- cement ratio of 0.50, by weight; 2 percent additional sand, by volume of total aggregate, based on standard 3/4-inch mix; 6 percent air, by total volume of concrete; and having a maximum slump of 4 inches.
8. In placing concrete on unformed slopes so steep as to make internal vibration of the concrete impractical without forming, the concrete will be placed ahead of a non-vibrating slip-form screed extending approximately 2-1/2 feet back from its leading edge. Concrete ahead of the slip-form screed will be consolidated by internal vibrators so as to ensure complete filling under the slip-form.
9. Care will be taken to prevent cold joints when placing concrete in any part of the work. The concrete-placing rate will ensure concrete is placed while the previously placed, adjacent concrete is plastic so that the concrete can be made monolithic by normal use of the vibrators.
10. Concrete will not be placed in rain sufficiently heavy or prolonged to wash mortar from concrete. Under such conditions, the placing area will immediately be covered and protected or the placement will be stopped as approved by the ENGINEER.

## B. Transportation

1. Normally, concrete will be deposited in its final position in the placement within 90 minutes, or before the truck drum has revolved 300 revolutions, whichever comes first, after the introduction of the mix water and cementitious materials into the mixer. Furthermore, a time limit less than 90 minutes may be invoked during hot weather or under conditions contributing to quick stiffening of the concrete. The methods and equipment used for transporting concrete from the batch plant and the elapsed time during transportation will not cause measurable segregation of coarse aggregate or slump loss exceeding 2 inches.
2. Concrete will be deposited as near as practical to its final position by use of buckets, chutes, conveyors, or concrete pumps. The use of aluminum pipe or aluminum chutes for delivery of concrete will not be permitted. Concrete buckets will be capable of promptly discharging concrete of the specified mix design, and the dumping mechanism will be capable of discharging, at one location, repeated small portions of concrete from a full bucket. Buckets and conveyors will be designed for attaching drop chutes or tremies which will be used to deposit concrete whenever the concrete must be dropped more than 10 feet from the bucket to the placing surface.
3. Concrete pumps will be equipped with slicklines having a minimum diameter of 5 inches. Pumps and slicklines will be capable of transporting concrete containing a maximum amount of coarse aggregate and a minimum amount of sand, cement, and water.
4. Buckets, chutes, hoppers, pumps, transit mix trucks, and other equipment will readily handle and place concrete of the specified slump. The CONTRACTOR will, when directed, replace inadequate transporting equipment with acceptable equipment.

## C. Consolidation

1. Concrete will be consolidated by vibration. The vibration will be sufficient to remove all undesirable air voids from the concrete, including the air voids trapped against forms and construction joints. Close attention and additional effort may be required to adequately consolidate concrete adjacent to construction joints and sloping surfaces. Such close attention and additional effort required to consolidate concrete adjacent to construction joints and sloping surfaces will be at no additional cost to the COMPANY. All concrete will be vibrated in a systematic manner and such that the radius of action of the vibrator overlaps previous vibrated concrete. No additional concrete will be placed until the previously placed layer has been thoroughly vibrated. After consolidation, the concrete will be free of rock pockets and honeycomb areas, and will be closed snugly against all surfaces of forms, construction joints, and embedments.

2. Except as hereinafter provided, consolidation of all concrete will be by immersion-type vibrators. Vibrators will be adequate in size, power, and number to quickly and effectively consolidate the concrete according to the rate of concrete placement. Immersion-type vibrators will be operated in nearly vertical position and the vibrating head will penetrate and revibrate the concrete in the upper portion of the underlying layer. Vibrators will be inserted such that they quickly penetrate the layer under the action of their own mass and will be withdrawn slowly such that the entrapped air is removed. Care will be exercised to avoid contact of the vibrating head with embedded items and with formed surfaces which will later be exposed to view.
3. Immersion-type vibrators will be operated at speeds of at least 7,000 vibrations per minute when immersed in concrete. The CONTRACTOR will immediately replace improperly operating vibrators with acceptable vibrators.

#### D. Finishes and Finishing

##### 1. General

- a. Allowable deviations from plumb or level and from the alignment, profile, grades, and dimensions shown on the drawings as specified in paragraph 3.03.F, Tolerances for Concrete Construction, are defined as "tolerances" and are to be distinguished from irregularities in finish as described herein. The classes of finish and the requirements for finishing of concrete surfaces will be as specified in this paragraph or as indicated on the drawings. The CONTRACTOR will keep the ENGINEER advised as to when finishing of concrete will be performed. Unless inspection is waived in each specific case, finishing of concrete will be performed only in the presence of the ENGINEER. Concrete surfaces will be tested by the ENGINEER where necessary to determine whether surface irregularities are within the limits hereinafter specified.
- b. Surface irregularities are classified as "abrupt" or "gradual." Offsets caused by displaced or misplaced form sheathing or lining or form sections, or by loose knots in forms or otherwise defective form lumber will be considered as abrupt irregularities, and will be tested by direct measurements. All other irregularities will be considered as gradual irregularities, and will be tested by use of a template, consisting of a straightedge or the equivalent thereof for curved surfaces. The length of the template will be 5 feet for testing of formed surfaces and 10 feet for testing of unformed surfaces.

##### 2. Formed surfaces

- a. General:

- 1) The classes of finish for formed concrete surfaces are designated by use of Symbols F1, F2, F3, and F4.
- b. Finish F1:
- 1) Finish F1 applies to formed surfaces upon or against which fill material or concrete is to be placed. The surfaces require no treatment after form removal except for repair of defective concrete and filling of holes left by the removal of fasteners from the ends of tie rods and the specified curing. Correction of surface irregularities will be required for depressions only and only for those which, when measured as described in subparagraph 3.03.D.1.b, exceed 1 inch.
- c. Finish F2:
- 1) Finish F2 applies to all formed surfaces not permanently concealed by fill material or concrete, or not required to receive Finishes F3 or F4. Surface irregularities, measured as described in subparagraph 3.03.D.1.b, will not exceed one-fourth of an inch for abrupt irregularities and one-half of an inch for gradual irregularities.
- d. Finish F3:
- 1) Finish F3 applies to formed surfaces where fill material will not be placed.
  - 2) Surface irregularities on surfaces to receive an F3 finish, measured as described in subparagraph 3.03.D.1.b, and will not exceed one-fourth of an inch for gradual irregularities and one-eighth of an inch for abrupt irregularities, except that abrupt irregularities will not be permitted at construction joints.
- e. Finish F4:
- 1) Finish F4 applies to formed surfaces for which accurate alignment and evenness of surface are of paramount importance from the standpoint of eliminating destructive effects of water action. Surfaces to receive an F4 finish are all surfaces exposed to hydraulic flow.
  - 2) Except as hereinafter provided, abrupt irregularities on surfaces to receive an F4 finish, measured as described in subparagraph 3.03.D.1.b, will not exceed one-fourth of an inch for irregularities parallel to the direction of flow, and one-eighth of an inch for irregularities not parallel to the direction of flow. Gradual irregularities, measured as described in subparagraph 3.03.D.1.b will not exceed one-fourth of an inch.

- 3) Abrupt irregularities on F4 finish will be completely eliminated by grinding on a bevel of 1:20 ratio of height to length. Grinding to a depth in excess of one-fourth of an inch will not be permitted, and any irregularity requiring grinding in excess of this limit will, in lieu of grinding, be excavated and removed to a sufficient depth below the finished grade, and the irregularity repaired in accordance with the provisions of Article 3.04, Repair, herein. If any gradual irregularity on the foregoing surfaces is greater than the specified one-quarter inch limitation, the irregularity will be reduced by grinding so that it is within the specified limit. Grinding in excess of one-fourth of an inch will not be permitted and instead such irregularities will be excavated and repaired to the required surface levels as required for abrupt irregularities. The slopes produced by grinding gradual irregularities, and the slopes of such irregularities that are steeper than the bevels specified for ground surfaces produced in eliminating abrupt irregularities, will be reduced by grinding so that they conform with such bevels. Where depressions in the finished surfaces occur, the depressions will be excavated, properly prepared, and brought to the required surface levels, in accordance with the provisions of Article 3.04, Repair, herein. Irregularities to be repaired with concrete or epoxy-bonded concrete will be saw cut 1 and ½ inches deep around the perimeter of the area. The saw cuts will be normal to the surface to provide a sharp, square surface edge; and will be parallel to the longitudinal centerline with right-angle offsets as required to approximately follow the perimeter of the area concerned.
- 4) Abrupt irregularities on F4 finish that are not parallel to the direction of flow and which are offset into the flow will not exceed one-eighth of an inch. If any such irregularity exceeds the one-eighth inch limitation, the entire irregularity will be completely eliminated by grinding on a bevel of 1:20 ratio of height to length.

3. Unformed Surfaces:

a. General:

- 1) The classes of finish for unformed concrete surfaces are designated by the Symbols U1, U2, and U3.
- 2) Interior surfaces will be sloped for drainage where shown on the Drawings or directed. Surfaces which will be exposed to the weather and which would normally be level, will be sloped for drainage. Unless the use of other slopes or level surfaces is indicated on the Drawings or directed, narrow surfaces, such as tops of walls, will be sloped approximately three-eighths of an inch per foot of

width; broader surfaces, such as top surfaces of nearly horizontal slabs, will be sloped approximately one-fourth of an inch per foot.

b. Finish U1 (screeded finish):

- 1) Finish U1 applies to unformed surfaces that will be covered by fill material or by concrete. Finish U1 is also used as the first stage of Finishes U2 and U3. Finishing operations will consist of sufficient leveling and screeding to produce even uniform surfaces. Surface irregularities, measured as described in subparagraph 3.03.D.1.b, will not exceed three-eighths of an inch.

c. Finish U2 (floated finish):

- 1) Finish U2 applies to unformed surfaces not permanently concealed by fill material or concrete, or not required to receive Finish U1 or U3. Finish U2 is also used as the second stage of Finish U3. Floating may be performed by use of hand- or power-driven equipment. Floating will be started as soon as the screeded surface has stiffened sufficiently, and will be the minimum necessary to produce a surface that is free from screed marks and is uniform in texture.
- 2) If Finish U3 is to be applied, floating will be continued until a small amount of mortar without excess water is brought to the surface, so as to permit effective troweling. The surface will be broomed upon completion of trowelling to provide a non-slip surface in walkways, stoops and aprons as directed by the ENGINEER.
- 3) Surface irregularities, measured as described in subparagraph 3.03.D.1.b will not exceed one-fourth of an inch. Joints and edges will be tooled where shown on the Drawings or directed.

d. Finish U3 (troweled finish):

- 1) Finish U3 applies to concrete surfaces exposed to hydraulic flow.
- 2) When the floated surface has hardened sufficiently to prevent excess of fine material from being drawn to the surface, steel troweling will be started. Steel troweling will be performed with firm pressure so as to flatten the sandy texture of the floated surface and produce a dense, uniform surface free from blemishes and trowel marks.
- 3) Except as hereinafter provided, surface irregularities, measured as described in subparagraph 3.03.D.1.b, will not exceed one-fourth of an inch. Abrupt irregularities on surfaces to receive a U3 finish will



be completely eliminated by grinding on a bevel of 1:20 ratio of height to length. Grinding to a depth in excess of one-fourth of an inch will not be permitted, and any irregularity requiring grinding in excess of this limit will, in lieu of grinding, be excavated and removed to a sufficient depth below the finished grade, and the irregularity repaired in accordance with the provisions of Article 3.04, Repair, herein. If any gradual irregularity on the foregoing surface is greater than the specified one-fourth inch limitation, the irregularity will be reduced by grinding so that it is within the specified limit. Grinding in excess of one-fourth of an inch will not be permitted and, instead, such irregularity will be excavated and repaired to the required surface levels as required for abrupt irregularities. The slopes produced by grinding gradual irregularities, and the slopes of such irregularities that are steeper than the bevels specified for ground surfaces produced in eliminating abrupt irregularities, will be reduced by grinding so that they conform with such bevels.

- 4) Where depressions in the finished surfaces occur, the depressions will be excavated, properly prepared, and brought to the required surface levels, in accordance with the provisions of Article 3.04, Repair, herein. Irregularities to be repaired with concrete or epoxy-bonded concrete will be saw cut 1 and ½ inches deep around the perimeter of the area. The saw cuts will be normal to the surface to provide a sharp, square surface edge; and will be parallel to the longitudinal centerline with right-angle offsets as required to approximately follow the perimeter of the area concerned. Abrupt irregularities that are not parallel to the direction of flow and which are offset into the flow will not exceed one-eighth of an inch. If any such irregularity exceeds the one-eighth inch limitation, the entire irregularity will be completely eliminated by grinding on a bevel of 1:20 ratio of height to length.

## E. Curing

### 1. General

- a. The CONTRACTOR will furnish all materials and perform all work required for curing concrete.
- b. Concrete will be cured either by water curing or by the use of white wax-base curing compound except as otherwise provided below.
- c. Surfaces of concrete that will remain prominently exposed will be cured by the use of a clear, resin-base curing compound, either CRC-101 or water-emulsified, resin-base curing compound.

- d. Surfaces of construction joints will be water cured or cured by covering with polyethylene film or cured by the use of white wax-base or white water-emulsified, resin-base curing compound. Immediately prior to placement of concrete or grout on or against these surfaces, concrete will be prepared in accordance with article 3.02, preparation.
- e. Contraction joint surfaces and control joint surfaces will be cured by the use of wax-base curing compound. All extraneous concrete accretions and other foreign materials will be removed from the surfaces of contraction joints and control joints to provide a smooth, clean surface prior to application of the curing compound.
- f. All concrete surfaces will be treated as specified to prevent loss of moisture from the concrete until the required curing period has elapsed or until immediately prior to placement of other concrete or backfill against those surfaces. Only sufficient time to prepare construction joint surfaces and to bring them to a surface-dry condition will be allowed between discontinuance of curing and placement of adjacent concrete.
- g. As soon as unformed concrete surfaces have been finished, as specified, and have attained a dull appearance free from bleed water and moist sheen, they will be treated as specified herein.
- h. Forms will be removed carefully to prevent surface damage. Where required, repair of all minor surface imperfections will be made immediately after form removal. Minor surface repair will be completed within 2 hours after form removal and will be immediately followed by the initiation of curing by the applicable method specified herein. Concrete surfaces will be kept continuously moist after form removal until initiation of curing.

## 2. Water Curing

- a. Concrete cured with water will be kept wet for at least 7 days from the time the concrete has attained sufficient set to prevent detrimental effects to the concrete surfaces. The concrete surfaces to be cured will be kept wet by covering them with water-saturated material; by using a system of perforated pipes, mechanical sprinklers, or porous hose; or by other methods which will keep all surfaces continuously (not periodically) wet. All curing methods are subject to approval by the ENGINEER.

## 3. Curing with wax-base or water-emulsified, resin-base compound

- a. Curing by wax-base or water-emulsified, resin-base curing compound will be by application to designated concrete surfaces to provide a water-retaining film. The curing compound will be reapplied as necessary to maintain a

continuous, water-retaining film on the surface for 28 days. The curing compound will be mixed thoroughly and spray applied to the concrete surfaces in one coat to provide a continuous, uniform film over the concrete. The coverage rate will not exceed 125 square feet per gallon. On rough surfaces, the coverage rate will be decreased as necessary to obtain the required continuous film. Special care will be taken to ensure ample coverage with the compound at edges, corners, and rough surfaces; and to keep curing compound off waterstops and reinforcing bars. Equipment for applying curing compound and the method of application will be in accordance with the provisions of Chapter VI of the Eighth Edition - 1981 revised reprint of the Bureau of Reclamation "Concrete Manual."

- b. In order to assure bond of curing compound, the CONTRACTOR will, where and as directed by the ENGINEER, remove excessive form oil from concrete surfaces by washing with a solution of trisodium phosphate, followed by a thorough rinsing of the surfaces with clear water. The trisodium phosphate wash will be required when it is determined by the ENGINEER that the amount of form oil on the concrete will impair the bond of the curing compound or when surfaces are exposed to public view.
- c. Where curing compound is to be applied, formed concrete surfaces will be kept continuously moist by repeated light spraying with water until immediately prior to application of curing compound. Curing compound will be applied as soon as the surface film of moisture has disappeared, but while the concrete still has a damp appearance.
- d. After application of the curing compound has been completed and the coating is dry to touch, all remaining required concrete repairs will be performed without delay in accordance with article 3.04. Completed repairs will be moistened and coated with curing compound in accordance with the foregoing requirements.

#### 4. Protection of curing membranes

- a. Curing compound membranes will be maintained to provide a moisture proof membrane for curing concrete for the minimum period specified. Curing compound that is damaged, or that peels from concrete surfaces within 28 days after application, will be repaired without delay by moistening the concrete and applying additional compound in a manner satisfactory to the ENGINEER.
- b. Polyethylene film curing will be sustained for at least 7 days. The polyethylene film will be protected as necessary to keep it intact, and the concrete surface will be kept moist for the full curing period.

- c. Where foot traffic or other construction activity is necessary on concrete being cured by curing compound or polyethylene film, the curing membrane will be protected by covering with sand or earth not less than 1 inch thick, with plywood, or by other effective means approved by the ENGINEER. Protective covering will not be placed on curing compound until the compound is dry. The CONTRACTOR will remove protective coverings before final acceptance of the work.

#### F. Tolerances for Concrete Construction

1. Tolerances are defined as allowable variations from specified lines, grades, and dimensions and as the allowable magnitude of surface irregularities. Allowable variations from specified lines, grades, and dimensions are the permissible variations recommended in ACI 117, Standard Specifications For Tolerances For Concrete Construction And Materials.
2. Allowable magnitudes for concrete surface irregularities are given in paragraph 3.03.D, finishes and finishing.
3. The intent of this paragraph is to establish tolerances that are consistent with modern construction practice, yet are governed by the effect that permissible variations may have upon a structure. The ENGINEER reserves the right to diminish the tolerances set forth herein if such tolerances impair the structural action, operational function, or architectural appearance of a structure or portion thereof.
4. The CONTRACTOR will be responsible for finishing the concrete and for setting and maintaining concrete forms to ensure that the completed work will be within the tolerances specified. Concrete work that exceeds the tolerance limits specified will be remedied as approved by the ENGINEER.

#### G. Hot Weather Concreting

1. During any combination of high temperature, low relative humidity, and wind velocity which will tend to impair the quality of fresh or hardened concrete, increased diligence and coordination will be used in minimizing mixing and delivery times and water contents. It is recognized that during hot weather the rate of slump loss is increased; however, in no case will the maximum water to cement ratio for a given concrete strength be exceeded to achieve the specified slump.
2. Admixtures to reduce water requirements or to retard the setting time of the concrete will be used only with written approval of the ENGINEER. Admixtures of this type will meet the requirements of paragraph 2.02.E.

3. The CONTRACTOR will conform to "Hot Weather Concreting," ACI 305R, as required to insure that the concrete temperature at the time of placement is below 90°F.

#### H. Cold Weather Concreting

1. The CONTRACTOR will conform to "Cold Weather Concreting," ACI 306R.

### 3.4 REPAIR

- A. Concrete will be repaired in accordance with this paragraph and Bureau of Reclamation "Standard Specifications for Repair of Concrete," dated August 1996, 1982, or as directed by the ENGINEER.
- B. Minor formed surface repairs, such as burlap sack rubbing or surface grinding, will be completed within 2 hours after form removal. Dry-pack, concrete placement less than 10 inches thick, and Portland cement mortar repairs will be completed within 7 days of the original concrete placement or will utilize approved epoxy-resin bonding systems. Repairs involving epoxy-resin bonding systems will be performed after 7 days and before 60 days from the original placement. Concrete replacement over 10 inches thick and all other repairs will be completed within 60 days after the original placement.
- C. Recesses resulting from removal of tie rod ends will be filled with dry pack or other approved material unless the recesses are later to be covered by concrete; or are later to be covered by fill material and are above the maximum water table elevation.
- D. When concrete surfaces are repaired with epoxy-bonded epoxy mortar, the surfaces of the finished epoxy mortar will, in areas visible to the public, be lightly ground or otherwise prepared to eliminate gloss and produce a surface color and texture that closely matches the surrounding concrete surfaces.
- E. The CONTRACTOR will submit samples of epoxy-bonding agent and graded sand for use in mix design of epoxy mortar in accordance with the "Standard Specifications for Repair of Concrete," dated August 1996.

### 3.5 FIELD QUALITY CONTROL

## A. Testing

1. The ENGINEER shall, at his discretion, require concrete samples from which test cylinders will be formed. Concrete sampling for tests will be done in accordance with the "standard practice for sampling freshly mixed concrete," ASTM C 172. The samples will be taken directly from the transit mix trucks.
2. Concrete will be tested by the CONTRACTOR's testing agency. The activities of the CONTRACTOR's testing agency shall in no way relieve the CONTRACTOR of the responsibility to furnish materials and construction in full compliance with the Specifications. The CONTRACTOR shall perform those tests as required to document compliance with the Specification requirements.
3. Compression test specimens will be taken during construction from the first placement of each class of concrete specified herein and at intervals thereafter as selected by the ENGINEER to insure continued compliance with these specifications. Each set of test specimens will be a minimum of 4 cylinders.
4. Compression test specimens for concrete will be prepared in accordance with ASTM C 39. Specimens will be 6 inches in diameter by 12 inches high cylinders.
5. Compression tests will be performed in accordance with ASTM C 39. One test cylinder will be tested at 7 days and 2 at 28 days. The remaining cylinder will be held to verify test results, if needed. The CONTRACTOR may obtain additional cylinders for testing to facilitate removal of formwork at other intervals at his expense.
6. Slump tests will be performed in accordance with the "standard test method for slump of hydraulic cement concrete," ASTM C 143.
7. Air tests will be performed in accordance with the "standard test method for air content of freshly mixed concrete by the pressure method," ASTM C 231.
8. Additional concrete tests may be conducted, as required by the ENGINEER.
9. The ENGINEER may, at his discretion, require a representative sample of the sand and coarse aggregate be made available at the ready-mix plant for a sieve analysis.
10. The CONTRACTOR will provide access to the plant for inspection of materials and equipment used in the concrete, upon request from the ENGINEER.

## B. Potentially low-strength concrete

1. Defined as concrete whose 7-day break is less than 70% of the specified minimum 28-day compressive strength.
2. Potentially low-strength concrete will remain accessible with no other work performed that relates to, or depends upon, the questionable concrete until the ENGINEER makes a final decision as to the disposition of the concrete.

C. Compliance with strength provisions

1. If the strength of the 7-day test is less than 70% of the minimum 28-day compressive strength, the CONTRACTOR may at his discretion and expense, with approval from the ENGINEER, take a minimum of three field cores on the 15th day after placement of the potentially low-strength concrete. Within 24 hours, the CONTRACTOR will have a laboratory, designated by the ENGINEER, test these cores in accordance with the "standard test method for obtaining and testing drilled cores and sawed beams of concrete," ASTM C 42. The potentially low-strength concrete will be accepted if the average of the core tests is 85% or greater of the specified 28-day compressive strength.

D. Acceptance of concrete

1. The ENGINEER may conduct a current statistical evaluation of the concrete quality in accordance with the "recommended practice for evaluation of strength test results of concrete," ACI 214. The evaluation will begin when five sets of 7 and 28-day tests have been performed.
2. Should the statistical data indicate an unacceptable combination of average strength and standard deviation, the CONTRACTOR will take immediate corrective action.
3. The ENGINEER will reject concrete not meeting these specifications.

### 3.6 PROTECTION

- A. The CONTRACTOR will protect all concrete against damage until final acceptance by the ENGINEER. Concrete will not be loaded, forms and shoring will not be removed, and backfill will not be placed against concrete until the concrete has gained sufficient strength to safely support its weight and all imposed loads.
- B. Fresh concrete will be protected against: erosion from rain; host damage; contamination from foreign materials; and damage from foot traffic until the concrete has hardened. Methods of protection will be subject to approval by the ENGINEER. When precipitation appears imminent, the CONTRACTOR will immediately make ready, at the placement site, all materials that may be required for protection of concrete. The ENGINEER may delay placement of concrete until adequate provisions for protection against weather are made. Concrete curing membranes will be kept

intact, and other curing materials and processes will be maintained as necessary to assure continuous curing for the minimum specified curing time.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.1 Measurement**

- A. Measurement for payment for concrete will be made of the volume of concrete placed within the lines and dimensions shown on the drawings or as otherwise directed.
- B. No deductions will be made for rounded or beveled edges or space occupied by metalwork nor for voids or embedded items which are either less than five cubic feet in volume or one square foot in cross section. No deduction will be made for approved temporary openings, drains, embedded pipes or recesses created by CONTRACTOR for his own convenience during construction provided they are filled. No measurement will be made for concrete wasted nor for concrete used to replace material excavated for CONTRACTOR's convenience.
- C. No measurement for payment for concrete placed to facilitate the CONTRACTOR's operations will be made.
- D. Concrete wasted at the site will be estimated by the ENGINEER and recorded for a check on concrete produced versus concrete used less waste.

### **4.2 Payment**

- A. Payment for concrete will be made at the applicable unit prices per cubic yard bid therefor in the Bid Schedule, which price shall include all costs.
- B. The price for concrete shall include the cost of all materials, equipment and labor required to complete the concrete work, including testing, batching, mixing, transporting, placing, curing and repair of concrete, but excluding those items of work which are specified to be paid separately in other sections of the Specifications.

