TULE RIVER TRIBAL COUNCIL
TULE RIVER INDIAN RESERVATION

REQUEST FOR BIDS

FOR

Emergency Water Project Intake Structure Construction
TRTC-75-2024

FOR THE

TULE RIVER TRIBAL COUNCIL

PROPOSALS DUE: November 14, 2024 no later than 5 PM.

SUBMIT TO:

Corina Harris
Procurement Director
Tule River Tribal Council
PO Box 589
Porterville, Ca. 93258

ATTN: Any overnight or 2 day deliveries can be sent to:

Corina Harris, Procurement Director
Emergency Water Project: Intake Structure Construction
Tule River Tribal Council
340 N. Reservation Rd.
Porterville, Ca. 93257

Sealed Bids mailed to the PO Box address, hand delivered or delivered by courier will not be opened if they are received after the bid opening time.

NOTE: A) ONE (1) ORIGINAL AND SIX (6) COPIES OF THE BID (NO FAXED OR EMAILED SUBMISSIONS) ARE DUE BY WEDNESDAY, NOVEMBER 14, 2024 NO LATER THAN 5:00 PM.

REQUEST FOR BIDS
For Emergency Water Project: Intake Structure Construction
Tule River Tribal Council

The Tule River Indian Tribe (Tribe) is requesting bids for the construction of a new intake structure at the existing dam on the reservation (36° 2'29.52"N, 118°44'5.61"W) which is located approximately 10 miles southeast of the city of Porterville in Tulare County, California. The full Request for Bids (RFB) is available on the Tribes website at www.tulerivertribe-nsn.gov/rfp.

The contractor shall possess a valid State of California Class A (go to http://www.cslb.ca.gov/) Contractors License at the time of submitting the bid. The contractor shall provide the license number classification and expiration date within the proposal.

I. PROJECT DESCRIPTION

This project will install a new reinforced concrete intake vault. The vault shall have a means of accessing the valves and screens, the ability to sluice, and the ability to provide both screen flows for treatment and flushing flows for transmission line cleaning, the ability to more easily clean out the existing structure. Additionally, the new piping in the vault will be connected to the existing transmission line.

II. SCOPE OF WORK

Tule River Tribal Council is seeking qualified bids for services to include:

The contractor shall be responsible for furnishing all materials and labor to complete the project and shall coordinate construction dates and times with the Tule River Tribal Council or their designated representative.

The contractor shall be responsible for all excavation, rock removal, forming, reinforcement, pouring and finishing the concrete, installing concrete epoxy anchor bolts, installing screens, gates, piping, valves, and fittings, connecting to existing transmission line, site clean-up, site clean-up, and as built.

During construction, the contractor shall maintain water service to the surface water treatment plant via the existing 14” water transmission line.

III. SITE RECONNAISSANCE

Bidders shall conduct a site reconnaissance and document in the location of the proposed work. A job walk will be conducted on October 28, 2024. Everyone will meet at the Public Works building then proceed to the intake structure by 10:30 AM.

IV. SCHEDULE/TIMELINE

Time is of the essence. After award of a contract, the contractor will have 365 working days after

issue of a Notice to Proceed to complete the project.

V. SUBMISSION REQUIREMENTS

The following must be submitted in response to this proposal.

A. Statement of the proposed scope of work and bidders understanding of project.
B. Lump Sum price for materials and labor for completing the installation, including site work, provision of materials, labor, sales tax and delivery charges.
C. Schedule/Timeline.
D. Previous experience with concrete installations and/or work working in waterways. Also please note any prior projects where you have experience working with Tribes, if applicable.
E. Anticipated key project personnel and their related experience.
F. At least three (3) references (from the last 3 years) with contact information

Submission package must be limited to not more than 15 pages, including all items listed above.

Submit the proposal in a format that can be signed by the Tribe as an acceptance of the proposal and agreement to complete the work. A Notice to Proceed will be issued upon approval of the agreement by the Tule River Tribal Council.

Please include the following tribally required clause in the proposal:

"SOVEREIGN IMMUNITY: Nothing herein is intended to convey any rights to individuals or entities that are not parties to this Agreement. Further, nothing herein shall be construed to waive the Tribe's sovereign immunity from unconsented suit against any claims by third parties."

INDIAN AND OTHER FEDERAL PREFERENCE APPLICABLE

All Tule River Tribal Council's RFBs are subject to Section 7(b) of the Indian Self Determination & Education Act (25 USC 450e(b)) which provides to the greatest extent feasible, preference and opportunities be given to American Indians and American Indian owned business enterprises and OMB Circular A-102 (45 C.F.R Part 92.36(e)) requiring Tule River Tribal Council to take all necessary affirmative steps to assure minority firms, women's business enterprises and labor surplus area firms are used when possible. For Indian Preference to be applied to American Indian owned and controlled businesses, proof of American Indian business ownership with more than 50% control must be submitted with the proposal.

INDIAN EMPLOYMENT OF SUBCONTRACTS -INDIAN PREFERENCE

Pursuant to Section 7(b) of the Indian Self-Determination and Assistance Act, as amended, to the greatest extent feasible, this RFB and any subcontracts awarded shall require Indian preferences

and opportunities for training and employment in connection with the administration of such contract/subcontracts.

In addition, preference in the award of subcontracts shall be given to Indian organizations and to Indian-owned economic enterprises. Pursuant to Section 7(c) of the Indian Self-Determination and Assistance Act, as amended, the tribal employment or contract preference laws adopted by such Tribe shall govern with respect to the administration of the contract or portions of the contract.

VI. BONDING

Bid Bonds are required for all projects exceeding $25,000 in total aggregate cost and shall be in an amount equal to ten (10) percent of the bid price.

Performance and payment bonds with penalty amounts equal to 100% of the amount of the contract are required by law when the bid exceeds $100,000. Proof of corporate status must be furnished to, and be satisfactory to, the Tribe.

Bonding companies must be registered to do business with the State of California.

Bonds are to be made payable to the Tribe. Corporate sureties offered for bonds furnished with this contract must be original documents and must appear on the list contained in the Department of Treasury Circular 570, entitled "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies,"

VII. SUSPENSION AND DEBARMENT

The Contractor certifies that it is not suspended or debarred under federal law and regulations or any other state's laws and regulations. (Attachment No. 1)

VIII. SELECTION CRITERIA

In order of importance:

A. Presentation/Clarity/Understanding of Project
B. Pricing
C. Schedule/Timeline
D. Experience
E. Key personnel and References
F. Indian Owned, if applicable

Bids will be opened immediately after time for receipt of Bids.

IX. DOCUMENTATION

Failure to provide sufficient information for the evaluation criteria will result in being deemed unresponsive. We reserve the right to verify the validity of all information provided.

TO AID COMPANIES IN THEIR RESPONSE TO THIS REQUEST, THE FOLLOWING ITEMS ARE ATTACHED:

Attachment No. 1	Suspension and Debarment
Attachment No. 2	Technical Specifications
Attachment No. 3	Phase 1-Emergency Water Project Plan

X. SUBMISSION SCHEDULE

ONE (1) ORIGINAL AND SIX (6) COPIES OF THE BID (NO FAXED OR EMAILED SUBMISSIONS) ARE DUE BY NOVEMBER 14, 2024 NO LATER 5 PM.

To:

Corina Harris
Emergency Water Project: Intake Structure Construction
Tule River Tribal Council
PO Box 589
Porterville, Ca. 93258

ATTN: Any overnight or 2 day deliveries can be sent to:

Corina Harris
Emergency Water Project: Intake Structure Construction
Tule River Tribal Council
340 N. Reservation Rd.
Porterville, Ca. 93257

If you have any questions regarding this RFB, please call John Gichuki at (559)783-9594

TULE RIVER TRIBAL COUNCIL
TULE RIVER INDIAN RESERVATION

TULE RIVER TRIBAL COUNCIL
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 or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain. or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

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 (2) of this certification; and

4. Have not within a three year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 U.S.C. Sec. 1001, a false statement may result in a fine ofup to $10,000 or imprisonment for up to 5 years, or both.

_____

Name of Firm Submitting Bid

_____

Signature and Title of Authorized Official Date

I am unable to certify to the above statements. Attached is my explanation.

Prime or Subcontractor's Name:_____

Telephone Number:_____ __

Attachment No. 1

BIDDING AND CONTRACT DOCUMENTS

TABLE OF CONTENTS

DIVISION 31 – EARTHWORK

DIVISION 33 – UTILITIES

DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION

DIVISION 46 – WATER AND WASTEWATER EQUIPMENT

END OF SECTION

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Contract description.

B. Contractor's use of site.

C. Specification Conventions.

1.2 CONTRACT DESCRIPTION

A. Work of the Project includes construction of a new reinforced concrete intake vault. The vault shall have a means of accessing the valves and screens, the ability to sluice, and the ability to provide both screen flows for treatment and flushing flows for transmission line cleaning, the ability to more easily clean out the existing structure. Additionally, the new piping in the vault will be connected to the existing transmission line.

B. Work under this project requires rock excavation by mechanical means.

C. Work under this project requires diverting of river away from vault/project area.

D. Work under this project requires contractor to navigate challenging terrain and construct with limited site access.

E. Perform Work of Contract under fixed cost contract with Owner in accordance with Conditions of Contract.

1.3 CONTRACTOR'S USE OF SITE

A. Utility Outages and Shutdown: The contractor shall maintain water service to the surface water treatment plant via the existing 14” transmission line during construction. All outages shall be coordinated with the community at a minimum of 48 hours prior to the shutdown. Prior to shutting down, the community must have a full water storage tank.

B. Work under this project shall use only food-grade hydraulic fluids that meet NSF H1 standards for incidental contact with potable water in all hydraulic systems, pumps, and other equipment used in or around the reservoir. Prior to entering the reservoir area, the contractor shall thoroughly pressure wash or clean all equipment to remove any dirt, debris, or contaminants, ensuring that no residues or harmful chemicals remain. The contractor shall document the cleaning process and present records upon request for review. Additionally, the contractor must notify the Owner upon completion of cleaning for inspection and approval before any equipment

is brought into the reservoir area. Any equipment not meeting cleanliness standards shall be re-cleaned before use.

1.4 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words “shall be” are included by inference where a colon (:) is used within sentences or phrases.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedules.

C. Proposed products list.

D. Product data.

E. Shop drawings.

F. Samples.

G. Design data.

H. Test reports.

I. Certificates.

J. Manufacturer's instructions.

K. Manufacturer's field reports.

L. Erection drawings.

1.2 SUBMITTAL PROCEDURES

A. Transmit each submittal with Engineer accepted form.

B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.

C. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.

D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

E. Schedule submittals to expedite Project, and deliver to Engineer at address as shown in Invitation to Bid. Coordinate submission of related items.

F. For each submittal for review, allow 7 calendar days excluding delivery time to and from Contractor.

G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.

H. Allow space on submittals for Contractor and Engineer review stamps.

I. When revised for resubmission, identify changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

K. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial schedules within 7 calendar days after date of Owner-Contractor Agreement. After review, resubmit required revised data within 10 calendar days.

B. Submit revised Progress Schedules with every Application for Payment if schedule has deviated from previous version submitted. If Work remains on last submitted Progress Schedule, no revised schedule should be submitted.

C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.

D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration.

F. Indicate estimated percentage of completion for each item of Work at each submission.

G. Submit separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products and products identified under Allowances, and dates reviewed submittals will be required from Engineer. Indicate decision dates for selection of finishes.

H. Indicate delivery dates for Owner furnished products and products identified under Allowances.

I. Revisions to Schedules:
   1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
   2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

3. Prepare narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect, including effect of changes on schedules of separate contractors.

1.4 PROPOSED PRODUCTS LIST

A. Within 15 calendar days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.5 PRODUCT DATA

A. Product Data: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. Submit number of copies Contractor requires, plus two copies Engineer will retain.

C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

E. After review, produce copies and distribute to Owner and Engineer.

1.6 SHOP DRAWINGS

A. Shop Drawings: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
1. Include signed and sealed calculations to support design.
2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
3. Make revisions and provide additional information when required by authorities having jurisdiction.

D. Submit number of opaque reproductions Contractor requires, plus two copies Engineer will retain.

E. After review, produce copies and distribute to Owner and Engineer.

1.7 SAMPLES

A. Samples: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. Samples for Selection as Specified in Product Sections:
   1. Submit to Engineer for aesthetic, color, or finish selection.
   2. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Engineer selection.
   3. Color and finish samples shall be true samples, not photographs.

C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

D. Include identification on each sample, with full Project information.

E. Submit number of samples specified in individual specification sections; Engineer will retain one sample.

F. Reviewed samples which may be used in the Work are indicated in individual specification sections.

G. Samples will not be used for testing purposes unless specifically stated in specification section.

H. After review, produce duplicates and distribute to Owner and Engineer.

1.8 DESIGN DATA

A. Submit for Engineer's knowledge as contract administrator or for Owner.

B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.9 TEST REPORTS

A. Submit for Engineer's knowledge as contract administrator or for Owner.

B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.10 CERTIFICATES

A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Engineer, in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.11 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER'S FIELD REPORTS

A. Submit reports for Engineer's benefit as contract administrator or for Owner.

B. Submit report within 48 hours of observation to Engineer for information.

C. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.13 ERECTION DRAWINGS

A. Submit drawings for Engineer's benefit as contract administrator or for Owner.

B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

C. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Owner.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SUBMITTAL REVIEW FORM

Received by Proj. Engr._____ _____ Submittal No. _____
Date Initial

Contract Name _____

Contract No. _____

Return to Contractor _____ _____ Contractor _____
Date Initial

Project No. _____

ITEM NO.	DESCRIPTION* (Indicate Type, Model No., Manufacturer, etc.)	ACTION BY OWNER

PRE-CONSTRUCTION SUBMITTALS

1. Progress Schedule _____ _____
2. Schedule of Submittals _____ _____
3. Schedule of Values _____ _____
4. Statement of Qualifications _____ _____

MATERIAL SUBMITTALS REQUIRED

1.	Access Hatch #1	Section 08 11 00	_____
2.	Access Hatch #2	Section 08 11 00	_____
3.	Sluice Gate	Section 35 22 00	_____
4.	Slide Gate	Section 35 22 00	_____
5.	Concrete Mix Design	Section 03 30 00	_____
6.	Epoxy Coated Reinforcement	Section 03 20 00	_____
7.	Rock Anchoring System	Section 31 63 00	_____
8.	Wedge Wire Screens	Section 46 21 56	_____
9.	Gate Valves	Section 33 11 16	_____
10.	Piping and Fittings	Section 33 22 13	_____

11. Louver	Provide Fabrication Drawings	_____

POST CONSTRUCTION SUBMITTALS

12. Pressure Test Report	Section 33 11 16, 33 22 13	_____
13. As-Built Records	_____	_____
14. Warranty Information	_____	_____

* If the item description for a material submittal is not the exact brand or model specified by the Owner, then 3 copies of the manufacturer's descriptive literature, catalog cut-sheets, etc. must be included with the submittal. For design submittals requiring design calculations, shop drawings, wiring and control diagrams, etc., 3 copies of each must also be included with this submittal. If item is exact brand or model, list brand, model and "as specified".

Submitted by: _____ _____
Contractor's Signature Date

IHS Concurrence: _____ _____
Project Engineer's Signature Date

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality control and control of installation.

B. Tolerances.

C. References.

D. Labeling.

E. Testing and inspection services.

F. Manufacturers' field services.

G. Examination.

H. Preparation.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.5 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
   1. Model number.
   2. Serial number.
   3. Performance characteristics.

1.6 TESTING AND INSPECTION SERVICES

A. Employ and pay for services of an independent testing firm or laboratory acceptable to Owner to perform specified testing. Contractor shall pay for services within existing bid items. Separate payment for testing and inspection is not permitted unless explicitly included in Contract.
   1. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time specialist and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.

B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by Owner.
   1. Laboratory: Authorized to operate at Project location.
   2. Laboratory Staff: Maintain full time specialist on staff to review services.

3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.

C. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing as required by Engineer or Owner.

D. Reports will be submitted by independent firm to Engineer, Contractor, and authority having jurisdiction, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
   1. Submit final report indicating correction of Work previously reported as non-compliant.

E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
   1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.
   2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.

F. Testing and employment of testing firm or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

G. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent firm on instructions by Engineer. Payment for re-testing or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.

H. Independent Firm Responsibilities:
   1. Test samples of mixes submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
   3. Perform specified sampling and testing of products in accordance with specified standards.
   4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   5. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
   6. Perform additional tests required by Engineer.
   7. Attend preconstruction meetings and progress meetings.

I. Independent Firm Reports: After each test, promptly submit two copies of report to Engineer, Contractor, and authority having jurisdiction. When requested by Engineer, provide interpretation of test results. Include the following:
   1. Date issued.
   2. Project title and number.
   3. Name of inspector.
   4. Date and time of sampling or inspection.
   5. Identification of product and specifications section.
   6. Location in Project.
   7. Type of inspection or test.
   8. Date of test.
   9. Results of tests.
   10. Conformance with Contract Documents.

J. Limits On Testing Authority:
   1. Independent firm or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Independent firm or laboratory may not approve or accept any portion of the Work.
   3. Independent firm or laboratory may not assume duties of Contractor.
   4. Independent firm or laboratory has no authority to stop the Work.

1.7 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer subject to approval of Engineer.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

D. Refer to Section 01 33 00 - Submittal Procedures, MANUFACTURERS' FIELD REPORTS article.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF SECTION

SECTION 03 01 00

MAINTENANCE OF CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Concrete reinforcement repair.
2. Concrete surface repair.
3. Concrete crack repair.

B. Related Sections:
1. Section 03 20 00 - Concrete Reinforcing.
2. Section 03 30 00 - Cast-In-Place Concrete.
3. Section 03 35 00 - Concrete Finishing: Applied finish to concrete surface.

1.2 REFERENCES

A. ASTM International:
1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
3. ASTM C33 - Standard Specification for Concrete Aggregates.
4. ASTM C150 - Standard Specification for Portland Cement.
5. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
6. ASTM C882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear.
7. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
8. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics.
9. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

B. American Welding Society:
1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.

C. Manufacturer’s Instructions: Submit mixing instructions.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Accurately record actual locations of structural reinforcement repairs and type of repair.

B. Operation and Maintenance Data: Procedures for submittals.

1.5 QUALITY ASSURANCE

A. Perform welding work in accordance with AWS D1.4.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with instructions for storage, shelf-life limitations, and handling.

PART 2 PRODUCTS

2.1 EPOXY ADHESIVE INJECTION MATERIALS

A. Manufacturers:
1. The Euclid Chemical Company.
2. Sika Corporation.

B. Epoxy Adhesive: Two-part epoxy adhesive containing 100 percent solids, meeting the following minimum characteristics:

Characteristic	Test Method	Results
Bond Strength	ASTM C882	2,400 psi
Tensile Strength	ASTM D638	6,600 psi
Elongation	ASTM D638	2 percent at 7 days 70 degrees F
Flexural Strength	ASTM D790	8,000 psi
Compressive Strength	ASTM D695	6,500 psi

2.2 EPOXY MORTAR MATERIALS

A. Manufacturers:
1. The Euclid Chemical Company.
2. Sika Corporation Model.
3. Substitutions Permitted: Section 01 33 00 - Product Requirements.

B. Epoxy Mortar: Three-part epoxy binding resin and aggregate mortar mixture.

C. Epoxy Binding Resin: Two-part epoxy resin containing 100 percent solids, meeting the following minimum characteristics:

Characteristic	Test Method	Results

Bond Strength	ASTM C882	2,400 psi
Tensile Strength	ASTM D638	6,600 psi
Elongation	ASTM D638	2 percent at 7 days 70 degrees F
Flexural Strength	ASTM D790	8,000 psi
Compressive Strength	ASTM D695	6,500 psi

D. Aggregate: Type recommended by mortar manufacturer.

2.3 CEMENTITIOUS MORTAR MATERIALS

A. Portland Cement: ASTM C150, Type I or IA – Normal or Type II or IIA – Moderate, unless otherwise specified in Drawings, color as selected.

B. Sand: ASTM C33; uniformly graded, clean.

C. Water: Clean and potable.

D. Air Entrainment Admixture: ASTM C260.

E. Calcium Chloride: Not permitted.

F. Bonding Agent: Polyvinyl acetate emulsion, dispersed in water while mixing, non-coagulant in mix, water resistant when cured.

G. Cleaning Agent: Commercial muriatic acid.

2.4 REINFORCEMENT MATERIALS

A. Reinforcing Steel: In accordance with Section 03 20 00.

B. Stirrup Steel: ASTM A82.

C. Splicing Sleeves: Type 1.

2.5 MIXING EPOXY MORTAR

A. Mix epoxy mortars to consistency for purpose intended.

B. Mix components in clean equipment or containers. Conform to pot life and workability limits.

2.6 MIXING CEMENTITIOUS MORTAR

A. Mix cementitious mortar to consistency required for purpose intended.

B. Include bonding agent as additive to mix where indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify surfaces are ready to receive work.

B. Beginning of installation means acceptance of existing surfaces.

3.2 PREPARATION

A. Clean concrete surfaces of dirt, laitance, corrosion, or other contamination; wire brush using acid; rinse surface and allow to dry.

B. Flush out cracks and voids with muriatic acid to remove laitance and dirt. Chemically neutralize by rinsing with water.

C. Provide temporary entry ports spaced to accomplish movement of fluids between ports; no deeper than depth of crack to be filled or port size diameter no greater than thickness of crack. Provide temporary seal at concrete surface to prevent leakage of adhesive.

D. For areas patched with epoxy mortar, remove broken and soft concrete ¼ inch deep. Remove corrosion from steel. Clean surfaces mechanically; wash with acid; rinse with water.

E. Sandblast clean exposed reinforcement steel surfaces. Mechanically cut away damaged portions of bar.

3.3 REPAIR WORK

A. Repair reinforcement by welding new bar reinforcement to existing reinforcement with sleeve splices. Strength of welded splices and reinforcement to exceed original stress values.

B. Repair exposed structural, shrinkage, and settlement cracks of concrete where indicated on Drawings by epoxy injection, epoxy application, or bonding agent and cementitious paste method.

C. Repair spalling. Fill voids flush with surface. Apply surface finish.

3.4 INJECTION - EPOXY RESIN

A. Inject epoxy resin adhesive into prepared ports under pressure using equipment appropriate for particular application.

B. Begin injection at lower entry port and continue until adhesive appears in adjacent entry port. Continue from port to port until entire crack is filled.

C. Remove temporary seal and excess adhesive.

D. Clean surfaces adjacent to repair and blend finish.

3.5 APPLICATION - EPOXY MORTAR

A. Trowel apply mortar mix to average thickness of ¼ inch. Tamp into place filling voids at spalled areas.

B. For patching honeycomb, trowel mortar onto surface, work mortar into honeycomb to bring surface flush with surrounding area. Finish trowel surface to match surrounding area.

C. Cover exposed steel reinforcement with epoxy mortar, feather edges to flush surface.

3.6 APPLICATION - CEMENTITIOUS MORTAR

A. Apply coating of bonding agent to damp concrete surfaces. Provide full surface coverage.

B. Apply cementitious mortar by steel trowel to average thickness of ¼ inch. Tamp into place filling voids at spalled areas. Work mix into honeycomb.

C. Damp cure cementitious mortar for four days.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Formwork for cast-in place concrete.
2. Shoring, bracing, and anchorage.
3. Form accessories.
4. Form stripping.

B. Related Sections:
1. Section 03 20 00 - Concrete Reinforcing.
2. Section 03 30 00 - Cast-In-Place Concrete.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
2. ACI 318 - Building Code Requirements for Structural Concrete.
3. ACI 347 - Guide to Formwork for Concrete.

1.3 DESIGN REQUIREMENTS

A. Design, engineer and construct formwork, shoring and bracing in accordance with ACI 347, to conform to design and applicable code requirements to achieve concrete shape, line and dimension as indicated on Drawings.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Shop Drawings, if required in specifications:
1. Submit formwork, shoring, and reshoring shop drawings.
2. Indicate the following:
a. Pertinent dimensions, openings, methods of construction, types of connections, materials, joint arrangement and details, ties and shores, location of framing, studding and bracing, and temporary supports.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver void forms and installation instructions in manufacturer's packaging.

B. Store off ground in ventilated and protected manner to prevent deterioration from moisture.

1.7 COORDINATION

A. Coordinate this Section with other sections of work, requiring attachment of components to formwork.

PART 2 PRODUCTS

2.1 WOOD FORM MATERIALS

A. Form Materials: At discretion of Contractor.

2.2 FORMWORK ACCESSORIES

A. Spreaders: Standard, non-corrosive metal form clamp assembly, of type acting as spreaders and leaving no metal within 1 inch of concrete face. Wire ties, wood spreaders or through bolts are not permitted.

B. Form Anchors and Hangers:
   1. Do not use anchors and hangers exposed concrete leaving exposed metal at concrete surface.
   2. Symmetrically arrange hangers supporting forms from structural steel members to minimize twisting or rotation of member.
   3. Penetration of structural steel members is not permitted.

C. Form Release Agent: Colorless mineral oil that will not stain concrete, or absorb moisture.
   1. Manufacturers:
      a. Nox-Crete Company Nox-Crete Form Coating.
      b. Or Approved Equal

D. Vapor Retarder: Where indicated on Drawings, 8 mil thick polyethylene sheet.

E. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Size, strength and character to maintain formwork in place while placing concrete.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify lines, levels, and centers before proceeding with formwork. Verify dimensions agree with Drawings.

B. When formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Engineer.

3.2 INSTALLATION

A. Earth Forms:
   1. Earth forms are permitted in bedrock.

B. Formwork - General:
   1. Provide top form for sloped surfaces steeper than 1.5 horizontal to 1 vertical to hold shape of concrete during placement, unless it can be demonstrated that top forms can be omitted.
   2. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.
   3. Camber forms where necessary to produce level finished soffits unless otherwise shown on Drawings.
   4. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.
   5. Complete wedging and bracing before placing concrete.

C. Forms for Smooth Finish Concrete:
   1. Use steel, plywood or lined board forms.
   2. Use clean and smooth plywood and form liners, uniform in size, and free from surface and edge damage capable of affecting resulting concrete finish.
   3. Install form lining with close-fitting square joints between separate sheets without springing into place.
   4. Use full size sheets of form lines and plywood wherever possible.
   5. Tape joints to prevent protrusions in concrete.
   6. Use care in forming and stripping wood forms to protect corners and edges.
   7. Level and continue horizontal joints.
   8. Keep wood forms wet until stripped.

D. Framing, Studding and Bracing:
   1. Space studs at 16 inches on center maximum for boards and 12 inches on center maximum for plywood.
   2. Size framing, bracing, centering, and supporting members with sufficient strength to maintain shape and position under imposed loads from construction operations.
   3. Construct beam soffits of material minimum of 2 inches thick.
   4. Distribute bracing loads over base area on which bracing is erected.
   5. When placed on ground, protect against undermining, settlement or accidental impact.

E. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of ACI 301.

F. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

G. Obtain Engineer’s approval before framing openings in structural members not indicated on Drawings.

H. Install void forms in accordance with manufacturer's recommendations.

I. Do not reuse formwork more than three times for concrete surfaces to be exposed to view. Do not patch formwork.

3.3 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

C. Do not apply form release agent where concrete surfaces are indicated to receive special finishes that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

D. Reuse and Coating of Forms: Thoroughly clean forms and reapply form coating before each reuse. For exposed work, do not reuse forms with damaged faces or edges. Apply form coating to forms in accordance with manufacturer’s specifications. Do not coat forms for concrete indicated to receive “scored finish”. Apply form coatings before placing reinforcing steel.

3.4 INSTALLATION - INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Install formed openings for items to be embedded in or passing through concrete work.

B. Locate and set in place items required to be cast directly into concrete.

C. Coordinate with Work of other sections in forming and placing openings, slots, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

D. Install accessories straight, level, and plumb. Ensure items are not disturbed during concrete placement.

E. Install water stops continuous without displacing reinforcement.

F. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

G. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

H. Form Ties:
1. Use sufficient strength and sufficient quantity to prevent spreading of forms.
2. Place ties at least 1 inch away from finished surface of concrete.
3. Leave inner rods in concrete when forms are stripped.
4. Space form ties equidistant, symmetrical and aligned vertically and horizontally unless otherwise shown on Drawings.

I. Arrangement: Arrange formwork to allow proper erection sequence and to permit form removal without damage to concrete.

J. Construction Joints:

1. Install surfaced pouring strip where construction joints intersect exposed surfaces to provide straight line at joints.
2. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage.
3. Show no overlapping of construction joints. Construct joints to present same appearance as butted plywood joints.
4. Arrange joints in continuous line straight, true and sharp.

K. Embedded Items:
1. Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, water stops, and other features.
2. Do not embed wood or uncoated aluminum in concrete.
3. Obtain installation and setting information for embedded items furnished under other Specification sections.
4. Securely anchor embedded items in correct location and alignment prior to placing concrete.
5. Verify conduits and pipes, including those made of coated aluminum, meet requirements of ACI 318 for size and location limitations.

L. Openings for Items Passing Through Concrete:
1. Frame openings in concrete where indicated on Drawings. Establish exact locations, sizes, and other conditions required for openings and attachment of work specified under other sections.
2. Coordinate work to avoid cutting and patching of concrete after placement.
3. Perform cutting and repairing of concrete required as result of failure to provide required openings.

M. Screeds:
1. Set screeds and establish levels for tops of concrete slabs and levels for finish on slabs.
2. Slope slabs to drain where required or as shown on Drawings.
3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms. Remove freestanding water.

N. Screed Supports:
1. For concrete over waterproof membranes and vapor retarder membranes, use cradle, pad or base type screed supports which will not puncture membrane.
2. Staking through membrane is not be permitted.

O. Cleanouts and Access Panels:
1. Provide removable cleanout sections or access panels at bottoms of forms to permit inspection and effective cleaning of loose dirt, debris and waste material.
2. Clean forms and surfaces against which concrete is to be placed. Remove chips, saw dust and other debris. Thoroughly blow out forms with compressed air just before concrete is placed.

3.5 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.

B. Clean formed cavities of debris prior to placing concrete.

C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

D. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

3.6 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads and removal has been approved by Engineer.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

D. Leave forms in place for minimum 7 days. Forms may be removed in fewer number of days as specified in ACI 347 with approval of Engineer.