END OF SECTION



## SECTION 03 37 20

### THIN BONDED POLYMER OVERLAY

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Furnishing and installing thin bonded polymer overlay system applied to north dam crest repair area D1.

##### 1.2 RELATED SECTIONS

- A. Section 03 01 10 Concrete Repair
- B. Section 03 81 10 Concrete Removal

##### 1.3 REFERENCES

- A. ASTM C 25: Chemical Analysis of Limestone, Quicklime, and Hydrated Lime
- B. ASTM C 88: Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
- C. ASTM C 131: Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
- D. ASTM C 566: Total Evaporable Moisture Content of Aggregate by Drying
- E. ASTM C 579: Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes
- F. ASTM C 881: Epoxy-Resin-Base Bonding Systems for Concrete
- G. ASTM D 570: Water Absorption of Plastics
- H. ASTM D 638: Tensile Properties of Plastics
- I. ASTM D 790: Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- J. ASTM D 2240: Rubber Property – Durometer Hardness
- K. ASTM D 4285: Indicating Oil or Water in Compressed Air
- L. ASTM D 4580: Measuring Delaminations in Concrete Bridge Decks by Sounding
- M. ASTM D 5821: Determining the Percentage of Fractured Particles in Coarse Aggregate
- N. ASTM D 6928: Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus
- O. American Concrete Institute (ACI)

- P. International Concrete Repair Institute (ICRI)

#### 1.4 DEFINITIONS

- A. Polymer Overlay System – A thin bonded polymer overlay applied as a wearing surface consisting of a two-part polymer resin broadcasted with aggregate to refusal before it cures
- B. Installer – The entity preparing the surface and installing and finishing the polymer overlay system
- C. Provider – The manufacturer furnishing the polymer overlay system

#### 1.5 SUBMITTALS

- A. Provider Qualifications for review at least 10 calendar days before ordering material.
  - 1. Include at least the following:
    - a. Company name
    - b. Name, phone number and experience of the Provider's Technical Support Representative
    - c. List of projects using the submitted products with at least two years of satisfactory performance under similar environmental conditions as the project in which it is to be applied. Refer to this Section, Article 1.6 B. List the following for each project:
      - 1) Project name
      - 2) Project locations
      - 3) Scope of work
      - 4) Products used
      - 5) Approximate date of completion
- B. Materials
  - 1. The following information for review at least 10 calendar days before ordering material:
    - a. Manufacturer's Product Data Sheets and recommended installation instructions
    - b. Material Safety Data Sheets
    - c. The Provider's certification stating that the provider is the sole provider of the components of the polymer overlay system and that the components:
      - 1) Comply with this Section
      - 2) Are fully compatible with one another
    - d. The Installer's certification with the Provider's written concurrence that the polymer overlay system is fully compatible with all dam crest concrete repair materials

- 1) Include cure duration recommended for the dam crest concrete repair material before application of the polymer resin.
  2. Certified test report for information from an independent nationally recognized laboratory stating that the polymer resins in the polymer overlay system components meet the requirements in this Section
    - a. Test results must be from within a three-year period of the submittal.
  3. Certified Test Report for information from an accredited testing laboratory confirming the compliance of the aggregate material with the test requirements of this Section
    - a. Test results must be from within a one-year period of the submittal.
  4. Manufacturer's product data sheets and installation instructions for steel shot media, for information
- C. Method for mixing the polymer resins for information
1. The Provider's written concurrence that the selected mixing method is acceptable and compatible with the polymer overlay system.
  2. Mixing ratio of the polymer resins.
- D. A warranty letter stating that the Contractor guarantees the polymer overlay system against material and installation defects incurred under traffic for a period of 5 years.
1. The guarantee period starts on the date of Physical Completion.
  2. Include in the letter:
    - a. Project Designation
    - b. Project Name
    - c. Project Owner Name
    - d. Contractor, Provider, and Installer Name
  3. Defects (performance failures) include:
    - a. Spalling: Broken or missing pieces of polymer overlay system
    - b. Scaling: Visible, exposed, rough surface texture resulting from a loss of aggregate or resin
    - c. Delamination: Visible or audible debonding of the polymer overlay system at the bond line (interface) with the existing structure receiving surface
    - d. Cracking: Visible cracks not reflected from a crack in the existing dam crest concrete
  4. The guarantee covers 100 percent of the polymer overlay system materials and installation costs including removal and replacement of the polymer overlay system for failed sections.

5. The Village of Ruidoso (VOR) will notify the Contractor of defects to be repaired during the guarantee period.
  - a. Submit detailed plans and procedures of corrective work according to Provider's recommendations and obtain the Village of Ruidoso's authorization before commencing work.
  - b. Perform corrective work within 60 days of notification.
- E. Survey monument location verification letter signed and stamped by a professional surveyor licensed by the State of New Mexico.

## **1.6 QUALITY CONTROL**

- A. Technical Support Representative
  1. Provide a Technical Support Representative from the Provider onsite during surface preparation and application of the polymer overlay system on the first day the polymer overlay system is installed on a structure.
    - a. The Technical Support Representative must have a minimum of 3 years of experience with the system and with guiding and assisting installers in the polymer overlay system installation.
    - b. The Technical Support Representative will instruct the workers in proper mixing, application technique, safety precautions, traffic opening time, and environmental requirements.
    - c. The Technical Support Representative must be available for consultation but not necessarily present at the job site for the remaining work.
    - d. The Village of Ruidoso reserves the right to require the Technical Support Representative to be onsite if at any time the ENGINEER is concerned with the product installation quality.
- B. Prior Performance
  1. The selected polymer overlay system must have at least two years of satisfactory performance for non-interstate use and four years of satisfactory performance for interstate use in similar environmental conditions as the project in which it will be applied.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Polymer Resin
  1. Identify the containers as Part A and Part B and plainly mark with:
    - a. Manufacturer's name
    - b. Manufacturer's address
    - c. Name of the product
    - d. Mixing proportions and instructions

- e. Lot and batch numbers
  - f. Date of manufacture
  - g. Quantity
  - 2. Transport to and store on the job site in a dry, weather protected environment away from moisture, and within the maintained temperature range of 60 to 100 degrees F and according to Provider's recommended installation instructions.
- B. Broadcast Aggregate
- 1. Store aggregate in a clean, dry location, protected from rain and other moisture sources.
  - 2. Protect the aggregate from contaminants on the job site.
- C. Handling Liquid Materials
- 1. Use protective gloves, clothing, boots, and goggles when directly exposed to the material.
  - 2. Provide manufacturer's safety data sheets to workers and inspectors.

## **PART 2 PRODUCTS**

### **2.1 POLYMER OVERLAY SYSTEM**

- A. Use a thin bonded polymer overlay system that chemically cures to provide an impervious wearing surface consisting of the following:
- 1. Penetrating Crack Filler
  - 2. Polymer Resin
  - 3. Broadcast Aggregate
- B. Penetrating Crack Filler
- 1. Provide a penetrating crack filler as required by the Provider.
- C. Polymer Resin
- 1. Two-part Epoxy-Urethane Co-Polymer (Type 1) that meets the requirements of Table 1, SikaDur-22 Lo-Mod FS or Approved Equal
  - 2. Free of fillers, volatile solvents, and external/conventional flexibilizers.

Table 1

<b>PHYSICAL PROPERTIES OF THE CURED POLYMER RESIN</b>		
<b>Property</b>	<b>Value</b>	<b>Method</b>
Compressive Strength, min. psi	9,000	ASTM C 579 (Method A)
Tensile Strength, min. psi	2,650	ASTM D 638
Tensile Elongation, min. percent	30-80	ASTM D 638
Water Absorption, max. percent by wt.	>0.20	ASTM D 570
Shore D Hardness, min. 77°F	60-75	ASTM D 2240
Gel Time @ 73°F +/- 3°F, minutes	15-45	ASTM C 881
Adhesion to Concrete	100% failure in concrete	ACI-503-R, Pull Out Test
Flexural Yield Strength, min. psi	3,000	ASTM D 790
Percent Solids	100	

D. Broadcast Aggregate

1. Use ASTM C33 sand.
2. Thoroughly washed and kiln dried to maximum moisture content of 0.2 percent by weight according to ASTM C 566.
3. Use broadcast aggregate meeting the properties in Table 2 and the gradation in Table 3.

Table 2

<b>AGGREGATE PROPERTIES</b>	
Magnesium Sulfate Soundness, ASTM C 88 (5 cycles)	15% max.
LA Abrasion, Grade D, ASTM C 131	20.0% max.
Micro Deval Abrasion, ASTM D 6928	10.0% max.
Mohs Scale Hardness	7.0 min.

Table 3

AGGREGATE GRADATION	
Sieve Size	Percent Passing
0.187 inch; No.4	95-100
0.094 inch; No.8	80 – 100
0.046 inch; No.16	50 – 85
0.024 inch; No. 30	25-60
0.012 inch; No. 50	10-30
0.006 inch; No. 100	2-10

## 2.2 EQUIPMENT

- A. Metered Mixing
  - 1. Use equipment capable of metering, mixing, and distributing the polymer resin.
    - a. Use equipment that features positive displacement volumetric metering pumps controlled by a hydraulic power unit.
    - b. Use motionless, in-line mixing.
  - 2. Use equipment that is approved by the Provider.
  
- B. Hand Mixing
  - 1. Use equipment that is approved by the Provider.
  
- C. Polymer Resin Application
  - 1. Use new <sup>3</sup>/<sub>16</sub>-inch notched squeegee blades for the first layer on each structure.
    - a. Replace notched squeegee if coverage rate does not meet Provider’s recommendations.
  
- D. Broadcasting Aggregate
  - 1. Use mechanical equipment capable of dispensing the aggregate onto the dam crest concrete in a uniform manner as required by the Provider and as specified.

## 2.3 SHOT BLASTING

- A. Use S-390 or larger steel shot media.

## **PART 3 EXECUTION**

### **3.1 SURFACE PREPARATION**

- A. Remove four survey monuments on the north dam crest.
- B. Shot-blast concrete surface to produce a surface relief that meets the ICRI Surface Preparation CSP 5.
  - 1. Use sandblasting equipment or mechanical grinders only in areas that cannot be reached with steel shot-blasting.
    - a. Sandblast or grind before shot-blasting operation.
    - b. Use compressed air free of oil and water. Refer to ASTM D 4285.
  - 2. Refer to <http://www.udot.utah.gov/go/standardsreferences> for a CSP Examples document.
- C. Verify the entire concrete surface is clean of oil, dirt, rubber, and other materials that may be detrimental to the polymer overlay bonding and curing according to the Provider's recommendations.
- D. Protect expansion joints, cold joints, grates, drains and other elements which may not perform adequately if in contact with hardened resin.
- E. Do not allow traffic on the dam crest concrete that has been shot-blasted.
  - 1. Only allow the polymer overlay system equipment on cleaned surfaces.

### **3.2 APPLICATION**

- A. Concrete Surface
  - 1. Complete dam crest concrete repairs and surface preparation before applying the polymer overlay system.
  - 2. Verify the concrete substrate is dry before applying the polymer overlay system.
    - a. Measure moisture content with an electronic concrete moisture meter at three locations on the dam crest concrete to be covered by the polymer overlay system.
      - 1) Take measurements at the beginning, middle, and end of the coverage area.
    - b. Measure moisture content with a concrete moisture meter at each structural pothole patch location to be covered by the polymer overlay system.
    - c. Do not apply the polymer overlay system if one or more measurements exceed 4.0 percent.



3. Do not apply the polymer overlay system when it has rained within 24 hours or is expected to rain within 8 hours of application.
4. Apply a penetrating crack filler as required by the Provider.

B. Mixing Polymer Resin

1. Measure and mix the polymer resin components as recommended by the Provider.
  - a. Maintain mix ratios according to the Provider's recommendations.
2. Mix polymer resin immediately before dispensing.
3. Verify the mix ratio by volumetric sampling at the beginning of the application, mid operation, and at the end of the application of each layer.
  - a. Use containers with graduated markings with not less than 5 gallon capacity.
  - b. Remove the static mixer and dispense each component into separate containers.
    - 1) Dispense at least five gallons of the primary component for ratio comparison.
    - 2) Uncontaminated samples may be returned to the reservoirs they were originally dispensed from.
  - c. The ENGINEER or Technical Support Representative may request additional sampling.

C. Application of Polymer Resin

1. Evenly distribute the polymer resin at the rate recommended by the Provider.
2. Apply the polymer overlay system when the dam crest concrete is at least 50 degrees F and ambient air temperature is not forecast to fall below 50 degrees F during the application and cure of the polymer overlay system.

D. Broadcasting Aggregate

1. Broadcast the aggregate before the polymer begins to gel.
  - a. Do not exceed the maximum time limits in Table 6 between the application of polymer resin and broadcasting the aggregate, unless otherwise directed by the provider's Technical Representative.

Table 6

Temperature	Maximum Time
Above 90°F	10 minutes
80°F to 90°F	15 minutes
70°F to 80°F	20 minutes
60°F to 70°F	25 minutes
50°F to 60°F	35 minutes

2. Cover the surface until no wet spots remain.
3. Drop the aggregate vertically.

E. Remove Excess Aggregate

1. Completely remove excess and loose aggregate by vacuum or with compressed air after the overlay has hardened and before applying subsequent layers. Refer to ASTM D 4285.
2. Do not reuse removed excess aggregate for subsequent layers unless the following criteria is met:
  - a. Aggregate is removed directly into containers
  - b. Aggregate is screened to required gradation specified in Table 3
  - c. Aggregate is stored free of contaminants

F. Apply Successive Layer of Overlay

1. Provide at least two layers.
2. Maintain straight construction joints between adjacent placements and lifts.
3. Provide a total overlay thickness of at least  $\frac{3}{8}$  inch when using Basalt aggregate.

G. Traffic

1. Do not allow vehicles on the polymer overlay while it is curing.
2. Traffic may be allowed on the final layer or on non-final layers after the resin has cured, as determined by the Provider
  - a. Remove excess and loose aggregate before allowing traffic on the thin bonded polymer overlay system.
  - b. Brush blast the surface with shot blast according to the Provider's recommendations before applying additional layers when traffic has been allowed on the cured surface between layers.

### **3.3 LIMITATIONS**

- A. Application over new surfaces
  - 1. Allow newly placed concrete to cure for at least 28 calendar days before beginning installation of polymer overlay system.
  - 2. Allow newly placed rapid setting mortar materials to cure for at least eight hours, or as recommended by the rapid setting mortar manufacturer, before beginning installation of polymer overlay system.
- B. Prevent material and debris from falling into streams, pedestrian areas, live traffic, or railroad tracks.

### **3.4 POLYMER OVERLAY**

- A. Locate and mark polymer overlay areas as shown on the plans and in the presence of the ENGINEER.
- B. Prepare the dam crest concrete surface within the repair area according to this Section, Article 3.1.
- C. Apply the polymer overlay system within the overlay area according to this Section, Article 3.2.
- D. Reinstall four survey monuments on the north dam crest. The monuments shall be located at the original locations and the locations' northing, easting, and elevation shall be verified, in writing, by a professional surveyor licensed by the State of New Mexico.

## **PART 4 MEASUREMENT AND PAYMENT**

### **A. MEASUREMENT**

Measurement for furnishing and placing two layers of the thin bonded polymer overlay will be made of the actual quantity in square yards complete-in-place and accepted.

### **B. PAYMENT**

Payment for furnishing and placing the two layers of thin bonded polymer overlay will be full compensation for all labor, materials, tools, equipment, disposal of unused materials and incidentals required to prepare the concrete substrate surface and complete application of the overlays. Payment will be made at the unit price bid per square yard in the Bid Schedule for furnishing and placing the thin bonded polymer overlay on the north dam crest in repair area D1.

END OF SECTION

**SECTION 03 81 10**  
**CONCRETE REMOVAL**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- A. Removal of deteriorated concrete areas from principal spillway chute.
- B. Removal of deteriorated concrete facing panels at bottom of principal spillway chute.
- C. Removal of deteriorated concrete from north dam crest.
- D. Removal of deteriorated concrete curbs from north dam crest.
- E. Surface preparation.
- F. Containment and disposal of materials resulting from removal operations.

**1.2 REGULATORY REQUIREMENTS**

- A. Conform to federal, state and local codes and these specifications for disposal of debris.

**1.3 REFERENCES**

- A. International Concrete Repair Institute (ICRI), Selecting and Specifying Concrete Surface Preparation for Sealers, Coating, Polymer Overlays, and Concrete Repair.
- B. Grindstone Canyon Dam Spillway and North Dam Crest Condition Assessment, prepared by Yeh Associates, Inc. and Hutton Consulting, Inc., November 2022.
- C. Grindstone Canyon Dam Record Drawings, February 1987.

**1.4 SUBMITTALS**

- A. Submit proposed plan for removal, containment and disposal of concrete not more than 14 days following the date of Notice to Proceed. Include project names and locations of three similar projects within the past five years and name of engineer/architect.

**PART 2 – PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. CONTRACTOR in the presence of the ENGINEER will determine the extent of concrete removal in the field. Approximate lines of concrete removal may be shown on the drawings.
- B. According to the technical specifications for construction of the project, aggregate size is expected to be ¾-inch maximum for slabs and sections 8 inches thick or less. Aggregate size is expected to be 1-1/2 inches maximum for all larger slabs and sections.
- C. Limits of deteriorated concrete will be determined by visual examination, tapping the concrete surface with a hammer or steel rod, or other means and by reference to the approximate limits shown in the Grindstone Dam Spillway and North Dam Crest Condition Assessment Report.
- D. CONTRACTOR and ENGINEER will mark lines on the concrete which shall be the limits of concrete removal. CONTRACTOR shall provide practicable means for the ENGINEER to access and mark the limits of concrete removal on the Principal Spillway chute surface.

### **3.2 CONCRETE REMOVAL**

- A. CONTRACTOR shall use procedures for removing existing concrete that are approved by the ENGINEER. Care shall be taken in removing existing concrete so as not to damage underlying or adjacent concrete. If previously approved methods result in damage to the remaining concrete or concrete that, in the opinion of the ENGINEER is objectionable, the method of excavation shall be modified. The modified excavation procedures are also subject to approval by the ENGINEER. Separate approval is required for each area where removal of existing concrete is to be performed.
- B. Removal of existing concrete by blasting will not be permitted. The CONTRACTOR shall be prepared to handle removal of miscellaneous metal items embedded in the concrete.
- C. After the areas for removal are marked out, saw cut the perimeter, as directed, to a minimum depth of 1 inch and at a right angle to the surface. The equipment used for saw cutting shall be capable of producing a sharp edge and will be subject to approval of the ENGINEER. Use a concrete slab saw and diamond blades. Remove the remaining concrete to the saw cut. Ensure saw cuts are straight and maintain changes in direction at a minimum. Minimize the number of saw cut corners. Saw cuts shall not meet at acute angles. Coring the corners prior to sawing shall be performed to provide a radius at corners. No over-cuts at corners will be permitted.

- D. Remove deteriorated concrete on the spillway (repair areas S1 to S11) and the curbs on the north dam crest (repair area D2) with scabbers, scarifiers, chipping hammers, rotomilling, diamond grinding, hydraulic concrete splitters, or high-pressure water jet (6,000 psi minimum and 25,000 psi maximum), or other approved method that will produce a roughened concrete surface. Pointed gads shall be used with pneumatic hammers. Chisel gads will not be allowed. Grinding and bush hammering shall not be used for concrete removal. Removal should begin at the interior of the repair area and progress toward the boundaries. Removal shall be performed using 30-lb hammers for the interior and 15-lb hammers for around reinforcing and near boundary edges. Remove to depth approved by ENGINEER which, in general, will not be more than necessary to reach sound concrete.
- E. Remove deteriorated concrete on the north dam crest (repair area D1) between the parapet wall and the curbs and the drainage openings between the curbs using abrasive blasting or other approved method that will produce an acceptable roughened concrete surface for the approved coating. See specification Section 03 37 20 Thin Bonded Polymer Overlay for additional concrete removal information.
- F. Preserve any reinforcement and other embedded metalwork exposed during removal unless otherwise directed. Remove loose concrete and all undesirable coatings from exposed reinforcement and metalwork by sandblasting prior to repairing.
- G. Where more than 1/3 of the diameter of a reinforcing bar is exposed by removal of concrete to required depth, remove additional concrete to minimum depth of 2 inches below the bar .
- H. Concrete removal shall be performed in such a manner that the existing facilities and installations at each site are protected at all times from damages that may be caused due to these activities. Special care shall be provided to protect existing equipment.
- I. Any concrete outside the required lines of removal damaged during construction shall be removed and replaced with sound concrete or other approved repair material as directed by the ENGINEER by and at the expense of the CONTRACTOR.

### **3.3 CONCRETE SURFACE PREPARATION**

- A. All existing concrete surfaces to receive coating, overlays or additional lifts of concrete or other repair material shall be cleaned, roughened, and all laitance removed in preparation for placing adjoining concrete. Methods of roughening surfaces and removing laitance may include mechanical abrasion or cutting, sandblasting, acid etching, or high-pressure water jetting of hardened (not green) concrete. Water jetting will normally be at pressures of at least 6,000, but not exceeding 10,000, pounds per square inch. All methods are subject to the approval

of the ENGINEER. See specification Section 03 01 10 Concrete Repair for additional information on concrete surface preparation for each repair type.

- B. Cleaning shall consist of the removal of all laitance, loose or defective concrete, coatings, sand, organic matter, lime deposits, and other foreign material. The surfaces of concrete shall be wet sandblasted, washed thoroughly with air-water jets, and surface dried prior to placement of adjoining concrete or other repair materials.
- C. In addition to the above requirements, the surfaces of concrete in the existing structures to which new concrete or other repair materials are to be bonded shall be flooded or sprayed with water keeping it continuously wet for at least 8 hours prior to placement of adjacent concrete. The flooding shall be discontinued no more than 6 hours prior to commencement of concrete placement or other repair materials and shall be followed by shading until placement of concrete or other repair materials necessitates removal of shades.
- D. The sandblasting of construction joints in new concrete shall be performed not more than 4 days prior to concrete placement or other repair material placement unless otherwise approved by the ENGINEER.
- E. The washing and surface drying shall be performed after the water cooling is completed and at the last opportunity prior to placing of concrete or other repair materials. Drying of construction joint surfaces shall be complete and may be accomplished by air jet.
- F. The surfaces of contraction joints shall be cleaned thoroughly of accretions of concrete or other foreign material by scraping, chipping, or other means approved by the ENGINEER and shall be coated with curing compound in accordance with Section 03 30 00. Special care shall be taken to keep curing compound off of seals, waterstops, and reinforcing steel.
- G. Surfaces of concrete that appear to be sound may slake and soften after a few days' exposure. For this reason, replacement of deteriorated concrete shall be delayed at least 4 days to re-examine the prepared surface and confirm the soundness of the existing concrete.

### **3.4 SANDBLASTING**

- A. Sandblasting equipment shall be operated at an air pressure of approximately 100 pounds per square inch. Blasting sand shall be dense, hard, coarse and angular and sufficiently dry to permit free passage through the equipment. Material passing a No. 8 screen shall not be used unless approved by the ENGINEER.
- B. During sandblasting operations, care shall be taken to prevent undercutting aggregate in the existing concrete.



- C. Provide adequate facilities for the complete and prompt removal of sand and abraded concrete.

### **3.0 CONTAINMENT AND DISPOSAL**

- A. The CONTRACTOR shall be fully responsible to prevent debris and effluent from falling into rivers, streams, waterways, pedestrian areas or traffic areas. All captured material shall become the property of the CONTRACTOR for off-site disposal. The CONTRACTOR shall haul all concrete, debris and other materials, resulting from this work, away from the site and dispose of it in a manner approved by the OWNER and ENGINEER. Disposal of material in the reservoir or at the base of any structure will not be allowed.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.1 MEASUREMENT**

- A. Measurement for payment for concrete removal will be based on the in-place volume of material removed as shown on the drawings or as directed by the ENGINEER. The volume will be determined by measurement of the material actually removed based on the ENGINEER's review of photos (with scale) before and after removal operations and volume of repair products used by CONTRACTOR.

### **4.2 PAYMENT**

- A. Payment for concrete removal will be made at the unit price per cubic yard bid therefor in the Bid Schedule which price shall include the cost of all work described in this section, including concrete surface preparation, sandblasting, saw cuts, cleanup, and disposal.

END OF SECTION

## SECTION 33 46 40

### PREFABRICATED GEOCOMPOSITE DRAINS

#### PART 1 GENERAL

##### 1.1 WORK INCLUDED

- A. Furnish and install 12-inch wide prefabricated geocomposite drains behind the 6-inch thick facing panels on the downstream face at the bottom of the principal spillway chute as shown on the drawings and as directed by the ENGINEER.

##### 1.2 REFERENCE STANDARDS

- A. ASTM International (ASTM)
  1. ASTM D 1621 Test Method for Compressive Properties Rigid Cellular Plastics
  2. ASTM D 4439 Test Method for Standard Terminology for Geosynthetics
  3. ASTM D 4491 Test Method for Water Permeability
  4. ASTM D 4632 Test Method for Grab Breaking Load and Elongation of Geotextiles
  5. ASTM D 4751 Test Method for Apparent Opening Size of a Geotextile
  6. ASTM D 5199 Test Method for Nominal Thickness of Geosynthetics
  7. ASTM D 6241 Test Method for Puncture Strength of Geotextiles

##### 1.3 SUBMITTALS

- A. Submit product data in accordance with Section 01 30 00 not more than 21 days following the date of Notice to Proceed.