3.7 ERECTION TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 301.

3.8 FIELD QUALITY CONTROL

A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

B. Notify Engineer after placement of reinforcing steel in forms, but prior to placing concrete. Refer to Section 03 20 00 for required minimum concrete cover over reinforcement.

C. Schedule concrete placement to permit formwork inspection before placing concrete.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Reinforcing bars.
2. Welded wire fabric.
3. Reinforcement accessories.

B. Related Sections:
1. Section 03 10 00 - Concrete Forming and Accessories.
2. Section 03 30 00 - Cast-In-Place Concrete.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
2. ACI 318 - Building Code Requirements for Structural Concrete.
3. ACI 530.1 - Specifications for Masonry Structures.
4. ACI SP-66 - ACI Detailing Manual.

B. ASTM International:
1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. ASTM A185 - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
3. ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
4. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
5. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
6. ASTM A704 - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
7. ASTM A706 - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
8. ASTM A775 - Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
9. ASTM A884 - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement.

C. American Welding Society:
1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

D. Concrete Reinforcing Steel Institute:
1. CRSI - Manual of Standard Practice.

2. CRSI - Placing Reinforcing Bars.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures.

B. Shop Drawings, if required in specifications: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and welded wire fabric, bending and cutting schedules, and supporting and spacing devices.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with CRSI - Manual of Standard Practice and ACI 301.

B. Prepare shop drawings in accordance with ACI SP-66.

PART 2 PRODUCTS

2.1 REINFORCEMENT

A. Reinforcing Steel: ASTM A615, 60 ksi yield grade, plain or deformed billet bars, epoxy coated finish.

B. Plain Bar Mats: ASTM A704; fabricated from ASTM A615 or ASTM A706; 60 ksi yield strength, steel bars, epoxy coated finish.

2.2 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gage annealed type, epoxy coated.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions. Must be manufactured products used as recommended by manufacturer. Stones, rebar pieces or other materials are not acceptable replacements.

C. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic tipped steel type; size and shape to meet Project conditions.

D. Reinforcing Splicing Devices (where required): Exothermic welding type; full tension and compression; sized to fit joined reinforcing.

E. Epoxy Coating Patching Material: Type as recommended by coating manufacturer.

2.3 FABRICATION

A. Fabricate concrete reinforcement in accordance with CRSI Manual of Practice.

B. Form standard hooks for 180 degree bends, 90 degree bends, stirrup and tie hooks, and seismic hooks as indicated on Drawings.

C. Form reinforcement bends with minimum diameters in accordance with ACI 318.

D. Fabricate column reinforcement with offset bends at reinforcement splices.

E. Form spiral column reinforcement from minimum 3/8 inch diameter continuous plain or deformed bar or wire.

F. Form ties and stirrups from the following:
   1. For bars No. 10 and Smaller: No. 3 deformed bars.
   2. For bars No. 11 and Larger: No. 4 deformed bars.

G. Where required, weld reinforcement in accordance with AWS D1.4.

H. Galvanized and Epoxy-Coated Reinforcement: Where required, clean surfaces, weld and re-protect welded joint in accordance with CRSI.

I. Locate reinforcement splices not indicated on Drawings, at point of minimum stress.

2.4 SHOP FINISHING

A. Epoxy Coated Finish for Steel Bars: ASTM A775.

B. Epoxy Coated Finish for Steel Wire: ASTM A884; Class A using ASTM A775.

PART 3 EXECUTION

3.1 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position beyond specified tolerance.
   1. Do not weld crossing reinforcement bars for assembly.

B. Do not displace or damage vapor retarder.

C. Accommodate placement of formed openings.

D. Space reinforcement bars with minimum clear spacing of one bar diameter, but not less than 1 inch.
   1. Where bars are indicated in multiple layers, place upper bars directly above lower bars.

E. Maintain concrete cover around reinforcement in accordance with ACI 318 as follows:

Reinforcement Location	Minimum Concrete Cover
Footings and Concrete Formed Against Earth	3 inches

Concrete exposed to earth or weather	No. 6 bars and larger	2 inches
	No. 5 bars and smaller	1-1/2 inches
Supported Slabs, Walls, and Joists	No. 14 bars and larger	1-1/2 inches
	No. 11 bars and smaller	3/4 inches

F. Splice reinforcing in accordance with splicing device manufacturer's instructions.

3.2 ERECTION TOLERANCES

A. Install reinforcement within the following tolerances for flexural members, walls, and compression members:

Reinforcement Depth	Depth Tolerance	Concrete Cover Tolerance
Greater than 8 inches	plus or minus 3/8 inch	minus 3/8 inch
Less than 8 inches	plus or minus 1/2 inch	minus 1/2 inch

B. Install reinforcement within the tolerances specified in ACI 530.1 for foundation walls.

3.3 FIELD QUALITY CONTROL

A. Reinforcement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.

END OF SECTION

fSECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete for the following:
   1. Foundation walls.
   2. Supported slabs.

B. Related Sections:
   1. Section 03 10 00 - Concrete Forming and Accessories: Formwork and accessories.
   2. Section 03 20 00 - Concrete Reinforcing.
   3. Section 03 35 00 - Concrete Finishing.
   4. Section 03 39 00 - Concrete Curing.

1.2 REFERENCES

A. American Concrete Institute:
   1. ACI 301 - Specifications for Structural Concrete.
   2. ACI 305 - Hot Weather Concreting.
   3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
   4. ACI 308.1 - Standard Specification for Curing Concrete.
   5. ACI 318 - Building Code Requirements for Structural Concrete.
   6. ACI 347 - Guide to Formwork for Concrete.

B. ASTM International:
   1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
   2. ASTM A185 - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
   3. ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
   4. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
   5. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
   6. ASTM A704 - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
   7. ASTM A706 - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
   8. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
   9. ASTM C33 - Standard Specification for Concrete Aggregates.
   10. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
   11. ASTM C94 - Standard Specification for Ready-Mixed Concrete.

12. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
13. ASTM C150 - Standard Specification for Portland Cement.
14. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete.
15. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
16. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
17. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
18. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
19. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
20. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
21. ASTM C1017 - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
22. ASTM C1064 - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
23. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
24. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
25. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
26. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

C. Concrete Reinforcing Steel Institute:
   1. CRSI - Manual of Standard Practice.
   2. CRSI - Placing Reinforcing Bars.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Design Data:
   1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
      a. Hot and cold weather concrete work.
      b. Air entrained concrete work.
   2. Identify mix ingredients and proportions, including admixtures.
   3. Identify chloride content of admixtures and whether or not chloride was added during manufacture.
   4. Identify minimum and maximum allowable slump for submitted concrete mix design.

C. Product Data: Submit data on curing compounds, mats, paper, film, compatibilities, and limitations.

D. Delivery Data: Submit delivery ticket for ready mixed concrete delivered for use in the work. Delivery ticket shall include the concrete mix, batch, volume delivered, admixtures used, batch time and amount of water that can be added within specifications.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301. Perform curing in accordance with ACI 318.

B. Conform to ACI 305 when concreting during hot weather.

C. Conform to ACI 306.1 when concreting during cold weather.

D. Acquire cement and aggregate from one source for Work.

E. Fire Rated Floor Construction: Rating as indicated on Drawings.
   1. Tested Rating: Determined in accordance with ASTM E119.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Maintain concrete temperature after installation at minimum 50 degrees F for minimum 7 days.

B. Maintain high early strength concrete temperature after installation at minimum 50 degrees F for minimum 3 days.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I or IA – Normal or Type II or IIA – Moderate, unless otherwise specified in Drawings.

B. Normal Weight Aggregates: ASTM C33.
   1. Coarse Aggregate Maximum Size: In accordance with ACI 318.

C. Water: ACI 318; potable, without deleterious amounts of chloride ions.

2.2 ADMIXTURES

A. Air Entrainment: ASTM C260.

B. Chemical: ASTM C494.
   1. Type A - Water Reducing.
   2. Type B - Retarding.
   3. Type C - Accelerating. Chloride-based accelerators are not permitted.
   4. Type D - Water Reducing and Retarding.
   5. Type E - Water Reducing and Accelerating. Chloride-based accelerators are not permitted.

C. Plasticizing: ASTM C1017.

2.3 ACCESSORIES

A. Bonding Agent: Two component modified epoxy resin, Non-solvent two component polysulfide epoxy, Mineral filled polysulfide polymer epoxy, or Mineral filled polysulfide polymer epoxy resin.

B. Non-Shrink Grout: ASTM C1107; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.

2.4 JOINT DEVICES AND FILLER MATERIALS

A. Sika Lockstop or Approved Equal

2.5 WOOD FORM MATERIALS

A. Form Materials: At discretion of Contractor.

2.6 FORMWORK ACCESSORIES

A. Spreaders: Standard, non-corrosive metal form clamp assembly, of type acting as spreaders and leaving no metal within 1 inch of concrete face. Wire ties, wood spreaders or through bolts are not permitted.

2.7 REINFORCEMENT

A. Reinforcing Steel: ASTM A615, 60 ksi yield grade, plain or deformed billet bars, epoxy coated.

2.8 REINFORCEMENT ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gage annealed type, epoxy coated.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions. Must be manufactured products used as recommended by manufacturer. Stones, rebar pieces or other materials are not acceptable replacements.

2.9 CONCRETE MIX

A. Select proportions for concrete in accordance with ACI 318 trial mixtures.

B. Provide concrete to the following criteria:

Material and Property	Measurement
Compressive Strength (7 day)	2,500 psi

Compressive Strength (28 day)	4,000 psi
Cement Type	ASTM C150
Aggregate Type	Normal weight
Aggregate Size (maximum)	1/5 of narrowest dimension between forms, or 2/3 of minimum clear spacing between reinforcing bars or between reinforcing bars and forms, whichever is smaller.
Air Content	4.0 percent plus or minus 2.0 percent

C. Admixtures: Include admixture types and quantities indicated in concrete mix designs only when approved by Engineer.
   1. Use accelerating admixtures in cold weather. Use of admixtures will not relax cold weather placement requirements.
   2. Do not use calcium chloride nor admixtures containing calcium chloride.
   3. Use set retarding admixtures during hot weather.
   4. Add air entrainment admixture to concrete mix for work exposed to freezing and thawing.

D. Ready Mixed Concrete: Mix and deliver concrete in accordance with ASTM C94.

E. Site Mixed Concrete: Mix concrete in accordance with ACI 318.

2.10 CURING MATERIALS

A. Membrane Curing Compound Type A: ASTM C309, Type 1, Class A.
   1. Manufacturers:

B. Non-Membrane Forming Curing Compound Type B: Liquid, penetrating silicone based type; combination curing, hardening and dustproofing compound.

C. Absorptive Mats Type C: ASTM C171, burlap-polyethylene, minimum 9 oz/sq yd bonded to prevent separation during handling and placing.

D. Waterproof Paper Type D: ASTM C171, curing paper treated to prevent separation during handling and placing.

E. Water: Potable, not detrimental to concrete.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify requirements for concrete cover over reinforcement.

B. Verify anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 PREPARATION

A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Remove laitance, coatings, and unsound materials.

B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

C. Remove debris and ice from formwork, reinforcement, and concrete substrates.

D. Remove water from areas receiving concrete before concrete is placed.

3.3 FORMWORK

A. Earth Forms:
1. Earth forms are not permitted, unless required to ensure native soil bearing on exposed concrete face.

B. Formwork - General:
1. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.
2. Camber forms where necessary to produce level finished soffits unless otherwise shown on Drawings.
3. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.
4. Complete wedging and bracing before placing concrete.

C. Install formed openings for items to be embedded in or passing through concrete work.

D. Locate and set in place items required to be cast directly into concrete.

E. Coordinate with Work of other sections in forming and placing openings, slots, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

F. Install accessories straight, level, and plumb. Ensure items are not disturbed during concrete placement.

G. Embedded Items:
1. Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, water stops, and other features.
2. Do not embed wood or uncoated aluminum in concrete.
3. Obtain installation and setting information for embedded items furnished under other Specification sections.
4. Securely anchor embedded items in correct location and alignment prior to placing concrete.
5. Verify conduits and pipes, including those made of coated aluminum, meet requirements of ACI 318 for size and location limitations.

H. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads and removal has been approved by Engineer.

I. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

3.4 REINFORCEMENT PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position beyond specified tolerance.
   1. Do not weld crossing reinforcement bars for assembly.

B. Accommodate placement of formed openings.

C. Space reinforcement bars with minimum clear spacing of one bar diameter, but not less than 1 inch.
   1. Where bars are indicated in multiple layers, place upper bars directly above lower bars.

D. Maintain concrete cover around reinforcement in accordance with ACI 318 as follows:

Reinforcement Location		Minimum Concrete Cover
Footings and Concrete Formed Against Earth		3 inches
Concrete exposed to earth or weather	No. 6 bars and larger	2 inches
	No. 5 bars and smaller	1-1/2 inches

E. Splice reinforcing in accordance with splicing device manufacturer’s instructions.

3.5 PLACING CONCRETE

A. Notify Engineer and testing laboratory minimum 48 hours prior to commencement of operations.

B. For concrete thrust blocks, use solid, undisturbed earth at the sides and bottom of the trench excavation for bearing concrete thrust blocking. Shape blocking to avoid obstruction of weep holes or access to joints and pipe fittings.

C. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.

D. Reinforcement bar supports and spacers shall be sized and shaped for strength and support of reinforcement during concrete placement. Must be manufactured products used as recommended by manufacturer. Stones, rebar pieces or other materials are not acceptable replacements.

E. Separate slabs on grade from vertical surfaces with ½ inch thick joint filler.

F. Place joint filler in floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

G. Extend joint filler from bottom of slab to within ¼ inch of finished slab surface.

H. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

I. Install joint device anchors. Maintain correct position to allow joint cover to be flush with floor finish.

J. Install joint covers in longest practical length, when adjacent construction activity is complete.

K. Deposit concrete at final position. Prevent segregation of mix.

L. Place concrete in continuous operation for each panel or section determined by predetermined joints.

M. Consolidate concrete.

N. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

O. Place concrete continuously between predetermined expansion, control, and construction joints.

P. Do not interrupt successive placement; do not permit cold joints to occur.

Q. Screed floors and slabs on grade level, maintaining surface flatness of maximum ¼ inch in 10 ft.

3.6 CONCRETE FINISHING

A. Finish concrete floor surfaces to requirements of Section 03 35 00.

B. Steel trowel surfaces which are indicated to be exposed.

C. In areas where with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at ¼ inch per foot nominal unless otherwise indicated on drawings.

3.7 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
   1. Protect concrete footings from freezing for minimum 5 days.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Ponding: Maintain 100 percent coverage of water over floor slab areas continuously for 7 days.

D. Spraying: Spray water over floor slab areas and maintain wet for 7 days.

E. Absorptive Mat: Spread cotton fabric over floor slab areas. Spray with water until mats are saturated, and maintain in saturated condition for 7 days.

F. Absorptive Mat: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place for 7 days.

G. Membrane Curing Compound: Apply curing compound in one coat.

H. Non-Membrane Forming Curing Compound: Apply curing compound in one coat. Scrub compound into surface. Maintain surface wet with curing compound, without ponding for time recommended by manufacturer.

I. For curing vertical concrete surfaces:
   1. Spraying: Spray water over surfaces and maintain wet for 7 days.
   2. Membrane Curing Compound: Apply compound in two coats with second coat applied at right angles to first.
   3. Non-Membrane Forming Curing Compound: Apply curing compound in one coat. Scrub compound into surface. Maintain surface wet with curing compound, without ponding for time recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. If total amount of concrete is less than 5 cubic yards, field and strength testing below may not be required, at the sole discretion of the Engineer.

B. Submit proposed mix design of each class of concrete to testing firm for review prior to commencement of Work.

C. Concrete Inspections:
   1. Continuous Placement Inspection: Inspect for proper installation procedures.
   2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.

D. Strength Test Samples:
   1. Sampling Procedures: ASTM C172.
   2. Cylinder Molding and Curing Procedures: ASTM C31, cylinder specimens, standard cured.
   3. Sample concrete and make one set of three cylinders for every 150 cu yds or less of each class of concrete placed each day and for every 5,000 sf of surface area for slabs and walls.
   4. When volume of concrete for any class of concrete would provide less than 5 sets of cylinders, take samples from five randomly selected batches, or from every batch when less than 5 batches are used.
   5. Make one additional cylinder during cold weather concreting, and field cure.

E. Field Testing:
   1. Slump Test Method: ASTM C143.
   2. Air Content Test Method: ASTM C173.
   3. Temperature Test Method: ASTM C1064.
   4. Measure slump and temperature for each compressive strength concrete sample.
   5. Measure air content in air entrained concrete for each compressive strength concrete sample.

F. Cylinder Compressive Strength Testing:
   1. Test Method: ASTM C39.
   2. Test Acceptance: In accordance with ACI 318.
   3. Test one cylinder at 7 days.
   4. Test one cylinder at 28 days.
   5. Retain one cylinder for 56 days for testing when requested by Engineer.
   6. Dispose remaining cylinders when testing is not required.

G. Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.

3.9 PATCHING

A. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.

B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.

C. Patch imperfections in accordance with ACI 301.

3.10 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by Engineer.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

3.11 PROTECTION OF FINISHED WORK

A. Do not permit traffic over unprotected floor surface.

END OF SECTION

SECTION 03 35 00

CONCRETE FINISHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Finishing concrete walking surfaces.

B. Related Sections:
   1. Section 03 30 00 - Cast-In-Place Concrete: Prepared concrete floors ready to receive finish.

1.2 REFERENCES

A. American Concrete Institute:
   1. ACI 301 - Specifications for Structural Concrete.
   2. ACI 302.1 - Guide for Concrete Floor and Slab Construction.

B. ASTM International:
   1. ASTM E1155 - Standard Test Method for Determining Floor Flatness and of Levelness Using the F-number System.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data on concrete hardener, sealer, curing compounds and slip resistant treatment, compatibilities, and limitations. Data shall include instructions for installation and safe handling of product.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301 and ACI 302.1.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years' experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's packaging including application instructions.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Temporary Heat: Ambient temperature of 50 degrees F minimum.

B. Ventilation: Sufficient to prevent injurious gases from temporary heat or other sources affecting concrete.

1.8 COORDINATION

A. Coordinate the Work with concrete walking surface placement and curing.

PART 2 PRODUCTS

2.1 COMPOUNDS - HARDENERS AND SEALERS

A. Sealer: Penetrating type.
   1. Manufacturers:
      a. Xypex Concentrate or equal.

2.2 SLIP RESISTANT TREATMENT

A. Slip Resistant Broom Finish

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify floor surfaces are acceptable to receive the Work of this section.

3.2 FLOOR FINISHING

A. Finish concrete floor surfaces in accordance with ACI 301 and ACI 302.1.

B. Steel trowel surfaces which are indicated to be exposed.

C. In areas with floor drains, maintain design floor elevation at walls; slope surfaces uniformly to drains at ¼ inch per foot nominal.

3.3 FLOOR SURFACE TREATMENT

A. Apply slip resistant finish on vault walking surfaces.

B. Apply sealer on all surfaces.

3.4 TOLERANCES

A. Maximum Variation of Surface Flatness For Exposed Concrete Walking Surface: ¼ inch in 10 ft.

B. Finish concrete to achieve the following tolerances:
   1. Exposed to View and Foot Traffic: F(F) 75 and F(L) 40.
   2. Correct slab surface when actual F(F) or F(L) number for floor installation measures less than required.

C. Correct defects in defined walking surface by grinding or removal and replacement of defective Work. Areas requiring corrective Work will be identified. Re-measure corrected areas by same process.

END OF SECTION

SECTION 03 60 00

GROUTING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Portland cement grout.
2. Rapid curing epoxy grout.
3. Non-shrink cementitious grout.

B. Related Sections:
1. Section 03 30 00 - Cast-In-Place Concrete.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.

B. American Society of Testing and Materials:
1. ASTM C33 - Standard Specification for Concrete Aggregates.
2. ASTM C40 - Test Method for Organic Impurities in Fine Aggregates for Concrete.
3. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens).
4. ASTM C150 - Standard Specification for Portland Cement.
5. ASTM C191 - Test Method for Time of Setting of Hydraulic Cement by Vicat Needle.
6. ASTM C266 - Standard Test Method for Time of Setting of Hydraulic-Cement Paste by Gillmore Needles.
7. ASTM C307 - Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacings.
8. ASTM C531 - Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
9. ASTM C579 - Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts, monolithic Surfacings and Polymer Concretes.
10. ASTM C827 - Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures.
11. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit product data on grout.

C. Manufacturer's Installation Instructions: Submit manufacturer’s instructions for mixing, handling, surface preparation and placing epoxy type and non-shrink type grouts.

D. Submit proposed mix design testing firm for review prior to commencement of Work.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver grout in manufacturer's unopened containers with proper labels intact.

B. Store grout in a dry shelter, protect from moisture.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Do not perform grouting if temperatures exceed 95 degrees F.

B. Maintain minimum temperature of 50 degrees F before, during, and after grouting, until grout has set.

PART 2 PRODUCTS

2.1 PORTLAND CEMENT GROUT MATERIALS

A. Portland Cement: ASTM C150, Type I and II.

B. Water:
1. Potable; containing no impurities, suspended particles, algae or dissolved natural salts in quantities capable of causing:
   a. Corrosion of steel.
   b. Volume change increasing shrinkage cracking.
   c. Efflorescence.
   d. Excess air entraining.

C. Fine Aggregate:
1. Washed natural sand.
2. Gradation in accordance with ASTM C33 and represented by smooth granulometric curve within required limits.
3. Free from injurious amounts of organic impurities as determined by ASTM C40.

D. Mix:
1. Portland cement, sand and water. Do not use ferrous aggregate or staining ingredients in grout mixes.

2.2 RAPID CURING EPOXY GROUT

A. Manufacturers:
1. Sika Model Sikadur 42 Grout Pak LE.
2. L & M Construction Chemicals Inc. Model EpoGrout 758.
3. Or Approved Equal

B. Rapid Curing Epoxy Grout: High strength, three component epoxy grout formulated with thermosetting resins and inert fillers. Rapid-curing, high adhesion, and resistant to ordinary chemicals, acids and alkalis.

Property	Test	Result
Compressive Strength	ASTM C579	12,000 psi at 7 days
Tensile Strength	ASTM C307	2,000 psi minimum
Coefficient of Expansion	ASTM C531	$30x10^{-6}$ in per degree F
Shrinkage	ASTM C827	None

2.3 NON-SHRINK CEMENTITIOUS GROUT

A. Manufacturers:
1. Sika Model SikaGrout 328.
2. L & M Construction Chemicals, Inc. Model DuraGrout.
3. Or Approved Equal

B. Non-shrink Cementitious Grout: Pre-mixed ready for use formulation requiring only addition of water; non-shrink, non-corrosive, non-metallic, non-gas forming, no chlorides.

C. Properties: Certified to maintain initial placement volume or expand after set and meet the following minimum properties when tested in accordance with the standard tests referenced below:

Property	Test	Time	Result
Setting Time	ASTM C191 /ASTM C266	Initial	3 hours (Approx)
		Final	6 hours (Approx)
Expansion	ASTM C827		0.4% Maximum
Compressive Strength	ASTM C109	1 day	4,000 psi
		7 days	7,000 psi
		28 days	10,000 psi

2.4 FORMWORK

A. Refer to Section 03 10 00 for formwork requirements.

2.5 CURING

A. Prevent rapid loss of water from grout during first 48 hours by use of approved membrane curing compound or with use of wet burlap method.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify areas to receive grout.

3.2 PREPARATION

A. Remove defective concrete, laitance, dirt, oil, grease and other foreign material from concrete surfaces by brushing, hammering, chipping or other similar means until sound, clean concrete surface is achieved.

B. Rough concrete lightly, but not enough to interfere with placement of grout.

C. Remove foreign materials from metal surfaces in contact with grout.

D. Align, level and maintain final positioning of components to be grouted.

E. Saturate concrete surfaces with clean water; remove excess water, leave none standing.

3.3 INSTALLATION - FORMWORK

A. Per Section 03 10 00, construct leakproof forms anchored and shored to withstand grout pressures.

B. Install formwork with clearances to permit proper placement of grout.

3.4 MIXING

A. Portland Cement Grout:
   1. Use proportions of 2 parts sand and 1 part cement, measured by volume.
   2. Prepare grout with water to obtain consistency to permit placing and packing.
   3. Mix water and grout in two steps; pre-mix using approximately 2/3 of water; after partial mixing, add remaining water to bring mix to desired placement consistency and continue mixing 2 to 3 minutes.
   4. Mix only quantities of grout capable of being placed within 30 minutes after mixing.
   5. Do not add additional water after grout has been mixed.
   6. Capable of developing minimum compressive strength of 2400 psi in 48 hours and 7000 psi in 28 days.

B. Mix and prepare rapid curing epoxy grout in accordance with manufacturer's instructions.
   1. Capable of developing minimum compressive strength of 2400 psi in 48 hours and 7000 psi in 28 days.

C. Mix and prepare non-shrink cementitious grout in accordance with manufacturer's instructions.
   1. Capable of developing minimum compressive strength of 2400 psi in 48 hours and 7000 psi in 28 days.

D. Mix grout components in proximity to work area and transport mixture quickly and in manner not permitting segregation of materials.

3.5 PLACING GROUT

A. Place grout material quickly and continuously.

B. Do not use pneumatic-pressure or dry-packing methods.

C. Apply grout from one side only to avoid entrapping air.

D. Do not vibrate placed grout mixture, or permit placement when area is being vibrated by nearby equipment.

E. Thoroughly compact final installation and eliminate air pockets.

F. Do not remove leveling shims for at least 48 hours after grout has been placed.

3.6 CURING

A. Immediately after placement, protect grout from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. After grout has attained its initial set, keep damp for minimum of 3 days.

3.7 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed in accordance with ACI 301.

B. Tests of grout components may be performed to ensure conformance with specified requirements.

END OF SECTION

SECTION 08 11 00

ACCESS DOORS AND PANELS

PART 1 GENERAL

1.1 SUMMARY

A. This section includes the requirements for access doors to be installed in cast-in-place concrete walls.

B. Access doors specified include:

1. Vault Access Hatch #1 - Halliday Access Door H2C or equal with a clear opening of 72" x 60".

2. Vault Access Hatch #2 - Halliday Access Door S1R or equal with a clear opening of 24" x 36".

1.2 REFERENCES

A. ANSI/SDI A250.8 – Specifications for Standard Steel Doors and Frames.

B. ASTM A653/A653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. ASTM A36/A36M – Standard Specification for Carbon Structural Steel Shapes, Plates, and Bars of Structural Quality.

1.3 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 00 and as specified herein.

B. Submittals shall include:

1. Manufacturer’s product data, including door dimensions, material specifications, and clear opening sizes.

2. Installation instructions from the manufacturer.

3. Shop drawings showing door layout, installation details, and relationship to adjacent construction.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Access doors shall be manufactured by a company with a minimum of 10 years of experience in producing access doors for cast-in-place concrete applications.

B. Installer Qualifications:

1. Installation shall be performed by personnel trained and certified by the manufacturer or with documented experience in similar applications.

PART 2 PRODUCTS

2.1 VAULT ACCESS HATCH #1 - H2C ACCESS DOOR

A. Model: Halliday H2C or equal.

B. Clear Opening Size: 72" x 60".

C. Material: Fabricated from aluminum.

D. Standard Features:

1. Auto-Lock T-316 Stainless Steel hold open arm with release handle.

2. T-316 stainless steel hinges and attaching hardware.

3. T-316 Stainless steel slam lock with removable key.

4. Stainless steel compression spring assist.

5. Double leaf construction.

6. H20 loading capability.

7. Extruded aluminum channel frame.

8. Recessed lifting handle.

9. Lifetime guarantee.

2.2 VAULT ACCESS HATCH #2 - S1R ACCESS DOOR

A. Model: Halliday S1R or equal.

B. Clear Opening Size: 24" x 36".

C. Material: Fabricated from aluminum.

D. Standard Features:

1. Auto-Lock T-316 Stainless Steel hold open arm with release handle.

2. T-316 stainless steel hinges and attaching hardware.

3. T-316 Stainless steel slam lock with removable key.
4. Stainless steel compression spring assist.
5. Double leaf construction.
6. 300 psf loading capability.
7. Extruded aluminum channel frame.
8. Recessed lifting handle.
9. Lifetime guarantee.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Access doors shall be installed in accordance with the manufacturer's recommendations and project specifications.

B. Ensure that door frames are properly aligned and securely anchored within the cast-in-place concrete.

C. The contractor shall fill any gaps between the door frame and the concrete with a suitable sealant to ensure watertight performance.

3.2 FIELD QUALITY CONTROL

A. Inspect all access doors after installation for proper operation and alignment.

B. Ensure that all hardware and components are functioning correctly and meet the specified performance criteria.

3.3 TESTING

A. After installation, each access door shall be tested for proper operation, ensuring that doors open and close smoothly without obstruction.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Removing surface debris.
2. Removing designated trees, shrubs, and other plant life.
3. Removing abandoned utilities.
4. Excavating topsoil.

B. Related Sections:
1. Section 31 22 13 - Rough Grading.
2. Section 31 23 18 - Rock Removal.

1.2 QUALITY ASSURANCE

A. Perform cutting and removal of paving and curbs in accordance with California Department of Transportation (Caltrans) standards.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing plant life designated to remain is tagged or identified.

3.2 PREPARATION

A. Call California Dig Alert at 811 not less than three working days before performing Work. Contact Owner for information about utilities not identifiable by California Dig Alert.
1. Request underground utilities to be located and marked within and surrounding construction areas.

3.3 PROTECTION

A. Locate, identify, and protect utilities indicated to remain, from damage.

B. Protect trees, plant growth, and features designated to remain, as final landscaping.

C. Protect benchmarks, survey control points, and existing structures from damage or displacement.

3.4 CLEARING

A. Clear areas required for access to site and execution of Work to minimum depth of 3 inches.

B. Remove trees and shrubs within marked areas. Remove stumps, root system to depth of 12 inches, and surface rock.

C. Clear undergrowth and deadwood, without disturbing subsoil.

3.5 REMOVAL

A. Remove debris, rock, and extracted plant life from site.

B. Partially remove paving and curbs as indicated on Drawings. Neatly saw cut edges at right angle to surface.

C. Remove abandoned utilities. Indicated removal termination point for underground utilities on Record Documents.

D. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.

E. Do not burn or bury materials on site. Leave the site in clean condition.

3.6 TOPSOIL AND SUBSOIL EXCAVATION

A. Excavate topsoil and subsoil from areas to be further excavated or regraded, without mixing with foreign materials for use in finish grading.

B. Do not excavate wet topsoil or subsoil.

C. Stockpile in area designated on site to height not exceeding 8 feet and protect from erosion.

D. When excavating through roots, perform Work by hand and cut roots with sharp axe.

E. Coordinate with Engineer for local placement of excess topsoil.

END OF SECTION

SECTION 31 22 13

ROUGH GRADING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Excavating topsoil.
2. Excavating subsoil.
3. Cutting, grading, rough contouring, and compacting site for site structures and other facilities.

B. Related Sections:
1. Section 31 10 00 - Site Clearing: Excavating topsoil.
2. Section 31 23 17 - Trenching: Trenching and backfilling for utilities.
3. Section 31 23 18 - Rock Removal.

1.2 REFERENCES

A. ASTM International:
1. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
3. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 CLOSEOUT SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 PRODUCTS

2.1 MATERIALS

NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify survey benchmark and intended elevations for the Work are as indicated on provided Attachment Drawings.

3.2 PREPARATION

A. Call California Dig Alert at 811 not less than three working days before performing Work. Contact Owner for information about utilities not identifiable by California Dig Alert.
   1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum.

C. Protect utilities indicated to remain from damage.

D. Protect plant life, lawns, and other features remaining as portion of final landscaping.

E. Protect benchmarks, survey control point, and existing structures during construction.

3.3 FILLING

A. Fill areas to contours and elevations with unfrozen materials.

B. Place material in continuous layers as follows:
   1. Subsoil Fill: Maximum 12 inches compacted depth.
   2. Structural Fill: Maximum 6 inches compacted depth.

C. Maintain optimum moisture content of fill materials to attain required compaction density.

D. Slope grade away from building or structure minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.

E. Make grade changes gradually. Blend slope into level areas.

F. Repair or replace items indicated to remain damaged by excavation or filling.

3.4 FIELD QUALITY CONTROL

A. Perform laboratory material tests in accordance with ASTM D1557.

B. Perform in place compaction tests in accordance with the following:
   1. Density Tests: ASTM D1556 or ASTM D6938.
   2. Moisture Tests: ASTM D6938.

C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest at Contractor’s expense.

END OF SECTION

SECTION 31 23 16

EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Excavating for structure foundations.
   2. Excavating for slabs-on-grade.
   3. Excavating for site structures.

B. Related Sections:
   1. Section 31 22 13 - Rough Grading: Topsoil and subsoil removal from site surface.
   2. Section 31 23 17 - Trenching: Excavating for utility trenches.
   3. Section 31 23 18 - Rock Removal: Removal of rock during excavating.

1.2 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan. Identify name and contact information for Competent Person.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 PREPARATION

A. Call California Dig Alert at 811 not less than three working days before performing Work. Contact Owner for information about utilities not identifiable by California Dig Alert.
   1. Request underground utilities to be located and marked within construction areas.

B. Identify required lines, levels, contours, and datum.

C. Protect utilities indicated to remain from damage.

D. Protect plant life, lawns, and other features remaining as portion of final landscaping.

E. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.2 EXCAVATION

A. Underpin adjacent structures which may be damaged by excavation work.

B. Excavate subsoil to accommodate building foundations, slabs-on-grade, paving, site structures, and construction operations.

C. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with Section 31 23 17.

D. Slope banks with machine to angle of repose or less until shored.

E. Do not interfere with 45 degree bearing splay of foundations.

F. Grade top perimeter of excavation to prevent surface water from draining into excavation.

G. Trim excavation. Remove loose matter.

H. Clean excavation in rock below footing thoroughly using pressure washer and vacuum. No deleterious materials shall be in the base of the excavation when preparing to place concrete.

I. Notify Engineer of unexpected subsurface conditions.

J. Correct areas over excavated with structural fill Type specified in Section 31 23 17.

K. Remove excess and unsuitable material from site.

L. Repair or replace items indicated to remain that are damaged by excavation.

3.3 BACKFILLING

A. Place structure fill material in uniform layers on all sides of the structure 6 inches thick.

B. Do not fill structure material until the structure footing or other portions of the structure have been inspected.

C. Compact to 95% of maximum density for bedding under structures. Compact to 90% in other circumstances.

D. Use excavated soil as final backfill material unless Engineer determines it is unsuitable. Unsuitable final backfill material is solid or loose rock larger than 6 inches or lumps larger than 3 inches. Do not use organic matter or debris.

3.4 PROTECTION

A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.

B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

3.5 RESTORATION

A. Machine compact backfill under the sidewalk as follows:
   1. Cut the existing curb or sidewalk to a neat line.
   2. Match the depth of base course material with that present under adjacent curbs or sidewalks.
   3. Match the existing concrete sidewalk in width, thickness, slope and finish, but not less than 4 inches in thickness.
   4. Use wire mesh reinforcement, 6 inch by 6 inch, mid depth in concrete.

END OF SECTION

SECTION 31 23 17

TRENCHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Compacted fill from top of utility bedding.
   2. Backfilling and compaction.

B. Related Sections:
   1. Section 03 30 00 - Cast-In-Place Concrete: Concrete materials.
   2. Section 31 22 13 - Rough Grading: Topsoil and subsoil removal from site surface.
   3. Section 31 23 16 - Excavation: General building excavation.
   4. Section 31 23 18 - Rock Removal: Removal of rock during excavating.
   5. Section 33 11 13 - Water Mains: Water piping and bedding.
   6. Section 33 11 16 - Water Distribution Valves

1.2 REFERENCES

A. ASTM International:
   1. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
   2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
   3. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

B. California Department of Transportation:
   1. California Test Method 216 – Relative Compaction of Untreated and Treated Soils and Aggregates.
   2. California Test Method 217 – Method of Test for Sand Equivalent.
   3. California Test Method 229 – Method of Test for Durability Index
   4. California Test Method 301 – Method of Test for Determining the “R” Value of Treated and Untreated Bases, Subbases, and Basement Soils by the Stabilometer.

1.3 DEFINITIONS

A. Utility: Any buried pipe, duct, conduit, or cable.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan. Identify name and contact information for Competent Person.

C. Product materials for pipe embedment, structural fill or cement slurry mix.

D. Obtain Engineer approval prior to using any locally procured material as backfill.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Imported Pipe Embedment: Angular crushed stone or gravel; free of shale, clay, friable material and debris; graded in accordance with ASTM D2321, Class 1B soils, within the following limits:

Sieve Size	Percent Passing
1 ½ inch	100
3/8 inch	90 to 100
No. 4	5 to 50
No. 200	0 to 5

B. Imported Structural Fill: Complies with requirements of Caltrans Class 3 Aggregate Subbase:

Sieve Size	Percent Passing
3 inches	100
2 inches	87 to 100
No. 4	45 to 100
No. 200	0 to 34
Resistance (R-value)	40 minimum

C. Cement Slurry Fill: Per Caltrans Standard Specifications, current edition.
1. Fluid workable mixture of aggregate, cement and water that will flow without segregation of the aggregate while being placed.
2. Water shall be free from oil, salts and other impurities that would have an adverse effect.
3. Proportion cement slurry fill by weight or volume: Not less than 188 lbs. of cement shall be used for each cubic yard of material produced.
4. Aggregate must be one of the following:
    a. Commercial quality concrete sand.
    b. Excavated or imported material, free of organic material and other deleterious substances, and complying with grading requirements in the following table

Sieve Size	Percent Passing
1 ½ inches	100

1 inch	80 to 100
¾ inches	60 to 100
3/8 inches	50 to 100
No. 4	40 to 80
No. 100	10 to 40

PART 3 EXECUTION

3.1 LINES AND GRADES

A. Lay pipes to lines and grades indicated on Drawings.
   1. Owner reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.

B. Use calibrated equipment with qualified operator to establish lines and grades.

3.2 PREPARATION

A. Call California Dig Alert at 811 not less than three working days before performing Work. Contact Owner for information about utilities not identifiable by California Dig Alert.
   1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum locations.

C. Protect plant life, lawns, and other features remaining as portion of final landscaping.

D. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Maintain and protect above and below grade utilities indicated to remain.

F. Establish temporary traffic control when trenching is performed in public right-of-way. Relocate controls as required during progress of Work.

3.3 TRENCHING

A. Remove boulders and rock up of 1 cubic yard, measured by volume. Remove larger material as specified in Section 31 23 18.

B. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.

C. Excavate bottom of trenches between 12 and 24 inches wider than outside diameter of pipe.

D. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe utilities.

E. Do not interfere with 45 degree bearing splay of foundations.

F. Perform work in accordance with excavation plan. If no excavation plan has been submitted and approved, slope or bench side walls of excavation starting 3 feet above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.

G. When subsurface materials at bottom of trench are loose or soft. Excavate to greater depth as directed by Engineer. Backfill with imported pipe embedment. Remove large rock, boulders, and large stones to provide 3 inches of soil cushion on all sides of the pipe and pipe accessories.

H. Cut out soft areas of subgrade not capable of compaction in place. Excavate to greater depth as directed by Engineer. Backfill with imported structural fill and compact to density equal to or greater than requirements for subsequent backfill material.

I. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.

J. Correct over excavated areas with compacted backfill as specified for authorized excavation or replace with cement slurry fill as directed by Engineer.

K. Remove excess subsoil not intended for reuse, from site.

3.4 STOCKPILING OF IMPORTED MATERIALS

A. Stockpile materials on site at locations designated by Engineer.

B. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.

C. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

D. Control erosion from stockpiles in accordance with Section 31 25 13 and approved Storm Water Pollution Prevention Plan (SWPPP), where required.

3.5 STOCKPILE CLEANUP

A. Leave unused materials in neat, compact stockpile.

B. When the borrow area is indicated, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

3.6 SHEETING AND SHORING

A. Conform to approved excavation plan, where applicable.

B. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.

C. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.

D. Design sheeting and shoring to be removed at completion of excavation work.

E. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.

F. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.7 BACKFILLING

A. Use excavated soil as pipe embedment unless Engineer determines it is unsuitable. Unsuitable material is defined as incapable of being compacted to specified density with optimum moisture content, solid or loose rock, lump material larger than 1-inch, organic matter, or debris.

B. Use excavated soil as final pipe backfill or as structural fill unless Engineer determines it is unsuitable. Unsuitable final pipe backfill or structural fill is solid or loose rock larger than 6-inches or lumps larger than 3-inches. Do not use organic matter or debris.

C. Backfill trenches to contours and elevations with unfrozen fill materials.

D. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

E. Place material in continuous layers as follows:
1. All Backfill within Roadway and Shoulder: Maximum 6 inches compacted depth.
2. Structural Fill: Maximum 6 inches compacted depth.
3. Pipe Embedment and Haunching: Maximum 6 inches compacted depth.
4. Final Backfill in Unimproved Areas: Maximum 12 inches compacted depth.

F. Employ placement method that does not disturb or damage foundation perimeter drainage and utilities in trench.

G. Maintain optimum moisture content of fill materials to attain required compaction density.

H. Do not leave the trench open at end of working day. If required, protect open trenches to prevent danger to the public.

3.8 CEMENT SLURRY BACKFILLING

A. Maintain a minimum 6-inches clear distance between outside of pipe and side of the excavation.

B. Compacted earth plugs or other suitable systems shall be placed at the ends of the trench to receive slurry backfill to completely contain the slurry in the trench.

C. Place in a uniform manner that will prevent voids in, or segregation of, the backfill, and will not float or shift the pipe.

D. Backfilling over or placing any material over the cement slurry backfill shall not commence until 4 hours after the slurry has been placed.

E. Cement slurry backfill shall not be used where it would be in contact with aluminum or aluminum coated materials.

3.9 COMPACTION

A. Compact backfill to percentage of maximum density determined by ASTM D1557 unless otherwise specified by permit or authority:

Percent of Maximum Density

Location	Bedding& Haunching	Initial & Final Backfill
Roadways, Improved Surfaces	95	95
Roadway Rights-of-Way, Outside of Roadway Prism	90	90
Backfill Around Structures	95	95
Unimproved Surfaces, Fields, Etc.	90	80

3.10 FIELD QUALITY CONTROL

A. Perform laboratory material tests in accordance with ASTM D1557.

B. Perform in place compaction tests in accordance with the following:
1. Density Tests: ASTM D1556 or ASTM D6938.
2. Moisture Tests: ASTM D6938.

C. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

D. Frequency and Location of Tests: as directed by Engineer, typically not to exceed one location every 500 linear feet for pipe installations or every 1,000 square feet for structures. Multiple tests of different lifts at a single location may be required as directed by Engineer.

3.11 REMOVAL OF NUISANCE WATER

A. Control site drainage, springs and runoff, and prevent water from adversely affecting trenching locations.

B. Remove nuisance water entering the trenches. Water that can be removed through the use of sump or transfer pumps will not be considered dewatering for payment purposes.

C. Keep trenches free from standing water until the facilities are in place, open ends plugged against the entrance of water, and backfill has been placed and compacted.

3.12 PROTECTION OF FINISHED WORK

A. Ensure drainage during construction.

B. Install bentonite water stops as needed to prevent channeling along pipe trench.

END OF SECTION

SECTION 31 23 18

ROCK REMOVAL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Mechanical removal of rock.
2. Expansive tools to assist rock removal.

B. Related Sections:
1. Section 31 22 13 - Rough Grading.
2. Section 31 23 16 - Excavation: Building excavation.
3. Section 31 23 17 - Trenching: Trenching and backfilling for utilities.

1.2 DEFINITIONS

A. Solid Rock: Solid continuous masses of igneous, metamorphic, or sedimentary rock that, in the opinion of the Engineer, cannot be removed without drilling, wedging, prying, sawing, jacking, hydraulic hammering or blasting. Soft, disintegrated rock that is capable of being excavated with rippers, picking, or other scarifying action is not considered solid rock.

B. Loose Rock: Individual boulders or loose stones, each with volume in excess of 1 cu yd. Excavated boulders or rock fragments with a volume of less than 1 cu yd shall not be classified as Loose Rock for payment purposes.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

PART 2 PRODUCTS

2.1 MATERIALS

A. Mechanical Disintegration Compound: Grout mix of materials that expand on curing.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions and note subsurface irregularities affecting Work of this section.

3.2 ROCK REMOVAL BY MECHANICAL METHOD

A. Excavate and remove rock by mechanical method.

1. Hydraulic hammering or jacking.
2. Rock saw or rock wheel.
3. Drill holes and use expansive tools, wedges, expansive grout, or mechanical disintegration compound to fracture rock.

B. In utility trenches, excavate to 6 inches below invert elevation of pipe and 8 inches wider than pipe flange or mechanical joint diameter.

C. Remove rock at excavation bottom to form level bearing.

D. Remove shale layers to provide a sound base.

E. Remove excavated materials from site, materials may be placed downstream of intake structure.

F. Correct unauthorized rock removal in accordance with backfilling and compacting requirements of Section 31 23 17.

3.3 ROCK REMOVAL BY EXPLOSIVE METHODS

A. Rock removal by explosive methods is not permitted on this project.

3.4 FIELD QUALITY CONTROL

A. Request visual inspection of foundation bearing surfaces by Engineer before installing subsequent work.

END OF SECTION

SECTION 31 23 19

DEWATERING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Dewatering system.
   2. Surface water control system.
   3. System operation and maintenance.

B. Related Sections:
   1. Section 31 23 16 - Excavation: Excavation for structures below ground water table.
   2. Section 31 25 13 - Erosion Controls: Surface water runoff control.

1.2 REFERENCES

A. ASTM International:
   1. ASTM C33 - Standard Specification for Concrete Aggregates.

1.3 DEFINITIONS

A. Dewatering means continuing diversion and pumping of surface water to temporarily lower the level within the excavation so the work may proceed.

B. Dewatering includes the following:
   1. Reducing water levels within the project site to sufficiently to place reinforced concrete and ensure crew safety.
   2. Installing barriers required to lower water levels within the excavation.

C. Surface Water Control: Removal of surface water within open excavations.

1.4 SYSTEM DESCRIPTION

A. Dewatering Pumps:
   1. Must have sufficient capacity to remove water from the project site within barriers.

B. Sandbags and PVC Liner:
   1. Constructed of high-strength woven polypropylene fabric, minimum breaking strength 300 lb. as per ASTM D4632.
   2. Filled with clean, non-cohesive sand.
   3. UV-resistant and capable of withstanding site conditions.

C. Rubberized Dam:
   1. Inflatable dam with reinforced rubber material capable of creating a watertight seal.
   2. Designed to withstand hydrostatic pressure from surrounding water sources.

3. Anchoring system as recommended by the manufacturer.

D. Alternative Barriers:
   1. Pre-approved water-filled tubes, cofferdams, or sheet piling may be used based on site conditions and Engineer approval.
   2. Must provide equivalent or greater stability and water retention capacity as specified materials.

1.5 PERFORMANCE REQUIREMENTS

A. Design dewatering systems to:
   1. Limit inflow of water into the excavation to permit Work to be completed on dry and stable subgrade.
   2. Maintain stability of sides and bottoms of excavations and trenches.

B. Design surface water control systems to:
   1. Collect and remove surface water and seepage entering excavation.

1.6 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Shop Drawings:
   1. Indicate dewatering system layout, barrier lengths, dewatering pump locations, pipe sizes and capacities, surface water control devices, and water disposal method and location.
   2. Indicate primary and standby power system location and capacity.
   3. Include detailed description of dewatering system installation procedures and maintenance of equipment.
   4. Include description of emergency procedures to follow when problems arise.
   5. If a gas-powered pump or generator is used, provide spill kits and containment below pump or generator to prevent any contamination of the reservoir.

C. Product Data: Submit data for each of the following:
   1. Dewatering Pumps: Indicate sizes, capacities, priming method, motor characteristics.
   2. Pumping equipment for control of surface water within excavation.

1.7 CLOSEOUT SUBMITTALS

A. Photo documentation of removal of all barriers and pumps from the site.

1.8 QUALITY ASSURANCE

1. Ensure spill response kits are always available.

1.9 PRE-INSTALLATION MEETINGS

A. Convene minimum one week prior to commencing work of this section.

1.10 COORDINATION

A. Coordinate work to permit the following construction operations to be completed on dry stable substrate.
   1. Excavation for structures specified in Section 31 23 16.
   2. Trenching for utilities specified in Section 31 23 17.
   3. Maintaining erosion controls as specified in Section 31 25 13 and approved Storm Water Pollution Prevention Plan (SWPPP), where required.

PART 2 PRODUCTS

2.1 DEWATERING EQUIPMENT

A. Select dewatering equipment to meet specified performance requirements.

B. Surface Water Pumps: Self priming, centrifugal semi-open clog resistant impeller; engine driven type; minimum rated capacity of 50 gpm at 25 feet total dynamic head.
   1. Furnish pumps with screened suction hose and discharge hoses as required to suit application.
   2. Contractor may consider having multiple pumps on site, a main discharge pump and some smaller pumps to maintain water while working.

2.2 ACCESSORIES

A. Valves and Fittings: Furnish valves and fittings to isolate each well from header pipe and to prevent loss of pump prime.

PART 3 EXECUTION

3.1 PREPARATION

A. Protect existing adjacent structures, and improvements from damage caused by dewatering operations.

3.2 DEWATERING SYSTEM

A. Install dewatering system in accordance with submitted and approved shop drawings.

B. Locate system components to allow continuous dewatering operations without interfering with installation of permanent Work and adjacent structures, and improvements.

C. Install pumps in accordance with manufacturer’s instructions.

D. Connect pumps to discharge header. Install valves to permit pump isolation.

3.3 SURFACE WATER CONTROL SYSTEM

A. Provide ditches, berms, and other devices to divert and drain surface water from excavation area.

B. Divert surface water and seepage water within excavation areas into sumps and pump water downstream of site.

C. Control and remove unanticipated water seepage into excavation.

3.4 SYSTEM OPERATION AND MAINTENANCE

A. Operate dewatering system as needed during rock excavation and continuously during concrete placement.

B. Provide 24-hour supervision of dewatering system by personnel skilled in operation, maintenance, and replacement of system components during continuous operation.

C. Conduct daily observation of dewatering system. Make required repairs and perform scheduled maintenance.

D. Fill fuel tanks before tanks reach 25 percent capacity.

E. Start generators at least twice each week to check operating condition.

F. When dewatering system cannot control water within excavation, notify Architect/Engineer and stop excavation work.
   1. Supplement or modify dewatering system and provide other remedial measures to control water within excavation.
   2. Demonstrate dewatering system operation complies with performance requirements before resuming excavation operations.

G. Modify dewatering and surface water control systems when operation causes or threatens to cause damage to new construction, existing site improvements, adjacent property, or adjacent water wells.

H. Correct unanticipated pressure conditions affecting dewatering system performance.

I. Do not discontinue dewatering operations without Engineer’s approval.

3.5 WATER DISPOSAL

A. Discharge water into existing drainage channels per NPDES permit and SWPPP, where applicable.

3.6 SYSTEM REMOVAL

A. Remove dewatering and surface water control systems after dewatering operations are discontinued.

B. Repair damage caused by dewatering and surface water control systems or resulting from failure of systems to protect property.

3.7 FIELD QUALITY CONTROL

A. After the dewatering system is installed, perform a pumping test to determine when selected pumping rate lowers water level for safe working conditions. Adjust pump speed, discharge volume, or both to ensure proper operation of each pump.

B. Inspect barrier daily, repair damage as required for safety.

END OF SECTION

SECTION 31 25 13

EROSION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Rock Energy Dissipater.
   2. Sediment Traps.

B. Related Sections:
   1. Section 31 10 00 - Site Clearing.
   2. Section 31 22 13 - Rough Grading.
   3. Section 31 23 17 - Trenching.

1.2 REFERENCES

A. Environmental Protection Agency
   1. Clean Water Act, Sections 401 and 402

B. California Department of Transportation (Caltrans)
   1. Standard Specifications for Construction of Local Streets and Roads, latest edition.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on silt fencing, erosion fiber logs, geotextile, or alternate erosion control measure proposed.

PART 2 PRODUCTS

2.1 ROCK MATERIALS

A. Rock: Sound, hard and angular shape; conforming with Caltrans standard “Light” Riprap.

2.2 GEOTEXTILE FABRIC

A. Woven Polypropylene Geotextile
   1. Sunshine Supplies Mirafi 500X, or equal.
   2. Shall comply with Caltrans standards.

2.3 SILT FENCING

A. 15 mil screen fabric with a minimum of 120 pounds of grab tensile strength and a minimum opening size of 170.

B. All seams shall be heat sealed or sewn.

C. Posts shall be wood or steel, 2” x 2” x 36” minimum.

D. Shall comply with Caltrans standards.

2.4 EROSION FIBER LOGS

A. Filled with curled wooden fibers, wood chips, and/or compost, with filter fabric sock or polyester netting exterior covering. Shall be free of weeds.

B. Approved Products: American Excelsior Sediment Log, FlexTran Silt Sock, or equal

C. Posts shall be wood or steel, 2” x 2” x 36” minimum.

D. Shall comply with Caltrans standards.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support devices and imposed loads.

B. Verify gradients and elevations of base or foundation for other work are correct.

3.2 ROCK ENERGY DISSIPATER

A. Excavate to indicated depth of rock lining or nominal placement thickness as follows. Remove loose, unsuitable material below bottom of rock lining, then replace with suitable material. Thoroughly compact and finish the entire foundation area to firm, even surface.

Rock size	Nominal Placement Thickness inches
Caltrans “Light” Riprap	30

B. Lay and overlay geotextile fabric over substrate. Lay fabric parallel to flow from upstream to downstream. Overlap edges upstream over downstream and upslope over downslope. Provide a minimum overlap of 3 feet. Offset adjacent roll ends a minimum of 5 feet when lapped. Cover fabric as soon as possible and in no case leave fabric exposed more than 4 weeks.

C. Carefully place rock on geotextile fabric to produce an even distribution of pieces, with minimum of voids and without tearing geotextile.

D. Unless indicated otherwise, place full course thickness in one operation to prevent segregation and to avoid displacement of underlying material. Arrange individual rocks for uniform distribution.
   1. Saturate rock with water. Fill voids between pieces with grout, for at least top 6 inches. Sweep surface with stiff broom to remove excess grout.
   2. Moist cure grouted rock for at least 3 days after grouting, using water saturated burlap in accordance with Section 03 30 00.

3.3 SEDIMENT TRAPS AND CHECK DAMS

A. Clear site, as specified in Section 31 10 00.

B. Divert drainage away from construction areas.

C. Prevent discharge or deposition of soil materials into surface waters.

D. Remove sediment traps or check dams only after the area has stabilized and vegetation has developed to the extent no further erosion is likely.

E. Comply with all requirements of SWPPP, where applicable, to control erosion in all areas of ground disturbance and around stockpiles of material.

F. Silt fencing
   1. Place silt fences following a constant elevation contour, in an arc or horseshoe shape with ends pointing up towards the slope.
   2. Drive stakes into the soil to a depth such that the silt fence contacts the ground.
   3. Trench the silt fence into the ground and tamp the bottom of the filter material to ensure that runoff is forced through the fence rather than under it.

G. Erosion Control Fiber Logs
   1. Install as necessary or as otherwise indicated on the plans at spacing not to exceed California Department of Transportation specifications.
   2. Place perpendicular to the direction of flow in a drainage swale or ditch.
   3. Overlap butt ends of logs against each other and secure using nylon zip ties.
   4. Place stakes through erosion log or alternating upstream and downstream of the erosion log; secure the log to the stakes.
   5. Place fiber logs in a furrow that is 2 to 4 inches deep so that runoff is forced through the erosion log rather than over it.
   6. Place spoils directly downhill and against fiber log.

H. Gravel Bags or Rock Dams
   1. Install as necessary or as otherwise indicated on the plans.
   2. Place perpendicular to the direction of flow in a drainage swale or ditch.
   3. Install rock to allow at least 6 inches of clearance for water to flow over rock dam, below height of adjacent channel walls.

3.4 SITE STABILIZATION

A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.

B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.

C. Stockpile and waste pile heights shall not exceed 10 feet. Slope stockpile sides at 2: 1 or flatter.

D. Stabilize diversion channels, sediment traps, and stockpiles immediately.

3.5 FIELD QUALITY CONTROL

A. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

3.6 CLEANING

A. When sediment accumulation in sedimentation structures has reached a point where one-third depth of sediment structure or device, remove and dispose of sediment.

B. Do not damage the structure or device during cleaning operations.

C. Do not permit sediment to erode into construction or site areas or natural waterways.

D. Clean channels when depth of sediment reaches approximately one-half channel depth.

END OF SECTION

SECTION 31 63 00

ROCK ANCHORS

PART 1 GENERAL

1.1 SUMMARY

A. This section includes the materials, installation, and quality assurance for polyester resin rock anchors as manufactured by Williams Form Engineering Corp or equal.

1.2 REFERENCES

A. ASTM D7913 – Standard Test Method for In-Place Pullout Testing of Rock Anchors.

B. ASTM C881 – Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.

C. Williams Form Engineering Corp. installation guidelines and technical specifications.

1.3 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 00 and as specified herein.

B. . Submittals shall include as a minimum:

1. Manufacturer’s product data sheets.

2. Shop drawings indicating anchor layout, details, and dimensions.

3. Installation instructions provided by Williams Form Engineering Corp.

4. Testing results for pullout strength in accordance with ASTM D7913.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. The polyester resin rock anchors shall be provided by Williams Form Engineering Corp. or approved equal with a minimum of 10 years of experience in manufacturing rock anchoring systems

B. Installer Qualifications:

1. The installation of rock anchors shall be performed by personnel trained and certified by Williams Form Engineering Corp. or with documented experience in the installation of similar rock anchoring systems.

PART 2 PRODUCTS

2.1 MANUFACTURER:

A. Williams Form Engineering Corp. or Equal

B. Product: Polyester Resin Rock Anchors.

2.2 MATERIALS:

A. Polyester Resin:

1. The resin used for anchoring shall be a polyester-based compound formulated to provide high bonding strength and durability under varying environmental conditions.

2. The resin shall meet the specifications of ASTM C881 and be suitable for use in wet and dry conditions.

B. Rock Anchor Components:

1. Anchor Bar:
   a. Material: Grade 75 steel.
   b. Diameter: 1 inch (25.4 mm).
   c. Length: As required by design.
   d. The anchor will be fully bonded in the resin.

C. Resin Cartridges:
   a. Size: 1¼-inch (31.75 mm) diameter cartridges.
   b. Hole Size: 1½-inch (38.1 mm) hole required for cartridge installation.

D. Anchor Plates:
   a. Material: Steel conforming to ASTM A36 or higher.
   b. Thickness: As specified on drawings

E. Accessories:
   a. Threaded nuts and washers shall be provided in accordance with ASTM A563 and ASTM F436, respectively.
   b. Lock washers or locking nuts shall be used to secure nuts in place.

PART 3 EXECUTION

3.1 ANCHOR INSTALLATION:

A. Drilling:

1. Holes shall be drilled in accordance with the manufacturer’s specifications using rotary drill equipment capable of achieving the required hole diameter and depth.

2. Drill holes shall be clean and free from debris before the introduction of the polyester resin.

B. Resin Installation:

1. The resin shall be installed in accordance with the manufacturer’s instructions to ensure proper curing and bonding.

C. Anchor Installation:

1. The anchor bar shall be installed promptly after resin injection, ensuring full contact with the resin.
2. Anchor bars shall be positioned and held in place until the resin has cured to the specified strength.
3. The curing time shall be in accordance with the manufacturer's recommendations based on temperature and humidity conditions.

3.2 FIELD QUALITY CONTROL

A. Quality control procedures shall be established to ensure proper installation and performance of the rock anchors.

B. Inspect and document the installation process, including resin installation and curing, and ensure that all materials conform to the drawings and specifications.

3.3 TESTING

A. Perform testing in accordance with ASTM D7913, ensuring that the installed anchors meet the required performance criteria as specified in the project documents.

END OF SECTION

SECTION 33 11 13

WATER DISTRIBUTION MAINS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Pipe and fittings for the raw water transmission line.