##### 1.4 DELIVERY, STORAGE AND HANDLING

- A. Store and handle drains in accordance with manufacturer's recommendations.

#### PART 2 PRODUCTS

##### 2.1 MATERIALS

- A. Prefabricated Geocomposite Chimney Drains. The 12-inch-nominal width prefabricated geocomposite drainage system shall be American Wick Drain SITEDRAIN C-186 chimney drains meeting the following requirements, or equal:

Core Material – 0.40-inch-thick high impact polyethylene per ASTM D5199.

Compressive Strength – 18,000 psf per ASTM D1621.

Geotextile Fabric – polypropylene needle-punched nonwoven per ASTM D4439.

Tensile Strength – 60 lbs per ASTM D4632.

Puncture – 505 lbs per ASTM D6241

Apparent Opening Size – 0.212 mm per ASTM D4751  
Water Flow Rate – 155 gpm/ft<sup>2</sup> per ASTM D4491

### **PART 3 EXECUTION**

#### **3.1 INSTALLATION**

- A. During the placement of concrete, the prefabricated geocomposite drains shall be held securely in place. The Contractor shall make necessary provisions to protect the drains from damage and from fresh concrete entering the drain while the concrete is being placed.

### **PART 4 MEASUREMENT AND PAYMENT**

#### **4.1 MEASUREMENT**

- A. Measurement for payment for 12-inch wide prefabricated geocomposite drains will be made of the lengths of drain installed in accordance with the drawings and these Specifications. Measurement will be made along the centerlines of the drains from end to end in place and no allowance will be made for lap in joints.

#### **4.2 PAYMENT**

- B. Payment for furnishing and installing 12-inch wide prefabricated geocomposite drains will be made at the unit prices per linear foot bid therefor in the Bid Schedule, which prices shall include all costs.

END OF SECTION

**SECTION 52 00 00  
DRAWINGS**

**PART 1 GENERAL**

**1.1 DISCREPANCIES, ERRORS, OR OMISSIONS**

- A. Inform the OWNER of discrepancies discovered on drawings in accordance with clause at FAR 52.236-21, Specifications and Drawings for Construction.
- B. In accordance with clause at FAR 52.236-21, Specifications and Drawings for Construction, in case of discrepancies, written specifications take precedence over drawings unless otherwise specified.

**1.2 PROJECT CONDITIONS**

- A. Where there are differences as determined by the OWNER between details and dimensions shown on drawings and details and dimensions of existing features at jobsite, use details and dimensions of existing features at jobsite.

**1.3 SPECIFICATION DRAWINGS**

- A. Some drawings show details of fabrication or other details and specifications which are not a part of work under this contract. Disregard specifications and details shown on these drawings which are not applicable to work under this contract.

**1.4 INFORMATION DRAWINGS**

- A. Drawings marked "For Information Only" in the drawing list are included to show existing features about which knowledge is required to perform work under this contract. These drawings do not show work to be performed under this contract.
- B. If there are differences as determined by the OWNER between details and dimensions shown on these drawings and those of existing features at jobsite, use details and dimensions of existing features at jobsite.

**1.5 STANDARD DRAWINGS**

- A. Standard drawings may show details which are not a part of work under this contract. Disregard details shown on these drawings which are not applicable to work under this contract.

## **1.6 LIST OF DRAWINGS**

- A. The list of Drawings is shown on the first sheet of the plans.

## **PART 2 PRODUCTS (Not Used)**

## **PART 3 EXECUTION (Not Used)**

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.1 GENERAL**

- A. Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the related item of work in the Bid Schedule, or incidental to the Project.

# GRINDSTONE CANYON DAM PRINCIPAL SPILLWAY AND NORTH DAM CREST CONCRETE REPAIR OSE FILING NO. D-513 LINCOLN COUNTY, NEW MEXICO

PREPARED FOR  
**VILLAGE OF RUIDOSO, NEW MEXICO**

PREPARED BY  
**YEH AND ASSOCIATES, INC.**

GRINDSTONE CANYON DAM  
PRINCIPAL SPILLWAY AND  
NORTH DAM CREST  
CONCRETE REPAIR  
RUIDOSO, NEW MEXICO



**REVISIONS**

NO.	DESCRIPTION	DATE
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ISSUED  
FOR BID

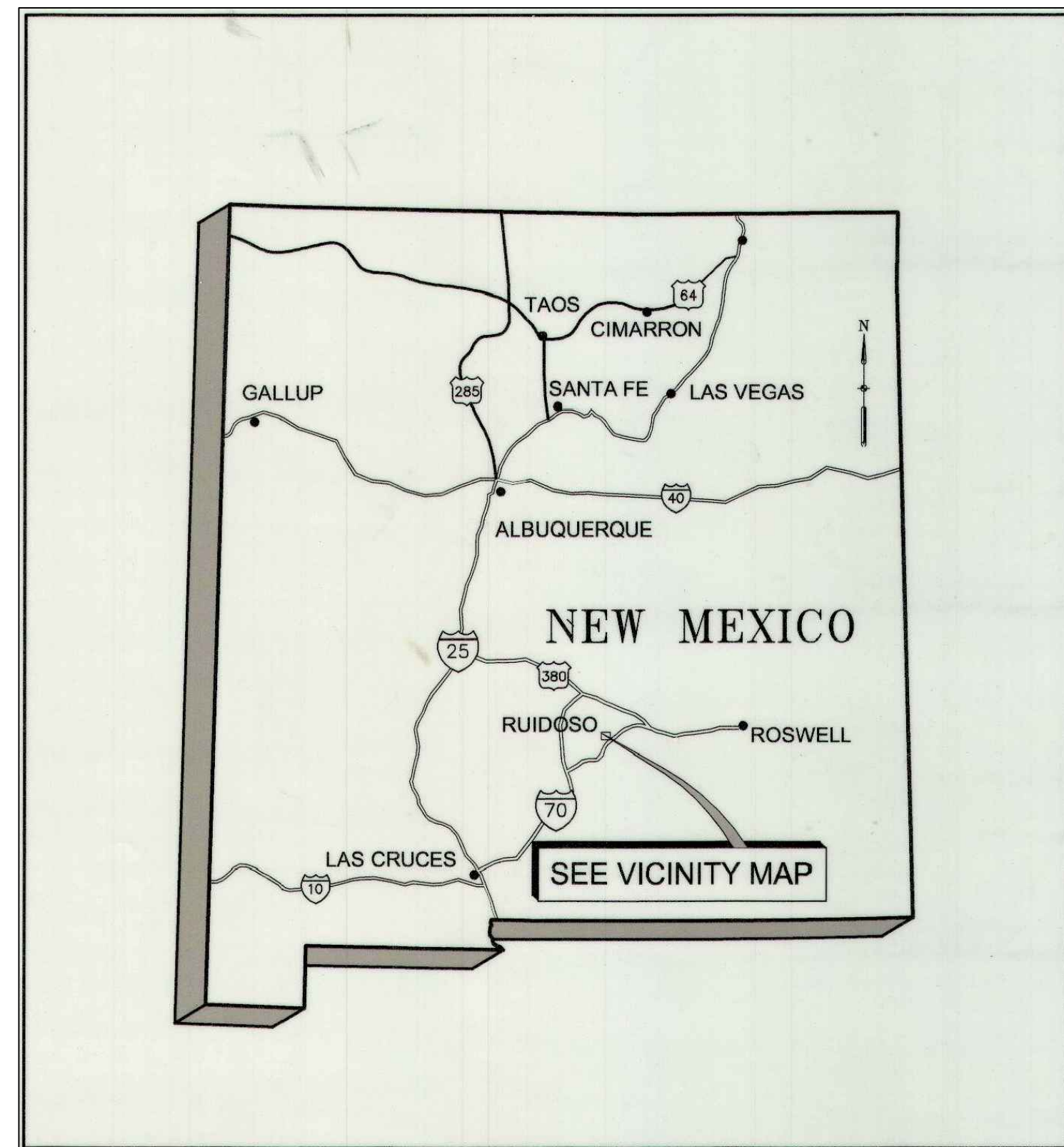
YEH PROJECT NO.	219-218
DRAWN BY:	MJW
CHECKED BY:	GDE
DATE CREATED:	11/2022
PLOT DATE:	12/2022
SCALE:	AS SHOWN
ACAD VER:	2018

SHEET TITLE

TITLE SHEET,  
LIST OF DRAWINGS,  
AND SITE MAPS

1

SHEET 1 OF 13



STATE MAP  
NOT TO SCALE



IMAGE DATE: 3/12/2016

VICINITY MAP  
NOT TO SCALE

DRAWING LIST		
SHEET NUMBER	SHEET ID	DRAWING TITLE
1 OF 13	1	TITLE SHEET, LIST OF DRAWINGS AND SITE MAPS
2 OF 13	2	GENERAL NOTES
3 OF 13	3	GRINDSTONE DAM SITE ACCESS AND STAGING PLAN
4 OF 13	4	GRINDSTONE DAM PRINCIPAL SPILLWAY REPAIR PLAN SHEET (1 OF 2)
5 OF 13	5	GRINDSTONE DAM PRINCIPAL SPILLWAY REPAIR PLAN SHEET (2 OF 2)
6 OF 13	6	GRINDSTONE DAM PRINCIPAL SPILLWAY REPAIR SCHEDULE, SECTIONS, AND NOTES
7 OF 13	7	NORTH DAM CREST REPAIR PLAN SHEET
8 OF 13	8	NORTH DAM CREST REPAIR SCHEDULE, SECTIONS, AND NOTES
9 OF 13	9	RECORD DRAWING 4 (FOR INFORMATION ONLY)
10 OF 13	10	RECORD DRAWING 12 (FOR INFORMATION ONLY)
11 OF 13	11	RECORD DRAWING 14 (FOR INFORMATION ONLY)
12 OF 13	12	RECORD DRAWING 15 (FOR INFORMATION ONLY)
13 OF 13	13	RECORD DRAWING 16 (FOR INFORMATION ONLY)

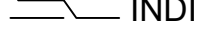
**GENERAL NOTES**

1. DIMENSIONS ARE IN FEET AND INCHES, ELEVATIONS AND STATIONING ARE IN FEET.
2. DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
3. DIMENSIONS NOT SHOWN ARE THE SAME AS DIMENSIONS FOR IDENTICAL DETAILS SHOWN ELSEWHERE.

**GENERAL CONCRETE NOTES**

1. WATERSTOPS ARE TO BE MADE CONTINUOUS BY SPLICING AND CONNECTING TO OTHER WATERSTOPS AS SHOWN ON THE DRAWINGS.
2. STOP SHEAR KEYS 12 INCHES FROM EXPOSED SURFACES, UNLESS OTHERWISE SHOWN.
3. WHEN A WATERSTOP INTERSECTS THE PATH OF A SHEAR KEY, THE KEY SHALL BE OMITTED FOR 12 INCHES ON EACH SIDE OF THE WATERSTOP, UNLESS OTHERWISE SHOWN.
4. ALL WATERSTOPS SHALL BE 6" PVC-TYPE, SWELLSTOP TYPE, OR APPROVED EQUAL DEPENDING ON THE SPECIFIC APPLICATION ON THE PROJECT.
5. FOR STRUCTURES, THE DESIGN OF REINFORCED CONCRETE IS BASED ON "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES AND COMMENTARY" (ACI 350-01).
6. ALL STRUCTURAL CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 psi.
7. ALL DIMENSIONS TO A JOINT ARE TO THE CENTERLINE OF THE JOINT.
8. CHAMFER EDGES OF PERMANENTLY EXPOSED CONCRETE SURFACES WITH A 45° BEVEL 8 INCHES X 8 INCHES, UNLESS OTHERWISE NOTED.
9. CONCRETE SURFACES EXPOSED TO HYDRAULIC FLOW SHALL HAVE F4 OR U3 FINISH. CONCRETE NOT EXPOSED TO HYDRAULIC FLOW BUT VISIBLE SHALL HAVE F3 FINISH. ALL FORMED SURFACES AGAINST FILL SHALL HAVE F1 FINISH. FINISH CATEGORIES ARE DEFINED IN THE PROJECT SPECIFICATIONS.
10. BEFORE PLACING CONCRETE ON GRADE, CARE SHALL BE TAKEN THAT ALL BURIED MATERIAL BELOW GRADE IS IN PLACE.
11. BEFORE PLACING CONCRETE, CARE SHALL BE TAKEN THAT ALL EMBEDDED ITEMS ARE IN POSITION AND SECURELY FASTENED IN PLACE. ALL WATERSTOPS SHALL BE SUPPORTED SO THAT THEY REMAIN IN THE CORRECT POSITION AND PROTECTED FROM DAMAGE.
12. IN ALL LOCATIONS WHERE CONSTRUCTION REQUIRES THE CUTTING OF EXISTING REINFORCING BARS AND THE NEW CONSTRUCTION DOES NOT CONTINUE THE REINFORCING, THE FOLLOWING BAR PROTECTION SHALL BE ACCOMPLISHED TO PROTECT THE EXISTING REBARS CUT ENDS FROM CORROSION OR OTHER DAMAGE. REMOVE THE EXISTING REBARS TO A DEPTH OF 2 INCHES BELOW THE CUT SURFACE FACE OF CONCRETE. REMOVE THE CONCRETE BY DRILLING OR OTHER APPROVED METHODS. THE HOLE SHALL BE CLEANED AND EVACUATED OF ALL METAL, DUST, DAMAGED CONCRETE OR OTHER FOREIGN MATERIALS TO INSURE ADEQUATE BOND. THE PREPARED HOLE SHALL BE FILLED WITH DRY PACK AS DESCRIBED IN THE BUREAU OF RECLAMATION "GUIDE TO CONCRETE REPAIR" CHAPTER IV, SECTION 26, PAGES 48 TO 50.

**GENERAL REINFORCEMENT NOTES**

1. REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM - A615, DEFORMED BARS WITH A SPECIFIED MINIMUM YIELD STRENGTH OF 60,000 psi.
2. SPACING OF BARS ARE GIVEN IN INCHES AND ARE TO THE CENTERLINE OF THE BARS UNLESS OTHERWISE SHOWN.
3. AN OPEN CIRCLE (O) AT THE END OF A BAR INDICATES A BEND TURNED AWAY FROM OBSERVER A FILLED CIRCLE (●) AT THE END OF A BAR INDICATES A BEND TURNED TOWARDS THE OBSERVER.
4. THE SYMBOL  INDICATES A LAPPED SPLICE, NOT A BEND IN THE BAR.
5. REINFORCING DETAILS SHALL CONFORM TO THE REQUIREMENTS OF ACI 315 - 99. SPLICE AND EMBEDMENT LENGTHS NOT SHOWN ON THE DRAWING SHALL BE ASSUMED TO BE IN TENSION AND SHALL CONFORM TO THE ABOVE REQUIREMENTS.
6. ALL SPLICES SHALL BE CLASS "B" SPLICES WITH THE APPROPRIATE ALLOWANCES FOR BAR SPACING AND DEPTH OF CONCRETE CAST BELOW THE REINFORCEMENT, UNLESS OTHERWISE NOTED.
7. BAR BENDS, HOOKS, LAP SPLICES AND DEVELOPMENT LENGTHS SHALL CONFORM TO THE REQUIREMENTS OF ACI 350-06.
8. SPLICES SHALL BE LOCATED WHERE INDICATED ON THE DRAWINGS OR AS AUTHORIZED BY THE ENGINEER.
9. WHEN REINFORCING BARS OF DIFFERENT SIZES ARE TO BE SPLICED, THE LENGTH OF LAP SHALL BE GOVERNED BY THE SMALLER DIAMETER BAR.
10. THE FIRST AND LAST BARS IN WALLS AND SLABS ARE TO START AND END AT A MAXIMUM OF ONE-HALF OF THE ADJACENT BAR SPACING.
11. SPLICES IN REINFORCEMENT AT VERTICAL CONSTRUCTION JOINTS MAY BE SHIFTED TO AGREE WITH THE SEQUENCE OF CONSTRUCTION, UNLESS OTHERWISE SPECIFIED.
12. PLACE THE REINFORCEMENT SO THAT THE CLEAR DISTANCE BETWEEN FACE OF CONCRETE AND NEAREST REINFORCEMENT IS 2 in FOR SURFACES PERMANENTLY EXPOSED TO BACKFILL OR WATER AND OTHER SURFACES. PROVIDE A CLEAR DISTANCE FROM FACE OF CONCRETE PLACED AGAINST EARTH OR ROCK OF 3 in, THE CLEAR DISTANCE BEING TO THE DESIGN DIMENSION LINE.
13. REINFORCEMENT PARALLELING CONSTRUCTION JOINTS SHALL HAVE A MINIMUM OF 2 in CONCRETE COVER.
14. REINFORCEMENT AT SMALL OPENINGS (18 in) IN WALLS AND SLABS MAY NOT BE SPREAD APART MORE THAN 1-1/2 TIMES THE BAR SPACING .
15. WHEN BARS ARE BENT DUE TO OFFSETS LESS THAN 2 in AND RECESSES LESS THAN 3 in DEEP, THE SLOPE OF THE INCLINED PORTION SHALL NOT EXCEED 6 TO 1.
16. REINFORCEMENT PARALLEL TO ANCHOR BOLTS OR OTHER EMBEDDED MATERIAL SHALL BE PLACED TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1-1/3 TIMES THE MAXIMUM SIZE AGGREGATE.
17. NON-CONTACT LAP SPLICES SHALL NOT BE SPACED FARTHER APART THAN ONE-FIFTH THE REQUIRED LENGTH OF LAP OR 6 in.
18. REINFORCEMENT MAY BE ADJUSTED LATERALLY TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1 in BETWEEN THE REINFORCEMENT AND KEYS, WATERSTOPS, ANCHOR BOLTS, FORM TIES, CONDUITS, AND OTHER EMBEDDED MATERIAL. IN HEAVILY REINFORCED AREAS RELOCATION OF THE EMBEDDED MATERIAL MUST BE CONSIDERED.
19. BARS SHOWN THUS #5 @ 8" INDICATE A GROUP OF THE SAME SIZE BARS EQUALLY SPACED.
20. SPLICES SHALL BE STAGGERED TO GIVE 12 in CLEAR BETWEEN ENDS OF ADJACENT SPLICES, IF BARS ARE SPACED CLOSER THAN 6 in OR 6 BAR DIAMETERS.
21. DOWELS INDICATED ON THE DRAWING, SUCH AS #5(D), SHALL HAVE AN EMBEDMENT EQUAL TO THE DEVELOPMENT LENGTH FOR TENSION REQUIRED BY ACI 350-06, AND A PROJECTION EQUAL TO THAT REQUIRED FOR LAP SPLICING A BAR OF THE SAME DIAMETER.

**ABBREVIATIONS FOR REINFORCEMENT**

- |       |                      |
|-------|----------------------|
| BF    | BOTTOM FACE          |
| CL    | CLEAR COVER CONCRETE |
| DWL   | DOWEL                |
| EA    | EACH                 |
| EF    | EACH FACE            |
| EQ SP | EQUALLY SPACED       |
| EW    | EACH WAY             |
| FF    | FAR FACE             |
| LE    | EMBEDMENT LENGTH     |
| LS    | SPLICE LENGTH        |
| NF    | NEAR FACE            |
| SPC   | SPACE                |
| TF    | TOP FACE             |

**GENERAL ABBREVIATIONS**

- |        |                            |
|--------|----------------------------|
| APPROX | APPROXIMATE                |
| CJ     | CONSTRUCTION JOINT         |
| CL     | CENTERLINE                 |
| CONSTR | CONSTRUCTION               |
| CONTR  | CONTRACTION                |
| CRJ    | CONTRACTION JOINT          |
| CRS    | CENTERS                    |
| CTJ    | CONTROL JOINT              |
| DIA    | DIAMETER                   |
| D/S    | DOWNSTREAM                 |
| DWG    | DRAWING                    |
| EJ     | EXPANSION JOINT            |
| EL     | ELEVATION                  |
| EXP    | EXPANSION                  |
| FFE    | FINISHED FLOOR ELEVATION   |
| ID     | INNER DIAMETER             |
| MAX    | MAXIMUM                    |
| MIN    | MINIMUM                    |
| NTS    | NOT TO SCALE               |
| OD     | OUTER DIAMETER             |
| RAD    | RADIUS                     |
| REINF  | REINFORCEMENT              |
| SEC    | SECTION                    |
| STA    | STATION                    |
| TOW    | TOP OF WALL                |
| TYP    | TYPICAL                    |
| U/S    | UPSTREAM                   |
| WS     | WATER SURFACE OR WATERSTOP |

**GRINDSTONE CANYON DAM  
PRINCIPAL SPILLWAY AND  
NORTH DAM CREST  
CONCRETE REPAIR  
RUIDOSO, NEW MEXICO**



**REVISIONS**

NO.	DESCRIPTION	DATE
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YEH PROJECT NO:	219-218
DRAWN BY:	MJW
CHECKED BY:	GDE
DATE CREATED:	11/2022
PLOT DATE:	12/2022
SCALE:	AS SHOWN
ACAD VER:	2018

**SHEET TITLE**

**GENERAL NOTES**



**GRINDSTONE CANYON DAM  
 PRINCIPAL SPILLWAY AND  
 NORTH DAM CREST  
 CONCRETE REPAIR  
 RUIDOSO, NEW MEXICO**



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DATE CREATED:	11/2022
PLOT DATE:	12/2022
SCALE:	AS SHOWN
ACAD VER:	2018

SHEET TITLE

**SITE ACCESS AND  
 STAGING PLAN**



**GRINDSTONE CANYON DAM  
PRINCIPAL SPILLWAY AND  
NORTH DAM CREST  
CONCRETE REPAIR  
RUIDOSO, NEW MEXICO**



**REVISIONS**

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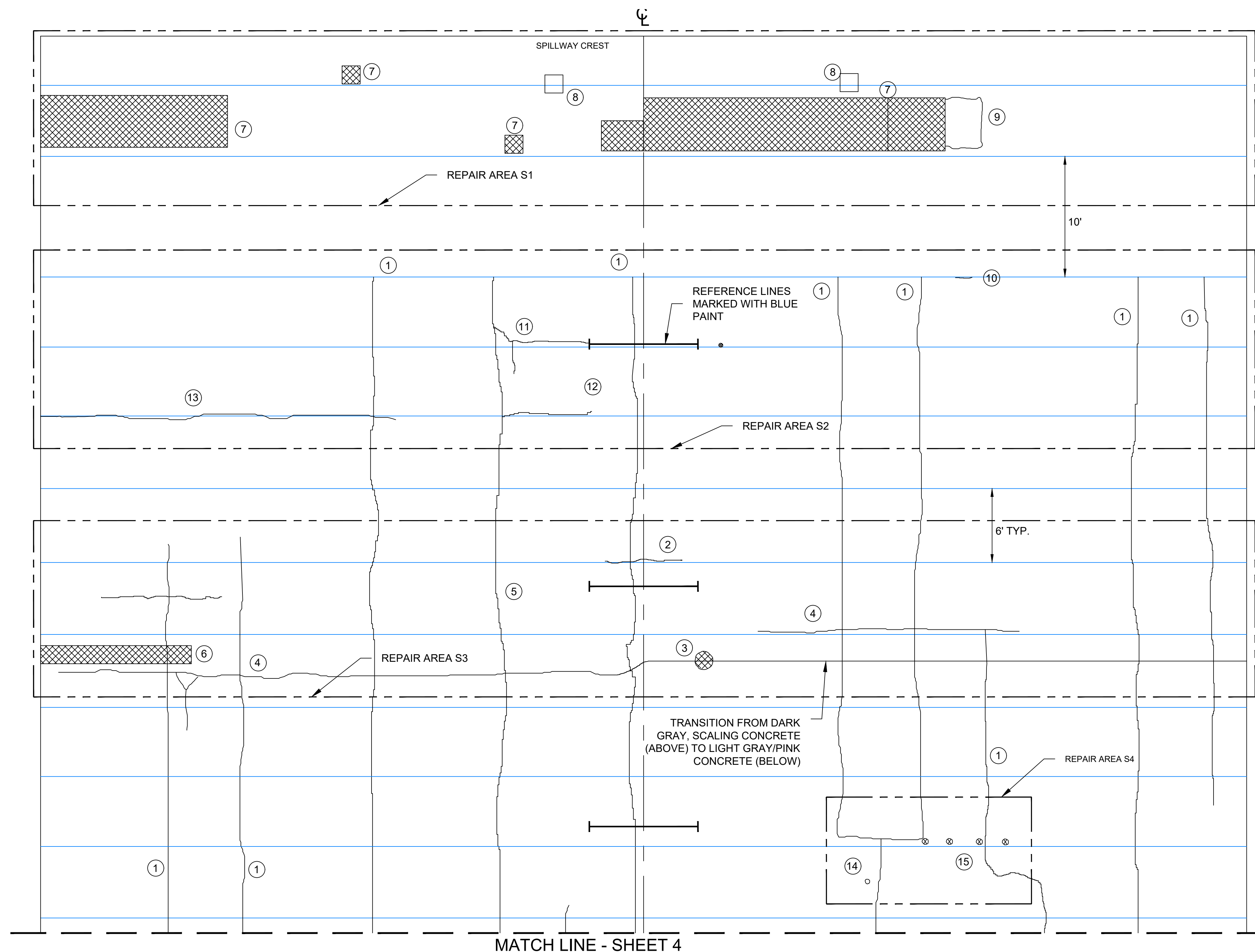
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DRAWN BY:	MJW
CHECKED BY:	GDE
DATE CREATED:	11/2022
PLOT DATE:	12/2022
SCALE:	AS SHOWN
ACAD VER:	2018

SHEET TITLE

**PRINCIPAL SPILLWAY  
REPAIR PLAN  
(1 OF 2)**

**4**

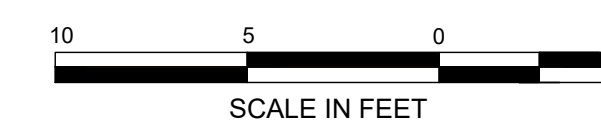
SHEET 4 OF 13



**LEGEND**

	DRUMMY CONCRETE AREAS MARKED IN FIELD
	EXPOSED WELDED WIRE MESH
	ERODED AREAS
	FIELD NOTE NUMBER (FOR REFERENCE ONLY)
	MASS CONCRETE OR RCC LIFT JOINTS

- NOTE:**
- FOR PRINCIPAL SPILLWAY REPAIR SCHEDULE, SEE TABLE ON SHEET 5.
  - FOR FIELD NOTES, REFER TO GRINDSTONE CANYON DAM (D-513) SPILLWAY AND NORTH DAM CREST CONDITION ASSESSMENT REPORT PREPARED BY HUTTON CONSULTING AND DATED NOVEMBER 30, 2022.