B. Related Requirements:
1. Section 31 23 17 - Trenching: Execution requirements for trenching required by this section.
2. Section 33 11 16 - Water Distribution Valves

1.2 REFERENCE STANDARDS

A. ASTM International:
1. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).

B. American Water Works Association:
1. AWWA C104 - ANSI Standard for Cement Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. AWWA C110 - ANSI Standard for Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In. (76 mm Through 1,219 mm), for Water.
3. AWWA C111 - ANSI Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
4. AWWA C115 - ANSI Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
5. AWWA C116 - Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior of Ductile-Iron and Gray-Iron Fittings
6. AWWA C151 - ANSI Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
7. AWWA C153 – Mechanical Joint Ductile Iron Fittings

C. National Sanitation Foundation:
1. NSF 61 - Drinking Water System Components - Health Effects

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on pipe materials, pipe fittings, valves and accessories.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations.

B. Certification of pressure testing of pipe.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Requirements for transporting, handling, storing, and protecting products per Contract General Conditions.

B. Block individual and stockpiled pipe lengths to prevent movement.

C. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.

D. Ship and deliver pipe and fittings from manufacturer with dust plugs on pipe ends and fitting ends.

E. Do not use chains, wire rope, other methods of fastening or equipment that may gouge or damage pipe.

1.6 EXISTING CONDITIONS

A. Verify field measurements prior to fabrication. Indicate field measurements on shop drawings.

PART 2 PRODUCTS

2.1 WATER PIPING

A. Ductile Iron Pipe:
   1. Pipe Class: AWWA C151, for nominal thickness, rated water working pressure and maximum depth of cover.
   2. Fittings: Ductile iron, AWWA C110. Compact fittings AWWA C153.
      a. Coating and Lining:
         1) Bituminous Coating: AWWA C110.
         2) Cement Mortar Lining: AWWA C104, double thickness.
         3) Fusion Bonded Epoxy Coatings Interior/Exterior: AWWA C116
   3. Joints:
      a. Flanged Joints: AWWA C115.
      b. Restrained Joints: AWWA C153, gripping wedges with follower gland.

2.2 VALVES AND FIRE HYDRANTS

A. Valves: Conform to Section 33 11 16.

2.3 FINISHES

A. Steel: Galvanizing, ASTM A123; hot dip galvanize after fabrication.

2.4 ACCESSORIES

A. Steel rods, bolt, lugs and brackets: ASTM A36 Grade A carbon steel.

B. Protective Coating: Where buried and not in contact with water, exterior shall be bituminous coating. Where not buried and in direct contact with water, interior and exterior shall have fusion bonded epoxy bonded coating.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing utility water main size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

A. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs. Use only equipment specifically designed for pipe cutting. The use of chisels or handsaws will not be permitted. Grind edges smooth with beveled end for push-on connections.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare pipe connections to equipment with flanges.

D. Where pipe is connected to metallic parts differing from its own, install dielectric bolt kits.

3.3 BEDDING

A. Excavate pipe trench in accordance with Section 31 23 17 for Work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated on Drawings.

B. Dewater excavations to maintain dry conditions and preserve final grades at bottom of excavation.

C. Provide sheeting and shoring in accordance with Section 31 23 17.

D. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 6 inches compacted depth; compact to 95 percent.

3.4 INSTALLATION – PIPE

A. Install ductile iron piping and fittings to AWWA C600.

B. Handle and assemble pipe in accordance with manufacturer’s recommendations.

C. Install pipe to indicated elevation to within tolerance of 1 inch.

D. Route pipe in straight line. Re-lay pipe that is out of alignment or grade.

E. Install pipe with no high points. If unforeseen field conditions arise which necessitate high points, install air release valves as directed by Engineer.

F. Install pipe to have bearing along entire length of pipe. Do not lay pipe in wet or frozen trench.

G. Prevent foreign material from entering pipe during placement.

H. Install pipe to allow for expansion and contraction without stressing pipe or joints.

I. Close pipe openings with watertight plugs during work stoppages.

J. Establish elevations of buried piping with no less than depth of cover on drawings. Measure depth of cover from final surface grade to top of pipe barrel.

3.5 INSTALLATION - VALVES

A. Install valves in accordance with Section 33 11 16.

3.6 CONNECTION TO EXISTING WATER MAINS

A. Shut off of water mains will not be permitted overnight, on weekends, or on federal, state, or tribal holidays. Water shut-off is limited to 4 hours maximum, and only after public notification.

B. Make the necessary arrangements with the owner of the existing utility prior to any connections to any water mains. Residents shall be notified at least two working days in advance of water shut-off.

C. Do not start work until all the materials, equipment, and labor have been assembled on the site. When work is started on a connection, proceed continuously without interruption, and as rapidly as possible, until completed.

D. Make connections to existing water mains in a neat, workmanlike manner to suite actual conditions encountered at the existing water main. Adhere to manufacturer’s recommendations to avoid damage to pipe coating.

E. Prevent the existing water main from being contaminated when making the connection. Take all action necessary to prevent trench water, mud or other contaminants from entering the connection line or main at any time.

3.7 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Requirements for inspecting, testing.

B. Pressure test system in accordance with AWWA C600 (ductile iron):

1. Pressure testing shall not be allowed prior to 7 days after pouring any concrete thrust blocks or restraints, to allow proper curing time.
2. Test Pressure: Not less than 50 psi in excess of maximum static pressure, whichever is greater.
3. Conduct hydrostatic test for at least two-hour duration.
4. Fill section to be tested with water slowly, expel air from piping at high points. Install corporation stops at high points. Close air vents and corporation stops after air is expelled. Raise pressure to specified test pressure.
5. Observe joints, fittings and valves under test. Remove and renew cracked pipe, joints, fittings, and valves showing visible leakage. Retest.
6. Correct visible deficiencies and continue testing at same test pressure for additional 2 hours to determine leakage rate. Maintain pressure within plus or minus 5.0 psig of test pressure. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
7. Compute maximum allowable leakage by the following formula:

$L = (SD\sqrt{P})/C$
L = testing allowance, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of pipe, in inches
P = average test pressure during hydrostatic test, in psig
C = 148,000
When pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.

8. When test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections and retest until leakage is within allowable limits. Correct visible leaks regardless of quantity of leakage. If no visible leaks are apparent, verify all air is removed from the system and retest. If retest fails, locate source of leakage and make corrections.

C. Compaction Testing for Bedding: In accordance with Section 31 23 17.

D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

E. Frequency of Compaction Tests: At least once for every 1,000 linear feet of pipe installed, minimum one test required for any installation over 500 linear feet.

END OF SECTION

SECTION 33 11 16

WATER DISTRIBUTION VALVES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Valves.

B. Related Requirements:
   1. Section 33 11 13 - Water Distribution Mains.

1.2 REFERENCE STANDARDS

A. American Water Works Association:
   1. AWWA C509 - Resilient-Seated Gate Valves for Water-Supply Service.
   2. AWWA C550 - Protecting Epoxy Interior Coating for Valves and Hydrants.
   3. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.

B. National Sanitation Foundation:
   1. NSF 61 - Drinking Water System Components - Health Effects

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on pipe materials, pipe fittings, valves and accessories.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints/joints, pressure tests, and invert elevations.

1.5 QUALITY ASSURANCE

A. Valves: Manufacturer's name and pressure rating marked on valve body.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall follow the general conditions for transporting, handling, storing, and protecting products.

B. Deliver and store valves in shipping containers with labeling in place.

PART 2 PRODUCTS

2.1 GATE VALVES

A. Manufacturer List:
   1. Clow Valve Co.
   2. Mueller Co.
   3. Waterous Co.
   4. Kennedy Valve Co.
   5. Substitutions permitted per General Conditions of the contract.

B. 3 inches and Larger: AWWA C509 or AWWA C515; iron body, bronze or ductile iron; including the manufacturer's name, pressure rating, and year of fabrication cast into valve body.
   1. Resilient seats.
   2. Stem: Non-rising bronze stem.
   3. Operating Nut: Square; open counterclockwise unless otherwise indicated.
   4. Ends: Flanged
   5. Coating: AWWA C550; interior and exterior.
   6. Sizes 14 inch diameter: 250 psig, or as indicated in Drawings.

2.2 VALVE BOXES

A. Valves Larger than 12 inch diameter: Domestic cast iron, three-piece, screw or sliding type, round base, with minimum inside shaft diameter of 5 ¼ inches.

B. Cast iron lid, marked "WATER".

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify connection and existing utility water main size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

A. Locate, identify, and protect utilities to remain from damage.

B. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.
   1. Notify the Owner not less than 48 hours in advance of proposed utility interruption. Do not proceed without permission from the Owner.

3.3 INSTALLATION - VALVES

A. Set valves on pipe supports as shown in Drawings.

B. Center and plumb valve box over valve. Set valve box cover flush with finished grade in concrete slab above valves.

C. Document valve open and closure turns meets manufacturer's literature.

D. Only use gaskets that are ANSI/NSF-61 compliant.

E. When connecting to any other metallic flanges that are not of the same material, use a dielectric bolt kit.

3.4 FIELD QUALITY CONTROL

A. Pressure test system in accordance with AWWA C600 and the following:
   1. Test Pressure: 50 psi in excess of maximum static pressure, whichever is greater.
   2. Conduct hydrostatic test for at least two-hour duration.
   3. Fill section to be tested with water slowly, expel air from piping at high points. Install corporation cocks at high points. Close air vents and corporation cocks after air is expelled. Raise pressure to specified test pressure.
   4. Observe joints, fittings and valves under test. Remove and renew cracked pipe, joints, fittings, and valves showing visible leakage. Retest.
   5. Correct visible deficiencies and continue testing at same test pressure for additional 2 hours to determine leakage rate. Maintain pressure within plus or minus 5.0 psig of test pressure. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
   6. Compute maximum allowable leakage by the following formula:

$L = (SD\sqrt{P})/C$
L = testing allowance, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of pipe, in inches
P = average test pressure during hydrostatic test, in psig
C = 148,000
When pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.

   7. When test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections and retest until leakage is within allowable limits. Correct visible leaks regardless of quantity of leakage.

B. When tests indicate Work does not meet specified requirements, remove Work, replace and retest at Contractor’s expense.

END OF SECTION

SECTION 35 22 00

GATES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes control gates:

1. 18” Slide Gate - Waterman or equal 18” x 18” opening, rectangular slide gate, fabricated from 304 stainless steel with square operating nut for manual actuation.

2. Removable Flushing Gate - Waterman or equal 48” x 60” aluminum stop gate with a standard hand hole and flush bottom closure.

3. Appurtenances and accessories.

B. Related Sections:

1. Section 03 30 00 – Cast-in-Place Concrete.

2. Section 03 60 00 – Grouting

1.2 REFERENCES

A. AWWA C561 – Fabricated Stainless Steel Slide Gates.

B. AWWA C563 – Fabricated Stainless Steel or Aluminum Stop Gates.

C. ASTM B-209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

D. ASTM B-211 – Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire.

E. Manufacturer’s technical specifications and installation guidelines of Structural Quality.

1.3 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 00 and as specified herein.

B. Submittals shall include:

1. Shop Drawings.

2. Manufacturer’s operation and maintenance manuals and information.

3. Manufacturer’s installation certificate.

4. Manufacturer’s equipment warranty.

5. Design calculations demonstrating lift loads and deflection in conformance with application requirements. Design calculations shall be approved by a licensed engineer (PE) and shall be available upon request.

C. The equipment provided under this section shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with the drawings, specifications, engineering data, instructions, and recommendations of the equipment manufacturer unless exceptions are noted by the engineer.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. All equipment specified under this Section shall be furnished by a single manufacturer with a minimum of 20 years of experience designing and manufacturing slide gates.

2. The manufacturer shall have designed and produced stainless steel and aluminum slide gates for at least 20 similar projects.

3. The slide gate sealing system shall be certified and tested for operation and performance to meet leakage specifications compliant with AWWA C561 for a minimum of 100,000 cycles.

4. To ensure quality and consistency, the slide gates listed in this section shall be manufactured and assembled in a facility owned and operated by the slide gate manufacturer. Third-party manufacturers contracted for fabrication and assembly of the slide gates will not be permitted.

B. Installer Qualifications:

1. Installation shall be performed by personnel trained and certified by the manufacturer or with documented experience in similar applications.

PART 2 PRODUCTS

2.1 18” SLIDE GATE

1. Type: Rectangular slide gate, self-contained, fabricated from 304 stainless steel.

2. Operation: Square operating nut for manual actuation.

3. Mounting: Wall-mounted.

4. Orientation: Upward-opening.

5. Size: As indicated on Drawings.

6. Design Pressure: Suitable for the specified head conditions.

7. Sealing: Seals on all four sides for watertight closure, with a self-adjusting seal system.
8. Material:
    a. Fabricated stainless steel Type 304 (conforming to AWWA C561).
    b. Coating: Mill finish.

2.2 REMOVABLE FLUSHING GATE

1. Type: Aluminum stop gate with standard hand hole and flush bottom closure.
2. Size: As indicated on Drawings.
3. Design Pressure: Suitable for temporary water retention under 15 feet of head pressure.
4. Material:
    c. Fabricated aluminum, ASTM B-209 and B-211 alloy 6061-T6, with mill finish.
5. Deflection: Shall not exceed 1/360 under 15 feet of head pressure.
6. Closure: Flush bottom closure with a resilient neoprene seal along the invert for watertight performance.
7. Guide Rails: Aluminum, matching the stop gate material.
8. Coating: Mill finish.

2.3 FRAME AND RAILS

A. The gate frame shall be composed of stainless steel guide rails with UHMW seat/seals upstream and downstream. The seat/seals shall form a tight seal between the frame and the slide (disc). The guides will be of sufficient length to support ½ the height of the slide when in the full open position.

B. Yoke shall not deflect more than 1/360th of the span under full head break load.

C. Seals shall be replaceable without removing the frame from the wall. In the case of embedded gates, they shall be constructed in a manner that allows replacement of the seals without removal of the gate frame from the embedment.

2.4 STEM AND GUIDE

A. Material:
    1. The stem shall be solid stainless steel of the specified grade.

2.5 SEALS

A. The seals shall be self-adjusting. Seals requiring periodic maintenance and adjustments to maintain specified leakage rates will not be permitted.

B. The top seal design for upward-opening gates, incorporating four side seals, shall include a self-cleaning wiping function that prevents debris buildup, minimizing wear.

C. UHMW seats shall impinge on the slide via a continuous loop cord seal. Designs incorporating resilient seals such as "J-bulb" or "P" seals in direct contact with the friction surface will not be considered.

D. The cord seal shall serve as both a seal between the frame and the UHMW and as a spring force to maintain contact between the UHMW and the slide.

E. The resilient bottom seal shall be set into the frame invert member, protecting 3 sides, exposing only the surface that contacts the slide. Disc-mounted invert seals with more exposed surface area are not permitted.

F. The self-adjusting seal system shall provide an allowable leakage rate of no more than ½ AWWA leakage rate per minute per peripheral foot of perimeter opening for seating and unseating heads.

2.6 SLIDE COVER (DISC)

A. The slide cover (disc) shall be stainless steel plate reinforced with structural shapes welded to the plate.

1. The slide cover shall not deflect more than 1/720th of the span, or 1/16" at the seated sealing surface under maximum head.

2. The stem-to-gate connection shall be clevis-type or with a threaded and bolted (or keyed) thrust nut.

3. The clevis or pocket and yoke of the gate shall withstand at least twice the operator's rated thrust output.

4. The slide cover shall feature vertical and horizontal reinforcement ribs.

5. All welds shall be performed by AWS-certified welding technicians.

2.7 ANCHOR BOLTS

A. Anchor hardware shall be provided by the slide gate manufacturer.

1. Size, quantity, and location of the anchor hardware shall be engineered by the slide gate manufacturer. Calculations for sizing and quantity shall be provided upon request.

2. Anchor hardware, including studs, nuts, and washers, shall be provided by the manufacturer

PART 3 - EXECUTION

3.1 INSTALLATION

A. Access doors shall be installed in accordance with the manufacturer's recommendations and project specifications.

B. Ensure that door frames are properly aligned and securely anchored within the cast-in-place concrete and/or grout.

C. The contractor shall fill any gaps between the slide or stop gate and the concrete with a suitable grout or approved ANSI/NSF-61 sealant to ensure watertight performance.

D. All grouting or placement of concrete against an existing structure shall have a non-swelling waterstop installed, Sika Lokstop or approved equal.

3.2 FIELD QUALITY CONTROL

A. Inspect all gates after installation for proper operation and alignment.

B. Ensure that all hardware and components are functioning correctly and meet the specified performance criteria.

3.3 TESTING

A. After installation, each gate shall be tested for proper operation, ensuring that the open and close smoothly without obstruction.

END OF SECTION

SECTION 46 21 56

WEDGE WIRE SCREENS

PART 1 GENERAL

1.1 SUMMARY

A. This section includes the materials, installation, and requirements for the two wedge wire screens used in a surface water intake system.

1.2 REFERENCES

A. ASTM A240 – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

B. ASTM A269 – Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

C. ASTM A312 – Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.

1.3 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 00 and as specified herein.

B. Submittals shall include:

1. Manufacturer's product data sheets for the wedge wire screen.

2. Shop drawings indicating flange layout, screen and pipe sizes, and other details.

3. Installation instructions provided by the manufacturer.

4. Certification of compliance with ASTM and other relevant specifications.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. The wedge wire screen shall be supplied by a manufacturer with a minimum of 10 years of experience in designing and manufacturing wedge wire screens for water intake applications.

B. Installer Qualifications:

1. Installation shall be performed by personnel trained and certified by the manufacturer or with documented experience in similar applications.

PART 2 PRODUCTS

2.1 WEDGE WIRE SCREEN

A. The wedge wire screen shall be constructed of 316 stainless steel, providing excellent corrosion resistance and durability in harsh environments.

B. The screen shall be designed to maintain structural integrity under operational loads and resist biofouling:

2.2 DIMENSIONS

A. Diameter: 20 inches.

B. Slot Size: 40 (0.040 inches) nominal slot size for effective filtration of sediment in surface water.

C. Length: Per drawings

2.2 END CONNECTIONS

A. The screen shall be equipped with a 14” Class 150 flange for secure attachment to the intake structure transmission line.

B. Any additional fabrication required for connections or supports shall use metals that match the screen material (316 stainless steel) to ensure compatibility and corrosion resistance.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Quality control procedures shall be established to ensure proper installation and performance of the wedge wire screen.

B. Inspect and document the installation process, ensuring that all materials conform to the specifications.

C. Ensure the screen is cleaned of all debris prior to installation.

D. Verify that mounting structures are level and can evenly support the weight of the screens.

E. Align the screens according to design drawings, ensuring that all supports and fasteners are in place.

F. When bolting to materials other than those conforming to the 316 stainless steel in this specification, provide a dielectric bolt kit.

3.2 FIELD QUALITY CONTROL

A. Quality control procedures shall be established to ensure proper installation and performance of the wedge wire screen.

B. Inspect and document the installation process, ensuring that all materials conform to the specifications.

3.3 TESTING

A. After installation, the wedge wire screen shall be tested for proper flow performance and structural integrity, in accordance with manufacturer recommendations and project specifications.

END OF SECTION

TULE RIVER TRIBAL COUNCIL
TULE RIVER INDIAN RESERVATION

GENERAL CONDITIONS

Article 1. DEFINITIONS

a. Acceptable, Acceptance or words of similar import are used, it shall be understood that the acceptance of the Engineer, and/or the Tribal Council is intended.

b. Approval means written authorization by Engineer and/or Tribal Council for specific applications within the Contract.

c. Engineer means the licensed Engineer employed by Tribal Council to provide engineering and related services for the Project.

d. Contract, Contract Documents include all Contract Documents including: Notice to Contractors Calling for Bids, Information for Bidders/Pre-Qualification Documents, Bid Form, Designation of Subcontractors, Certificate Regarding Workers' Compensation, Non-Collusion Affidavit, Information Required of Bidders, Performance Bond, Payment Bond, Insurance Policies, Documents, General Conditions, Special Conditions, Supplementary General Conditions, if any, Drawings, Plans, Specifications, the Contract, and all modifications, addenda, and amendments.

e. Day as used herein shall mean calendar day unless otherwise specifically designated.

f. Tribal Council and Contractor are those mentioned as such in the Contract. For convenience and brevity, these terms, as well as terms identifying other persons involved in the Contract are treated throughout the Contract Documents as if they are of singular number and masculine gender. The terms Tribal Council and Owner are used interchangeably.

g. Tribal Council's Representative or Representative(s) means any representative of the Tribal Council authorized in writing to act on behalf of the Tribal Council, including but not limited to the Tribal Council's Engineer, Inspector and/or Construction Manager

h. Equal, Equivalent, Satisfactory, Directed, Designated, Selected, As Required and words of similar meaning are used, the written approval, selection, satisfaction, direction, or similar action of the Tribal Council and/or Tribal Council's Representative is required.

i. Includes and Including do not limit the work to the items following those words.

j. Indicated, Shown, Detailed, Noted, Scheduled or words of similar meaning shall mean that reference is made to the drawings, unless otherwise noted. It shall be understood that the direction, designation, selection, or similar import of the Engineer, and/or Tribal Council is intended, unless stated otherwise.

k. Locality in which the work is performed means the Tule River Indian Reservation and/or Trust or Fee lands held by the Tribe in which the public work is done.

l. Perform shall be understood to mean that the Contractor, at Contractor's expense, shall perform all operations necessary to complete the work, including furnishing of necessary labor, tools, and equipment, and further including the furnishing and installing of materials that are indicated, specified, or required to complete such performance.

m. Project is the undertaking planned by Tribal Council and Contractor as provided in the Contract Documents.

n. Provide shall include "provide complete in place," that is, "furnish, install, test and make ready for use."

o. Required and words of similar meaning are used, it shall mean "as required to properly complete the work" as intended by the Engineer and/or Tribal Council, unless stated otherwise.

p. Subcontractor as used herein, includes those having a direct contract with Contractor and one who furnishes material worked to a special design according to plans, drawings, and specifications of this work, but does not include one who merely furnishes material not so worked.

q. Surety is the person, firm, or corporation, admitted as a California admitted surety, that executes as surety the Contractor's Performance Bond and Payment Bond for Public Works. Surety must be an admitted surety insurer pursuant to Code of Civil Procedure Section 995.120.

r. The Work means the entire improvement proposed by the Tribal Council to be constructed in whole, or in part, pursuant to the Contract Documents.

s. Work means labor, equipment and materials incorporated in, or to be incorporated in the construction covered by the Contract Documents.

t. Worker includes laborer, worker, or mechanic, and any supervisors thereto.

Article 2. DRAWINGS AND SPECIFICATIONS

a. **Contract Documents.** Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intention of documents is to provide the Tribal Council with complete and fully operational facilities as indicated and specified including all labor and materials, equipment, and transportation necessary for the proper execution of the work. Materials or work described in words which as applied have a well-known technical or trade meaning shall be deemed to refer to such recognized standards.

b. **Interpretations.** Drawings and specifications are intended to be fully cooperative and to agree. However, if Contractor observes that drawings and specifications are in conflict, the Contractor shall promptly notify the Tribal Council's Engineer in writing and any necessary changes shall be adjusted as provided in contracts for changes in work. If such conflict arises, the following order of precedence shall generally apply, provided, however, that the order of precedence shall not be so rigidly interpreted as to affect an absurd or costly result:

1) Special Conditions shall take precedence over General Conditions.

2) In the event of a conflict between the drawings and technical specifications, the higher quality, higher quantity and the most stringent requirements shall be deemed to apply and shall govern as to materials, workmanship, and installation procedures.

3) With regard to drawings:

i. Figures govern over scaled dimensions;
ii. Larger scale drawings and details govern over smaller scale drawings;
iii. Addenda/change order drawings govern over Contract drawings;
iv. Contract drawings govern over standard drawings.

4) Work not particularly shown or specified shall be the same as similar parts that are shown or specified.

c. Misunderstanding of drawings and specifications shall be clarified by Engineer whose decisions shall be final, and which shall be communicated to the Contractor.

d. Standards, Rules, and Regulations referred to are recognized printed standards and shall be considered as one and a part of these specifications within limits specified.

e. **Compliance with Applicable Laws.** Drawings and specifications are intended to comply with all laws, ordinances, rules and regulations of authorities having jurisdiction, and where referred to in the Contract Documents, said laws, ordinances, rules and regulations shall be considered as part of said Contract Documents within the limits specified. The Contractor shall bear all expenses correcting work done contrary to said laws, ordinances, rules and regulations and if the Contractor (1) performed same without first consulting the Engineer to secure instructions regarding said work or (2) disregarded the Tribal Council's instructions regarding said work.

f. **Provisions of Law Deemed Inserted.** Each and every provision of law required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake, omission or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party the Contract shall be amended in writing to make such insertion or correction.

g. **Tribal Council's Authority.** The Tribal Council retains the authority to issue the ultimate decision regarding any clarification requested, any necessary changes to conflicting drawings and specifications, any requested instructions or any similar issue presented under this Article 2.

h. **Organization of Work.** Organization and arrangement of drawings shall not control the Contractor in dividing the work among subcontractors or in establishing the extent of work to be performed by any trade.

Article 3. COPIES FURNISHED

Contractor will be furnished, free of charge, five copies of drawings and specifications as set forth in the Special Conditions. Additional copies may be obtained at cost of reproduction.

Article 4. OWNERSHIP OF DRAWING

All drawings, specifications, and copies thereof furnished by the Tribal Council are Tribal Council property. They are not to be used by Contractor or Subcontractor on other work nor shall Contractor claim any right to such documents. With exception of one signed Contract set, all documents shall be returned to the Tribal Council on request at completion of work.

Article 5. DETAIL DRAWINGS AND INSTRUCTIONS

a. **Examination of Drawings and Specifications.** Before commencing any portion of the Work, Contractor shall carefully examine all Drawings and Specifications and other information given to Contractor as to materials and methods of construction and other Project requirements. Contractor shall immediately notify Tribal Council of any perceived or alleged error, inconsistency, ambiguity, or lack of detail or explanation in the Drawings and Specifications in the manner provided herein. If the Contractor or its Subcontractors, material or equipment suppliers, or any of their officers, agents and employees performs, permits, or causes the performance of any Work under the Contract Documents which it knows or should have known to be in error, inconsistent, or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all costs arising therefrom including, without limitation, the cost of correction thereof without increase or adjustment to the Contract Price, as set forth in Article 3 of the Contract, or the time for performance. If Contractor performs, permits, or causes the performance of any Work under the Contract Documents prepared by or on behalf of Contractor which is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all resulting costs, including, without limitation, the cost of correction, without increase to or adjustment in the Contract Price or the time for performance. In no case shall any Subcontractor proceed with the Work if uncertain without the Contractor's written direction and/or approval.

b. **Additional Instructions.** Within ten (10) calendar days of notification of any ambiguity, conflict or lack of information, Engineer will provide prepared additional instructions, by means of drawings or other written direction, necessary for proper execution of work. All such drawings and instruments shall be consistent with the Contract Documents, true developments thereof, and reasonable inferable therefrom. Work shall be executed in conformity therewith and Contractor shall do no work without proper drawings and instructions. Any necessary additional details furnished by the Tribal Council to more fully explain the work shall be considered as part of the Contract Documents.

c. **Scale Drawings.** Should any details need to be more elaborate, in the opinion of the Contractor, than scale drawings and specifications warrant, written notice thereof shall be given to the Tribal Council's Representative within five (5) working days of the receipt of same. In case no notice is given to the Tribal Council within five (5) working days, it will be assumed the details are a reasonable development of the scale drawings. In case notice is given, then the Tribal Council's Representative will consider the claim and if found justified, the drawings will be modified and Tribal Council's Representative shall recommend to the Tribal Council a change order for the extra work involved within a reasonable amount of time.

d. **Quality of Parts, Construction and Finish.** All parts of the described and shown construction shall be of the best quality of their respective kinds and the Contractor is hereby advised to use all diligence to inform himself fully as to the required construction and finish, and in no case to proceed with the different parts of the work without obtaining

first from both the Engineer such directions and/or drawings as may be necessary for the proper performance of the work.

e. **Contractor's Variation from Contract Document Requirements.** If it is found that the Contractor has varied from the drawings and/or specifications, in materials, quality, form or finish, or in the amount or value of the materials and labor used, the Tribal Council shall be at liberty at any time, before or after completion of the work, to order such improper work removed, remade and replaced, and all work distributed by these changes shall be made good at the Contractor's expense, or shall receive from the Contractor, (or Tribal Council shall deduct from amount due Contractor), a sum of money equivalent to the difference in value between the work performed and that called for by the drawings and specifications, it being optional with the Tribal Council Architect to pursue either course.

Article 6. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

a. **Time for Completion/Liquidated Damages.** Work shall be commenced on or before the date stated in the Tribal Council's notice to the Contractor to proceed and shall be completed by Contractor in the time specified in the Special Conditions. The Tribal Council is under no obligation to consider early completion of the Project and the Contract completion date shall not be amended by the Tribal Council's acceptance of the Contractor's proposed earlier completion date. Furthermore, Contractor shall not, under any circumstances receive additional compensation from the Tribal Council for indirect, general, administrative or other forms of overhead costs for the period between the time of earlier completion proposed by the Contractor and the official Contract completion date. If the work is not completed in accordance with the foregoing, it is understood that the Tribal Council will suffer damage. It being impractical and infeasible to determine the amount of actual damage, it is agreed that Contractor shall pay to the Tribal Council as fixed and liquidated damages, and not as a penalty, the sum stipulated in the Special Conditions for each calendar day of delay until work is completed and accepted. Contractor and his surety shall be liable for the amount thereof. Any money due or to become due the Contractor may be retained to cover said liquidated damages. Should such money not be sufficient to cover said liquidated damages, the Tribal Council shall have the right to recover the balance from the Contractor or his sureties, who will pay said balance forthwith. Regardless of the schedule submitted by Contractor, no delay claims shall be accepted by the Tribal Council unless the event or occurrence delays the completion of the Project beyond the contractual completion date.

b. **Inclement Weather.** Contractor shall abide by Tribal Council's determination of what constitutes inclement weather as determined by a bad weather day is a day when the weather causes unsafe work conditions or is unsuitable for work that should not be performed during inclement weather (i.e., exterior finishes), and shall include consideration when rain days exceed the normal frequency and amount based on the closest weather station data averaged over the past three years, for the period of this Contract and when Contractor can show that such rain days impact the critical path. Time extensions shall only be granted when the work that is stopped during inclement weather is on the critical path of the Project schedule. Contractor shall be expected to perform all work he can possibly complete during inclement weather (i.e., interior work),

c. **Extension of Time.** Contractor shall not be charged liquidated damages because of any delays in completion of work due to unforeseeable causes beyond the control and without the fault or negligence of Contractor including, but not restricted to: acts of God, or of public enemy, acts of Government, acts of Tribal Council or anyone employed by him or

acts of another Contractor in performance of a contract with the Tribal Council, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather or delays of subcontractors due to such causes. Contractor shall within five (5) calendar days of the beginning of any such delay (unless the Tribal Council grants a further period of time prior to date of final settlement of the Contract) notify the Tribal Council in writing of causes of delay; thereupon the Tribal Council shall ascertain the facts and extent of delay and grant extension of time for completing work when, in its judgment, the findings of fact justify such an extension. The Tribal Council's findings of fact thereon shall be final and conclusive on parties hereto. In case of a continuing cause of delay, only one claim is necessary. Time extensions to the Project should be requested by the Contractor as they occur and without delay. Regardless of the schedule submitted by Contractor, no delay claims shall be accepted by the Tribal Council unless the event or occurrence delays the completion of the Project beyond the contractual completion date.

d. **No Damages for Delay.** The Tribal Council's liability to Contractor for delays for which the Tribal Council is responsible shall be limited to an extension of time for delays unless such delays were unreasonable under the circumstances involved and were not within the contemplation of the parties when the Contract was awarded. Contractor agrees that the Engineer shall determine the actual costs to Contractor of any delay for which Contractor may claim damages from the Tribal Council. Such costs, if any, shall be directly related to the Project, and shall not include costs that would be borne by the Contractor in the regular course of business, including, but not limited to, home office overhead and ongoing insurance costs. The Tribal Council shall not be liable for any damages which the Contractor could have avoided by any reasonable means including, but not limited to, the judicious handling of forces, equipment, or plant.