**GRINDSTONE CANYON DAM  
 PRINCIPAL SPILLWAY AND  
 NORTH DAM CREST  
 CONCRETE REPAIR  
 RUIDOSO, NEW MEXICO**



**REVISIONS**

NO.	DESCRIPTION	DATE
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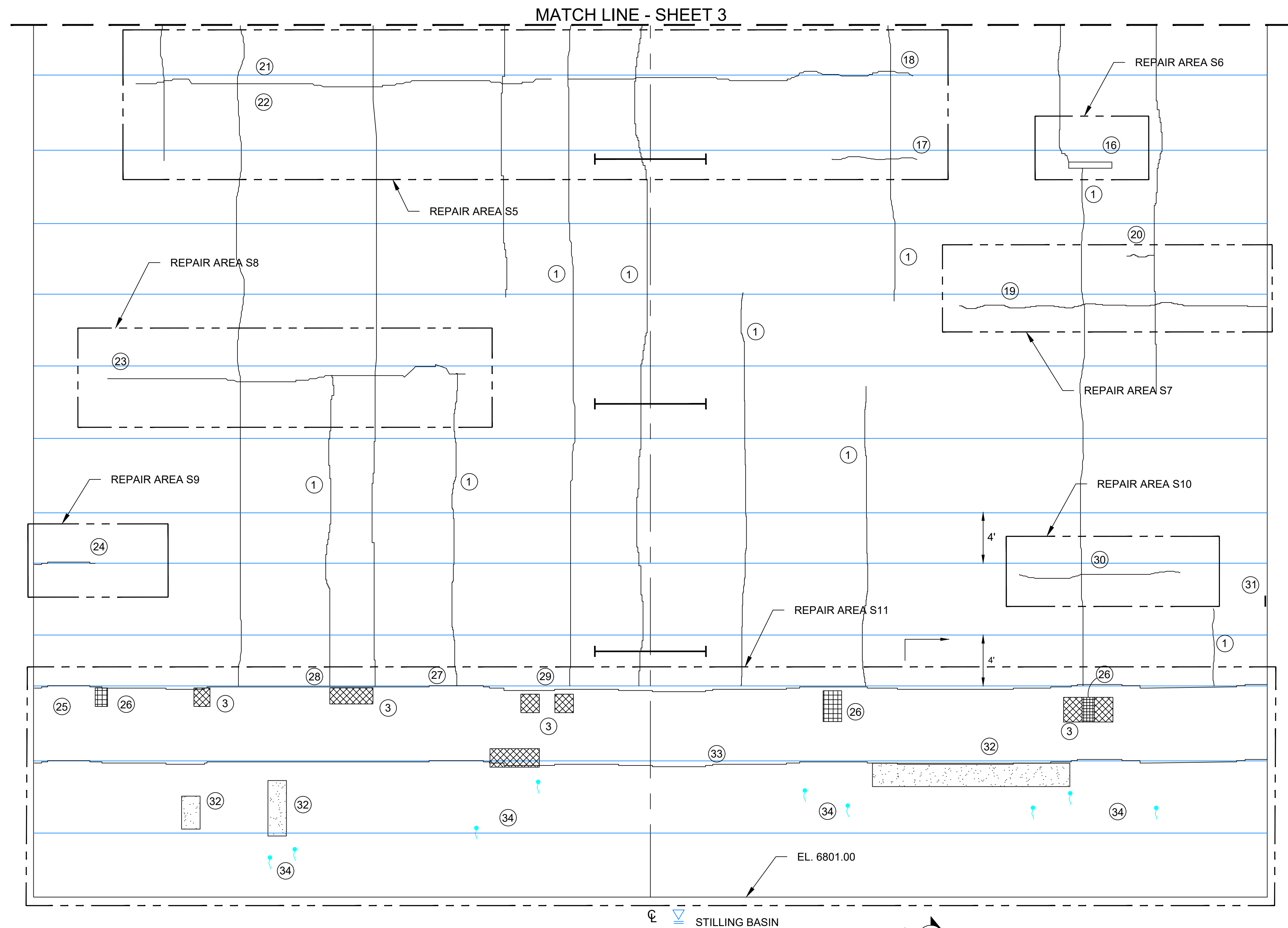
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DRAWN BY:	MJW
CHECKED BY:	GDE
DATE CREATED:	11/2022
PLOT DATE:	12/2022
SCALE:	AS SHOWN
ACAD VER:	2018

SHEET TITLE

**PRINCIPAL SPILLWAY  
 REPAIR PLAN  
 (2 OF 2)**

**5**

SHEET 5 OF 13

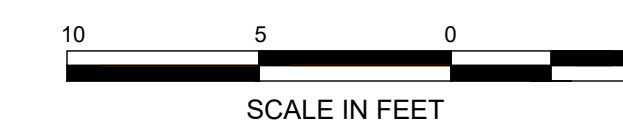


**SPILLWAY - LOWER SECTION ELEVATION**

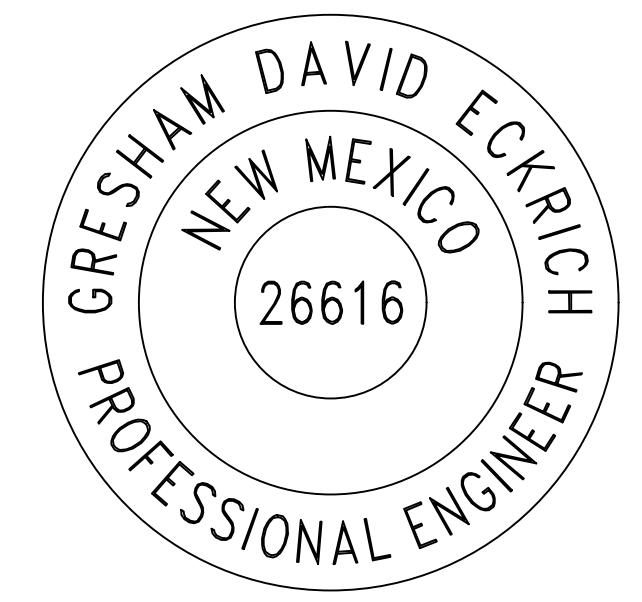
**LEGEND**

	DRUMMY CONCRETE AREAS MARKED IN FIELD
	EXPOSED WELDED WIRE MESH
	ERODED AREAS
	FIELD NOTE NUMBER (FOR REFERENCE ONLY)
	MASS CONCRETE OR RCC LIFT JOINTS
	SEEPS

- NOTE:**
- FOR PRINCIPAL SPILLWAY REPAIR SCHEDULE, SEE TABLE ON SHEET 5.
  - FOR FIELD NOTES, REFER TO GRINDSTONE CANYON DAM (D-513) SPILLWAY AND NORTH DAM CREST CONDITION ASSESSMENT REPORT PREPARED BY HUTTON CONSULTING AND DATED NOVEMBER 30, 2022.



**GRINDSTONE CANYON DAM  
PRINCIPAL SPILLWAY AND  
NORTH DAM CREST  
CONCRETE REPAIR  
RUIDOSO, NEW MEXICO**



**REVISIONS**

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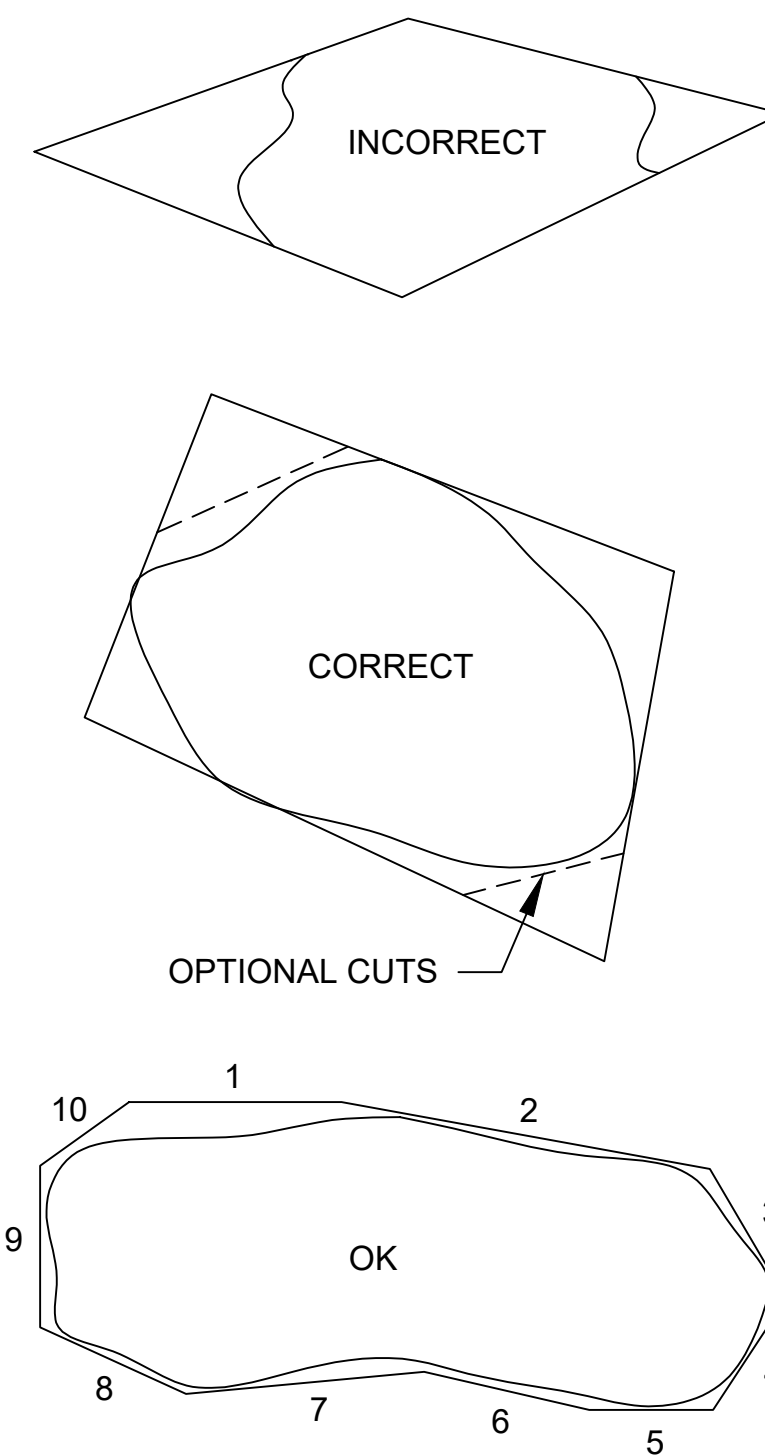
**SHEET TITLE**

**PRINCIPAL SPILLWAY  
REPAIR SCHEDULE,  
SECTIONS, AND NOTES**

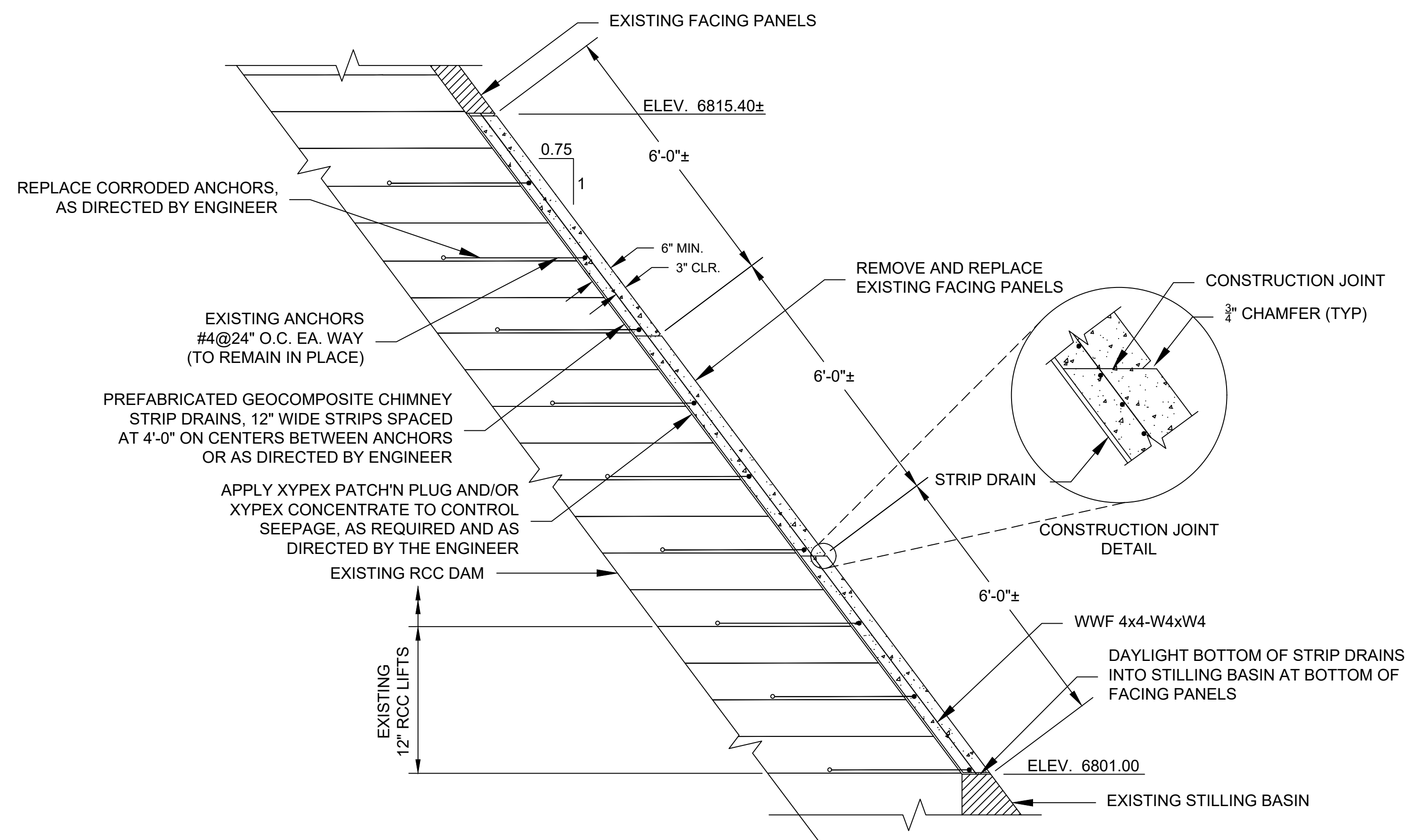
**6**

SHEET 6 OF 13

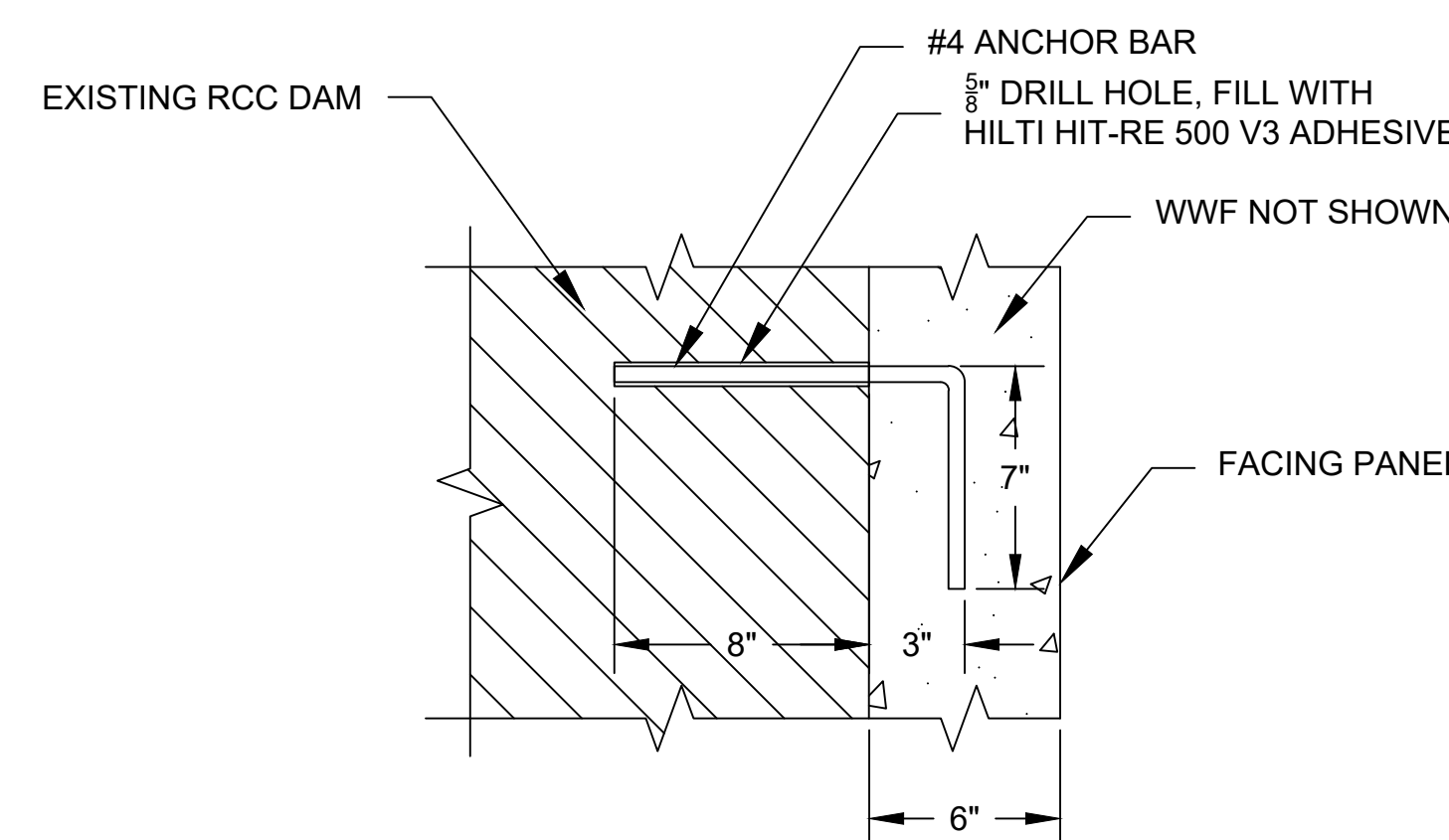
PRINCIPAL SPILLWAY REPAIR SCHEDULE	
REPAIR AREA	DESCRIPTION
S1	Saw cut around perimeters of drummy concrete on spillway crest and spill areas 7 and 9; remove existing concrete within saw cuts and replace with repair materials according to specifications.
S2	Saw cut around perimeters of spalls 10, 11, 12 and 13; remove existing concrete within saw cuts to bottom of spill or sound concrete, whichever is greater, and repair according to specifications.
S3	Saw cut around perimeter of horizontal cracks 2 and 4 and drummy concrete features 3 and 6; remove existing concrete within saw cuts to bottom of damage or sound concrete, whichever is greater and repair according to specifications.
S4	Saw cut around perimeter of exposed form ties, feature 14 and spill 15; remove existing concrete and form ties within saw cuts to a minimum depth of one inch or to sound concrete whichever is greater and repair according to specifications
S5	Saw cut around perimeter of poor consolidation along joints in areas 17, 18 and 21 and exposed rebar in area 22; remove concrete and exposed reinforcement within saw cuts to depth of void or sound concrete whichever is greater and repair according to specifications.
S6	Saw cut around perimeter of embedded lumber (feature 16); remove concrete within saw cuts to depth of void or sound concrete, whichever is greater and repair with reinforced concrete according to specifications.
S7	Saw cut around perimeter of damaged horizontal joint 19 and feature 20; remove concrete within saw cuts to minimum depth of one inch or sound concrete and repair according to specifications.
S8	Saw cut around perimeter of poor consolidation and spalling along horizontal joint 23; remove concrete within saw cuts to minimum depth of one inch or sound concrete, whichever is greater and repair according to specifications.
S9	Saw cut around perimeter of poor consolidation and spalling along horizontal joint 24; remove concrete within saw cuts to minimum depth of one inch or sound concrete, whichever is greater and repair according to specifications.
S10	Saw cut around perimeter of spalling along horizontal joint 30; remove concrete within saw cuts to minimum depth of one inch or sound concrete, whichever is greater and repair according to specifications.
S11	Remove delaminated and eroded existing reinforced concrete facing panels and reinforcement to a depth of 6 inches; install geocomposite chimney strip drains, 12" wide strips, spaced at 4'-0" on centers between anchors; install epoxy grouted anchor bars to replace deteriorated anchors; and apply waterproofing between the geocomposite chimney strip drains and at each of the actively flowing seeps as directed by Engineer and replace existing concrete facing panels with reinforced concrete according to specifications. Existing anchor bars to remain in place.



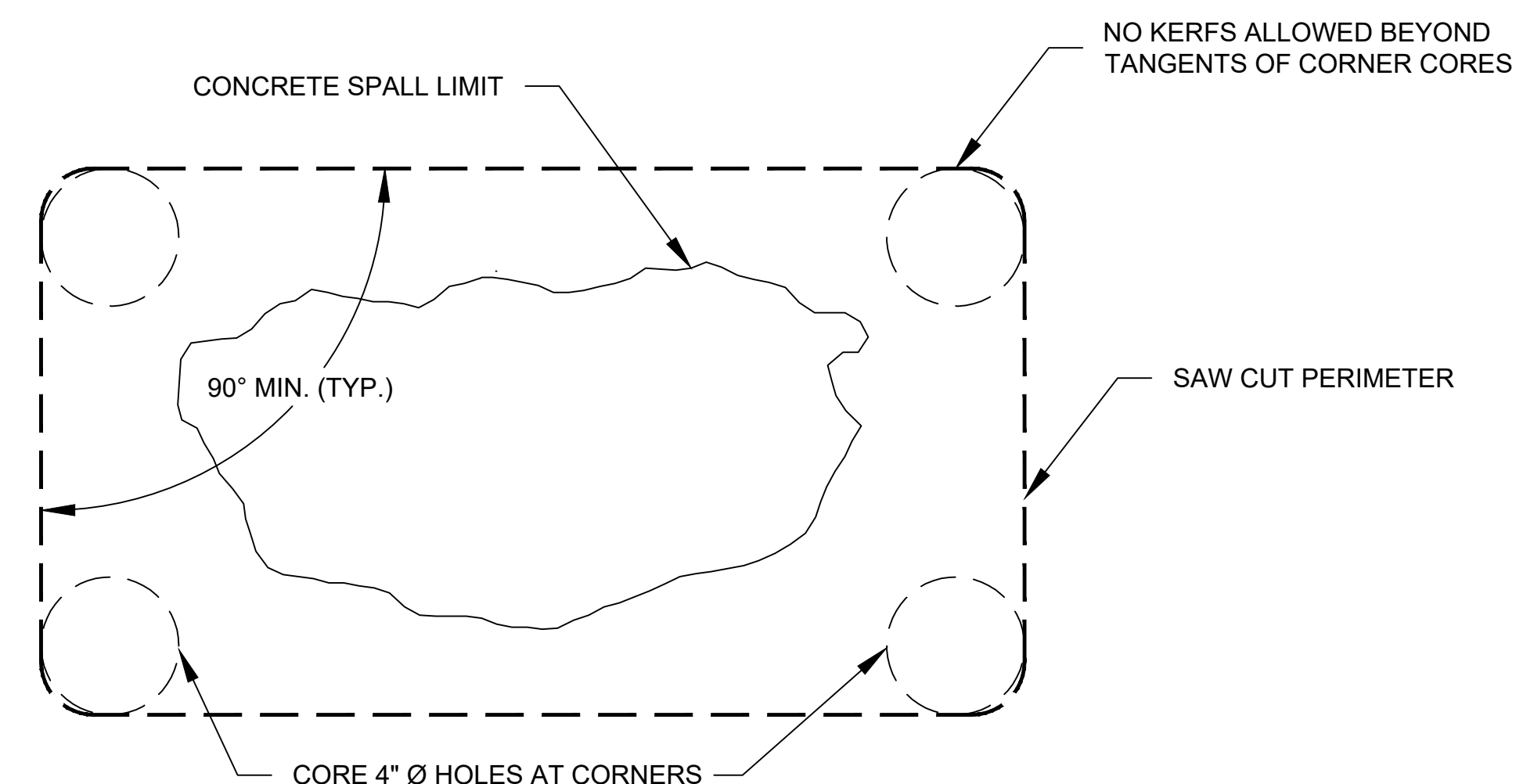
**REPAIR PERIMETER SHAPES**



**SECTION A-A  
REPAIR AREA S11**



**EPOXY GROUTED  
ANCHOR BAR  
(OPTIONAL)**



**TYPICAL CONCRETE  
REMOVAL PLAN**

**GENERAL NOTES:**

- ALL CONCRETE SURFACES SHALL BE REPAIRED TO MATCH THE PRE-CONSTRUCTION CONFIGURATION OF THE STRUCTURES. SELECT DETAILS ARE PROVIDED IN THESE DRAWINGS. WHERE THE DRAWINGS DO NOT MATCH THE OBSERVED CONDITIONS AT THE PRINCIPAL SPILLWAY OR NORTH DAM CREST, THE OBSERVED CONDITIONS SHALL BE DOCUMENTED AND THE AS-BUILT CONFIGURATIONS SHALL MATCH THE PRE-CONSTRUCTION CONFIGURATION
- SEE SPECIFICATION SECTION 03 01 10 FOR ADDITIONAL CONCRETE REPAIR REQUIREMENTS.
- ADDITIONAL REFERENCE FOR CONCRETE REPAIR REQUIREMENTS SHALL COME FROM THE US BUREAU OF RECLAMATION GUIDE TO CONCRETE REPAIR, SECOND EDITION, AUGUST 2015 OR THE LATEST EDITION.
- SAW CUTS SHOULD BE A MINIMUM 1 INCH DEEP AND 1 INCH MINIMUM BEYOND LIMITS OF DETERIORATED AREA AND SHALL BE PERPENDICULAR TO THE CONCRETE SURFACE. SAW CUT PERIMETER SHALL HAVE ROUNDED CORNERS. THE NUMBER OF SAW CUT CORNERS SHALL BE MINIMIZED. SAW CUTS SHALL NOT MEET AT ACUTE ANGLES.