Article 7. PROGRESS SCHEDULE

a. **Estimated Schedule.** Within fourteen (14) calendar days after the effective date of the Notice to Proceed, Contractor shall prepare an estimated progress schedule and shall submit same to Tribal Council for approval. The schedule shall clearly identify all staffing and other resources which in the Contractor's judgment are needed to complete the Project within the time specified for completion. The schedule shall include milestones and shall include the "critical path" of construction. The Contractor is fully responsible to determine and provide for any and all staffing and resources at levels which allow for good quality and timely completion of the Project; the Tribal Council's approval of the progress schedule does not relieve the Contractor of any such responsibility. Contractor's failure to incorporate all elements of work required for the performance of the Contract or any inaccuracy in the schedule shall not excuse the Contractor from performing all work required for a completed Project within the specified Contract time period, notwithstanding the Tribal Council's acceptance of the schedule. If the required schedule is not received by the time the first payment request is due, Contractor shall not be paid until the schedule is received, reviewed and accepted by the Tribal Council.

b. **Schedule Contents.** The schedule shall allow enough time for inclement weather. Such schedule shall indicate graphically the beginning and completion dates of all phases of construction, shall indicate the critical path for all critical, sequential time related activities. All required schedules shall indicate "float time" for all "slack" or "gaps" in the non-critical activities. Submitted construction schedules shall have a duration to match the Contract time. Excess time may be picked up with "float time" if needed or desired by the Contractor. A "bar chart" in reasonably complete detail shall be adequate and schedules shall be

updated monthly to reflect changes in the status of the job, including weather delays in order to prevent delay claims.

Article 8. CONTRACT SECURITY

Unless otherwise specified in Special Conditions, Contractor shall furnish a surety bond in an amount equal to one hundred percent (100%) of Contract Price as security for faithful performance of this Contract and shall furnish a separate bond in an amount at least equal to one hundred percent (100%) of the Contract Price as security for payment of persons performing labor and furnishing materials in connection with this Contract. Both the Payment and Performance Bonds must be executed by an admitted Surety, as defined in Code of Civil Procedure Section 995.120. The Payment and Performance Bonds must be accompanied by the original or a certified copy of the unrevoked power of attorney or other appropriate instrument entitling or authorizing the person who executed the bond to do so. In addition, to the extent required by law, the Payment and Performance Bonds must be accompanied by a certified copy of the certificate of authority of the insurer issued by the Insurance Commissioner of the State of California. Aforesaid bonds shall be in form set forth in these Contract Documents.

Article 9. ASSIGNMENT

Contractor shall not assign, transfer, convey, sublet, or otherwise dispose of this Contract or any part thereof including any claims, without prior written consent of the Tribal Council. Any assignment without the written consent of the Tribal Council shall be void. Any assignment of money due or to become due under this Contract shall be subject to a prior lien for services rendered or material supplied for performance of work called for under said Contract in favor of all persons, firms, or corporations rendering such services or supplying such materials to the extent that claims are filed pursuant to the Civil Code, the Code of Civil Procedure, and/or the Government Code.

Article 10. PROHIBITED INTERESTS

No official of the Tribal Council, and no Tribal Council Representative who is authorized in such capacity and on behalf of the Tribal Council to negotiate, make, accept, or approve, or to take part in negotiating, making, accepting or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with construction of the Project, shall be or become directly or indirectly interested financially in this Contract or in any part thereof. No officer, employee, attorney, engineer or Inspector of or for the Tribal Council who is authorized in such capacity and on behalf of the Tribal Council to exercise any executive, supervisory or other similar functions in connection with construction of the Project, shall become directly or indirectly interested financially in this Contract or in any part thereof.

Article 11. SEPARATE CONTRACTS

a. The Tribal Council reserves the right to let other contracts in connection with this work. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly connect and coordinate his work with theirs.

b. If any part of Contractor's work depends for proper execution or results upon work of any other contractor, the Contractor shall inspect and promptly report to the Tribal Council's Representative any defects in such work that renders it unsuitable for such proper execution and results. His failure so to inspect and report shall constitute his acceptance

of other contractor's work as fit and proper for reception of his work, except as to defects which may develop in the other contractor's work after execution of contractor's work.

c. To insure proper execution of his subsequent work, Contractor shall measure and inspect work already in place and shall at once report to the Tribal Council's Representative, any discrepancy between executed work and the Contract Documents.

d. Contractor shall ascertain to his own satisfaction the scope of the Project and nature of any other contracts that may be awarded by the Tribal Council in prosecution of the Project to the end that Contractor may perform this Contract in the light of such other contracts, if any. Nothing herein contained shall be interpreted as granting to Contractor exclusive occupancy at site of the Project. Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the Project. If simultaneous execution of any contract for the Project is likely to cause interference with performance of some other contract or contracts, the Tribal Council's Representative shall decide which Contractor shall cease work temporarily and which contractor shall continue or whether work can be coordinated so that contractors may proceed simultaneously. The Tribal Council shall not be responsible for any damages suffered or for extra costs incurred by Contractor resulting directly or indirectly from award, performance, or attempted performance of any other contract or contracts on the Project, or caused by any decision or omission of the Tribal Council or Tribal Council's Representative respecting the order of precedence in performance of contracts.

Article 12. SUBCONTRACTING

a. Contractor agrees to bind every subcontractor by terms of the Contract as far as such terms are applicable to subcontractor's work. If Contractor subcontracts any part of this Contract, Contractor shall be as fully responsible to the Tribal Council for the acts and omissions of his subcontractor and of persons either directly or indirectly employed by his subcontractor, as he is for acts and omissions of persons directly employed by himself. Nothing contained in these Contract Documents shall create any contractual relation between any subcontractor and the Tribal Council. The Tribal Council shall be deemed to be the third party beneficiary of the contract between the Contractor and the subcontractor.

b. The Tribal Council's consent to or approval of any subcontractor under this Contract shall not in any way relieve Contractor of his obligations under this Contract and no such consent or approval shall be deemed to waive any provision of this Contract

c. Substitution or addition of subcontractors shall be permitted only as authorized in chapter 4 (commencing at Section 4100), part 1, division 2 of the Public Contract Code.

Article 13. TRIBAL COUNCIL'S RIGHT TO TERMINATE CONTRACT

a. The Tribal Council may, without prejudice to any other right or remedy, serve written notice upon Contractor and his surety of its intention to terminate this Contract if the Contractor (i) refuses or fails to prosecute the work or any separable part thereof with such diligence as will insure its completion within the time specified or any extension thereof, or (ii) fails to complete said work within such time, or (iii) if the Contractor should file a bankruptcy petition or be adjudged a bankrupt, or (iv) if he should make a general assignment for the benefit of his creditors, or (v) if a receiver should be appointed on account of his insolvency, or (vi) if he should persistently or repeatedly refuse or should fail, except in

cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the work in time specified, or (vii) if he should fail to make prompt payment to subcontractors or for material or labor, or (viii) persistently disregard laws, ordinances or instructions of the Tribal Council or those of Tribal Council's Representatives, or (ix) otherwise be guilty of a substantial violation of any provision of the Contract, or (x) if he or his subcontractors should violate any of the provisions of this Contract. The notice of intent to terminate shall contain the reasons for such intention to terminate. Unless within ten (10) calendar days after the service of such notice, such condition shall cease or such violation shall cease and satisfactory arrangements for the correction thereof be made, this Contract shall, upon the expiration of said ten (10) calendar days, cease and terminate. In such case, Contractor shall not be entitled to receive any further payment until work is finished. In event of any such termination, the Tribal Council shall immediately serve written notice thereof upon surety and Contractor written notice of termination stating that the contract has ceased and is terminated. Surety shall have the right to investigate, take over and perform this Contract, provided, however, that if Surety, within fifteen (15) calendar days after service upon it of said notice of termination, does not give the Tribal Council written notice of its intention to take over and perform this Contract and does not commence performance thereof within twenty (20) calendar days from the date of service upon it of such notice of termination, the Tribal Council may take over the work and prosecute same to completion by contract or by any other method it may deem advisable for the account and at the expense of Contractor. Contractor and his surety shall be liable to the Tribal Council for any excess cost or other damages occasioned the Tribal Council thereby. If the Tribal Council takes over the work as herein above provided, the Tribal Council may, without liability for so doing, take possession of and utilize in completing the work such materials, appliances, plant, and other property belonging to the Contractor as may be on the site of the work and necessary therefore. If Surety does not perform the Project work itself, the Surety shall consult with the Tribal Council regarding its planned choice of a contractor or contractors to complete the Project, and upon request by Tribal Council, Surety shall provide Tribal Council evidence of responsibility of Surety's proposed contractor or contractors. Tribal Council shall be entitled to reject Surety's choice of contractor or contractors if Tribal Council determines in is sole discretion that the contractor or contractors are non-responsible. If Surety provides Tribal Council written notice of its intention to take over and perform this Contract, within fifteen (15) calendar days of such written notice of intent to take over and perform, Surety or its chosen contractor or contractors (if such contractor or contractors are approved by Tribal Council) shall provide Tribal Council a detailed Progress Schedule as specified in Article 8 above. Contractor and his surety shall be liable to Tribal Council for any excess cost or other damages occasioned the Tribal Council as a result of Surety or Surety's contractor or contractors takeover and performance.

b. If the unpaid balance of the Contract Price exceeds the expense of finishing work, including compensation for additional architectural, managerial, and administrative services, such excess shall be paid to Contractor. If such expense shall exceed such unpaid balance, Contractor shall pay the difference to the Tribal Council. Expense incurred by the Tribal Council as herein provided, and damage incurred through Contractor's default, shall be certified by the Engineer.

c. Should the Tribal Council determine that environmental considerations mandate that the underlying Project should not go forward, Tribal Council may notify Contractor that this Contract is terminated due to environmental considerations and Tribal Council shall only be obligated to pay Contractor for the work that Contractor had performed at the time of notification of termination of this Contract for environmental considerations.

d. **Termination For Convenience:** The Tribal Council may terminate performance of the work called for by the Contract Documents in whole or, from time to time, in part, if the Tribal Council determines that a termination is in the Tribal Council's interest.

The Contractor shall terminate all or any part of the Work upon delivery to the Contractor of a Notice of Termination specifying that the termination is for the convenience of the Tribal Council, the extent of termination, and the effective Date of such termination.

After receipt of Notice of Termination, and except as directed by the Tribal Council, the Contractor shall, regardless of any delay in determining or adjusting any amounts due under this Termination for Convenience clause, immediately proceed with the following obligations:

1) Stop Work as specified in the Notice.

2) Complete any Work specified in the Notice of Termination in a least cost/shortest time manner while still maintaining the quality called for under the Contract Documents.

3) Leave the property upon which the Contractor was working and upon which the facility (or facilities) forming the basis of the Contract Documents is situated in a safe and sanitary manner such that it does not pose any threat to the public health or safety.

4) Terminate all subcontracts to the extent that they relate to the portions of the work terminated.

5) Place no further subcontracts or orders, except as necessary to complete the continued portion of the Contract.

6) Submit to the Tribal Council, within ten (10) calendar days from the Effective Date of the Notice of Termination, all of the usual documentation called for by the Contract Documents to substantiate all costs incurred by the Contractor for labor, materials and equipment through the Effective Date of the Notice of Termination. Any documentation substantiating costs incurred by the Contractor solely as a result of the Tribal Council's exercise of its right to terminate this Contract pursuant to this clause, which costs the Contractor is authorized under the Contract Documents to incur, shall: (i) be submitted to and received by the Tribal Council no later than thirty (30) calendar days after the Effective Date of the Notice of Termination; (ii) describe the costs incurred with particularity; and (iii) be conspicuously identified as "Termination Costs occasioned by the Tribal Council's Termination for Convenience."

Termination of the Contract shall not relieve Surety of its obligation for any just claims arising out of or relating to the Work performed. In the event that the Tribal Council exercises its right to terminate this Contract pursuant to this provision, the Tribal Council shall pay the Contractor, upon the Contractor's submission of the documentation required by this clause and other applicable provisions of the Contract Documents, all actual reimbursable costs incurred according to the provisions of this Contract.

e. **Termination of Contract by Contractor:** The Contractor may terminate the Contract upon ten (10) calendar days written notice to the Tribal Council, whenever: (1) the entire

Work has been suspended for ninety (90) consecutive days through no fault or negligence of the Contractor, and notice to resume the Work or to terminate the Contract has not been received from the Tribal Council within this time period; or (2) the Tribal Council should fail to pay the Contractor any substantial sums due it in accordance with the terms of the Contract and within the time limits prescribed. In the event of such termination, the Contractor shall have no claims against the Tribal Council except for Work performed as of the date of termination.

f. The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to the Tribal Council.

g. Notwithstanding the foregoing provisions, this Contract may not be terminated or modified where a trustee-in-bankruptcy has assumed the Contract pursuant to 11 U.S.C. Section 365 (Federal Bankruptcy Act).

Article 14. GUARANTEE

a. Besides guarantees required elsewhere, Contractor shall, and hereby does, guarantee all work for a period of one (1) year after date of acceptance of work by the Tribal Council. Contractor shall repair or replace any or all such work, together with any other work, which may be displaced in so doing, that may prove defective in workmanship and/or materials within a two-year period from date of acceptance without expense whatsoever to the Tribal Council, ordinary wear and tear, unusual abuse or neglect excepted. The Tribal Council will give notice of observed defects with reasonable promptness. Contractor shall notify the Tribal Council upon completion of repairs.

b. In the event of failure of Contractor to comply with above-mentioned conditions within one week after being notified in writing, the Tribal Council is hereby authorized to proceed to have defects repaired and made good at the expense of Contractor. Contractor hereby agrees to pay costs and charges therefore immediately on demand.

c. If, in the opinion of the Tribal Council or Tribal Council's Representative, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the Tribal Council or to prevent interruption of operations of the Tribal Council, the Tribal Council or the Tribal Council's Representative will attempt to give the notice required by this Article. If the Contractor cannot be contacted or does not comply with the Tribal Council's request for correction within a reasonable time as determined by the Tribal Council, the Tribal Council may, notwithstanding the provisions of this Article, proceed to make such correction or provide such attention. The costs of such correction or attention shall be charged against the Contractor. Such action by the Tribal Council or its Representative will not relieve the Contractor of the guarantees provided in this Article or elsewhere in this Contract.

d. This Article does not in any way limit the guarantee on any items for which a longer guarantee is specified or on any items for which a manufacturer gives a guarantee for a longer period. Contractor shall furnish the Tribal Council with all appropriate guarantee or warranty certificates upon completion of the Project.

Article 15. NOTICE AND SERVICE THEREOF

a. Any notice from one party to the other under the Contract shall be in writing and shall be dated and signed by party giving such notice or by the duly authorized representative of

such party. Any such notice shall not be effective for any purpose whatsoever unless served in one of the following manners:

1) If notice is given to the Tribal Council, by personal delivery thereof to the Tribal Council or by depositing same in United States mail, enclosed in a sealed envelope addressed to the Tribal Council and for attention of the Tribal Council's Representative, postage prepaid and registered;

2) If notice is given to Contractor by personal delivery thereof to said Contractor or to his foreman at site of Project, or by depositing same in United States mail, enclosed in a sealed envelope addressed to said Contractor at his regular place of business or at such other address as may have been established for the conduct of work under this Contract, postage prepaid and registered;

3) If notice is given to surety or other person by personal delivery to such surety or other person or by depositing same in United States mails, enclosed in a sealed envelope addressed to such surety or person at the address of such surety or person last communicated by him to party giving notice, postage prepaid and registered.

4) If notice is served by mail, it shall be deemed received and all time periods associated with the giving of notice shall run from the third day after mailing.

Article 16. WORKERS

a. Contractor shall at all times enforce strict discipline and good order among his employees. Contractor shall not employ on work any unfit person or any one not skilled in work assigned to him.

b. Any person in the employ of the Contractor whom the Tribal Council or Tribal Council's Representative may deem incompetent or unfit shall be dismissed from work and shall not again be employed on it except with the written consent of the Tribal Council.

Article 17. PAYROLL RECORDS

a. Pursuant to Labor Code Section 1776, as amended from time to time, the Contractor and each subcontractor shall maintain weekly certified payroll records showing the name, address, social security number, work classification, straight time and overtime hours paid each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker or other employee employed by him or her in connection with the work. Contractor shall certify under penalty of perjury that records maintained and submitted by Contractor are true and accurate. Contractor shall also require subcontractor(s) to certify weekly payroll records under penalty of perjury.

b. The payroll records enumerated under Article 21(a) above shall be certified and submitted by the Contractor at a time designated by the Tribal Council. The Contractor shall also provide the following:

1) A certified copy of the employee's payroll records shall be made available for inspection or furnished to such employee or his or her authorized representative on request.

2) A certified copy of all payroll records enumerated in Article 21(a) shall be made available for inspection or furnished upon request of the (State of California Department of Industrial Relations ("DIR")) or (U.S. Department of Labor).

c. The certified payroll records shall be on (forms provided by the Division of Labor Standards Enforcement ("DLSE") of the DIR or shall contain the same information as the forms provided by the DLSE) or (Federal reporting shall be on U.S. Department of Labor Form WH-347).

d. Any copy of records made available for inspection and furnished upon request to the public shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of the Contractor or any subcontractor performing Work on the Project shall not be marked or obliterated.

e. In the event of noncompliance with the requirements of this Section, the Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying item or actions necessary to ensure compliance with this section. Should noncompliance still be evident after such ten (10) day period, the Contractor shall, as a penalty to the Tribal Council, forfeit Twenty-five Dollars ($25.00) for each calendar day, or portion thereof, for each worker until strict compliance is effectuated. Upon the request of the DIR, such penalties shall be withheld from contract payments.

Article 18. EMPLOYMENT OF APPRENTICES

a. The Contractor's attention is directed to the provisions of Fair Labor Standards Act (FLSA) (or for off reservation: Sections 1777.5, 1777.6, and 1777.7 of the Labor Code) concerning employment of apprentices by the Contractor or any subcontractor under him. The Contractor shall obtain a certificate of apprenticeship before employing any apprentice pursuant to Fair Labor Standards Act (or for off reservation: Section 1777.5, 1777.6, and 1777.7 of the Labor Code).

b. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

c. Knowing violations of Fair Labor Standards Act (FLSA) (or for off reservation: Sections 1777.5 of the Labor Code) will result in forfeiture not to exceed $100 for each calendar day of non-compliance.

Article 19. HOURS OF WORK

a. Eight (8) hours of work shall constitute a legal day's work. The Contractor and each subcontractor shall forfeit, as penalty to the Tribal Council, twenty-five dollars ($25) for each worker employed in the execution of work on the Project by the Contractor or any subcontractor under him for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any calendar week in violation of the provisions of the Labor Code, Section 1810 to Section 1815, thereof, inclusive, except that work performed by employees of the Contractor and his subcontractors in excess of eight hours per day at not less than one and one-half times the basic rate of pay, as provided in Labor Code Section 1815.

b. Generally, construction work on the Project shall be accomplished on a regularly scheduled eight (8) hour per day work shift basis, Monday through Friday, between the hours of 7:00 a.m. and 5:00 p.m., however nothing herein shall prevent Contractor from working weekends and after hours in order to complete the Project so long as not otherwise prohibited by law or local ordinances or regulations.

Article 20. DEBARMENT OF CONTRACTORS AND SUBCONTRACTORS

The Contractor, or any subcontractor working under the Contractor, may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant to Title 49 of Federal Regulations, Part 29. Any contract on a public works project entered into between the Contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid, or may have been paid to a debarred subcontractor by the Contractor on the project shall be returned to the Tribal Council. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the project.

Article 21. NON-DISCRIMINATION

Pursuant to the provisions of Executive Order 11246 and its implementing regulations, Contractor and its subcontractor shall not unlawfully discriminate in the employment of persons on this Project because of race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, and sex.

The Bidder is required by the Equal Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7((b) (1)) to submit certification that he/she has/has not participated in previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114 or 11246, and that, where required, he/she has filed with the Joint Reporting Committee, the Director of the Office of Federal Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

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

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

The aforementioned Equal Employment Opportunity Certification is part of the Bid Proposal. Signing this Bid Proposal on the signature page thereof shall also constitute signature of the Equal Employment Opportunity Certification.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Article 22. WORKERS' COMPENSATION INSURANCE

The Contractor shall provide, during the life of this Contract, workers' compensation insurance for all of the employees engaged in work under this Contract, on or at the site of the Project, and, in case any of his work is sublet, the Contractor shall require the subcontractor similarly to provide workers' compensation insurance for all the latter's employees. Any class of employee or employees not covered by a subcontractor's insurance shall be covered by the Contractor's insurance. In case any class of employees engaged in work under this Contract, on or at the site of the Project, is not protected under the Workers' Compensation Statutes, the Contractor shall provide or shall cause a subcontractor to provide, adequate insurance coverage for the protection of such employees not otherwise protected. The Contractor is required to secure payment of compensation to his employees in accordance with the provisions of Section 3700 of the Labor Code. The Contractor shall file with the Tribal Council certificates of his insurance protecting workers. Company or companies providing insurance coverage shall be acceptable to the Tribal Council, if in the form and coverage as set forth in Article 29.

Article 23. EMPLOYER'S LIABILITY INSURANCE

Contractor shall provide during the life of this Contract, Employer's Liability Insurance in the amount of, at least, one million dollars ($1,000,000.00) per accident for bodily injury and disease. Contractor shall provide Tribal Council with a certificate of Employer's Liability Insurance. Such insurance shall comply with the provisions of Article 29 below.

Article 24. COMMERCIAL GENERAL LIABILITY AND PROPERTY DAMAGE INSURANCE

a. Contractor shall procure and maintain during the life of this Contract and for such other period as may be required herein, at its sole expense, such comprehensive general liability insurance or commercial general liability and property damage insurance as shall protect Contractor and the Tribal Council, the Tribal Council's Representatives and Agents, from all claims for bodily (personal) injury, including accidental death, as well as claims for property damage arising from operations under this Contract, and other covered loss, however occasioned, occurring during the policy term. Such policy shall comply with all the requirements of this Article, and shall be in the form and amounts as set forth in the Special Conditions hereof. The limits set forth in the Special Conditions shall apply separately to each insured against whom claims are made or suits are brought, except with respect to the limits of liability. Further the limits set forth in the Special Conditions shall not be construed to relieve the Contractor from liability in excess of such coverage, nor shall it limit Contractor's indemnification obligations to the Tribal Council, and shall not preclude the Tribal Council from taking such other actions available to the Tribal Council under other provisions of the Contract Documents or law.

b. Contractor shall make certain that any and all subcontractors hired by Contractor are insured in accordance with this Contract. If any subcontractor's coverage does not comply with the foregoing provisions, Contractor shall indemnify and hold the Tribal Council harmless from any damage, loss, cost, or expense, including attorneys' fees, incurred by the Tribal Council as a result thereof.

c. Company or companies providing insurance coverage shall be acceptable to the Tribal Council and authorized to conduct business in the State of California.

d. All general liability policies provided pursuant to the provisions of this Article shall comply with the provisions of Article 29 below.

e. All general liability policies shall be written to apply to all bodily injury, including death, property damage, personal injury, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, under-ground excavation, removal of lateral support, and other covered loss, however occasioned, occurring during the policy term, and shall specifically insure the performance by Contractor of that part of the indemnification contained in Article 29 hereof, relating to liability for injury to or death of persons and damage to property. If the coverage contains one or more aggregate limits, a minimum of 50% of any such aggregate limit must remain available at all times; if over 50% of any aggregate limit has been paid or reserved, the Tribal Council may require additional coverage to be purchased by Contractor to restore the required limits. Contractor may combine primary, umbrella, and as broad as possible excess liability coverage to achieve the total limits indicated above. Any umbrella or excess liability policy shall include the additional insured endorsement described in Article 29 below.

Article 25. AUTOMOBILE LIABILITY INSURANCE

Contractor shall take out and maintain at all times during the term of this Contract Automobile Liability Insurance in the amount set forth in the Special Conditions. Such insurance shall provide coverage for bodily injury and property damage including coverage for non-owned and hired vehicles, in a form and with insurance companies acceptable to the Tribal Council. Such insurance shall comply with the provisions of Article 29 below.

Article 26. BUILDER'S RISK [FIRE; "ALL RISK"]

a. It is the Contractor's responsibility to maintain or cause to be maintained Builder's Risk [Fire; "All Risk"] extended coverage insurance on all work, material, equipment, appliances, tools, and structures which are a part of the Contract and subject to loss or damage by fire, and vandalism and malicious mischief, in an amount to cover 100% of the replacement cost. The Tribal Council accepts no responsibility until the Contract is formally accepted by the Governing Board for the work. The Contractor is required to file with the Tribal Council a certificate evidencing fire insurance coverage.

b. Provide insurance coverage on completed value form, all-risk or special causes of loss coverage.

   1) Insurance policies shall be so conditioned as to cover the performance of any extra work performed under the Contract.

   2) Coverage shall include all materials stored on site and in transit.

   3) Coverage shall include Contractor's tools and equipment.

   4) Insurance shall include boiler, machinery and material hoist coverage.

c. Company or companies providing insurance coverage shall be acceptable to the Tribal Council and authorized to conduct business in the State of California.

d. Such insurance shall comply with the provisions of Article 29 below.

Article 27. PROOF OF CARRIAGE OF INSURANCE

a. Contractor shall, as soon as practicable following the placement of insurance required hereunder, but in no event later than the effective date of the Contract, deliver to the Tribal

Council certificates of insurance evidencing the same, together with appropriate separate endorsements thereto, evidencing that Contractor has obtained such coverage for the period of the Contract. Contractor shall deliver certified copies of the actual insurance policies specified herein, within thirty days after commencement of work. Thereafter, copies of renewal policies, or certificates and appropriate separate endorsements thereof, shall be delivered to the Tribal Council within thirty (30) calendar days prior to the expiration of the term of any policy required herein. Contractor shall permit the Tribal Council at all reasonable times to inspect any policies of insurance of Contractor which Contractor has not delivered to the Tribal Council.

b. Certificates and insurance policies shall include the following clause:

1) This policy shall not be canceled or reduced in required limits of liability or amounts of insurance until notice has been mailed to the Tribal Council stating date of cancellation, reduction or other adverse change respecting such insurance. The date of cancellation, reduction or adverse change may not be less than thirty (30) calendar days after date of mailing notice."

c. Any notice required to be sent pursuant to this Article shall be to the Tribal Council's address as shown in the Notice to Contractors Calling for Bids.

d. Certificates of insurance shall state in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, and cancellation and reduction notice. All Certificates of Insurance provided by Contractor shall name the Tribal Council, the Construction Manager and Architect, and Construction Manager's and Architect's consultants as additional insureds.

e. The coverage afforded by the additional insured endorsement described in paragraph (d) above, shall apply as primary insurance, and any other insurance maintained by the Tribal Council owner, the members of the Tribal Council's Board of Supervisors, or its officers, agents, employees and volunteers, or any self-funded program of the Tribal Council, shall be in excess only and not contributing with such coverage. This coverage must be given via ISO endorsement CG 2010 (11/85 ed.) or insurer's equivalent for coverage as respects: liability arising out of activities performed by or on behalf of the Contractors; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Tribal Council, its board of trustees, directors, officers, employees, agents or authorized volunteers.

f. Insurance carriers shall be qualified to do business in California and maintain an agent for service of process within the State. Such insurance carriers shall have not less than an "A" policy holder's rating and a financial rating of not less than "Class VII" according to the latest Best's Key Rating Guide unless otherwise approved by the Tribal Council.

g. After receiving written Notice of Cancellation of Insurance, Contractor shall have ten (10) calendar days to provide other policies of insurance similar to the canceled policies and acceptable insurance. If such replacement coverage is not provided, the Tribal Council may secure insurance at the Contractor's expense.

h. Nothing contained in the insurance requirements shall be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from operations under this Contract.

i. Contractor's failure to procure the insurance specified herein, or failure to deliver certified copies or appropriate certificates of such insurance, or failure to make the premium payments required by such insurance, shall constitute a material breach of the Contract, and the Tribal Council may, at its option, terminate the Contract for any such default by Contractor.

j. The requirements as to the types and limits of insurance coverage set forth herein and in the Special Conditions to be maintained by the Contractor, and any approval of said insurance by the Tribal Council or its insurance Contractor(s), are not intended to and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Contractor pursuant to the Contract, including, but not limited to, the provisions concerning indemnification.

k. The Tribal Council shall retain the right at any time to review the coverage, form, and amount of insurance required herein and may require Contractor to obtain insurance reasonably sufficient in coverage, form and amount to provide adequate protection against the kind and extent of risk which exists at the time a change in insurance is required.

l. All deviations from the contractual insurance requirements stated herein must be approved in writing by the Tribal Council's risk manager.

m. Included in any policy or policies of liability insurance provided by Contractor hereunder, except Workers' Compensation Insurance, shall be a standard waiver of rights of subrogation against the Tribal Council, its Representatives, or Agents, by the insurance company issuing said policy or policies.

n. If coverage is written on a "claims made" basis, the Certificate of Insurance shall clearly so state. In addition to the coverage requirements specified above, such policy shall provide that:

    1) The policy retroactive date coincides with or precedes Contractor's commencement of work under the Contract (including subsequent policies purchased as renewals or replacements)

    2) Contractor will make every effort to maintain similar insurance during the required extended period of coverage following expiration of the Contract, including the requirement of adding all additional insureds.