**GRINDSTONE CANYON DAM  
 PRINCIPAL SPILLWAY AND  
 NORTH DAM CREST  
 CONCRETE REPAIR  
 RUIDOSO, NEW MEXICO**



**REVISIONS**

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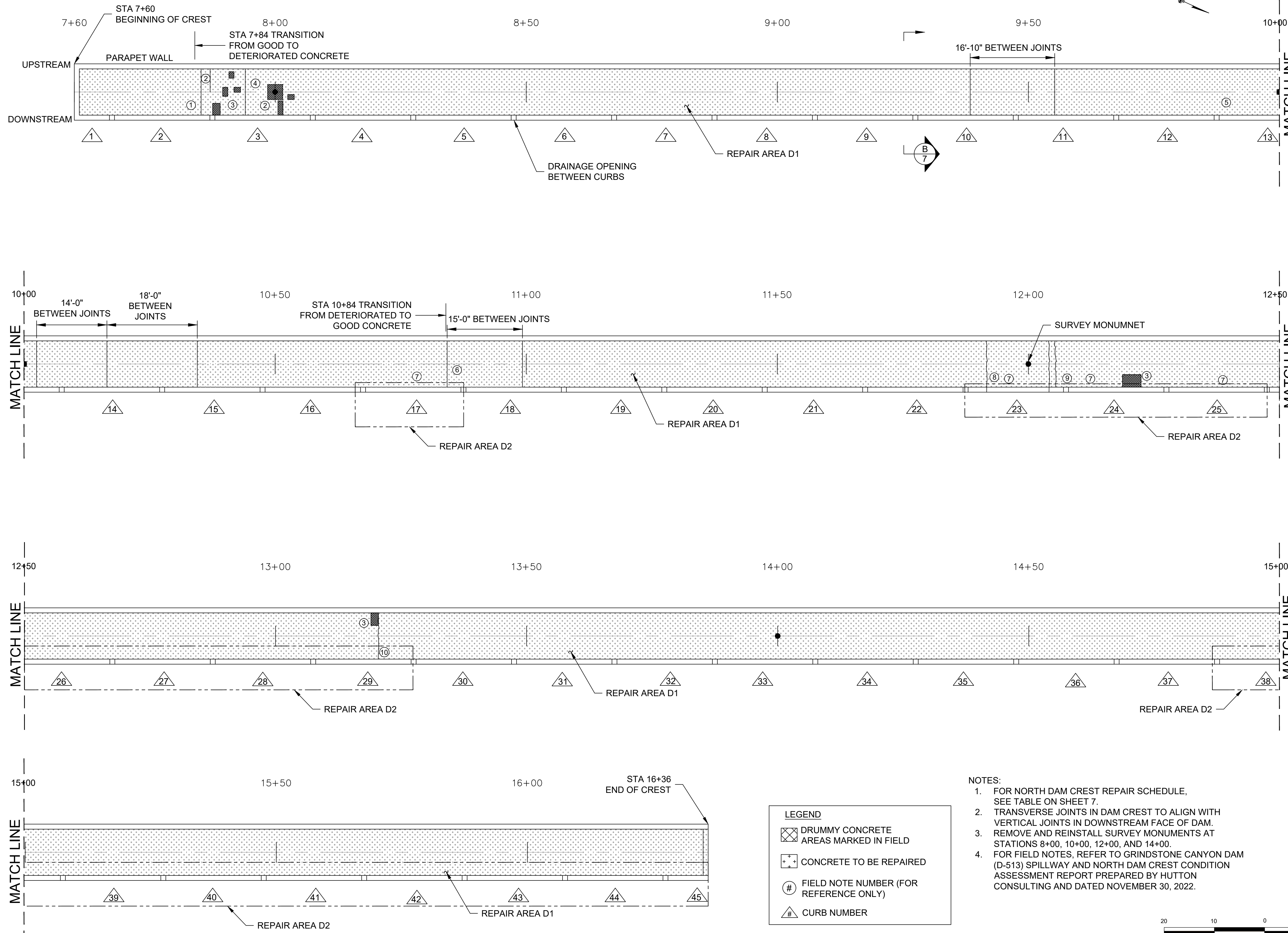
YEH PROJECT NO.	219-218
DRAWN BY:	MJW
CHECKED BY:	GDE
DATE CREATED:	11/2022
PLOT DATE:	12/2022
SCALE:	AS SHOWN
ACAD VER:	2018

**SHEET TITLE**

**NORTH DAM CREST  
 REPAIR PLAN**

**7**

SHEET 7 OF 13



**LEGEND**

- DRUMMY CONCRETE AREAS MARKED IN FIELD
- CONCRETE TO BE REPAIRED
- FIELD NOTE NUMBER (FOR REFERENCE ONLY)
- CURB NUMBER

- NOTES:**
- FOR NORTH DAM CREST REPAIR SCHEDULE, SEE TABLE ON SHEET 7.
  - TRANSVERSE JOINTS IN DAM CREST TO ALIGN WITH VERTICAL JOINTS IN DOWNSTREAM FACE OF DAM.
  - REMOVE AND REINSTALL SURVEY MONUMENTS AT STATIONS 8+00, 10+00, 12+00, AND 14+00.
  - FOR FIELD NOTES, REFER TO GRINDSTONE CANYON DAM (D-513) SPILLWAY AND NORTH DAM CREST CONDITION ASSESSMENT REPORT PREPARED BY HUTTON CONSULTING AND DATED NOVEMBER 30, 2022.



**NORTH DAM CREST - PLAN**

**GRINDSTONE CANYON DAM  
PRINCIPAL SPILLWAY AND  
NORTH DAM CREST  
CONCRETE REPAIR  
RUIDOSO, NEW MEXICO**



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DRAWN BY:	MJW
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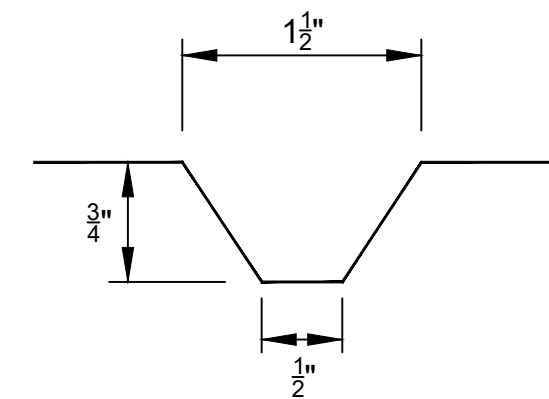
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**NORTH DAM CREST  
REPAIR SCHEDULE,  
SECTIONS, AND NOTES**

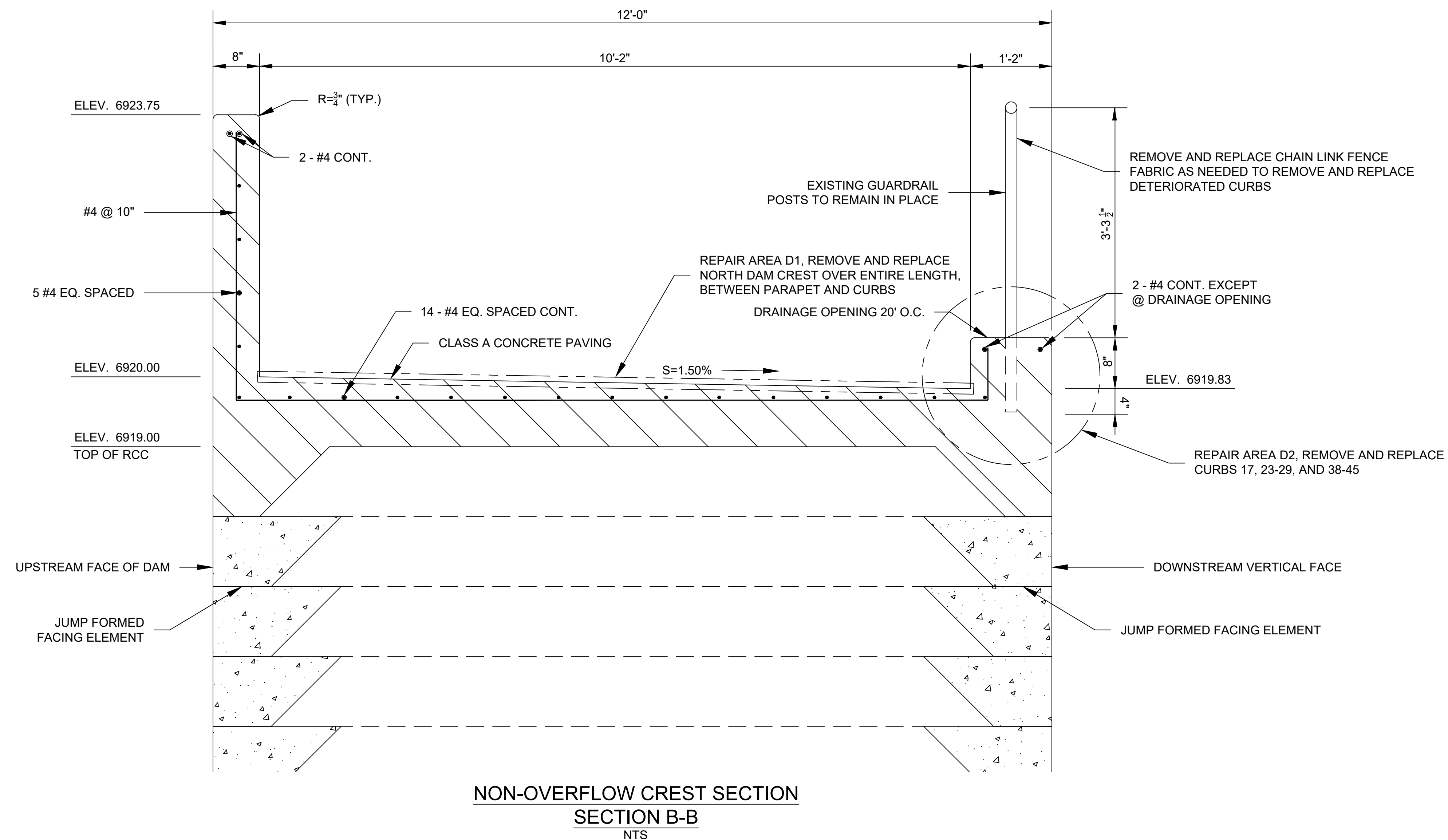
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SHEET 8 OF 13

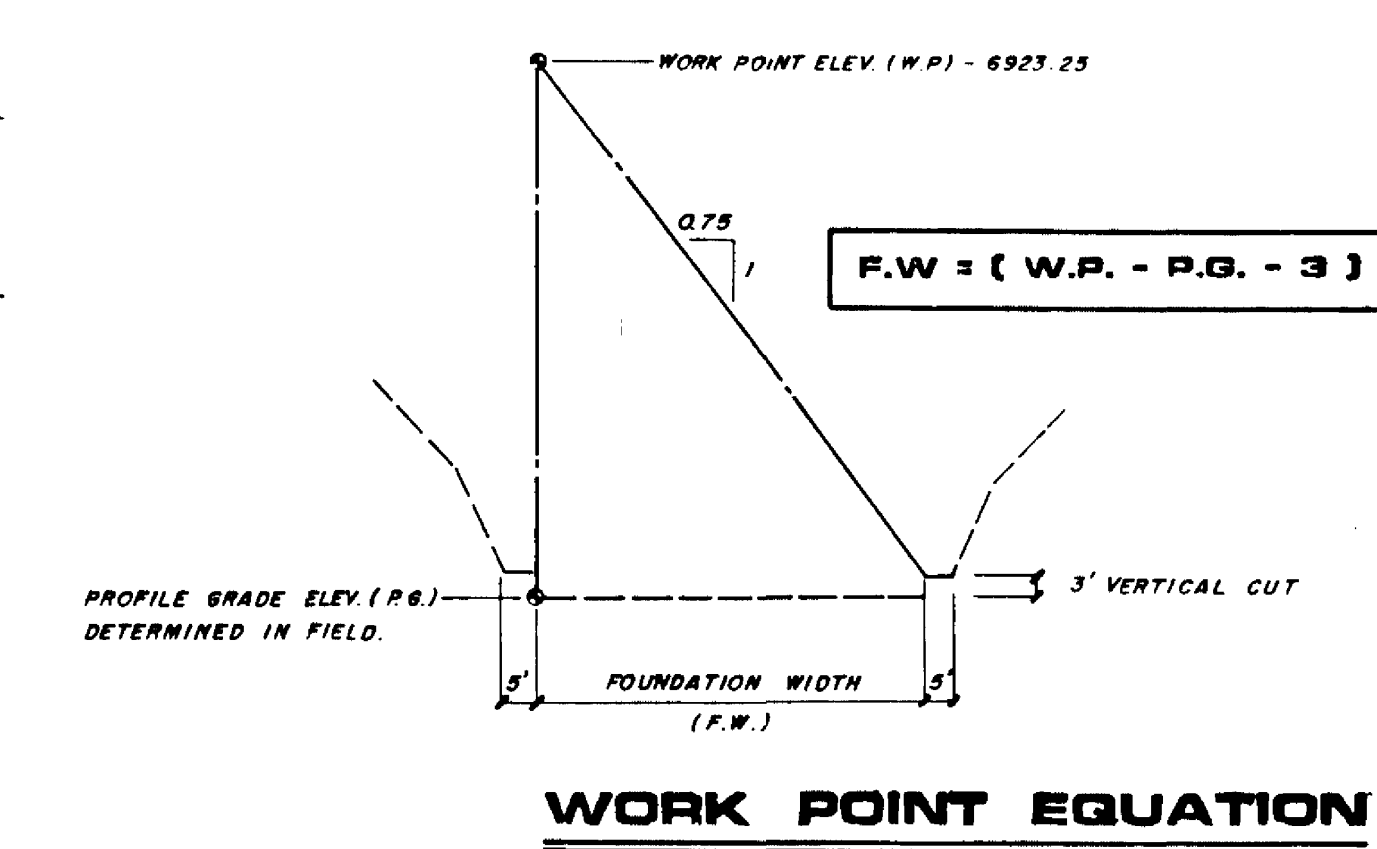
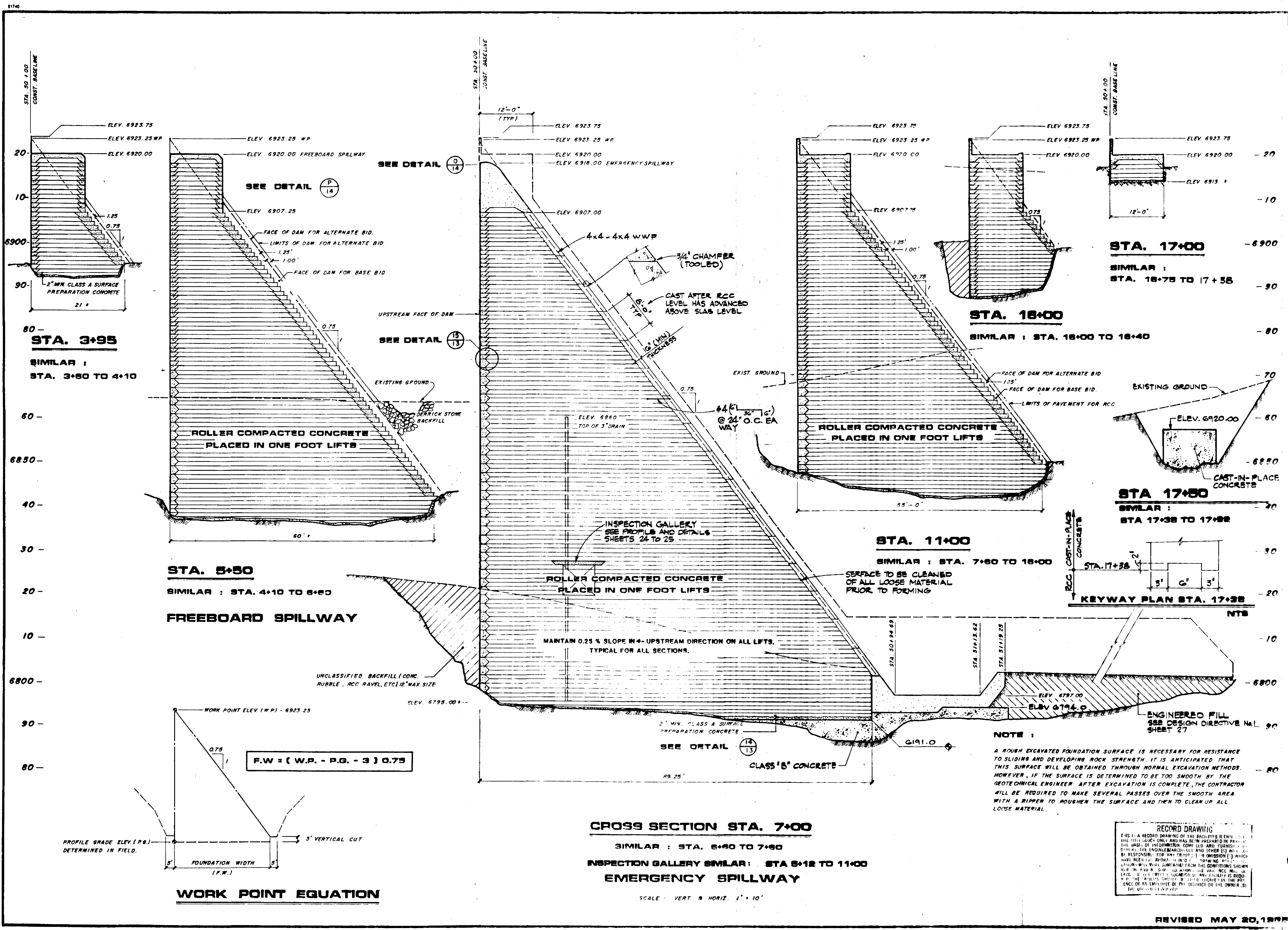
GRINDSTONE DAM CONCRETE REPAIRS NORTH DAM CREST REPAIR SCHEDULE	
REPAIR AREA	DESCRIPTION
D1	Remove deteriorated concrete between parapet wall and curbs from Sta. 7+60 to 16+36, repair with thin bonded polymer overlay, reconstruct transverse joints aligned with vertical joints in downstream face of dam.
D2	Remove curbs 17, 23-29 and 38-45 and reconstruct with reinforced concrete (16 curbs total)



**TRANSVERSE DAM CREST JOINT DETAIL**  
NTS







**CROSS SECTION STA. 7+00**  
 SIMILAR : STA. 6+80 TO 7+80  
 INSPECTION GALLERY SIMILAR : STA 8+12 TO 11+00  
 EMERGENCY SPILLWAY

SCALE : VERT. & HORIZ. 1" = 10'

**NOTE :**  
 A ROUGH EXCAVATED FOUNDATION SURFACE IS NECESSARY FOR RESISTANCE TO SLIDING AND DEVELOPING ROCK STRENGTH. IT IS ANTICIPATED THAT THIS SURFACE WILL BE OBTAINED THROUGH NORMAL EXCAVATION METHODS. HOWEVER, IF THE SURFACE IS DETERMINED TO BE TOO SMOOTH BY THE GEOTECHNICAL ENGINEER AFTER EXCAVATION IS COMPLETE, THE CONTRACTOR WILL BE REQUIRED TO MAKE SEVERAL PASSES OVER THE SMOOTH AREA WITH A RIPPER TO ROUGHEN THE SURFACE AND THEN TO CLEAN UP ALL LOOSE MATERIAL.

**RECORD DRAWING**  
 THIS IS A RECORD DRAWING OF THE FACILITY IDENTIFIED BY THE TITLE BLOCK. ONLY PARTS HAS BEEN PREPARED IN PART BY THE USER OF INFORMATION COMPILED AND FORWARDED BY THE ENGINEER, ARCHITECT AND OTHER (S) WHOSE RESPONSIBILITY FOR ANY INACCURACIES OR OMISSIONS WHICH MAY BE REVEALED BY A RECORD DRAWING IS THE USER'S. THE USER WILL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN HEREON AND FOR THE USER'S COMPLIANCE WITH ALL APPLICABLE LAWS. IF THIS PROJECT IS LOCATED IN AN AREA WHERE THE PRESENCE OF AN EMPLOYEE OF THE DISTRICT OR THE OWNER IS REQUIRED BY THE USER, THE USER SHALL BE RESPONSIBLE FOR THE USER'S COMPLIANCE WITH ALL APPLICABLE LAWS.