    3) If insurance is terminated for any reason, Contractor shall purchase an extended reporting provision of at least two years to report claims arising in connection with the Contract.

o. The policy allows for reporting of circumstances or incidents that might give rise to future claims.

p. Contractor shall notify the Tribal Council in writing of the amount, if any, of self-insured retention provided under the General Liability coverage, with a maximum limit of $25,000. The Tribal Council may approve higher retention amounts, based upon review of documentation submitted by Contractor. Such review shall take into consideration

Contractor's net worth and reserves for payment of claims of liability against Contractor, which must be sufficient to adequately compensate for the lack of other insurance coverage required hereunder.

Article 28. INDEMNIFICATION

The Tribal Council and its members, directors, officers, employees, agents and authorized volunteers, and the Tribal Council's Representative, shall not be answerable or accountable in any manner for any loss or damage that may happen to the work or any part thereof, or for any of the materials or other things used or employed in performing the Work, of for injury or damage to any person or persons, either workers, employees of Contractor or its subcontractors or the public, or for damage to adjoining or other property, from any cause whatsoever arising out of or in connection with the performance of the Work. The Contractor shall be responsible for any damage to adjoining or other property, from any cause whatsoever arising out of or in connection with the performance of the work. The Contractor shall be responsible for any damage or injury to any person or property resulting from defects or obstructions or from any cause whatsoever arising out of or in connection with the performance of the Work; provided, however, that the Contractor shall not be liable for the sole established negligence, willful misconduct or active negligence of the Tribal Council, its Board members, directors, officers, employees, agents and authorized volunteers who are directly responsible to the Tribal Council.

a. Contractor shall indemnify the Tribal Council and its members, directors, officers, employees, agents, authorized volunteers, the Tribal Council's Representatives against, and will hold and save them and each of them harmless from any and all actions, claims, damages to persons or property, penalties, obligations or liabilities that may be asserted or claimed by any person, firm entity, corporation, political subdivision or other organization arising out of or in connection with the Work, operation or activities of Contractor, its agents, employees, subcontractors or invitees, provided for herein, whether or not there is concurrent passive or active negligence on the part of the Tribal Council, or its Board members, directors, officers, employees, agents, and authorized volunteers, the Tribal Council's Representative, but excluding such actions, claims, damages to persons or property penalties, obligations or liabilities arising from the sole established negligence, willful misconduct or active negligence of the Tribal Council, the Tribal Council's Representative, the or those who are directly responsible to them, and in connection therewith:

    1) Contractor will defend any action or actions filed in connection with any of said claims, damages, penalties, obligations or liabilities and will pay all costs and expenses, including attorney's fees incurred in connection therewith.

    2) Contractor will promptly pay any judgment rendered against Contractor, the Tribal Council and its Board members, directors, officers, employees, agents, authorized volunteers, the Tribal Council's Representative, covering such claims, damages, penalties, obligations and liabilities arising out of or in connection with such work, operations, or activities of Contractor hereunder and Contractor agrees to save and hold the Tribal Council and its members, directors, officers, employees, agents, authorized volunteers, the Tribal Council's Representative, harmless therefrom.

    3) In the event the Tribal Council and its members, directors, officers, employees, agents, authorized volunteers, the Tribal Council's Representative, are made a party to any action or proceeding filed or prosecuted against Contractor for such

damages or other claims arising out of or in connection with the Work, or operation or activities of Contractor hereunder, Contractor agrees to pay to the Tribal Council, the Tribal Council's Representative, and its Board members, directors, officers, employees, agents, authorized volunteers, the Tribal Council's Representative, any and all costs and expenses incurred by the Tribal Council and its Board members, directors, officers, employees, agents and authorized volunteers, the Tribal Council's Representative, in such action or proceeding together with reasonable attorney's fees.

4) The Tribal Council may retain, to the extent it deems necessary, the money due to the Contractor under and by virtue of the Contract Documents until disposition has been made of such actions or claims for damages as specified herein above.

Article 29. PERSONAL LIABILITY

Neither the Tribal Council, the Tribal Council's Representative, nor any other director, officer or authorized assistant or agent of the Tribal Council, the Tribal Council's Representative, shall be personally responsible for any liability arising under the Contract.

Article 30. LAWS AND REGULATIONS

a. Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on conduct of work as indicated and specified. If Contractor observes that drawings and specifications are at variance therewith, he shall promptly notify the Tribal Council in writing and any necessary changes shall be adjusted as provided for in this Contract for changes in work. If Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Tribal Council, he shall bear all costs arising therefrom.

b. Contractor shall be responsible for familiarity with the Americans with Disabilities Act ("ADA") (42 USC §12101 et seq.). Installations of equipment and other devices shall be in compliance with ADA regulations.

Article 31. EXCISE TAXES (INSERT FOR "ON RESERVATION OR TRUST LANDS ONLY)

If under state or federal sales or excise tax law any transaction hereunder constitutes a sale on which a state or federal excise tax is imposed and the sale is exempt from such excise tax because it is a sale to the Tule River Indian Reservation for its exclusive use, the Tribal Council, upon request, will execute a certificate of exemption which will certify (1) that the Tribal Council is a sovereign nation for the purposes of such exemption and (2) that the sale is for the exclusive use of the Tribal Council. No sales or excise tax for such materials shall be included in any bid price.

Article 32. PATENTS, ROYALTIES, AND INDEMNITIES

The Contractor shall indemnify, defend and hold harmless the Tribal Council and its members, officers, agents, and employees harmless from liability of any nature or kind, including cost and expense, for or on account of any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of this Contract, including its use by the Tribal Council, unless otherwise specifically stipulated in the Contract Documents.

Article 33. MATERIALS

a. Except as otherwise specifically stated in this Contract, Contractor shall provide and pay for all materials, labor, tools, equipment, water, lights, power, transportation, superintendence, temporary constructions of every nature, and all other services and facilities of every nature whatsoever necessary to execute and complete this Contract within specified time.

b. Unless otherwise specified, all materials shall be new and the best of their respective kinds and grades as noted and/or specified, and workmanship shall be of good quality.

c. Materials shall be furnished in ample quantities and at such times as to insure uninterrupted progress of work and shall be stored properly and protected as required. Contractor shall be entirely responsible for damage or loss by weather or other causes to materials or work under this Contract.

d. No materials, supplies, or equipment for work under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in work and agrees upon completion of all work to deliver premises, together with all improvements and appurtenances constructed or placed thereon by him, to the Tribal Council free from any claims, liens, or charges. He further agrees that neither he nor any person, firm, or corporation furnishing any materials or labor for any work covered by this Contract shall have any right to lien upon premises or any improvement or appurtenance thereon, except that Contractor may install metering devices or other equipment of utility companies or of political subdivisions title to which is commonly retained by utility company or political subdivision. In event of installation of any such metering device or equipment, Contractor shall advise the Tribal Council as to the owner thereof. Nothing contained in this Article, however, shall defeat or impair right of persons furnishing material or labor under any bond given by Contractor for their protection or any rights under any law permitting such persons to look to funds due Contractor in hands of the Tribal Council, and this provision shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing material for work when no formal contract is entered into for such material.

e. Materials shall be stored on the premises in such manner so as not to interfere with the work and so that no portion of the structure shall be overloaded.

f. Materials or work required or necessary to be tested shall be tested under supervision of, as directed by and at such places as may be convenient to the Tribal Council and/or the Tribal Council's Representatives. The required testing of all structural materials shall be done by an approved testing laboratory as pursuant to Article 70, herein.

Article 34. SUBSTITUTIONS

a. For purposes of this provision the term "substitution" shall mean the substitution of any material, process or article that is substantially equal or better, hereinafter referred to as **"or equal**", in every respect to that so indicated or specified in the specifications.

b. For purposes of this provision the term "substitution" shall mean the substitution of any material, product, or service that is substantially equal or better, hereinafter referred to as "or equal" in every respect to that so indicated or specified in the drawings and

specifications. If any material, product or service offered for substitution by Contractor is not, in the opinion of the Tribal Council, substantially equal or better in every respect to that specified, Contractor shall furnish the material, product or service specified. The burden of proof as to the equality of any material, product or service shall rest with the Contractor.

The Tribal Council is not obligated to review multiple substitution submittals for the same materials, products or services due to the Contractor's failure to submit a complete package initially.

Contractor shall submit requests together with substantiating data for substitution of any "or equal" material, product, thing, or service no later than 10 days prior to and after the award of the contract. Substantiating data shall also include any and all illustrations, specifications, and other relevant data including catalogue information which describes the requested substituted "or equal" material, product or service and substantiates that it is an "or equal" to that material, product or service specified. Further, the Contractor shall bear the costs of all engineering work associated with the review of submittals for substitution of equals.

b. Time limitations in this Article must be complied with strictly and in no case will an extension of time for completion be granted because of Contractor's failure to request the substitution of an alternative item at the times and manner set forth herein.

c. In event Contractor furnishes material, product or service more expensive than that specified, the difference in cost of such material, product or service so furnished shall be borne by the Contractor.

d. Materials or work required or necessary to be tested shall be tested under supervision of, as directed by and at such places as may be convenient to the Tribal Council and/or the Tribal Council's Representatives. The required testing of all structural materials shall be done by an approved testing laboratory as pursuant to Article 67, herein.

Article 35. SHOP DRAWINGS

a. Contractor shall check and verify all field measurements and shall submit with such promptness as to cause no delay in his own work or in that of any other contractor, subcontractor, Tribal Council's Representative, other independent contractor or worker on the Project, five (5) copies of all shop or setting drawings, schedules, and materials list, and all other submittals in accordance with other provisions of the Contract required for the work of various trades. Contractor shall sign all submittals affirming that submittals have been reviewed and approved by Contractor prior to submission to Tribal Council. Each signed submittal shall affirm that the submittal meets all the requirements of the Contract Documents except as specifically and clearly noted and listed on the cover sheet of the submittal.

b. Contractor shall advise the Tribal Council immediately, if Tribal Council's Representative has not checked and approved with reasonable promptness, such schedules and drawings for conformance with design concept of Project and compliance with information given in the Contract Documents. Contractor shall make any corrections required by the Tribal Council and file with the Tribal Council's Representative five (5) corrected copies each, and furnish such other copies as may be needed for construction. Tribal Council's

approval of such drawings or schedules also shall not relieve Contractor from responsibility for deviations from drawings or specifications unless Contractor has in writing, called Tribal Council's attention to such deviations at time of submission and has secured written approval. For purposes of this Article "reasonable promptness" shall mean such reasonable promptness as to cause no delay in the work or in the activities of the Tribal Council, Contractor or separate contractors, while allowing sufficient time in the professional judgment to permit adequate review.

Article 36. SUBMITTALS

a. Contractor shall furnish for approval, within seven (7) calendar days following award of Contract a log of all samples, material lists and certifications, mix designs, schedules, and other submittals, as required in specifications. Such log shall indicate whether samples will be provided as specified and in accordance with other provisions of this Contract.

b. Contractor will provide samples and submittals, together with catalogs and supporting data required by the Tribal Council's Representative within a reasonable time period so as not to cause delays on the Project.

c. This provision shall not authorize any extension of time for performance of this Contract. Tribal Council will check and approve such samples, only for conformance with design concept of work and for compliance with information given in the Contract Documents. Work shall be in accordance with approved samples. Tribal Council's action will be taken within seven (7) calendar days after receiving such samples and submittals. If in the Tribal Council's Representative's professional judgment that seven (7) calendar days is an insufficient amount of time to permit adequate review, and Tribal Council's Representative shall, within the initial seven (7) calendar days' period, notify the Contractor of the amount of time that will be required to respond.

d. If the Tribal Council's response results in a change in the Project, then such change shall be effected by a written change order.

Article 37. COST BREAKDOWN AND PERIODICAL ESTIMATES

a. Contractor shall furnish on forms approved by the Tribal Council:

1) Within ten (10) calendar days of award of Contract a detailed estimate giving a complete breakdown of Contract Price; and

2) A periodical itemized estimate of work done for the purpose of making partial payments thereon;

3) Within ten (10) calendar days of request by the Tribal Council, a schedule of estimated monthly payments which shall be due him under the Contract.

b. Values employed in making up any of these schedules will be used only for determining basis of partial payments and will not be considered as fixing a basis for additions to or deductions from Contract Price.

Article 38. PAYMENTS

a. Each month within thirty (30) calendar days after receipt of an undisputed and properly submitted payment request, there shall be paid to Contractor a sum equal to ninety percent

(90%) of the value of work performed up to the last day of the previous month, less the aggregate of previous payments. Monthly payments shall be made only on the basis of monthly estimates which shall be prepared by Contractor on an approved Application for Payment, "Partial Payment Estimate" form and filed with the Tribal Council before the fifth day of the month during which payment is to be made. Work completed as estimated shall be an estimate only and no inaccuracy or error in said estimate shall operate to release Contractor or any bondsman from damages arising from such work or from enforcing each and every provision of this Contract and the Tribal Council shall have the right subsequently to correct any error made in any estimate for payment. Contractor shall not be entitled to have any payment estimates processed or be entitled to have any payment made for work performed so long as any lawful or proper direction concerning the work, or any portion thereof given by the Tribal Council and Tribal Council's Representative shall remain uncomplied with.

b. The final payment of ten percent (10%) of the value of work done under this Contract, if unencumbered, shall be made within sixty (60) calendar days after the date of completion of the work, provided however, that in the event of a dispute between the Tribal Council and the Contractor, the Tribal Council may withhold from the final payment an amount not to exceed one hundred and fifty percent (150%) of the disputed amount. Completion means any of the:

    1) The occupation, beneficial use, and enjoyment of a work of improvement, excluding any operation only for testing, startup, or commissioning, by the public agency, or its agent, accompanied by cessation of labor on the work of improvement.

    2) The acceptance by the public agency, or its agent, or the work of improvement.

    3) After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 100 calendar days or more, due to factors beyond the control of the Contractor.

    4) After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 30 calendar days or more, if the public agency files for record a notice of cessation or a notice of completion

c. For purposes of this Contract, the acceptance by the Tribal Council means acceptance made only by an action of the governing body of the Tribal Council in session. Acceptance by Contractor of said final payment shall constitute a waiver of all claims against the Tribal Council arising from this Contract. At any time after fifty percent (50%) of the work has been completed, if the Tribal Council, by action of its governing body, finds that satisfactory progress is being made, the Tribal Council may reduce the retentions for remaining payments for actual work completed up to five percent (5%).

d. **Final Payment.** The Tribal Council shall, after the satisfactory completion of the work, make a final estimate of the amount of Work done thereunder and the value of said work, and the Tribal Council shall pay the entire sum so found to be due after deduction therefrom all previous payments and all amounts to be retained under the provisions of the Contract Documents, provided that a release of liens and claims has been received from the Contractor. All prior partial estimates and payments shall be subject to correction in the final estimate and payment. The final payment shall not be due and payable until

the expiration of thirty-five (35) calendar days from the date of acceptance of the work by the Tribal Council, which acceptance shall be by formal action of the Tribal Council.

1) No certificate given or payments made under the Contract, except the final certificate or final payment shall be evidence of the performance of the Contract, either wholly or in part, and no payment shall be construed to be an acceptance of any defective work or improper materials.

e. Whenever any part of the work is in a condition suitable for use, and the best interest of the Tribal Council requires such use, the Tribal Council may take possession of, connect to, open for public use, or use a part thereof. When so used, maintenance and repairs due to ordinary wear and tear or vandalism will be made at Tribal Council's expense. The use by the Tribal Council as contemplated in this Article shall in no case be construed as constituting acceptance of the work or any part thereof. Such use shall neither relieve the Contractor of any of his responsibilities under the Contract nor act as a waiver by the Tribal Council of any of the conditions thereof. Contractor shall continue to maintain all insurance, including Builder's Risk insurance, on the Project.

Article 39. PAYMENTS WITHHELD

a. In addition to amounts which the Tribal Council may retain under any and all other Articles in this Contract including those entitled "Payments," and "Time for Completion and Liquidated Damages," the Tribal Council may withhold a sufficient amount of any payment or payments otherwise due to Contractor, as may be necessary to cover:

1) Payments which may be past due and payable for just claims against Contractor or any subcontractors for labor or materials furnished in and about the performance of work on the Project under this Contract.

2) Defective work not remedied.

3) Failure of Contractor to make proper payments to his subcontractor or for material or labor.

4) Completion of the Contract if there exists a reasonable doubt that the work can be completed for balance then unpaid.

5) Damage to another Contractor.

6) Amounts which may be due the Tribal Council for just claims against Contractor.

7) Failure of Contractor to keep the record ("as-built") drawings up to date.

8) Failure to provide update on construction schedule as required by Article 9 hereof. When the above grounds are removed, payment shall be made for amounts withheld because of them.

9) Site clean up.

b. The Tribal Council may apply such withheld amount or amounts to payment of such claims or obligations at its discretion with the exception of subsections (a)(1), (3), and (5) of this Article, which must be retained or applied in accordance with applicable law. In so doing, the Tribal Council shall be deemed the agent of Contractor and any payment so made by

the Tribal Council shall be considered as a payment made under contract by the Tribal Council to Contractor and the Tribal Council shall not be liable to Contractor for such payments made in good faith. Such payments may be made without prior judicial determination of claim or obligations. The Tribal Council will render Contractor a proper accounting of such funds disbursed on behalf of Contractor.

Article 40. CHANGES AND EXTRA WORK

a. **Changes In Work.** All changes which affect the cost or time of the construction of the project must be authorized by means of a Change Order. The Change Order will include extra work, work for which quantities have been altered from those shown in the bidding schedule, as well as decreases or increases in the quantities of installed units which are different than those shown in the bidding schedule because of final measurements. All changes should be recorded on a Change Order as they occur. Each Change Order must contain complete and detailed justification for all items addressed by the Change Order. All Change Orders must be executed on TRTC Form CCO, "Contract Change Order," (See sample Change Order form in Appendix 1).

b. The Tribal Council, without invalidating the Contract, and as provided by law, may order extra work or make changes by altering, adding to, or deducting from work, the Contract sum being adjusted accordingly. All such work shall be subject to prevailing wage rates and shall be executed under the conditions of the original contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

c. In giving instructions, Contractor agrees that the Tribal Council's Representative shall have authority to make minor changes in work, not involving change in cost, and not inconsistent with the purposes or approvals of the Project. Otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless pursuant to a written order from the Tribal Council, and no claim for an addition to the Contract sum shall be valid unless so ordered. If the Contractor is delayed in completing the work by reason of any change made pursuant to this Article, the time for completion of the Work shall be extended by change order for a period commensurate with such delay. The Contractor shall not be subject to any claim for liquidated damages for this period of time.

d. **Unforeseen Conditions.** Contractor shall provide the Tribal Council's Representative with written notice of unforeseen conditions immediately upon discovery of such conditions.

e. Value of any such extra work, change, or deduction shall be determined at the discretion of the Tribal Council, in consultation with the Tribal Council's Representative and Architect, in one or more of the following ways:

    1) By acceptable lump sum proposal from Contractor with itemization as required by the Tribal Council's Representative.

    2) By unit prices contained in Contractor's original bid and incorporated in the Contract Documents or fixed by subsequent agreement between the Tribal Council and Contractor.

    3) By the actual cost of material and labor and a percentage for overhead and profit. The following information items shall be followed as applicable for additions and deductions to the Contract:

		EXTRA/ (CREDIT)
(a)	Material (attach itemized quantity and unit cost plus sales tax)	_____
(b)	Labor (attach itemized hours and base rates from identified prevailing wage rate schedules)	_____
(c)	Commercial General Liability and Property Damage Insurance, Workers' Compensation Insurance, Social Security and Unemployment taxes at actual and verified cost.	_____
(d)	Subtotal	_____
(e)	Subcontractor's overhead and profit as defined in Article 48 (h), below, not to exceed 15% of Item (d) (if applicable)	_____
(f)	Subtotal	_____
(g)	Contractor's Overhead and Profit, as defined in Article 48 (h), below, not to exceed 5% of Item (f) for work performed by subcontractor, or 15% if performed by Contractor	_____
(h)	Subtotal	_____
(i)	Bond Premium, not to exceed 1% of Item (h)	_____
(j)	Total	_____

f. Regardless of whether the cost of the change order is determined pursuant to 1, 2, or 3, above, in addition to the cost of the material and labor for deleted items, Contractor shall credit back overhead mark-up and the bonding mark up for deleted items at the time of the request for changes and extra work.

g. Should Contractor claim that any instruction, request, drawing, specification, action, condition, omission, default, or other situation (i) obligates the Tribal Council to pay additional compensation to the Contractor; or (ii) obligates the Tribal Council to grant an extension of time for the completion of the Contract; or (iii) constitutes a waiver of any provision in the Contract, CONTRACTOR SHALL NOTIFY THE TRIBAL COUNCIL, IN WRITING, OF SUCH CLAIM AS SOON AS POSSIBLE, BUT IN NO EVENT WITHIN MORE THAN FIVE (5) WORKING DAYS FROM THE DATE CONTRACTOR HAS ACTUAL OR CONSTRUCTIVE NOTICE OF THE CLAIM. CONTRACTOR SHALL ALSO PROVIDE TRIBAL COUNCIL WITH SUFFICIENT WRITTEN DOCUMENTATION SUPPORTING THE FACTUAL BASIS OF THE CLAIM including in the documentation items D (3) a-j described in this Article 48 above. Contractor shall be required to certify under penalty of perjury the validity and accuracy of any claims submitted. The Contractor's failure to notify the Tribal Council within such five (5) working day period shall be deemed a waiver and relinquishment of the claim against the Tribal Council. If such

notice be given within the specified time, the procedure for its consideration shall be as stated above in this Article.

h. All costs associated with the change are to be included in the change order proposal to the Tribal Council's Representative. Costs may be in terms of time, money or both.

i. **Overhead and Profit.** The term "overhead and profit" for the Contractor and any subcontractors shall be considered to include: insurance, other than mentioned in Article 42(c) above, field and office supervisors and assistants, watchman, use of small tools, consumables, and general field and home office expenses, and no separate allowance will be made therefor.

Article 41. DEDUCTIONS FOR UNCORRECTED WORK

If the Tribal Council in consultation with the Tribal Council's Representative deems it inexpedient to correct work injured or not done in accordance with the Contract, an equitable deduction from the Contract Price shall be made therefor.

Article 42. PAYMENTS BY CONTRACTOR

Contractor shall pay:

a. For all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered,

b. For all materials, tools, and other expendable equipment to the extent of ninety percent (90%) of cost thereof, not later than the 15th day of the calendar month following that in which such materials, tools, and equipment are delivered at site of Project and balance of cost thereof not later than the 15th day following completion of that part of work in or on which such materials, tools, and equipment are incorporated or used, and

c. To each of his subcontractors, not later than the 7th day following each payment to Contractor, the respective amounts allowed Contractor on account of work performed by respective subcontractor to the extent of such subcontractor's interest therein.

Article 43. CONTRACTOR'S SUPERVISION

a. Unless personally present on the premises where work is being done, Contractor shall keep on the work, during its progress, a competent full-time job (project) superintendent satisfactory to the Tribal Council's Representative. The job superintendent shall not be changed except with consent of the Tribal Council unless the job superintendent proves to be unsatisfactory to Contractor and ceases to be in his employ. The job superintendent shall represent Contractor in his absence and all directions given to him shall be as binding as if given to Contractor. Other directions shall be so confirmed on written request in each case.

b. Contractor shall give efficient supervision to work, using his best skill and attention to control safety and job coordination. He shall carefully study and compare all drawings, specifications, and other instructions and shall at once report to the Tribal Council's Representative of any error, inconsistency or omission which he may discover.

Article 44. DOCUMENTS ON WORK

a. Contractor shall keep one copy of all Contract Documents, including addenda, change orders,

b. Contractor shall also make available all books, records, accounts, contracts, bids, etc. upon request of the Tribal Council or its authorized representative.

Article 45. RECORD ("AS BUILT") DRAWINGS

a. Contractor shall maintain a clean, undamaged set of contract drawings and shop drawings. In addition to maintaining one complete set of record drawings (herein referred to as "as-builts"), Contractor shall require each trade to do its own as-builts. The trade as-builts shall contain information showing clean and clear drawings with horizontal and vertical controls suitable for conversion to electronic media. Graphic quality must be equal to clean and clear original drawings. Adequacy of the drawings shall be determined by the Tribal Council's representative or architect. Contractor shall mark the set to show the actual installation where the installation varies from the work as originally shown. Contractor shall mark whichever drawings are most capable of showing conditions fully and accurately where shop drawings are used, record a cross-reference at the corresponding location on the contract drawings. Contractor shall give particular attention to concealed elements that would be difficult to measure and record at a later date. Contractor shall use colors to distinguish variations in separate categories of the work.

b. Contractor shall note related change order numbers where applicable. Contractor shall organize record drawings sheets into manageable sets, bound with durable paper cover sheets and shall print suitable title, dates and other identification on the cover of each set.

c. At the end of the Project, the Contractor shall provide the Tribal Council Representative with a complete set of as-built drawings. The complete set shall contain information showing clean and clear drawings with horizontal and vertical controls suitable for conversion to electronic media. Graphic quality must be equal to clean and clear original drawings; adequacy of the drawings shall be determined by the Tribal Council's representative or architect. The as-builts must show the entire site for each major trade, including but not limited to water, sewer, electrical, data, telephone, cable, fire alarm, gas and plumbing.

Article 46. UTILITY USAGE

a. All temporary utilities, including but not limited to electricity, water, gas, and telephone used on work shall be furnished and paid for by Contractor. Contractor shall furnish and install necessary temporary distribution systems, including meters, if necessary, from distribution points to points on site where utility is necessary to carry on the work. Upon completion of work, Contractor shall remove all temporary distribution systems.

b. The Contract is for construction in existing facilities, Contractor may, with written permission of the Tribal Council, use the Tribal Council's existing utilities by making prearranged payments to the Tribal Council for utilities used by Contractor for construction.

Article 47. SANITARY FACILITIES

Contractor shall provide sanitary temporary toilet buildings for the use of all workers. All toilets shall comply with local codes and ordinances. Toilets shall be kept supplied with toilet paper and shall have workable door fasteners. Toilets shall be serviced no less than once weekly and shall be present in a quantity of not less than 1 per 20 workers. The building shall be maintained in a sanitary condition at all times and shall be left at the site until the Inspector directs removal. Use of toilet facilities in the work under construction shall not be permitted except by approval of the Tribal Council.

Article 48. PROTECTION OF WORK AND PROPERTY

a. The Contractor shall be responsible for all damages to persons or property occurring as a result of his fault or negligence in connection with the prosecution of this Contract. Contractor shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance by the Tribal Council. All work shall be solely at the Contractor's risk. Contractor shall adequately protect adjacent property from settlement or loss of lateral support as provided by law and the Contract Documents. Contractor shall take all necessary precautions for the safety of employees on the Project and shall comply with all applicable safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to premises where work is being performed. Contractor shall erect and properly maintain at all times, as required by conditions and progress of work, all necessary safeguards, signs, barriers, lights, and watchmen for protection of workers and the public and shall post danger signs warning against hazards created by such features in the course of construction. Contractor shall designate a responsible member of his organization on the work, whose duty shall be prevention of accidents. The name and position of the person so designated shall be reported to the Tribal Council's Representative by Contractor.

b. In an emergency affecting safety of life or of work or of adjoining property, Contractor, without special instruction or authorization from either the Tribal Council's Representative or the Tribal Council, is hereby permitted to act, at his discretion, to prevent such threatened loss or injury, and he shall so act, without appeal, if so authorized or instructed by the Tribal Council's Representative the Tribal Council. Any compensation claimed by Contractor on account of emergency work shall be determined by agreement.

c. Contractor shall provide such heat, covering, and enclosures as are necessary to protect all work, materials, equipment, appliances, and tools against damage by weather conditions.

d. Contractor shall take adequate precautions to protect existing sidewalks, curbs, pavements, utilities, adjoining property, and structures, and to avoid damage thereto, and repair any damage thereto caused by construction operations. Contractor shall:

    1) Enclose working area with a substantial barricade, arrange work to cause minimum amount of inconvenience and danger to the public.

    2) Deliver materials to the building area over a route designated by the and Tribal Council's Representatives.

    3) When directed by the Tribal Council, take preventive measures to eliminate objectionable dust and follow applicable Air Quality Management District air quality regulations as appropriate.

4) Confine Contractor's apparatus, the storage of materials, and the operations of his workers to limits indicated by law, ordinances, permits, or directions of the Tribal Council's Representative. Contractor shall not unreasonably encumber premises with his materials. Contractor shall enforce all instructions of the Tribal Council's Construction Manager regarding signs, advertising, fires, danger signals, barricades, and smoking and require that all persons employed on work comply with all regulations while on construction site.

5) Take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed by accident, they shall be replaced by an approved civil engineer or land surveyor, licensed in the State of California, at no cost to the Tribal Council.

Article 49. LAYOUT AND FIELD ENGINEERING

All field, mechanical and electrical engineering required for laying out this work shall be furnished by the Contractor at his expense. Such work shall be done by a qualified engineer approved by the Tribal Council's Representative. Any required "as-built" drawings of site development shall be prepared by the approved mechanical and/or electrical engineer.

Article 50. REMOVAL OF HAZARDOUS MATERIALS

a. Since removal and/or abatement of Asbestos, PCBs and other toxic wastes and hazardous materials is a specialized field of work with specialized insurance requirements, unless otherwise specified in the Contract Documents, the Tribal Council shall contract directly for such specialized services, if required, and shall not require the Contractor to subcontract for such services.

b. In the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (PCB) which has not been rendered harmless, the Contractor shall immediately stop work in the area affected and report the condition to the Tribal Council's Inspector, and the and Tribal Council's Representatives in writing. The work in the affected area shall not thereafter be resumed except by written agreement of the Tribal Council and Contractor if in fact the material is asbestos or PCB and has not been rendered harmless. The work in the affected area shall be resumed in the absence of asbestos or PCB, or when it has been rendered harmless, by written agreement of the Tribal Council and Contractor, or by arbitration under Article 80 hereof.