Revision Mark    Date

**SOUS ENGINEERING CORPORATION**  
 CONSULTING ENGINEERS

**VILLAGE OF RUDOSO  
 NEW MEXICO  
 GRINDSTONE CANYON DAM**

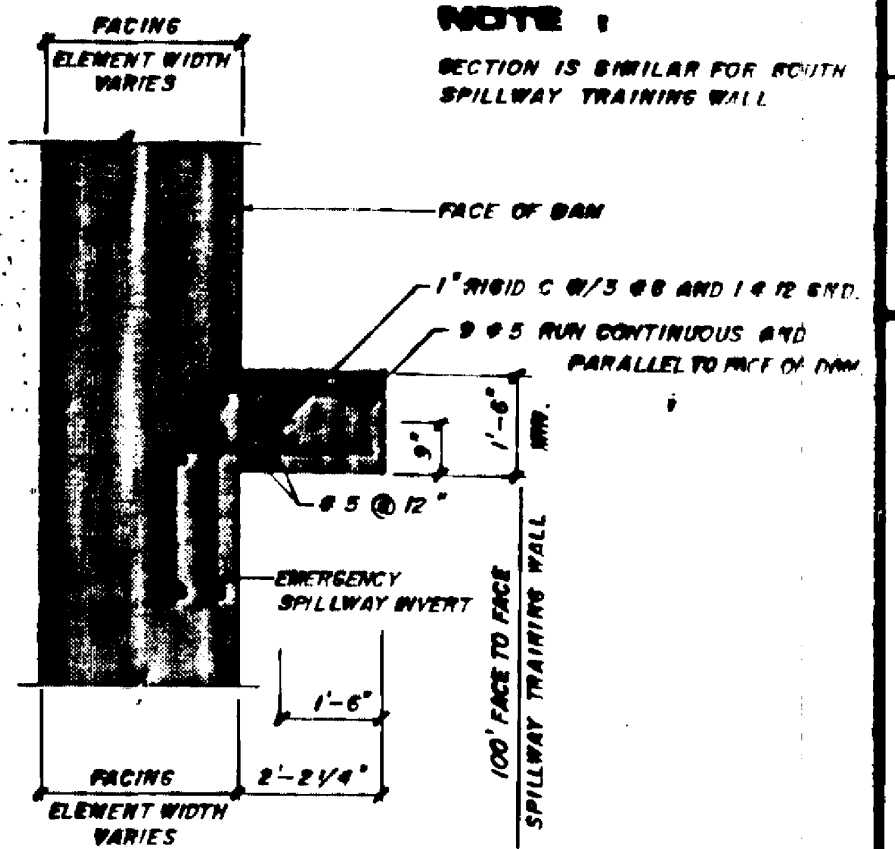
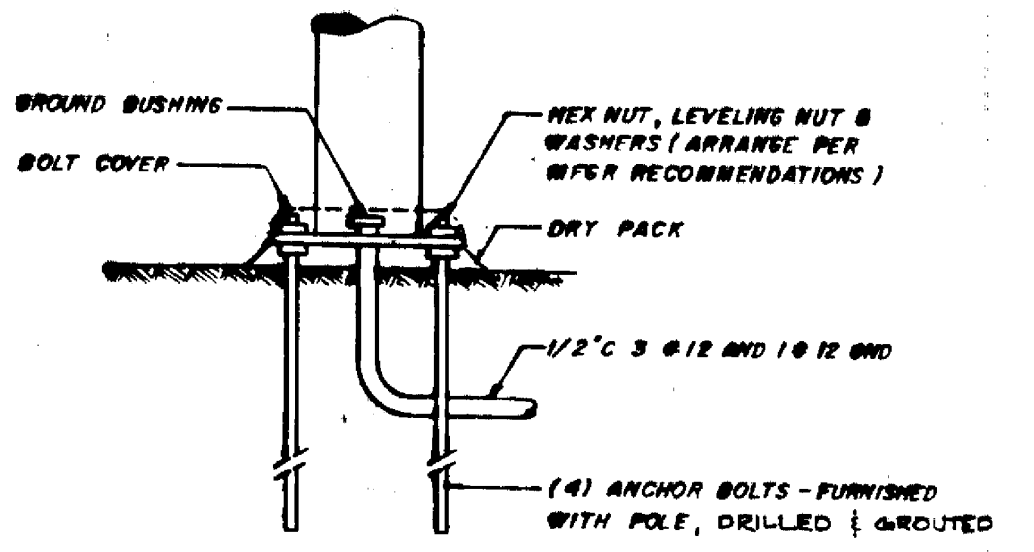
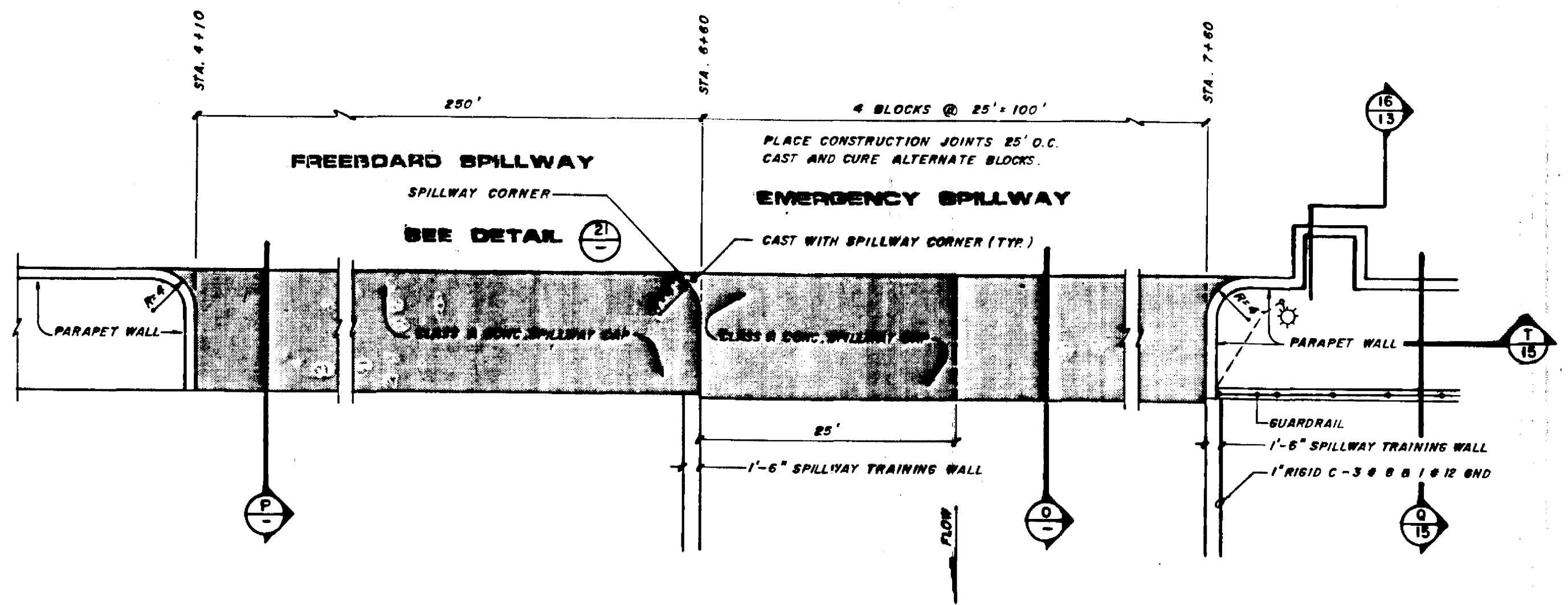
**CROSS SECTIONS OF DAM**

Drawn by: V.M.  
 Checked by: R.L.G.

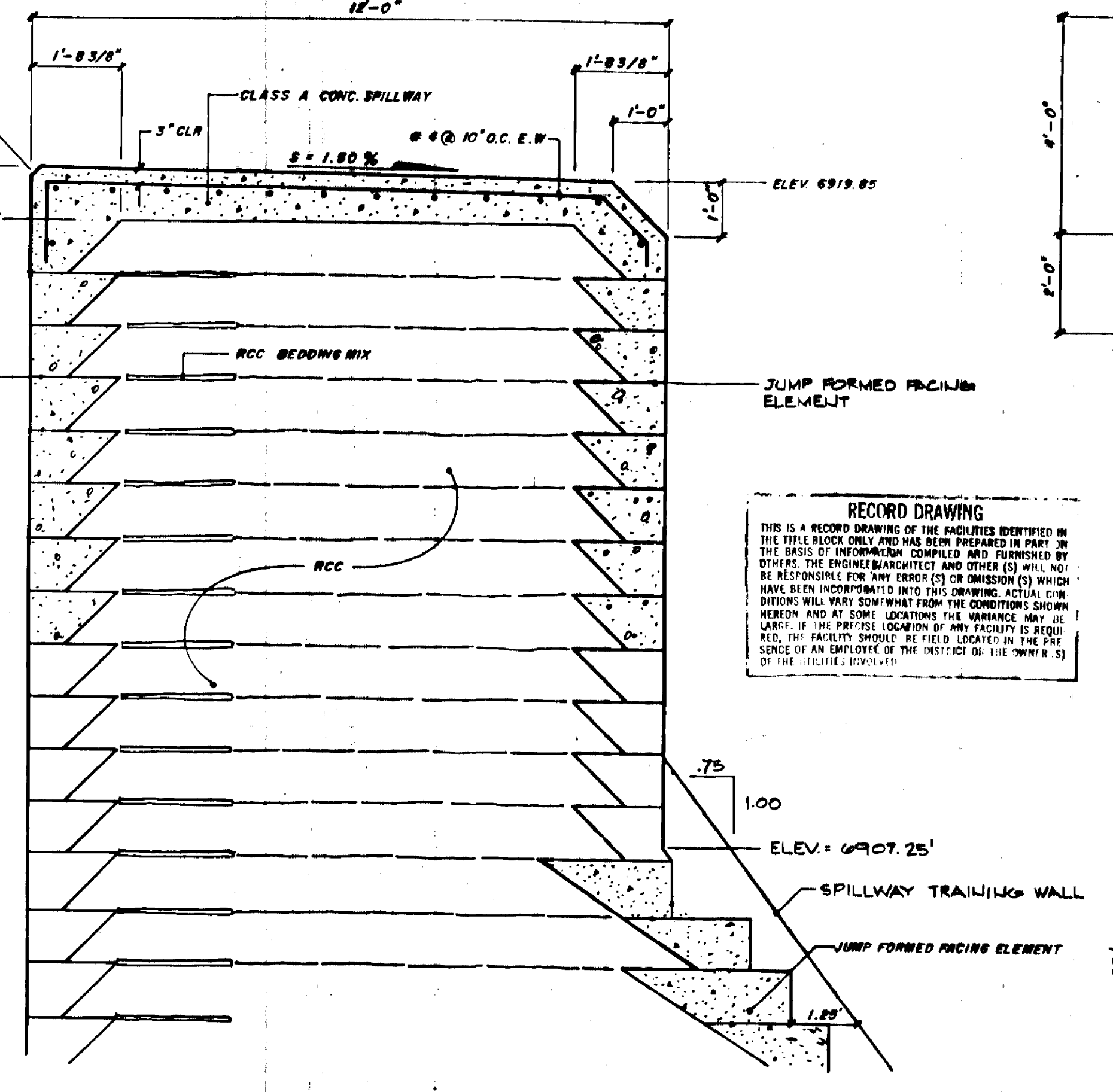
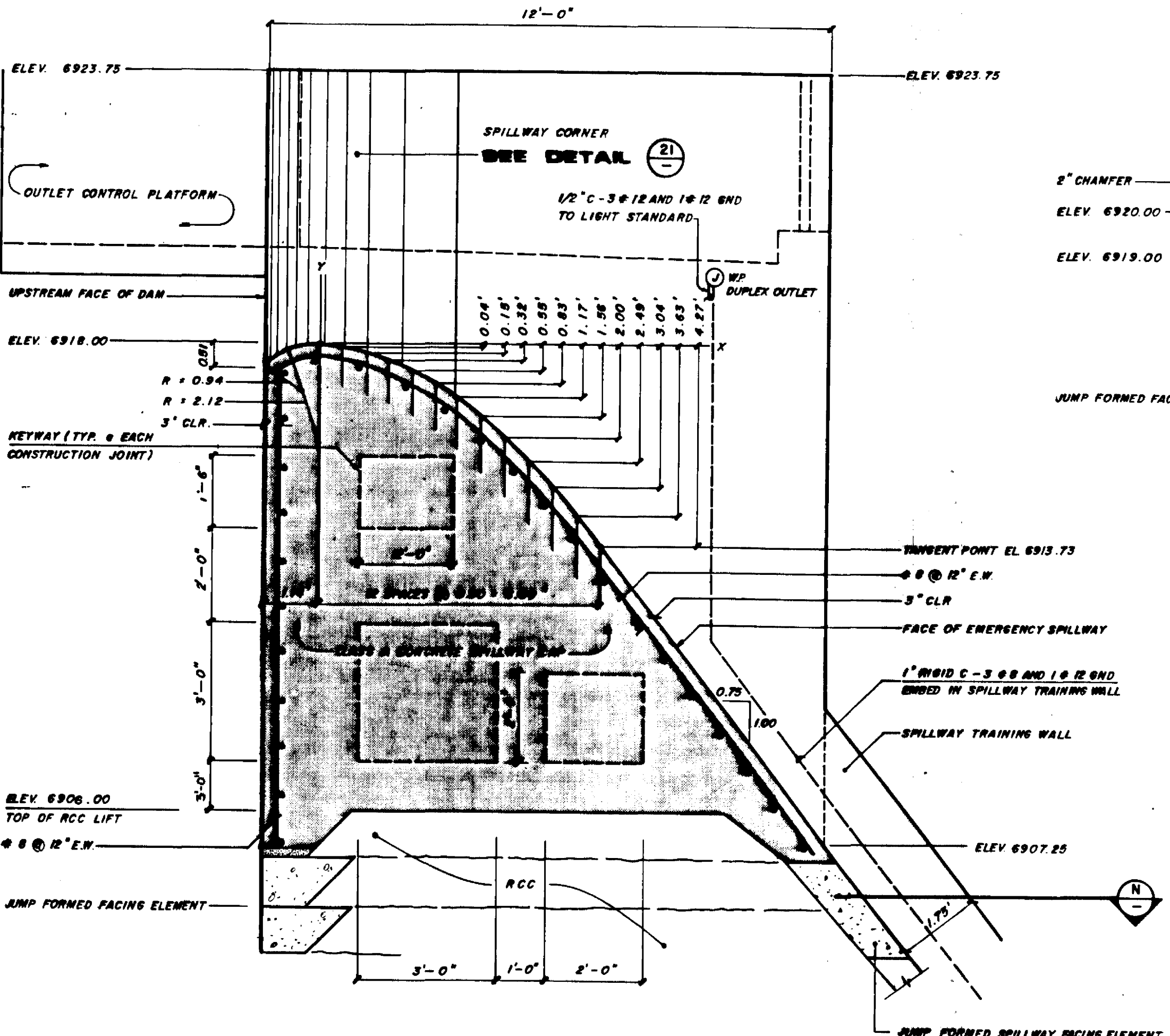
AL R03-128-00

REVISION MAY 20, 1999

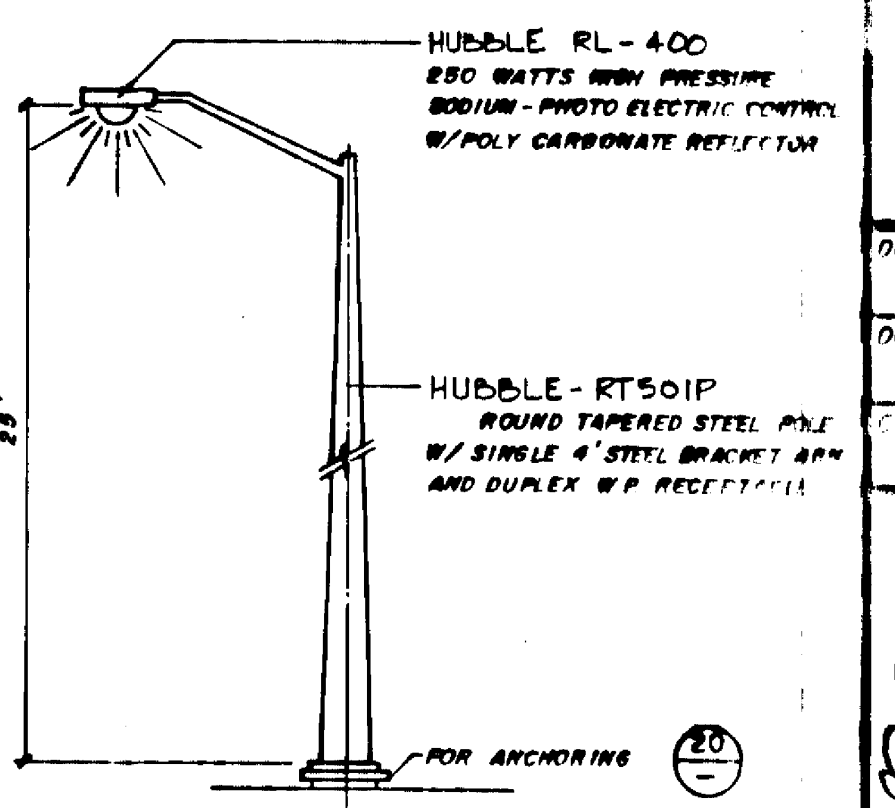
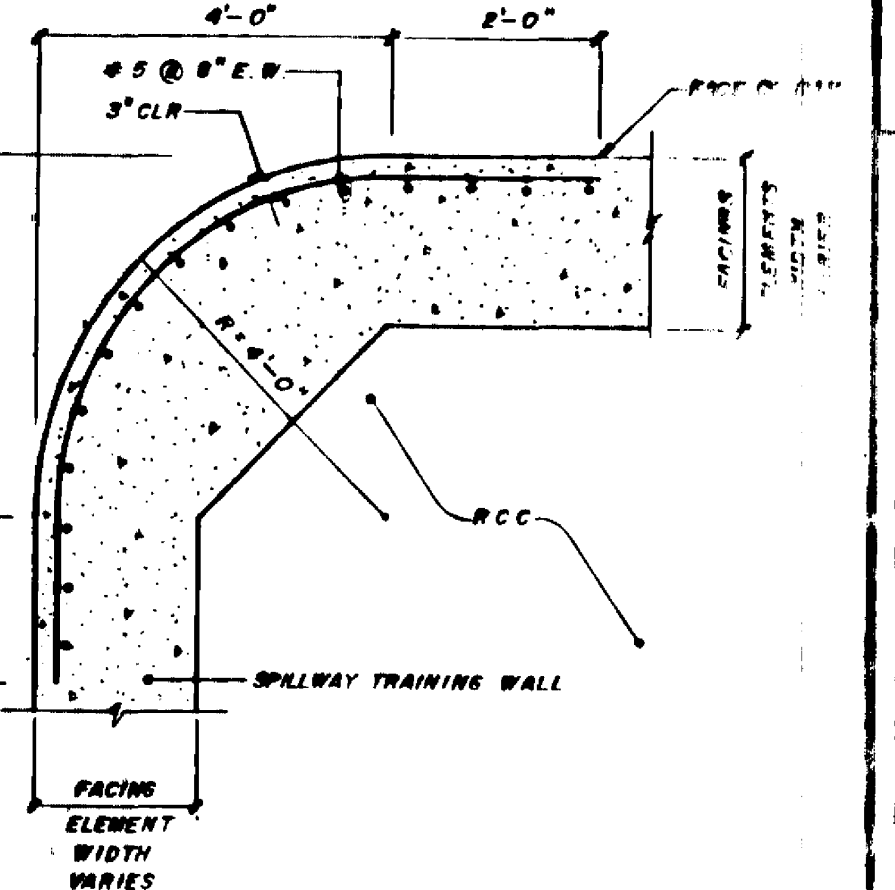
3871



**NOTE 1**  
SECTION IS SIMILAR FOR ROUTE SPILLWAY TRAINING WALL



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**SPILLWAY CURVE EQUATION**  
 $Y = -0.1493 (X - 1.872)$

3871

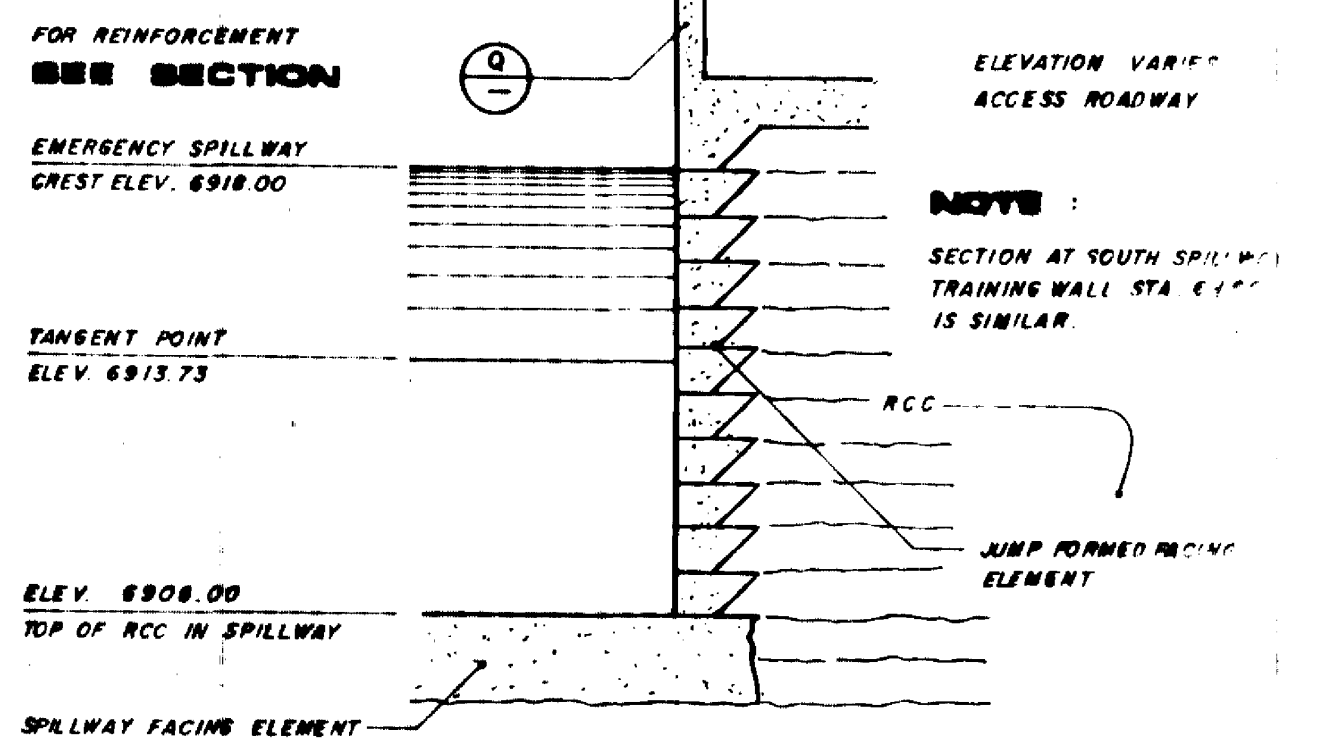
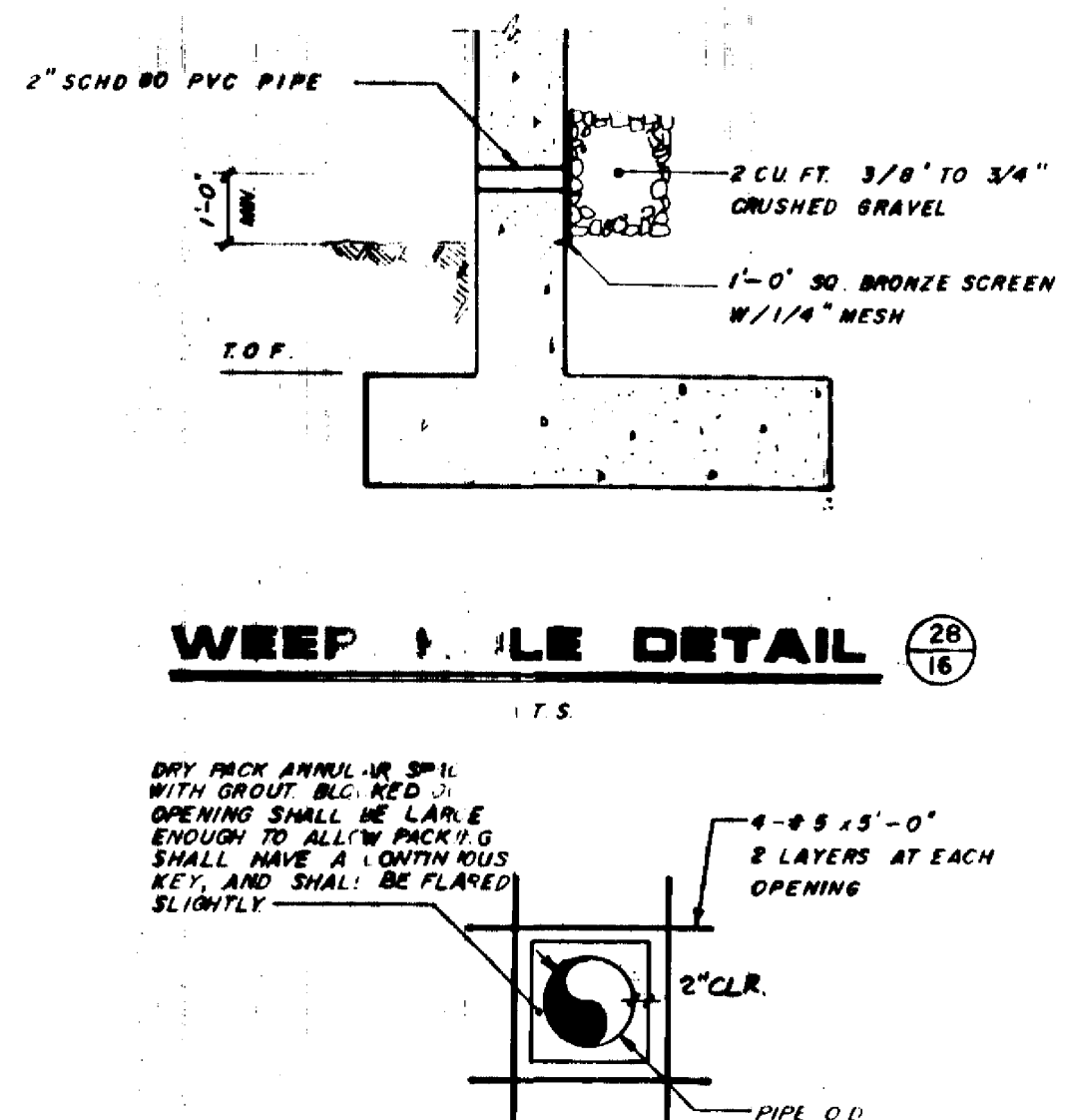
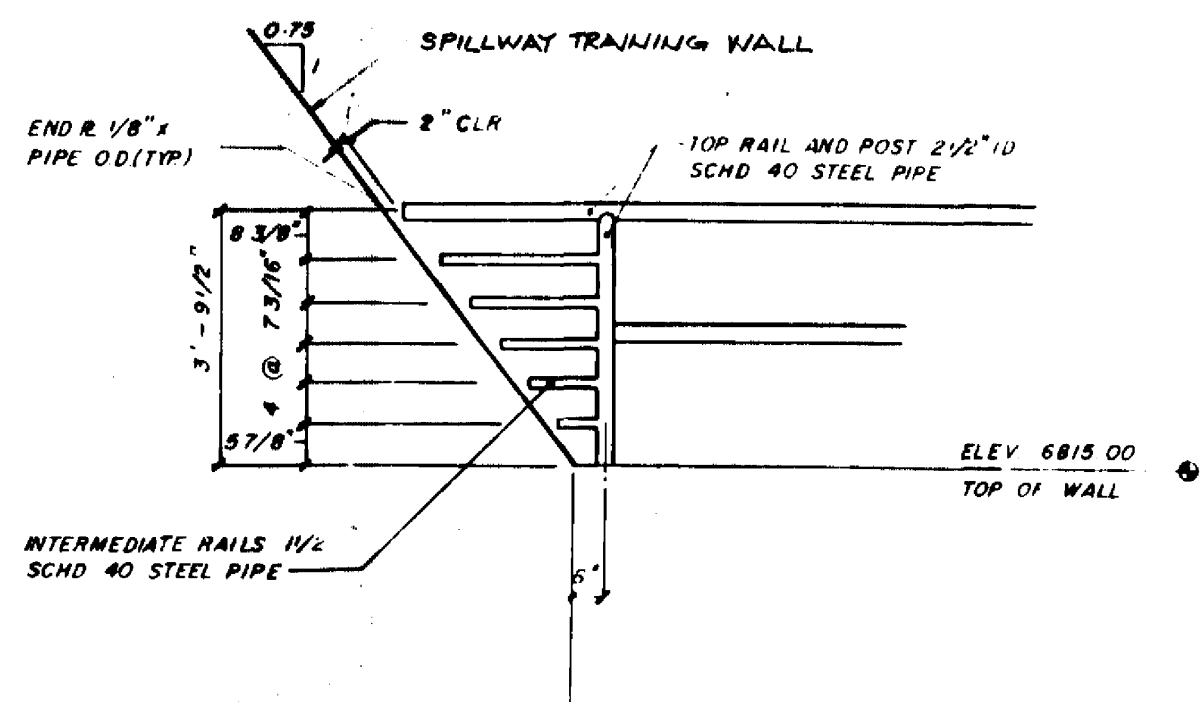
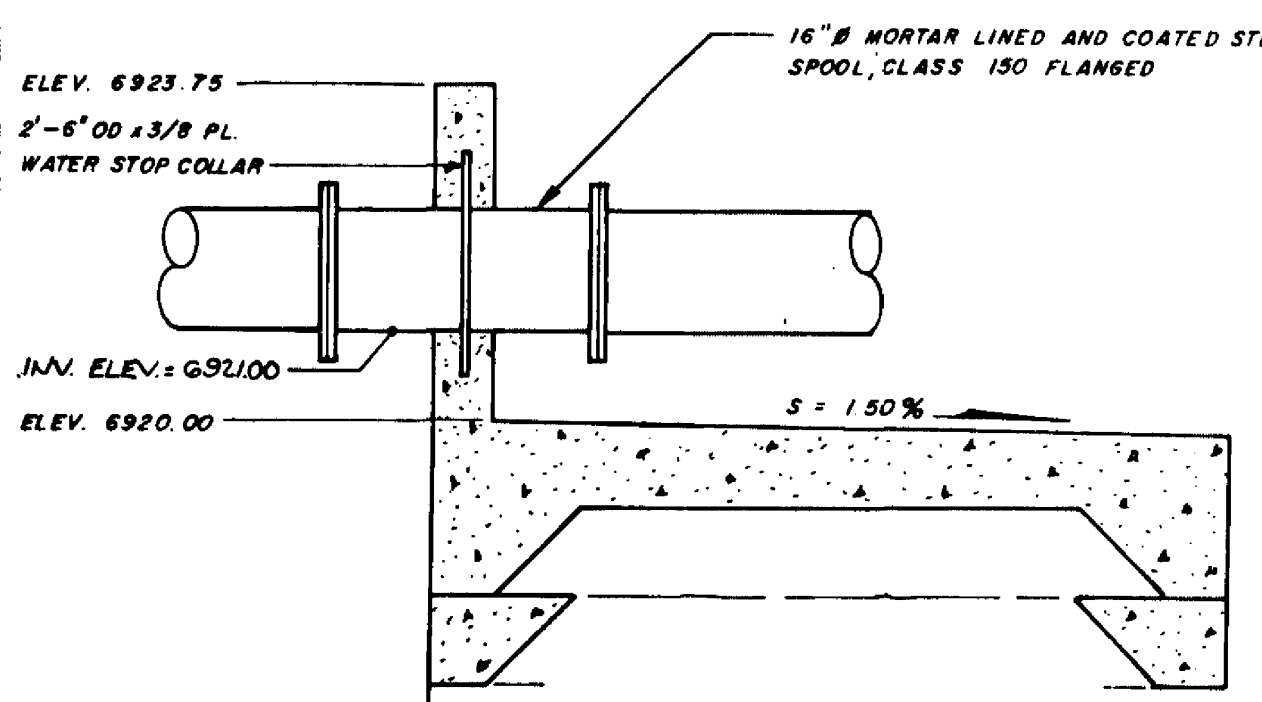
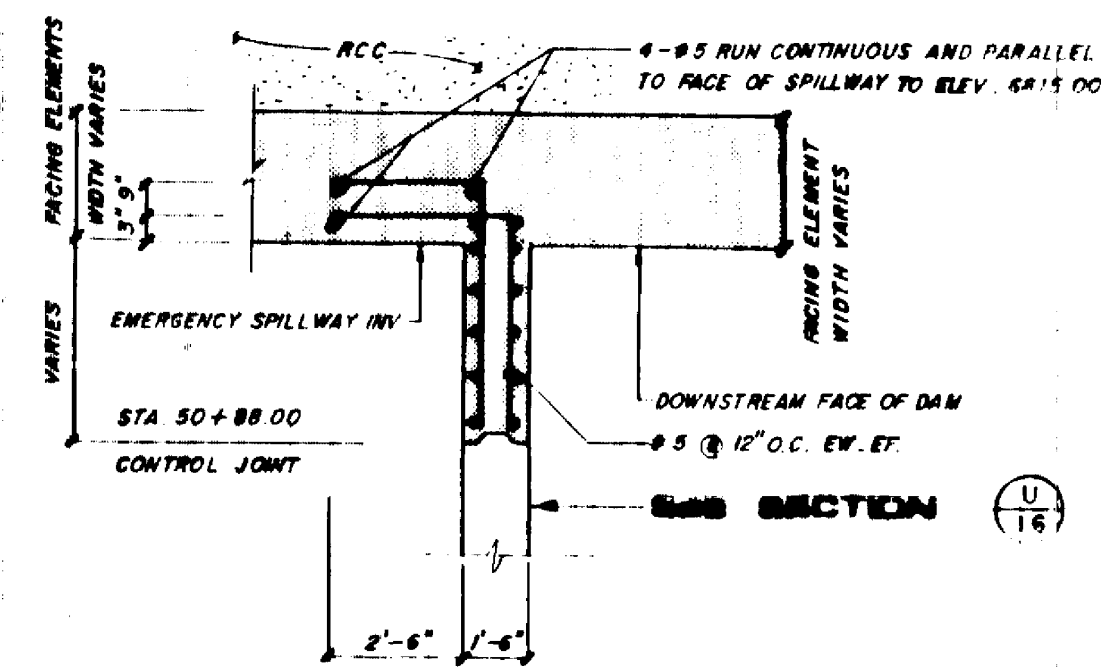
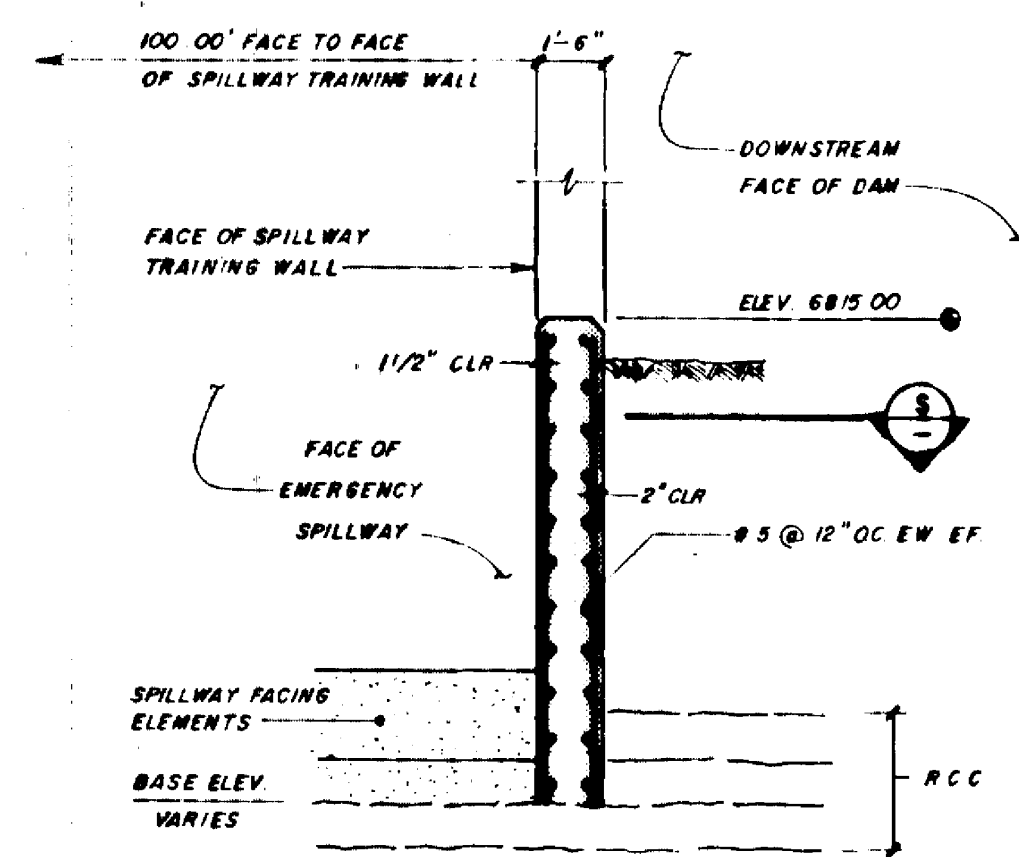
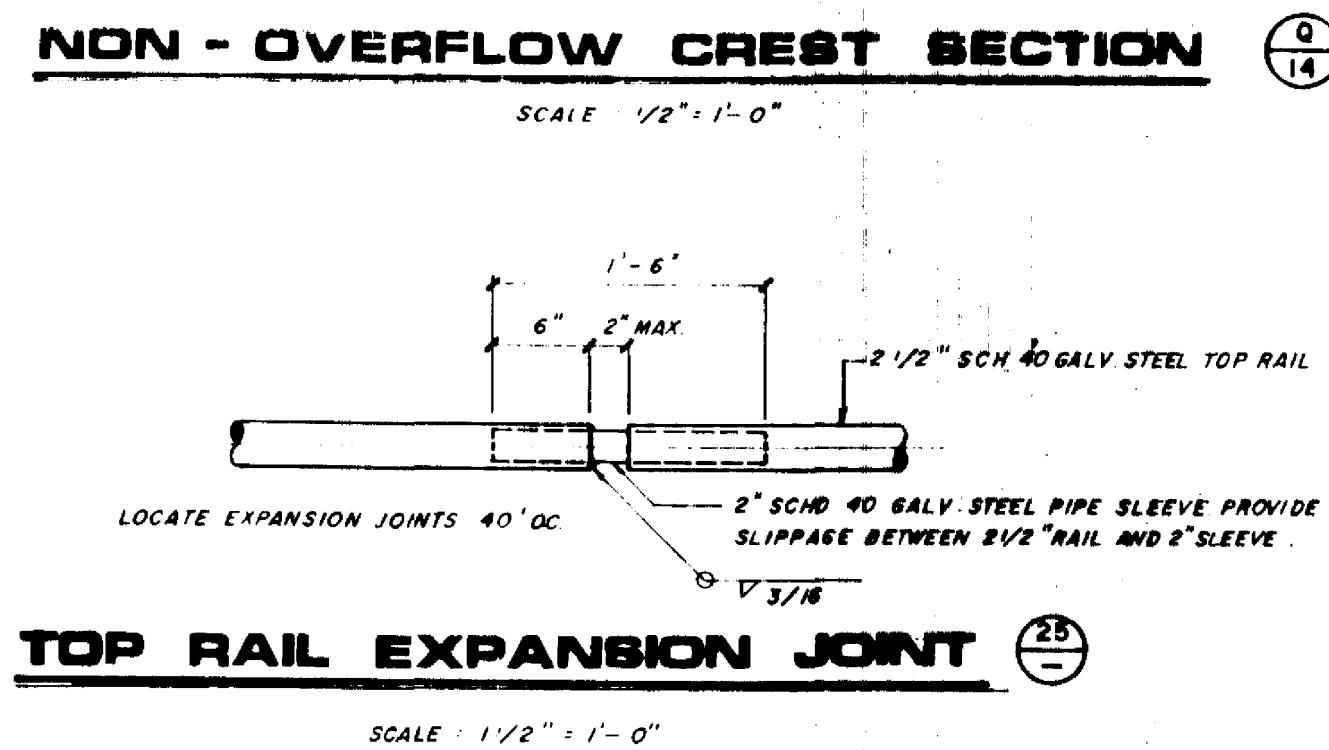
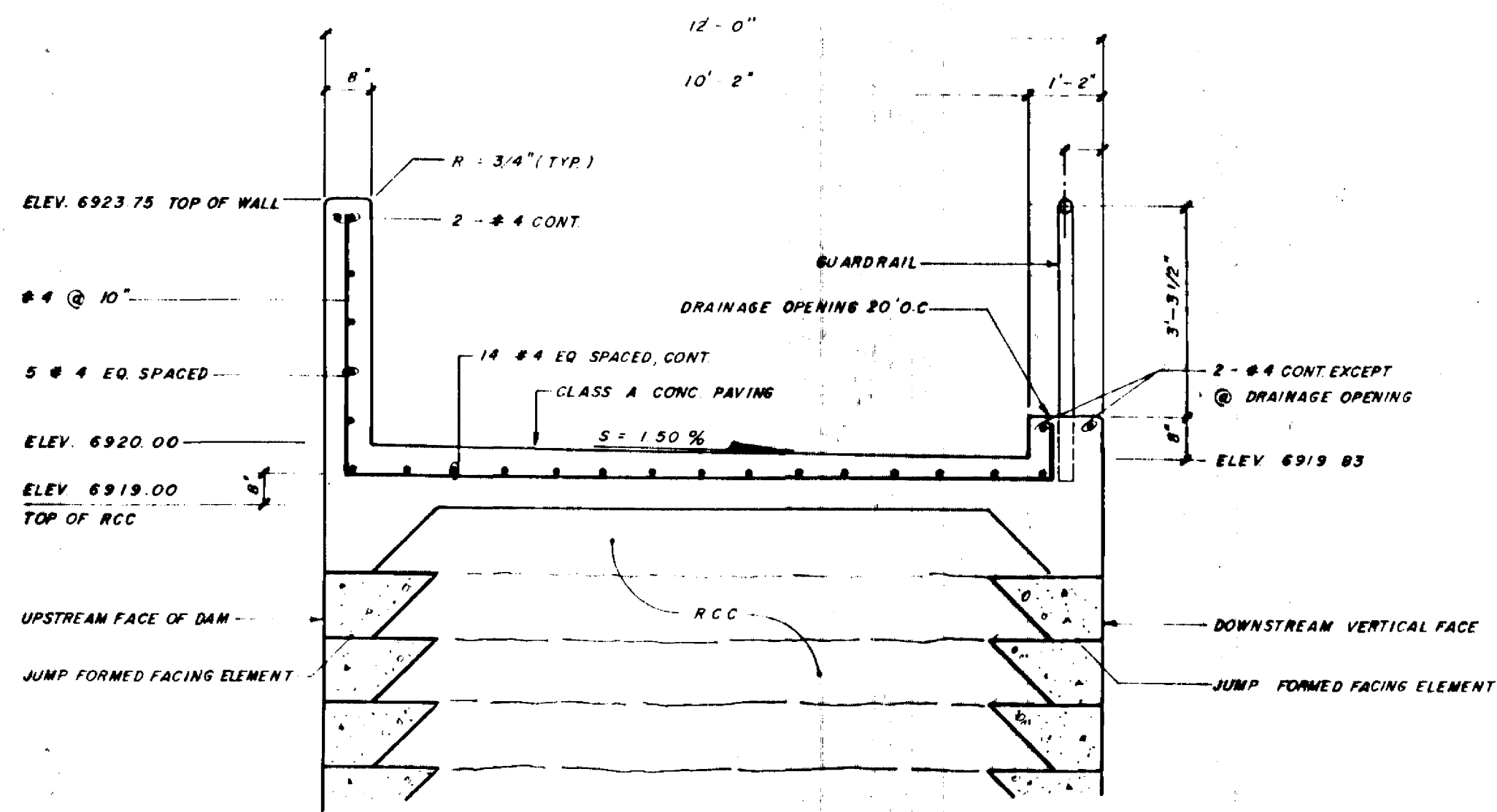
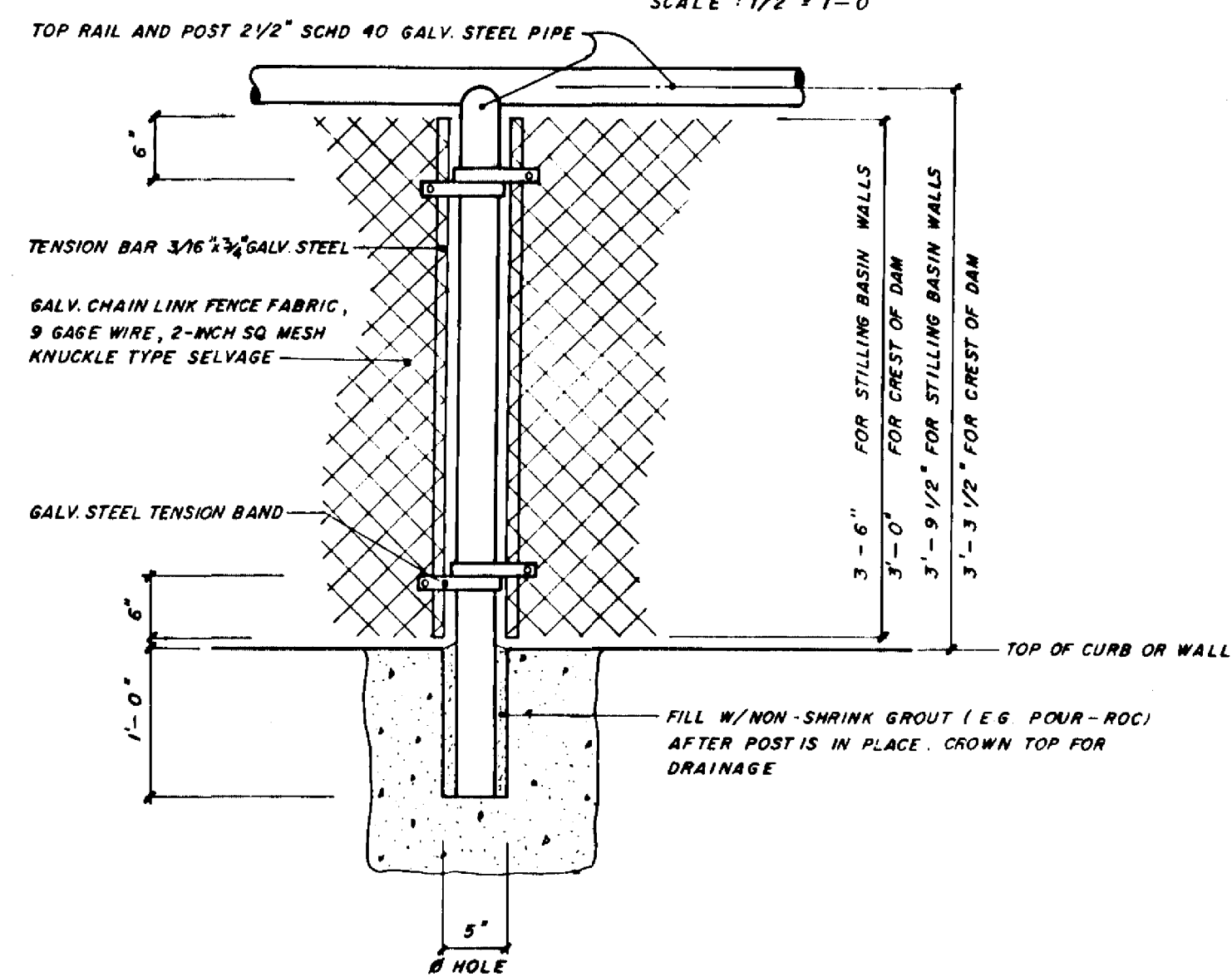
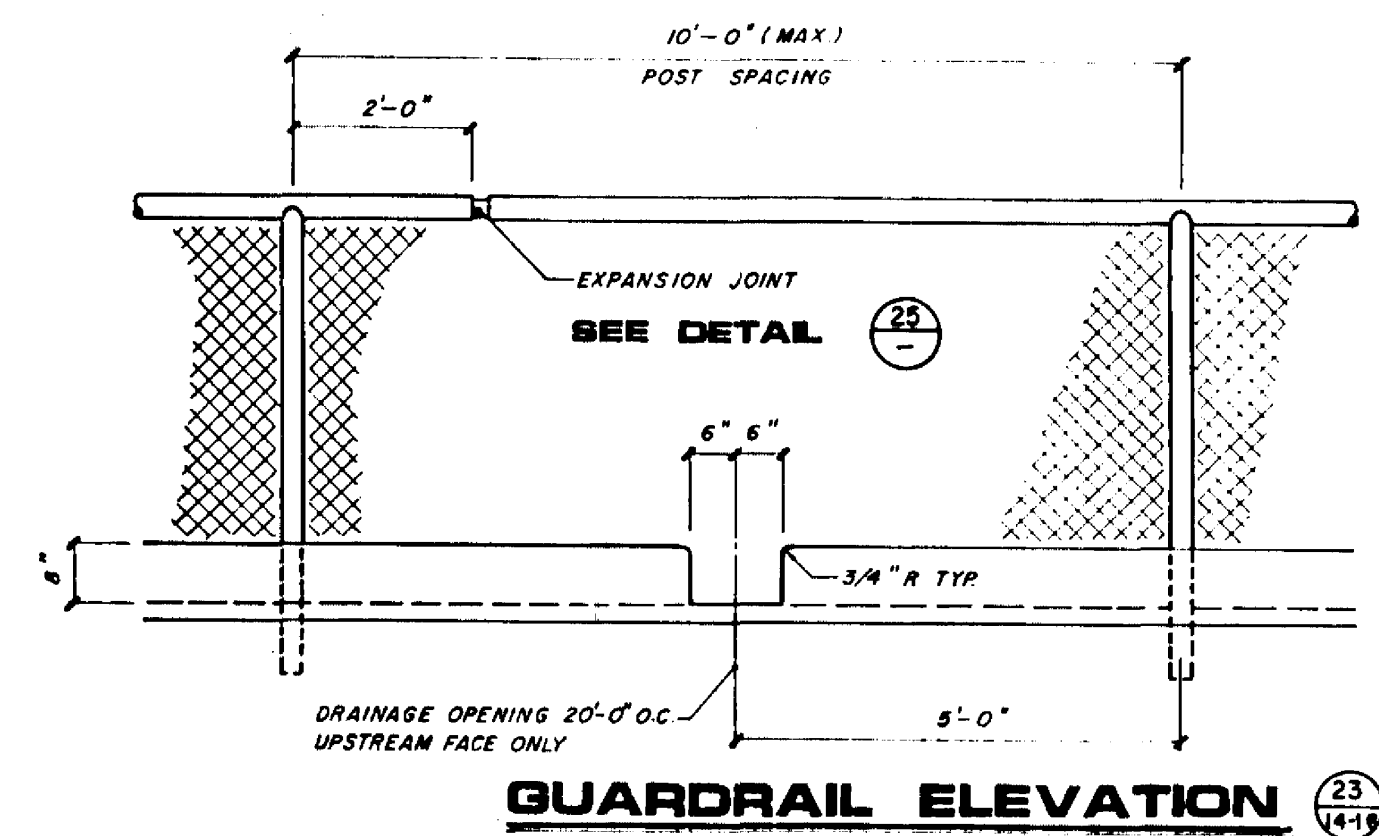
**VALLEY OF WINDS NEW MEXICO**  
**GRANDSTONE CANYON DAM**  
**SPILLWAY WITH DETAILS**

DESIGNED BY: T.W.I.  
DRAWN BY: J.W.  
CHECKED BY: R.L.G.