Article 51. CUTTING AND PATCHING

a. Contractor shall do all cutting, fitting, or patching of work as required to make parts come together properly and fit it to receive or be received by work of other contractors showing upon, or reasonably implied by, the drawings and specifications for the completed structure. Contractor shall make good after them as the Construction may direct.

b. All cost caused by defective or ill-timed work shall be borne by party responsible therefor.

c. Contractor shall not endanger any work by cutting, excavating, or otherwise altering work and shall not cut or alter work of any other contractor save with written consent of the and Tribal Council's Representative.

Article 52. CLEANING UP

a. Contractor at all times shall keep premises free from debris such as waste, rubbish, and excess materials and equipment caused by this work. Contractor shall not leave debris under, in, or about the premises. Upon completion of work, Contractor shall clean the interior and exterior of the building or improvement including fixtures, equipment, walls, floors, ceilings, roofs, window sills and ledges, horizontal projections, and any areas where debris has collected so surfaces are free from foreign material or discoloration. Contractor shall clean and polish all glass, plumbing fixtures, and finish hardware and similar finish surfaces and equipment and Contractor shall also remove temporary fencing, barricades, planking and construction toilet and similar temporary facilities from site. Contractor shall also clean all buildings, asphalt and concrete areas to the degree necessary to remove oil, grease, fuel, or other stains caused by Contractor operations or equipment.

b. If the Contractor fails to clean up at the completion of the Work, the Tribal Council may do so and the cost of such clean up shall be charged back to the Contractor.

Article 53. CORRECTION OF WORK BEFORE FINAL PAYMENT

a. Contractor shall promptly remove from the premises all work condemned by the Tribal Council as failing to conform to the Contract, whether incorporated or not. Contractor shall promptly replace and re-execute his own work to comply with the Contract Documents without additional expense to the Tribal Council and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

b. If Contractor does not remove such condemned work within a reasonable time, fixed by written notice, the Tribal Council may remove it and may store the material at Contractor's expense. If Contractor does not pay expenses of such removal within ten (10) calendar days' time thereafter, the Tribal Council may, upon ten (10) calendar days' written notice, sell such materials at auction or at private sale and shall account for net proceeds thereof, after deducting all costs and expenses that should have been borne by Contractor.

Article 54. ACCESS TO WORK

The Tribal Council and its Representatives shall at all times have access to work wherever it is in preparation or progress. Contractor shall provide safe and proper facilities for such access so that the Tribal Council's Representatives may perform their functions.

Article 55. OCCUPANCY

The Tribal Council reserves the right to occupy the building at any time before completion, and such occupancy shall not constitute final acceptance of any part of work covered by this Contract.

Article 56. TESTS AND INSPECTIONS

a. If the Tribal Council, Tribal Council's Representative's, and/or instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, Contractor shall give notice in accordance with such authority of its readiness for observation or inspection at least two (2) working days prior to being tested or covered up. If inspection is by a public authority other than the Tribal Council, Contractor shall inform the Tribal Council's Representative of date fixed for such inspection. Required certificates of inspection shall be secured by Contractor. Observations by the Tribal Council Representative or Inspector shall be promptly made and where practicable at source of

supply. If any work should be covered up without approval or consent of the Tribal Council or Tribal Council Representative, it must, if required by the Tribal Council, be uncovered for examination and satisfactorily reconstructed at Contractor's expense in compliance with the Contract. Costs for testing and inspection shall be paid by the Tribal Council. Costs of tests of any materials found not to be in compliance with the Contract shall be paid by the Contractor.

b. Where such inspection and testing are to be conducted by an independent laboratory or agency, such materials or samples of materials to be tested shall be selected by such laboratory or agency, or the Tribal Council's Representative, and not by Contractor. All test or inspections of materials shall be made in accordance with the commonly recognized standards of national organizations.

c. In advance of manufacture of materials to be supplied by Contractor under the Contract, which by the terms of the Contract must be tested, Contractor shall notify the Tribal Council in advance so that the Tribal Council and its Representatives may arrange for testing of same at the source of supply. Any materials shipped by Contractor from the source of supply prior to having satisfactorily passed such testing and inspection, or prior to receipt of notice from the Tribal Council's Representative that such testing and inspection will not be required, shall not be incorporated into the work without the prior approval of the Tribal Council or its Representatives and subsequent testing and inspection.

d. Reexamination of questioned work may be ordered by the Tribal Council or its Representatives. If so ordered, work must be uncovered by Contractor. If such work is found to be in accordance with the Contract Documents, the Tribal Council shall pay the costs of reexamination and replacement. If such work be found not to be in accordance with the Contract Documents, Contractor shall pay such costs.

Article 57. TRIBAL COUNCIL'S REPRESENTATIVE'S STATUS

a. Tribal Council's shall in writing, designate a Representative(s) during the construction period, and Representative shall have the responsibilities and authorities to act on behalf of the Tribal Council only to the extent identified in the Contract Documents, and generally as follows:

- Interpreting the approved plans and specifications, and providing any necessary amplification of the plans and specifications.
- Accepting and approving decisions and clarifications, pertaining to the technical aspects of the Contract Documents.
- Serving as the Contractor's point of contact for management and administration of the Contract and coordination of interfaces with other Contractors and organizations participating in the same projects, as well as those of the Architect and Building Inspector.
- Implementing the established procedures for processing all required submissions and documentation.
- Monitoring and reviewing the Contractor's safety program, personnel and equipment, scheduling and progress of the work, and, without assuming

any of the Architect's legal responsibilities, the work of the Contractor for conformance with the Contract Documents.

b. The Tribal Council's Representative shall have authority to direct stoppage of the work whenever such stoppage may be necessary in the Tribal Council's Representative's reasonable opinion to insure the proper execution of the Contract.

c. The Tribal Council retains the authority to issue the ultimate decision regarding any decisions, clarifications, instructions, directions, acceptances, or approvals required, issues, or made pursuant to the Contract Documents and in connection with the prosecution and progress of the Work.

Article 58. DECISIONS OF TRIBAL COUNCIL'S REPRESENTATIVE

Contractor shall promptly notify the Tribal Council in writing if the Tribal Council's Representative fails within a reasonable time, to make decisions on all claims of the Tribal Council or Contractor and on all other matters relating to the execution and progress of the work.

Article 59. PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of State or Federal law and clause required by law to be inserted in this Contract as applicable for the location of the WORK, be it within lands governed by the Tribe's Sovereign Nation status or on Fee lands, shall be deemed to be inserted herein and/or referenced herein as if set out in full and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party, the Contract shall forthwith be physically amended to make such insertion or correction.

Article 60. LABOR/EMPLOYEE SAFETY

The Contractor shall maintain emergency first aid treatment for his employees which complies with the Federal Occupational Safety and Health Act of 1970 (29 USC, Section 651 et seq.), and California Code of Regulations, Title 8, Industrial Relations Division 1, Department of Industrial Relations, Chapter 4.

Article 61. ASSIGNMENT OF ANTITRUST ACTIONS

Pursuant to Section 7103.5 of the Public Contract Code, in entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, Contractor or subcontractor offers and agrees to assign to the Tribal Council all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 USC, Section 15) or under the Cartwright Act (chapter 2 (commencing with Section 16700) of part 2 of division 7 of the Business and Professions Code), arising from the purchase of goods, services, or materials pursuant to this Contract or any subcontract. This assignment shall be made and become effective at the time the Tribal Council tenders final payment to the Contractor, without further acknowledgment by the parties.

Article 62. AUDIT AND ACCESS TO RECORDS

Pursuant to and in accordance with the provisions of Government Code section 8546.7, or any amendments thereto, all books, records and files of the Owner, the Contractor, or any subcontractor connected with the performance of this Contract involving the expenditure of public funds in excess of $10,000 including, but not limited to, the costs of administration of the

Contract, shall be subject to, at the request of the Owner or any of their duly authorized representatives, the examination and audit, or as part of any audit, of the Owner for a period of three (3) years after final payment is made under this Contract.

Article 63. NOTICE OF THIRD PARTY CLAIMS

The Tribal Council shall provide Contractor with timely notification of the receipt of any third-party claim, relating to the Contract. Tribal Council is entitled to recover its reasonable costs incurred in providing such notification.

Article 64. SUBSTITUTION OF SECURITY

The Bidders are notified that financing for this project is provided pursuant to the State Department of Water Resources and that as allowed in Public Contract Code Section 22300, this contract does not provide for substitution of securities for any monies withheld by the Owner to ensure performance under this contract. Bidders are further notified that this contract does not permit retainage to be placed in escrow nor to be invested for the benefit of the contractor.

Article 65. RESOLUTION OF CONSTRUCTION CLAIMS

a. **The following shall be applicable to all Claims:**

1) Definition of Claim: A "Claim" means a separate demand by the Contractor for (a) time extension, (b) payment of money or damages arising from work done by or on behalf of the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (c) an amount the payment of which is disputed by the Tribal Council.

2) Filing Claim is Not Basis To Discontinue Work: The Contractor shall promptly comply with work under the Contract or work requested by the Tribal Council even though a written claim has been filed. The Contractor and the Tribal Council shall make good faith efforts to resolve any and all claims that may arise during the performance of the work covered by this Contract.

(a) Claims in Excess of $50,000. For claims over Fifty Thousand Dollars ($50,000.00), and less than or equal to Three Hundred Seventy-five Thousand Dollars ($375,000.00), the Tribal Council shall respond in writing to all written claims within sixty (60) days of receipt of the claim, or may request, in writing, within thirty (30) days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim that the Tribal Council may have against the Contractor. If additional information is thereafter required, it shall be requested and provided by mutual agreement of the Tribal Council and the Contractor. The written response of the Tribal Council to the claim, as further documented, shall be submitted to the Contractor within thirty (30) days after receipt of the further documentation, or within a period of time no greater than that taken by Contractor in producing the additional information or requested documentation, whichever is greater.

3) Informal Meet and Confer Conference: If Contractor disputes the written response of the Tribal Council, or the Tribal Council fails to respond within the time prescribed, Contractor may so notify the Tribal Council, in writing, either within

fifteen (15) days of receipt of the Tribal Council's response or within fifteen (15) days of the failure of the Tribal Council to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the Tribal Council shall schedule a meet and confer conference within thirty (30) days for settlement of the dispute.

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

b. **Procedures for Civil Actions to Resolve Disputed Claims:**

1) Non-binding Mediation: Within sixty (60) days, but no earlier than thirty (30) days, following the filing of a responsive pleading, the court shall submit the matter to non-binding mediation unless waived by mutual stipulation by both parties. The mediation process shall provide for the selection within fifteen (15) days by both parties of a disinterested third person as mediation, shall be commenced within thirty (30) days of the submittal, and shall be concluded within fifteen (15) days from the commencement of the mediation unless a time requirement is extended upon a good cause shown to the court. If the parties fail to select a mediator within the 15 day period, any party may petition the court to appoint the mediator.

c. **Rights and Remedies.** The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Contractor by the General Conditions and amendments thereto and all of the rights and remedies available to Tribal Council and Tribal Council's Representatives thereunder, 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, and 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.

d. **Attorney's Fees and Costs.** In the event that any action, suit or other proceeding is instituted to enforce any provision of this Contract, and/or to remedy, prevent, or obtain relief from a breach of this Contract, the prevailing party shall be entitled to recover all of its attorney's fees and costs incurred in each and every such action, suit or other proceeding, including any and all appeals or petitions therefrom, except as may be provided to the contrary above. As used herein, attorney's fees shall be deemed to mean the full actual costs of any legal services actually performed in connection with the matters involved, calculated on the basis of the usual fees charged by the attorneys performing such services and shall not be limited to "reasonable attorney's fees" as defined by any statute or rule of court.

Article 66. INTEGRATION

a. **Oral Modifications Ineffective.** No oral order, objection, claim or notice by any party to the other shall affect or modify any of the terms or obligations contained in any of the Contract Documents and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, except by a waiver or modification thereof in writing and signed by the authorized representative of the Tribal Council and the Contractor.

b. **Contract Documents Represent Entire Contract.** The Contract Documents represent the entire understanding of the Tribal Council and Contractor as to those matters contained therein, and no prior oral or written understanding shall be of any force or effect with respect to those matters covered by the Contract Documents.

Article 67. NOTICE OF TAXABLE POSSESSORY INTEREST

The terms of this document may result in the creation of a possessory interest. If such a possessory interest is vested in a private party to this document, the private party may be subjected to the payment of personal property taxes levied on such interest.

Article 68. MISCELLANEOUS

These Contract Documents shall be interpreted in accordance with the laws of the United States of America. If any action is brought to interpret or enforce any term of these Contract Documents, the action shall be brought in the California Eastern District court situated in the City of Fresno, State of California. Except as otherwise provided in these Contract Documents, in the event of any such litigation between the parties, the prevailing party shall be entitled to recover all reasonable costs incurred, including reasonable attorney's fees, as determined by the court.

[END OF GENERAL CONDITIONS DOCUMENT]

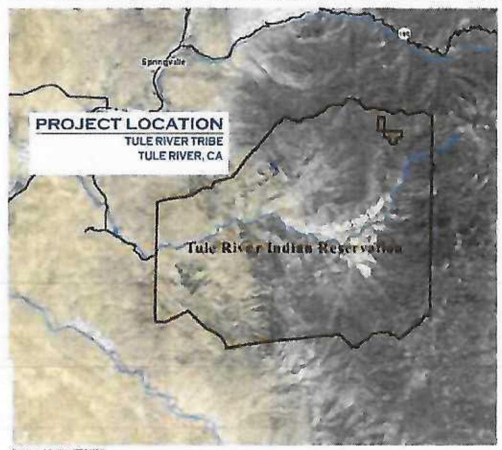
— BUREAU OF —
RECLAMATION

PHASE 1 - TULE RIVER INDIAN TRIBE EMERGENCY WATER IMPROVEMENT PROJECT

100% DESIGN - CONSTRUCTION DRAWINGS
TULE RIVER INDIAN TRIBE OF CALIFORNIA
PHASE 1 - TULE RIVER INDIAN TRIBE EMERGENCY WATER IMPROVEMENT PROJECT
FUNDED BY DEPARTMENT OF WATER RESOURCES SMALL COMMUNITY DROUGHT RELIEF PROGRAM - PROJECT # 4600015434
DATE 10/09/2024

DEPARTMENT OF WATER RESOURCES • STATE OF CALIFORNIA •

CALIFORNIA VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

PROJECT NARRATIVE:

THE WATER TREATMENT SYSTEM HAS BEEN PLAGUED WITH SEDIMENT ENTERING THE SYSTEM FROM THE WATER TRANSMISSION PIPELINE. BASKET STRAINERS AND CYCLONE SAND SEPARATORS HAVE BEEN INSTALLED AT THE INLET OF EACH WATER TREATMENT UNIT TO KEEP SEDIMENT/SAND FROM ENTERING THE TREATMENT EQUIPMENT AND CONTAMINATING THE FILTER/CLARIFIER MEDIA. A SCREENING SYSTEM IS NEEDED AT THE WATER INTAKE TO PREVENT SEDIMENT/SAND FROM ENTERING THE WATER TRANSMISSION PIPELINE.

THIS WORK IS THE HIGHEST PRIORITY BECAUSE OF THE ADVERSE EFFECTS OF THE SEDIMENT/SAND ON TREATMENT SYSTEM OPERATION AND TRANSMISSION LINE INTEGRITY.

THE SCREENS FOR THIS PROTECT HAVE BEEN DESIGNED TO PROTECT THE STOCKED FISH POPULATION. THE VELOCITIES AT THE SCREENS HAVE BEEN DESIGNED TO HAVE AN APPROACH VELOCITY AT OR BELOW 0.1 FPS.

SCOPE OF WORK:

1. INSTALL A NEW REINFORCED CONCRETE INTAKE VAULT. THE VAULT SHALL HAVE A MEANS OF ACCESSING THE VALVES AND SCREENS, THE ABILITY TO SLUICE, THE ABILITY TO PROVIDE BOTH SCREENED FLOWS FOR TREATMENT, TRANSMISSION LINE CLEANING, AND THE ABILITY TO CLEAN THE EXISTING STRUCTURE.
2. RECONNECT THE NEW PIPING IN THE VAULT TO THE EXISTING TRANSMISSION LINE.

SHEET INDEX

TRIBAL CHAIR CHARMAINE MCDARMENT	DATE 10/15/2024
KEVIN CLANCY (Digitally signed by KEVIN CLANCY Date: 2024.10.11 09:03:17 -07'00') KEVIN CLANCY BUREAU OF RECLAMATION	DATE
Andrew Isner ANDREW ISNER DEPARTMENT OF WATER RESOURCES	10/11/2024 DATE

TULE RIVER TRIBE
487 S. RESERVATION ROAD
PORTERVILLE, CA 93257

THIS PROJECT DESIGNED TO COMPLY WITH THE REQUIREMENTS OF THE U.B.C, U.P.C., U.M.C, & N.E.C (CURRENT EDITIONS).

DATE	REVISIONS	INIT.

LICENSED PROFESSIONAL ENGINEER LEIGH PAUL HUBBARD III CIVIL STATE OF CALIFORNIA

CALIFORNIA AREA OFFICE
OFFICE OF ENVIRONMENTAL HEALTH & ENGINEERING
SANITATION FACILITIES CONSTRUCTION
650 CAPITAL MALL, SUITE 7-100
SACRAMENTO, CA 95814
(916) 930-3981

INDIAN HEALTH SERVICE 1955

COVER
TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

DRAWN BY: JEH	FILE NAME: CA-24-001-GCOVR		
CHECKED BY: JAW	LAYOUT NAME: G-001		
APPROVED BY: LPH	PROJ ENG: MR	SCALE: 1" = ##	

ABBREVIATIONS

A	
AB	ANCHOR BOLT
AC	ASPHALT CONCRETE
AFF	ABOVE FINSHED FLOOR
AFG	ABOVE FINISHED GRADE
AGG	AGGREGRATE
AGGB	AGGREGRATE BASE
ARV	AIR RELEASE VALVE
ASPH	ASPHALT CONCRETE
B	
BF	BLIND FLANGE
BOT	BOTTOM
BOF	BOTTOM OF FOOTING
BLDG	BUILDING
BLKG	BLOCKING
BLV	BALL VALVE
BM	BENCH MARK
BRG	BEARING
BUR	BURIED
BV	BUTTERFLY VALVE
C	
CBL	CABLE
C	CONDUIT
CB	CATCH BASIN
CIP	CAST IRON PIPE
CL	CHLORINE
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CP	CONTROL POINT
CPLG	COUPLING
CS	CURB STOP
CV	CHECK VALVE
CY	CUBIC YARD
D	
D	DRAIN
DEMO	DEMOLISH
DET	DETAIL
DI	DUCTILE IRON
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DMH	DROP MANHOLE
DWG	DRAWING
E	
E	EAST
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION
ELL	ELBOW
EP	EQUAL
EQ	EDGE OF PAVEMENT
<E>	EXISITING
EXT	EXTERIOR
F	
FD	FLOOR DRAIN
FDN	FOUNDATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FLG	FLANGE
FLH	FLUSH HYDRANT
FLR	FLOOR DRAIN
FM	FORCE MAIN
FS	FLOW SWITCH
FT	FOOT OR FEET
FM	FORCE MAIN
FTG	FOOTING
FV	FLUSH VALVE
G	
GA	GAUGE
GAL	GALLON
GALV	GALVANIZRD
GR	GRADE
GV	GATED VALVE
GVL	GRAVEL
H	
HB	HOSE BIB
HDR	HEADER
HDWR	HARDWARE
HORIZ	HORIZONTAL
HT	HEIGHT
HWY	HIGHWAY
I	
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
INL	INLET
INV	INVERT
IP	IRON PIPE
IRRIG	IRRIGATION
J	
JB	JUNCTION BOX
JT	JOINT
L	
LB	LAG BOLT
LF	LINEAR FEET
LG	LENGTH
LT	LEFT
LWL	LOW WATER LEVEL
M	
M	METER
MAS	MASONRY
MAX	MAXIMUM
MFR	MANUFACTURER
MJ	MECHANICAL JOINT
MIN.	MINIMUM
N	
<N>	NEW
N	NORTH
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O	
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPNG	OPENING
P	
PE	POLYETHYLENE
PG	PRESSURE GAUGE
PL	PROPERTY LINE
PP	POWER POLE
PRESS	PRESSURE
PRV	PRESSURE RELIEF VALVE
PVC	POLYVINYL CHLORIDE
PS	PRESSURE SWITCH
PVMT	PAVEMENT
PW	POTABLE WATER
R	
R	RADIUS
REINF	REINFORCEMENT
RC	RELATIVE COMPACTION
REQ'D	REQUIRED
ROW	RIGHT OF WAY
RT	RING TYPE
RTWL	RETAINING WALL
S	
S	SOUTH
SCH	SCHEDULE
SECT	SECTION
SHT	SHEET
SPEC	SPECIFICATION
SQ	SQUARE
SS	SANITARY SEWER
SSL	SANITARY SERVICE LINE
STA	STATION POINT
STD	STANDARD
STL	STEEL
STR	STRUCTURE
T	
TNK	TANK
TBM	TEMPORARY BENCH MARK
TC	TOP OF CONCRETE
TOF	TOP OF FOUNDATION
TYP	TYPICAL
U	
UTIL	UTILITY
UBC	UNIFORM BUILDING CODE
UPC	UNIFORM PLUMBING CODE
UMC	UNIFORM MECHANICAL CODE
V	
VAR	VARIOUS
VB	VAPOR BARRIER
VC	VERTICAL CURVE
VERT	VERTICAL WATER
W	
W	WEST
W/	WITH
WM	WATER MAIN
W/O	WITHOUT

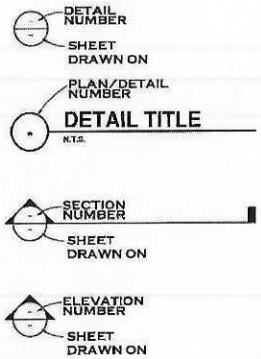
GENERAL NOTES

1. THE TYPES, LOCATIONS, SIZES AND DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM AVAILABLE RECORDS. A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES; HOWEVER, THE OWNER AND THE ENGINEER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES NOR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS OF THOSE UTILITIES SHOWN AND ANY THAT MAY EXIST AND ARE NOT SHOWN PRIOR TO COMMENCEMENT OF ANY WORK. THE CONTRACTOR SHALL EXPOSE ALL UNDERGROUND FACILITIES THAT ARE TO BE CONNECTED TO OR THAT ARE IN THE PATH OF THE PROPOSED IMPROVEMENTS FOR VERIFICATION OF LOCATION AND ELEVATION PRIOR TO COMMENCING CONSTRUCTION.
2. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICES ALERT (U.S.A.) 48 HOURS PRIOR TO ANY EXCAVATION WORK FOR DETERMINATION AND LOCATION OF UNDERGROUND UTILITIES. (PHONE: 800-227-2600 OR 811)
3. THE CONTRACTOR SHALL PERFORM WORK WITH A MINIMAL DISRUPTION OF SERVICES, AND SHALL NOTIFY TULE RIVER AND THE ENGINEER AT LEAST 48 HOURS IN ADVANCE OF ANY PLANNED SHUTDOWN OF POTABLE WATER FACILITIES.
4. CONTOURS ARE AT 1-FOOT INTERVALS.
5. THE CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED.
6. THE CONTRACTOR SHALL MAINTAIN VEHICLE ACCESS TO ALL PROPERTIES ADJACENT TO THE WORK THROUGHOUT THE PERIOD OF CONSTRUCTION.

SURVEY NOTES

1. BASIS OF BEARINGS: THE BASIS OF BEARINGS FOR THIS SURVEY IS CCS83 PER STATIC TIES TO CONTROL POINT "WTR-2" USING COORDINATES SHOWN ON SHEET 6 OF THE TULE RIVER COMMUNITY WASTEWATER SYSTEM CONSTRUCTION DRAWINGS BID SET DATED JUNE 2013.
2. VERTICAL DATUM AND PROJECT BENCHMARK: THE VERTICAL DATUM FOR THIS SURVEY IS NAVD'88 CALIFORNIA STATE PLANE, ZONE IV. PER POST-PROCESSING DATA PROVIDED BY OPUS FOR GROMATICI CONTROL POINT 411 (SHOWN ON OUR PREVIOUS TOPOGRAPHIC SURVEY) HAVING A CALCULATED ELEVATION OF 2072.85'.
3. LOCAL BENCHMARK: THE LOCAL BENCHMARK FOR THIS SURVEY IS POINT 452 (SHOWN ON SHEET 2) HAVING A CALCULATED ELEVATION OF 1590.32'.
4. ALL ELEVATIONS AND DISTANCES SHOWN HEREON ARE IN U.S. SURVEY FEET.
5. THE GROMATICI "2024-08-21 - TR EWP GROMATICI SURVEY - 1034TOPO03-BATHYMETRIC-24X36(7)" SURVEY SHEET HAS THREE CONTROL POINTS INSTALLED. ONE ON NORTH BANK (CP 448) AND TWO ON SOUTH BANK (CP 443 & 444).

REFERENCE SYMBOLS



CONTACTS:

ENGINEERING:

INDIAN HEALTH SERVICE
613 HAVARD AVE SUITE 101
CLOVIS, CA 93612
PHONE: (559) 322-7442

OWNER:

TULE RIVER TRIBE
340 INDIAN RESERVATION RD.
PORTERVILLE, CA 93257

REVISIONS | DATE | INIT.

LICENSED PROFESSIONAL ENGINEER — PAUL HUBER — C74785 — 6/30/2025 — CIVIL — STATE OF CALIFORNIA

CALIFORNIA AREA OFFICE
OFFICE OF ENVIRONMENTAL HEALTH & ENGINEERING

SANITATION FACILITIES CONSTRUCTION
650 CAPITAL MALL, SUITE 7-100
SACRAMENTO, CA 95814
(916) 930-3981

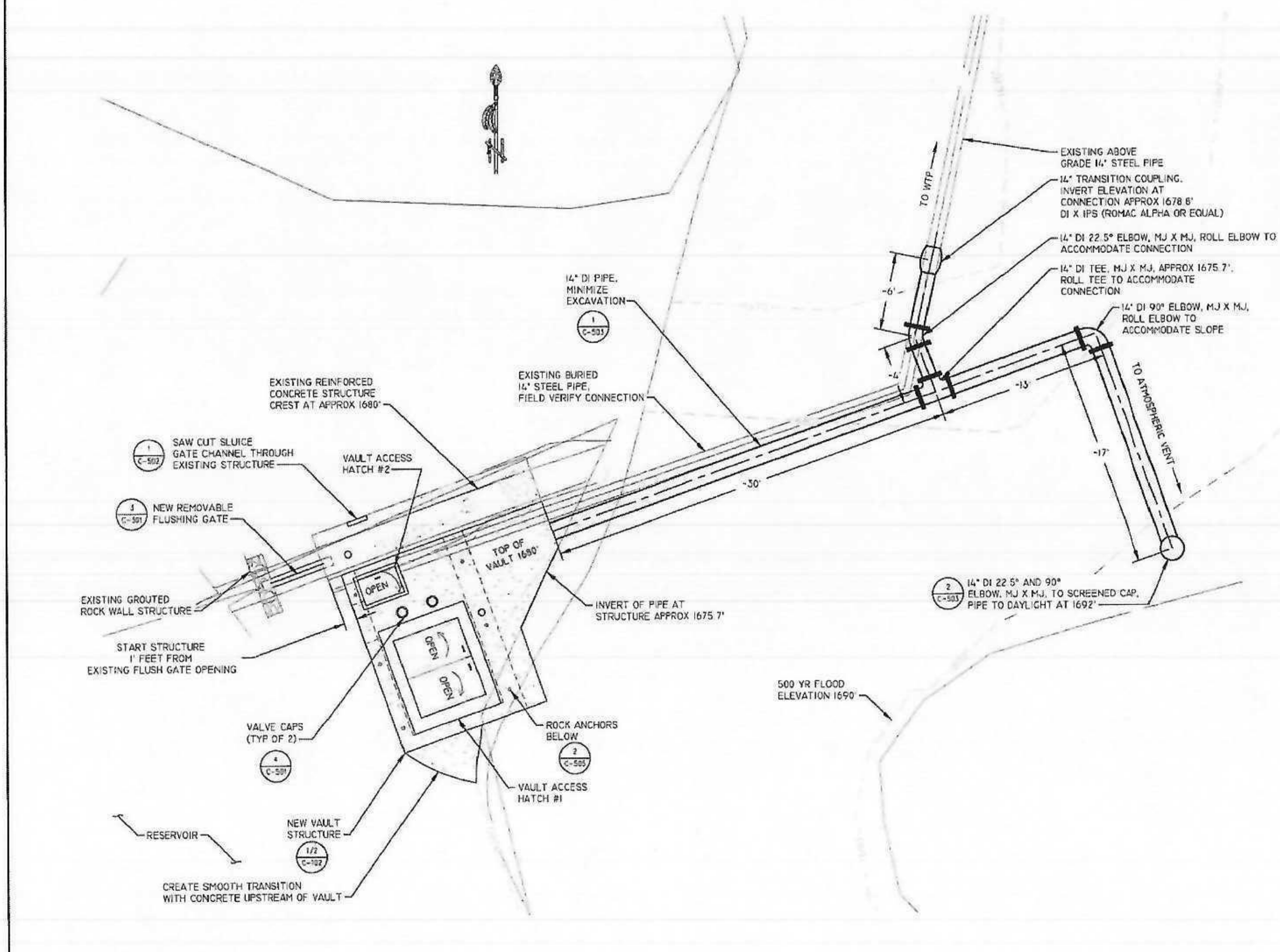
INDIAN HEALTH SERVICE — 1955

GENERAL INFORMATION
TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 85-121
DWR AGREEMENT NO. 4600015434/R004 - R24AR00564

DRAWN BY: JEH | FILE NAME: CA-24-001-GCOVR
CHECKED BY: JAW | LAYOUT NAME: G-002
APPROVED BY: LPH | PROJ ENG: MR | SCALE: 1" = ##

G-002
SHEET 2 OF 12

USER: hesse FILE: C:\Users\hesse\OneDrive\TuleRiverEmergencyIntake\Phase 1\General\CA-24-001-GCOVR.dwg 10/09/2024 - 8:45pm



1 VAULT SITE PLAN
1" = 4'

NOTES:

1. WORK SHALL NOT COMMENCE UNTIL THE COMMUNITY POTABLE WATER STORAGE FACILITIES ARE FULL.
2. CONTRACTOR SHALL WORK WITH THE COMMUNITY TO MAINTAIN WATER SERVICE DURING CONSTRUCTION. THE COMMUNITY SHALL BE NOTIFIED 48 HOURS PRIOR TO ANY OUTAGE.
3. SHOULD FIELD ADJUSTMENTS BE REQUIRED FOR INSTALLATION OF NEW INTAKE STRUCTURE, APPROVAL FROM THE ENGINEER OF RECORD IS REQUIRED.
4. BLASTING IS NOT PERMITTED ADJACENT TO THE EXISTING STRUCTURE.
5. ALL BURIED MJ FITTINGS SHALL BE RESTRAINED JOINTS (EBAA IRON MEGALUG OR EQUAL).
6. TRENCH SHALL BE VACUUM CLEANED AND ALL LOOSE DEBRIS REMOVED PRIOR TO PLACEMENT OF REINFORCEMENT AND CONCRETE. ROCK FRAGMENTS, ORGANICS, AND OTHER DELETERIOUS MATERIALS SHALL BE REMOVED.
7. ALL DIMENSIONS ARE APPROXIMATE

DATE	REVISIONS	INIT.