REGISTERED PROFESSIONAL ENGINEER  
STATE OF NEW MEXICO  
JAMES F. BURNS

Job Number: AL 608-499-80  
Date: 12





**RECORD DRAWING**  
THIS IS A RECORD DRAWING OF THE FACILITIES IDENTIFIED IN THE TITLE BLOCK ONLY AND HAS BEEN PREPARED IN PART ON THE BASIS OF INFORMATION OBTAINED AND FURNISHED BY OTHERS. THE ENGINEER/ARCHITECT AND OTHER(S) WILL NOT BE RESPONSIBLE FOR ANY ERROR(S) OR OMISSION(S) WHICH HAVE BEEN INCORPORATED INTO THIS DRAWING. ACTUAL CONDITIONS WILL VARY SOMEWHAT FROM THE CONDITIONS SHOWN HEREON AND AT SOME LOCATIONS THE DIMENSIONS MAY BE LARGER. IF THE PRECISE LOCATION OF ANY FACILITY IS REQUIRED, THE FACILITY SHOULD BE FIELD LOCATED IN THE PRESENCE OF AN EMPLOYEE OF THE DISTRICT OR THE OWNER(S) OF THE UTILITY INVOLVED.

Revised Mark Date

**SOLO STORING CORPORATION**  
consulting engineers

*James F. Brown* *30 May '65*  
D.M.

**VILLAGE OF FLUORO NEW MEXICO**

**CANDYSTONE CANYON DAM GUARDRAIL AND SPILLWAY WALL DETAILS**

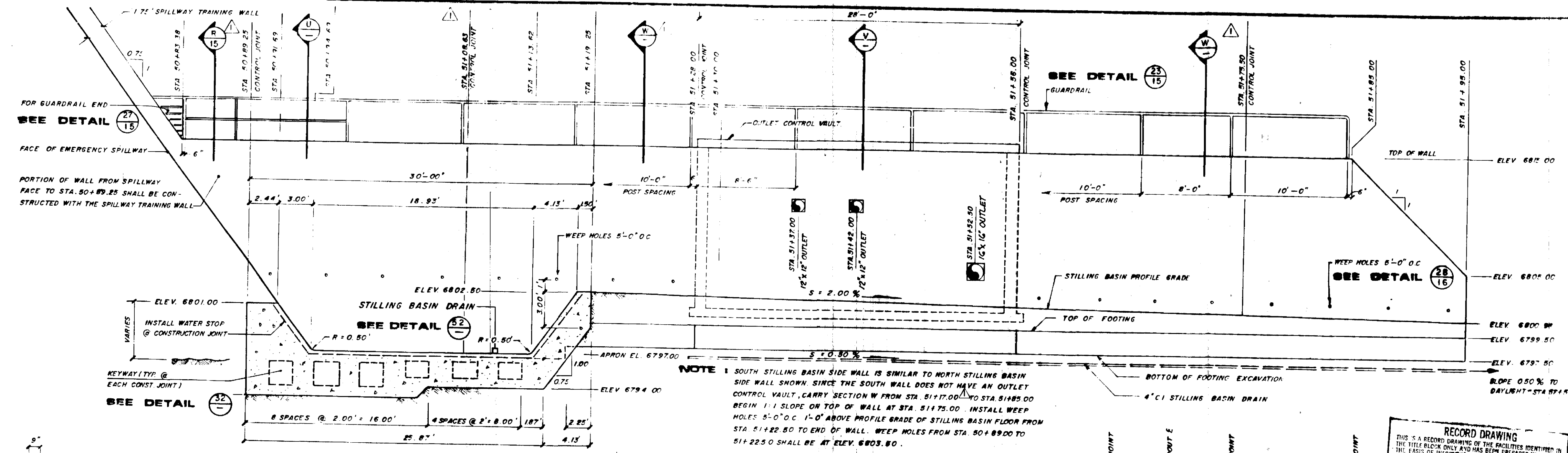
Designed by: JFM  
Drawn by: VM  
Checked by: JFE

**REGISTERED PROFESSIONAL ENGINEER**  
NEW MEXICO  
JAMES F. BROWN

Job Number  
**AL 100-100-00**

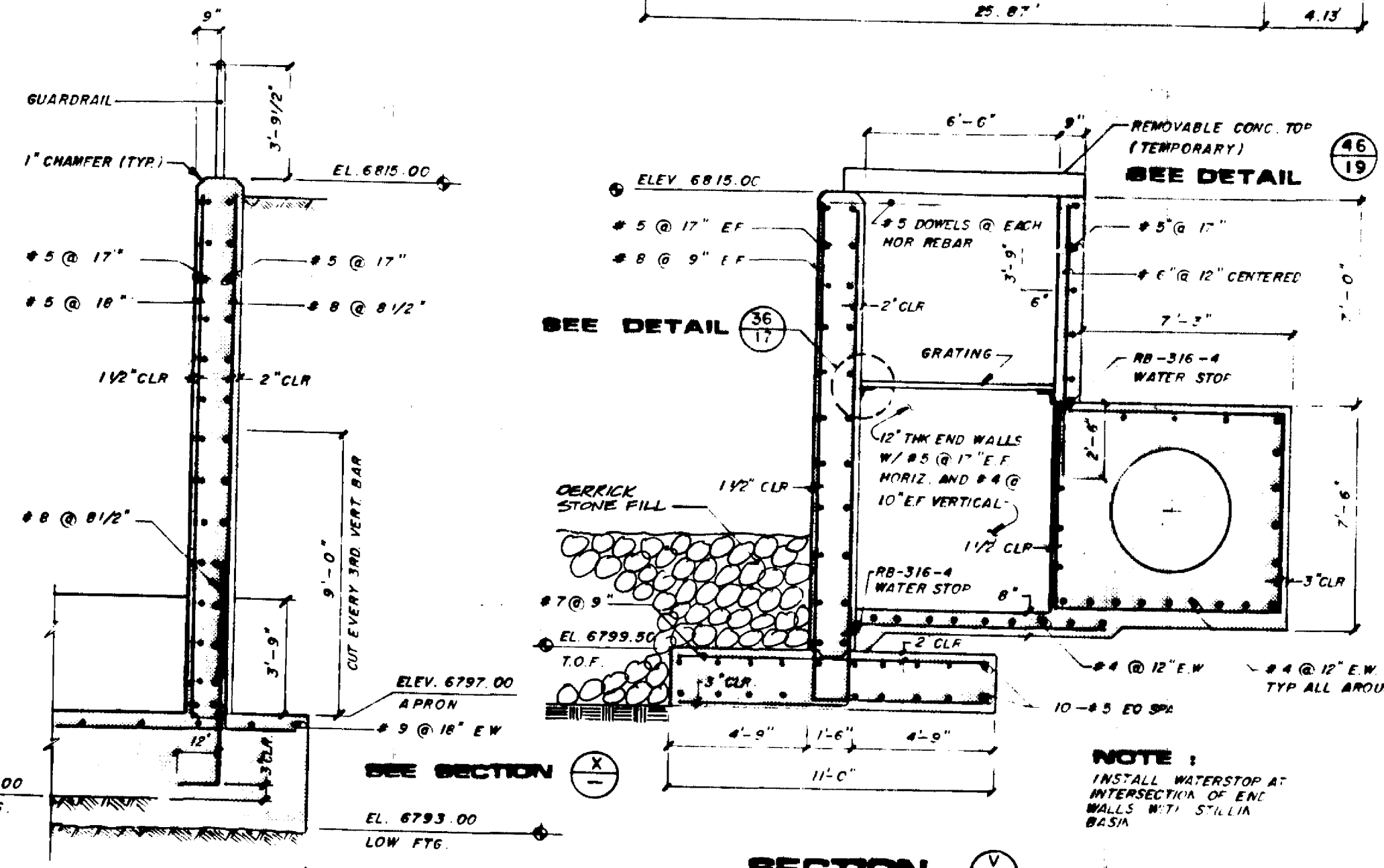
1965

REVISED MAY 20, 1965



**STILLING BASIN AND SIDE WALL** (29)

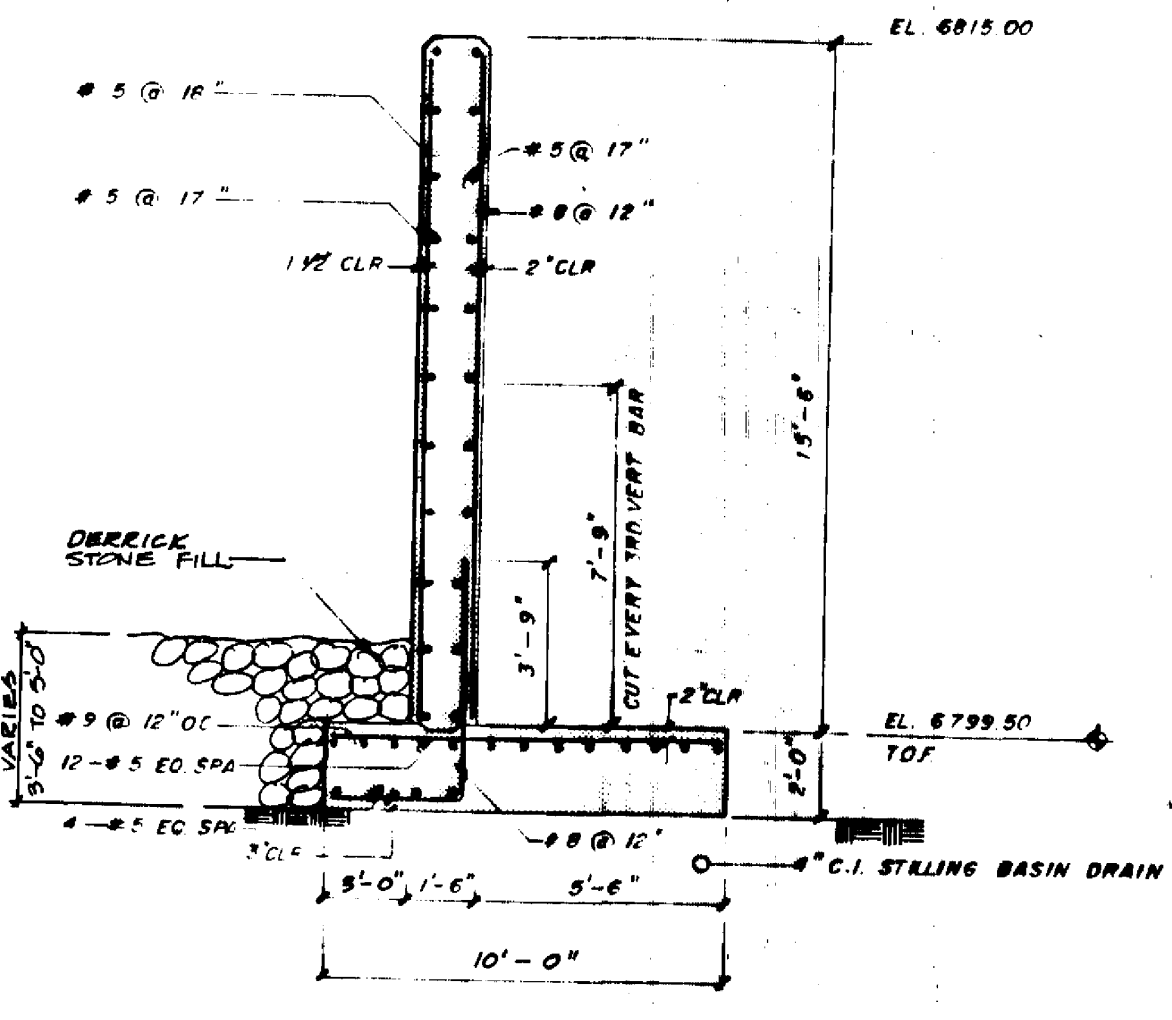
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**SECTION V**

**OUTLET CONTROL VAULT**

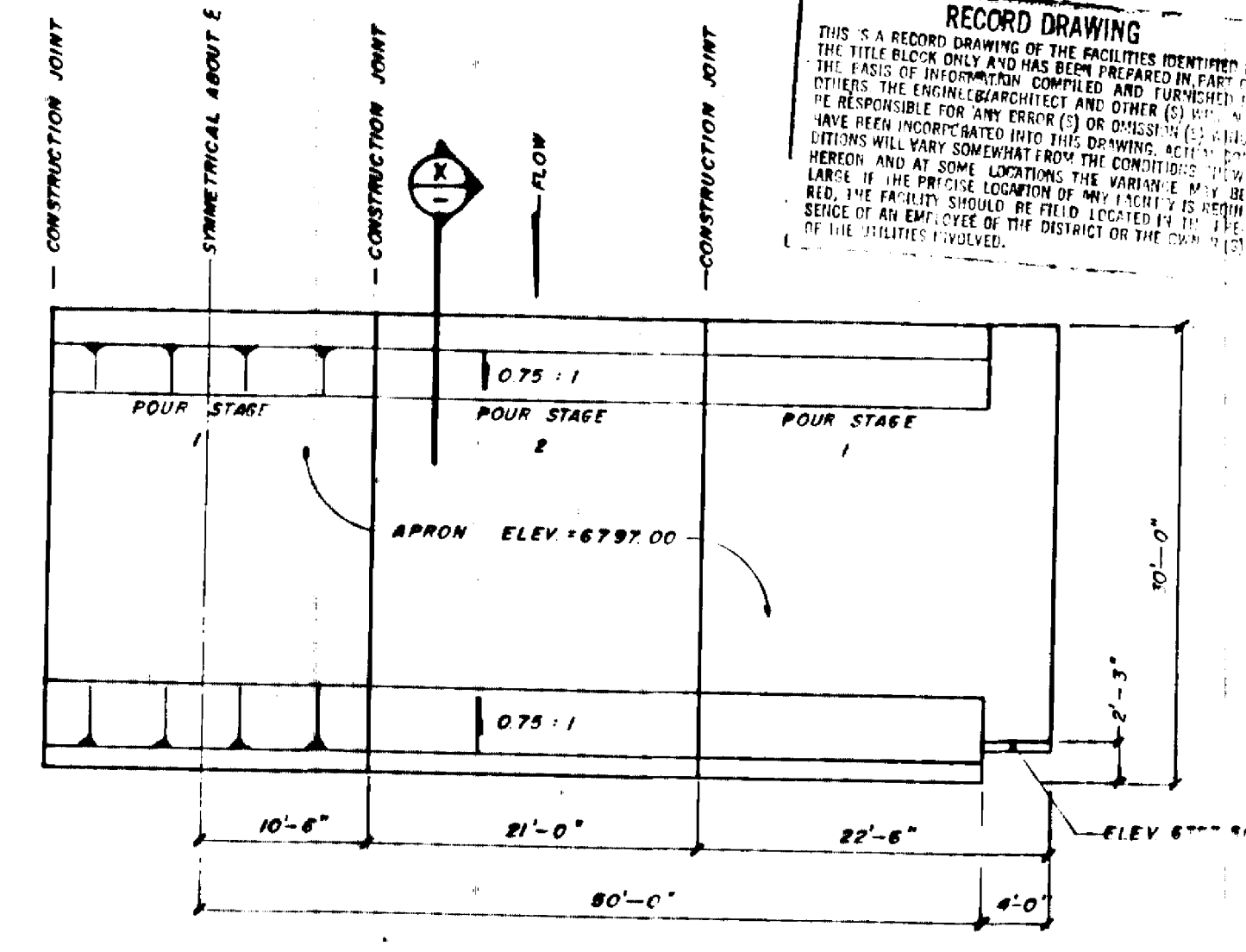
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**SECTION W**

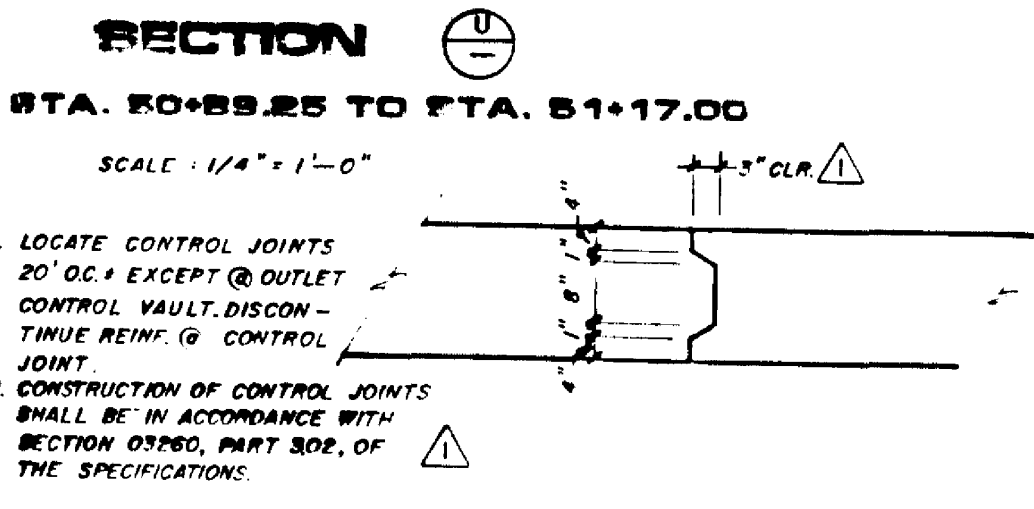
**STILLING BASIN DRAIN**

SCALE: 1/4" = 1'-0"



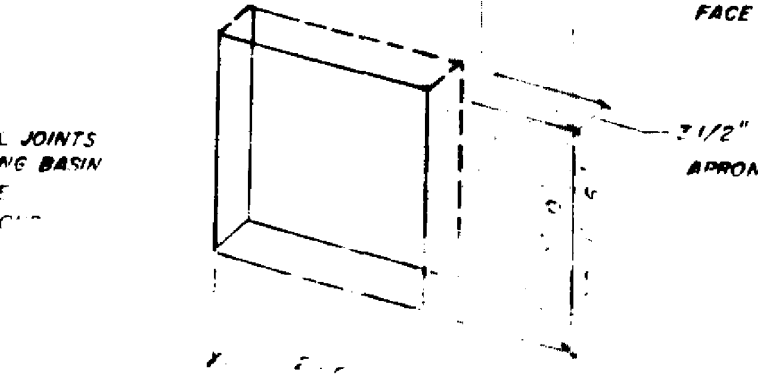
**STILLING BASIN - PLAN** (30)

SCALE: 1" = 10'



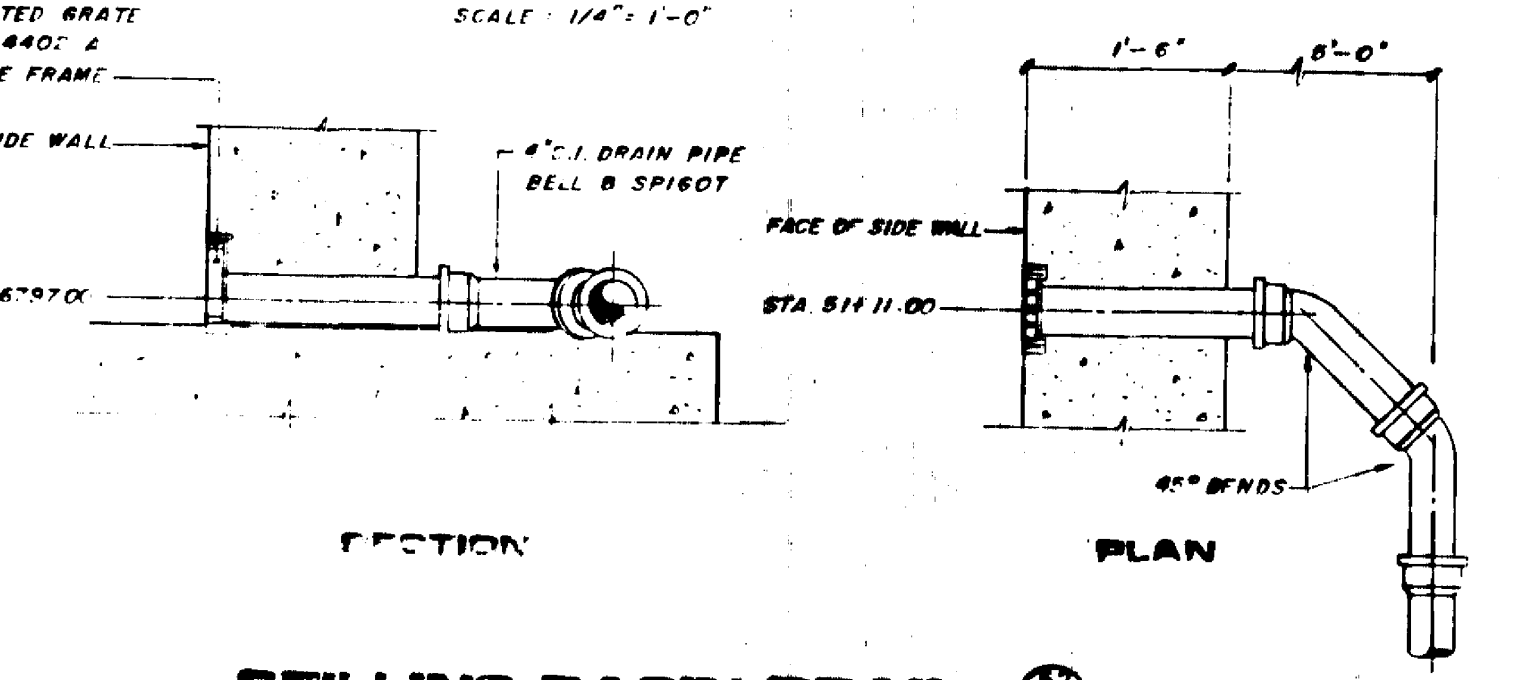
**CONTROL JOINT DETAIL** (31)

N.T.S.



**KEYWAY DETAIL** (32)

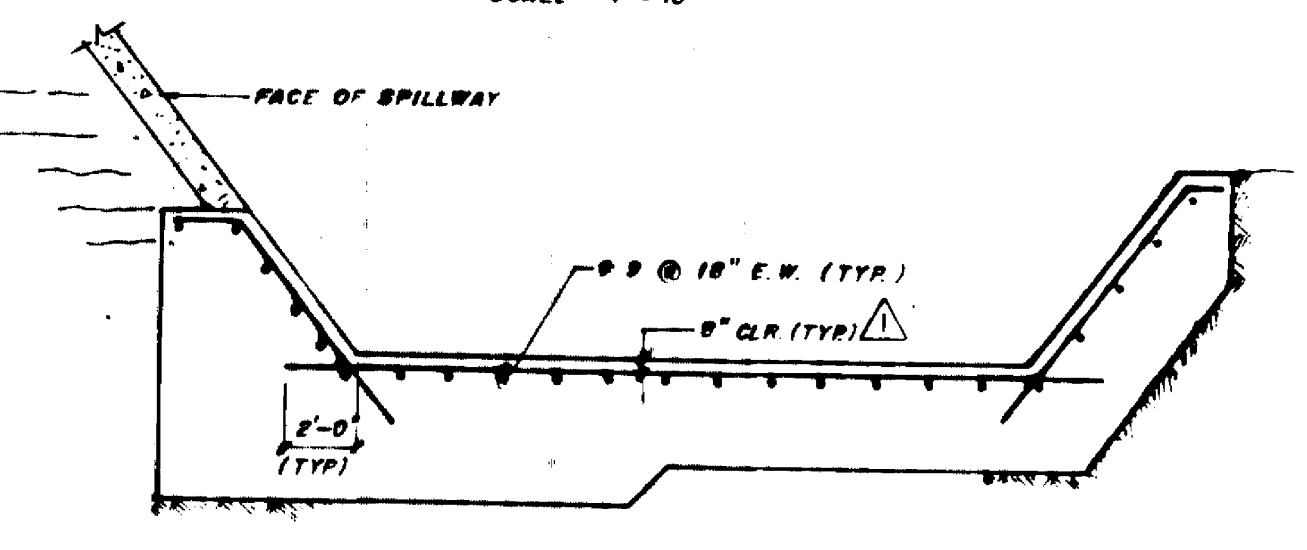
N.T.S.



**SECTION X**

**STILLING BASIN DRAIN** (32)

N.T.S.



**SECTION Y**

SCALE: 1" = 5'-0"

**RECORD DRAWING**

THIS IS A RECORD DRAWING OF THE FACILITIES IDENTIFIED IN THE TITLE BLOCK ONLY AND HAS BEEN PREPARED IN PART BY THE ENGINEER/ARCHITECT AND OTHERS (S) RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE FACILITIES IDENTIFIED HEREIN. AND AT SOME LOCATIONS THE VARIATIONS IN THE ORIGINAL DESIGN AND CONSTRUCTION OF THE FACILITIES IDENTIFIED HEREIN SHOULD BE FIELD LOCATED BY THE ENGINEER/ARCHITECT OR THE DISTRICT OR THE CONTRACTOR OF THE FACILITIES IDENTIFIED.

Revision Mark:   
 Date: 10/10/89

**SOB Engineering Corporation**  
consulting engineers

*James F. Brown, 20 May 85*  
Date

**VILLAGE OF WOODBURN**  
NEW MEXICO

**GARDENSTONE CANYON DAM**  
L.P. LOCKET AND TULLOCH PARTNERS  
CIVIL ENGINEERS

Designed by: C.B.T.

Drawn by: V.M.

Checked by: J.F.P.

**REGISTERED PROFESSIONAL ENGINEER**  
NEW MEXICO  
JAMES F. BROWN  
No. 10,000

3871

REVISION MAY 20, 1989