LICENSED PROFESSIONAL ENGINEER LEIGH PAUL HUBBARD III C 76786 EXP 6/30/2025 CIVIL STATE OF CALIFORNIA

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INDIAN HEALTH SERVICE 1955

VAULT SITE PLAN

TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

DRAWN BY: JEH	FILE NAME: CA-24-001-STINTK
CHECKED BY: JAW	LAYOUT NAME: C-101
APPROVED BY: LPH	PROJ ENG: MR SCALE: 1" = 4'

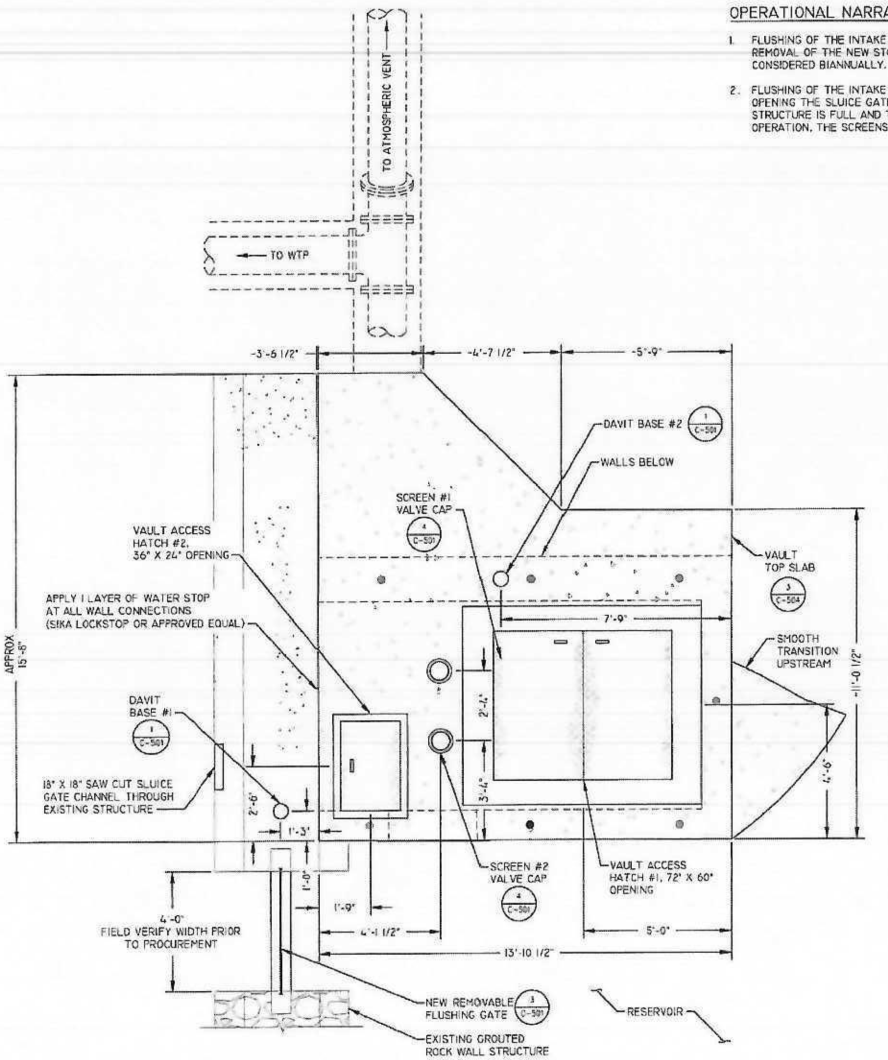
C-101
SHEET
3 OF 12

OPERATIONAL NARRATIVE:

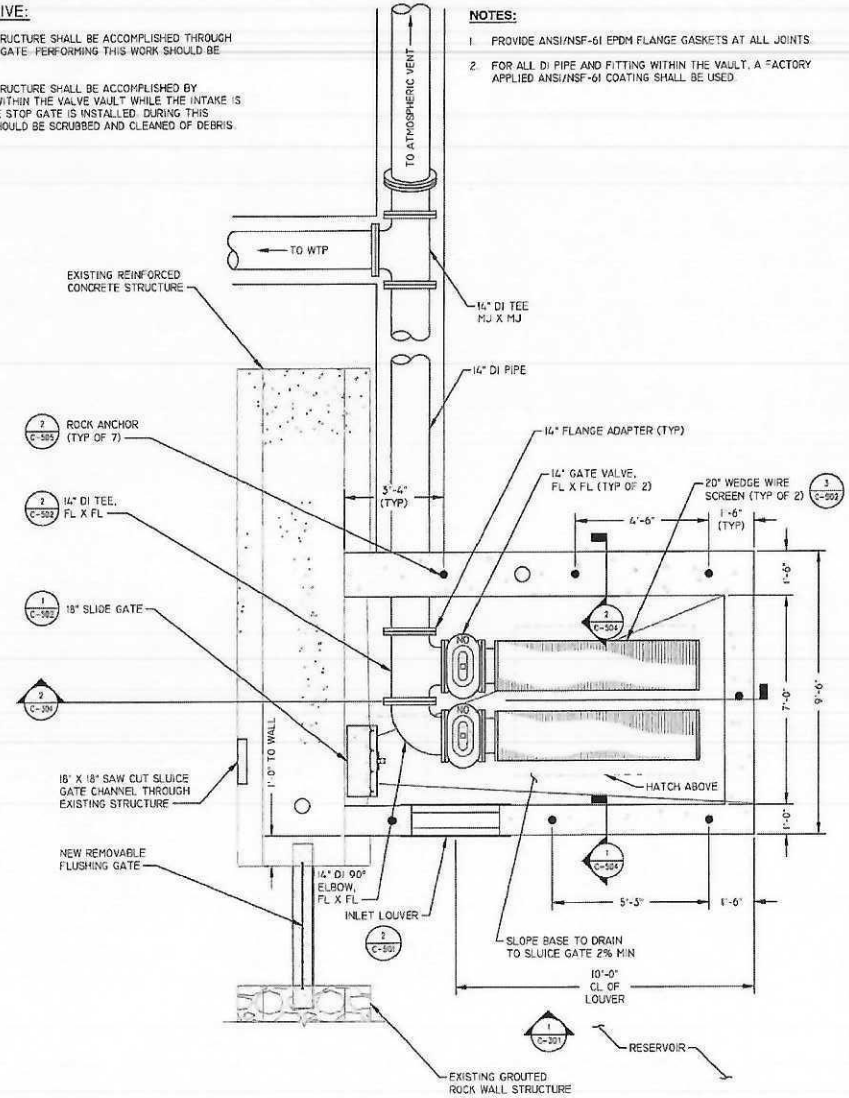
1. FLUSHING OF THE INTAKE STRUCTURE SHALL BE ACCOMPLISHED THROUGH REMOVAL OF THE NEW STOP GATE. PERFORMING THIS WORK SHOULD BE CONSIDERED BIANNUALLY.
2. FLUSHING OF THE INTAKE STRUCTURE SHALL BE ACCOMPLISHED BY OPENING THE SLUICE GATE WITHIN THE VALVE VAULT WHILE THE INTAKE IS STRUCTURE IS FULL AND THE STOP GATE IS INSTALLED. DURING THIS OPERATION, THE SCREENS SHOULD BE SCRUBBED AND CLEANED OF DEBRIS.

NOTES:

1. PROVIDE ANSI/NSF-61 EPDM FLANGE GASKETS AT ALL JOINTS.
2. FOR ALL DI PIPE AND FITTING WITHIN THE VAULT, A FACTORY APPLIED ANSI/NSF-61 COATING SHALL BE USED.



1 **VAULT PLAN**
NTS



2 **VAULT PIPING PLAN**
NTS

DATE	REVISIONS	INIT.

LICENSED PROFESSIONAL ENGINEER
HUGH PAUL HUBBARD
C70760
EXP. 06/30/2025
CIVIL
STATE OF CALIFORNIA

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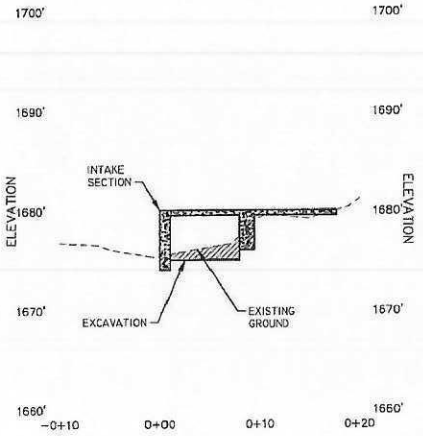
ENLARGED VAULT PLANS
TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

DRAWN BY: JEH	FILE NAME: CA-24-001-DTMISC
CHECKED BY: JAW	LAYOUT NAME: C-102
APPROVED BY: LPH	PROJ ENG: MR SCALE: 1/2" = 1'-0"

C-102
SHEET 4 OF 12



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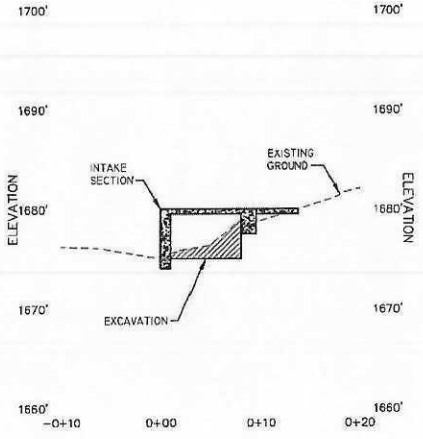

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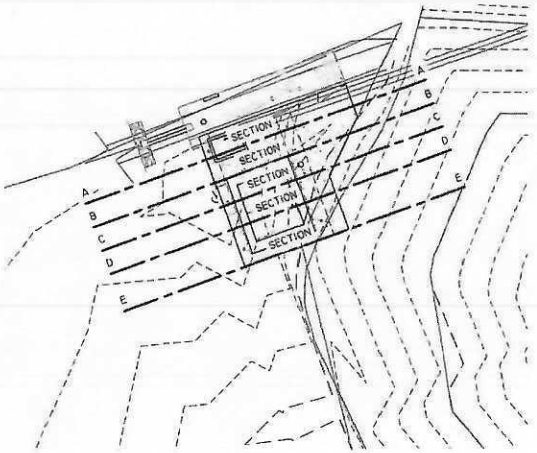
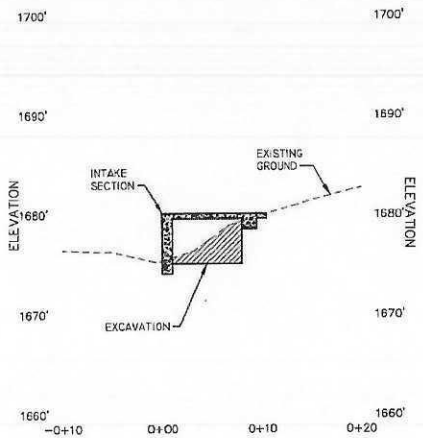


KEY MAP

ROCK CUT

CONCRETE



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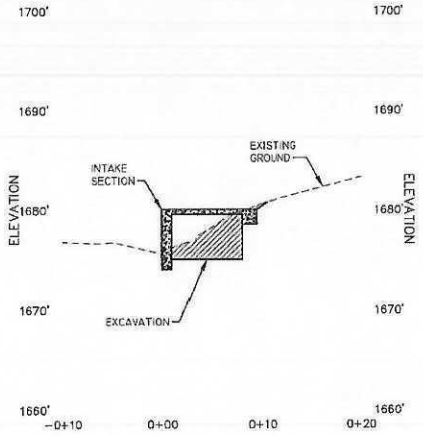

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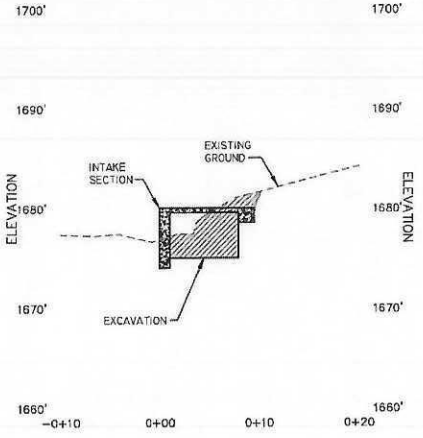

SECTION E-E

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SITE CROSS SECTIONS

TULE RIVER, CA.
TULE RIVER EMERGENCY WATER PROJECT
DWR AGREEMENT NO. 4600015434/BOR - R24AP00564
PUBLIC LAW 86-121

DRAWN BY: JEH
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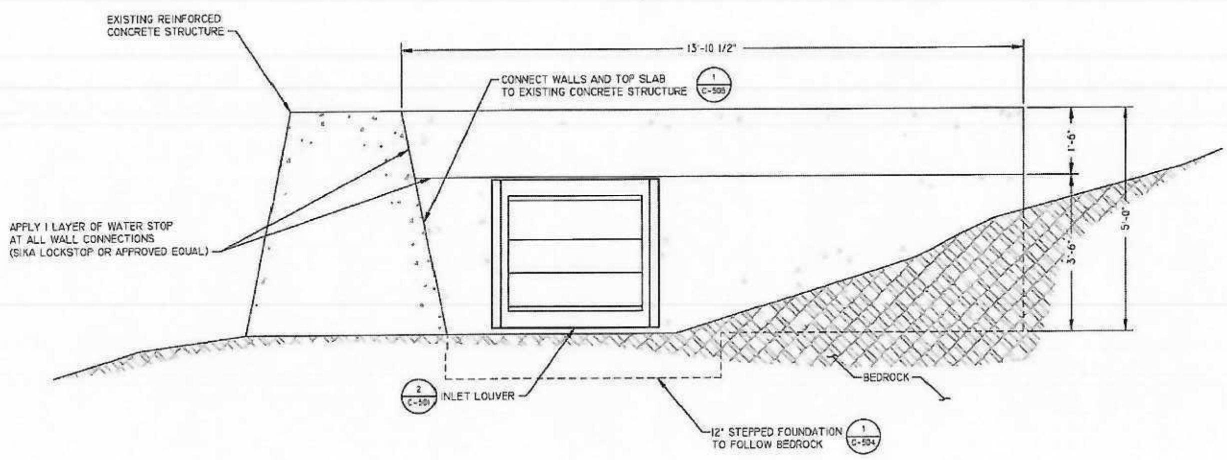
APPROVED BY: LPH

FILE NAME: CA-24-001-SPNTK
LAYOUT NAME: C-201
PROJ ENG. MR
SCALE: 1" = ##

C-201

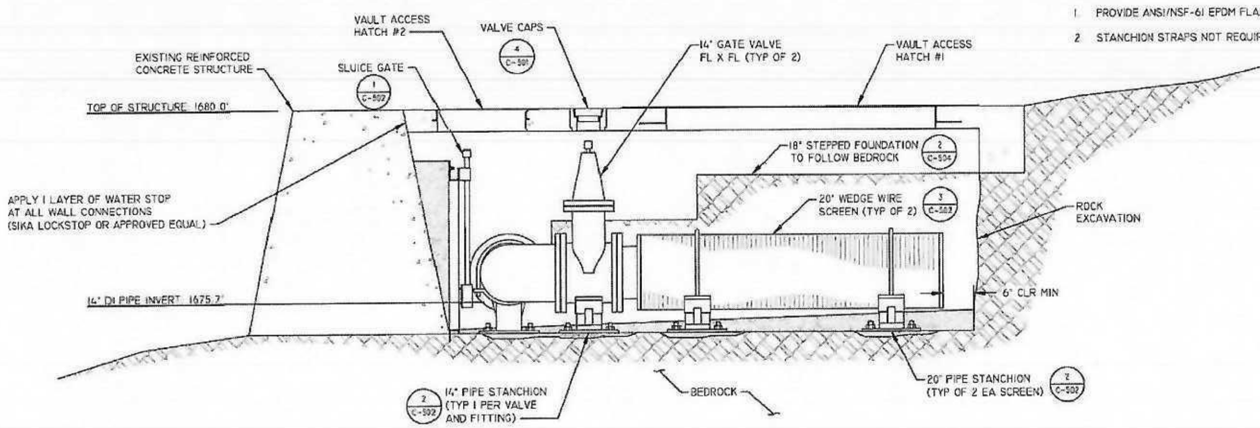
SHEET 5 OF 12



(1) **VAULT ELEVATION**
NTS

NOTES:

1. PROVIDE ANSI/NSF-61 EPDM FLANGE GASKETS AT ALL JOINTS.
2. STANCHION STRAPS NOT REQUIRED UNDER VALVES.



(2) **VAULT SECTION**
NTS

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LICENSED PROFESSIONAL ENGINEER LEIGH PAUL HUBBARD 85 CIVIL STATE OF CALIFORNIA

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INDIAN HEALTH SERVICE 1955

VAULT ELEVATION AND SECTION

TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

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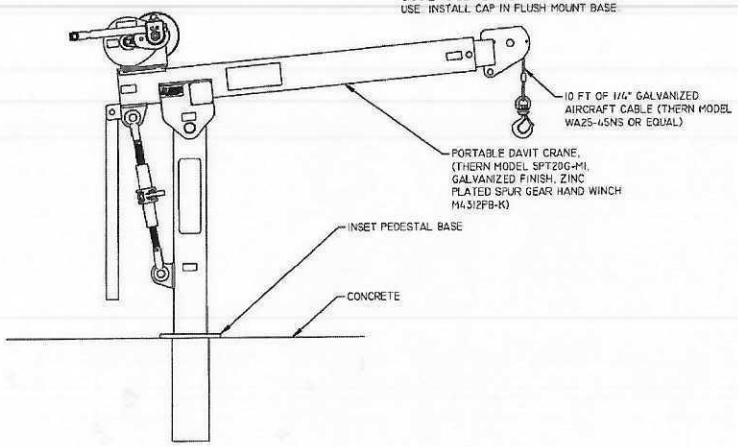
CHECKED BY: JAW	LAYOUT NAME: C-301	
APPROVED BY: LPH	PROJ ENG: MB	SCALE: 1/2" = 1'-0"

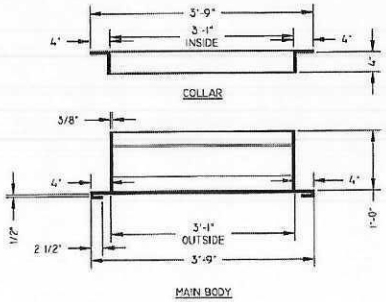
C-301
SHEET 6 OF 12

NOTE:

CRANE TO BE REMOVED AND SECURED IN A DRY STORAGE AREA WHEN NOT IN USE. INSTALL CAP IN FLUSH MOUNT BASE.

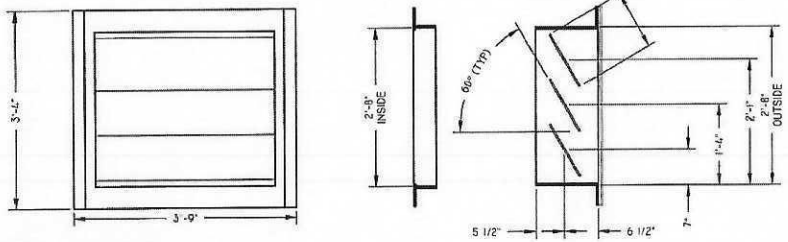


1 PORTABLE DAVIT CRANE
NTS

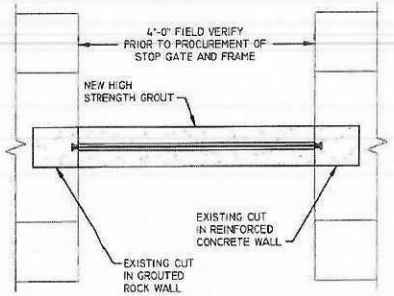


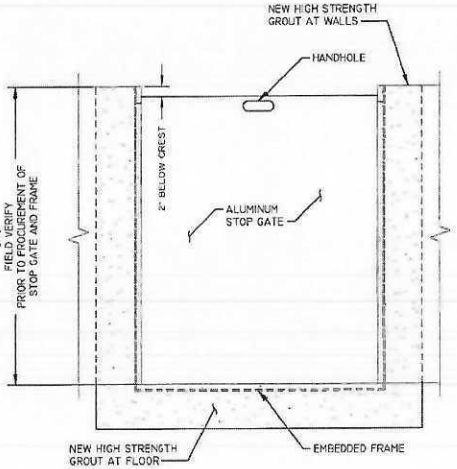
NOTES:

1. LOUVER TO BE CONSTRUCTED OF 3/8" 316 SS PLATE.
2. LOUVER COLLAR SECTION TO SLIDE OVER MAIN BODY. SHOP TEST PRIOR TO SHIPMENT.
3. PROVIDE 1/4" ALUMINUM PLATE WITH 3" X 6" HAND HOLE. PLATE TO BE 46" H X 42" WIDE.

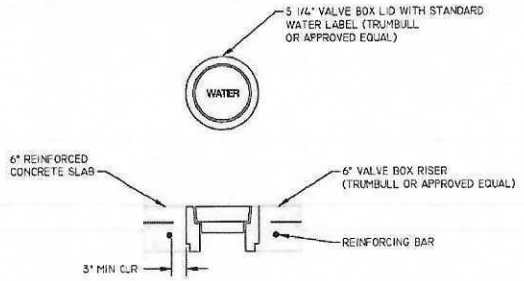


2 INTAKE LOUVER
NTS





3 REMOVABLE FLUSHING GATE
NTS



4 VALVE CAPS
NTS

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SANITATION FACILITIES CONSTRUCTION
650 CAPITAL MALL, SUITE 7-100
SACRAMENTO, CA 95814
(916) 930-3981

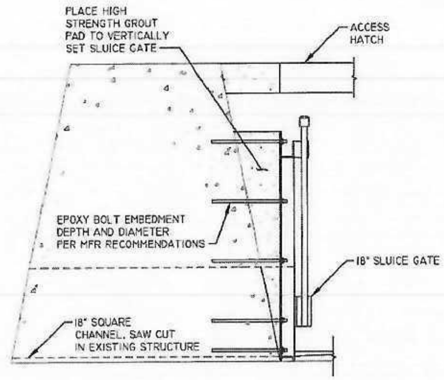
DETAILS I

TULE RIVER, CA.
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

DRAWN BY: JEH
CHECKED BY: JAW
APPROVED BY: LPH
FILE NAME: CA-24-001-DTWTSC
LAYOUT NAME: C-501
PROJ ENG: MR
SCALE: 1/2" = 1'-0"

C-501

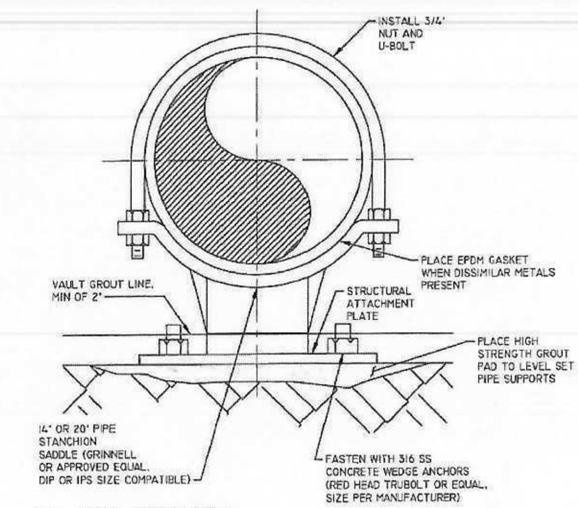
SHEET 7 OF 12



1 SLUICE GATE
NTS

NOTE:

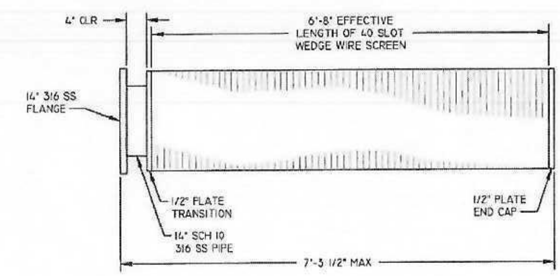
OVER EXCAVATE ROCK TO GROUT AND SET PIPE SUPPORT TO ELEVATION, MINIMIZE.



2 PIPE SUPPORT
NTS

NOTE:

WHEN CONNECTING TO DI, INSTALL DIELECTRIC FLANGE KIT



3 SCREEN
NTS

DATE	REVISIONS	INIT.

LICENSED PROFESSIONAL ENGINEER · JOSH PAUL HUNT · 786 · EXP 6/30/2020 · CIVIL · STATE OF CALIFORNIA

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SANITATION FACILITIES CONSTRUCTION
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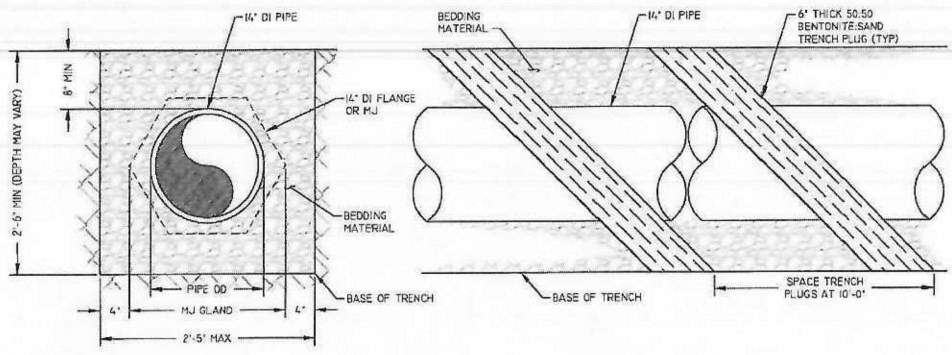
INDIAN HEALTH SERVICE 1955

DETAILS II
TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

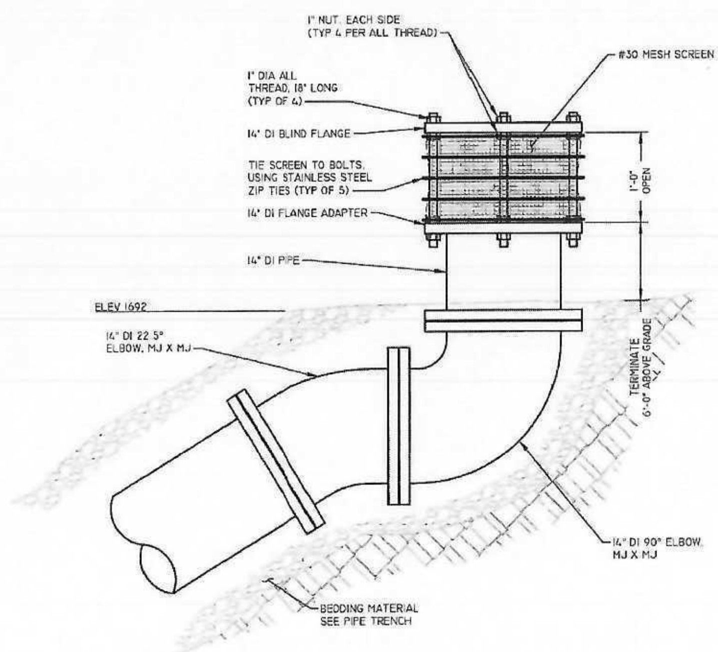
DRAWN BY: JEH	FILE NAME: CA-24-001-DTMISC
CHECKED BY: JAW	LAYOUT NAME: C-502
APPROVED BY: LPH	PROJ ENG: MR SCALE: 1/2" = 1'-0"

C-502
SHEET
8 OF 12



1 PIPE TRENCH

NTS



2 AIR VENT

NTS

DATE	REVISIONS	INIT.

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SANITATION FACILITIES CONSTRUCTION
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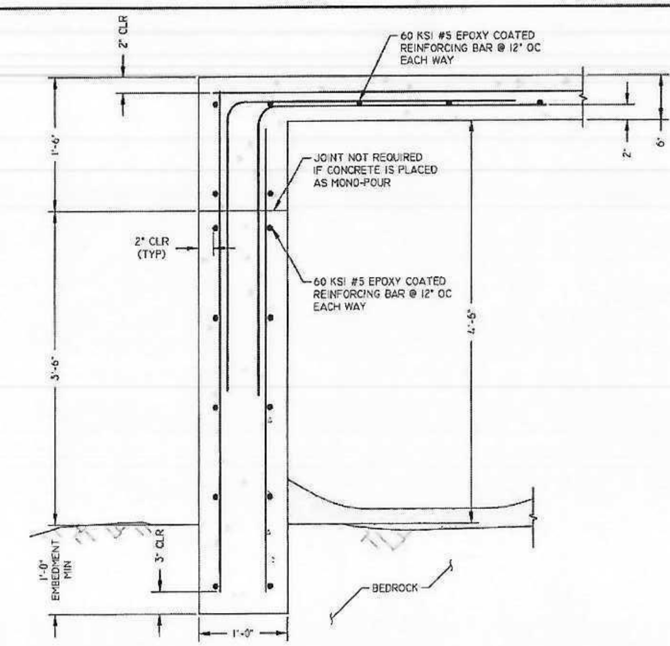
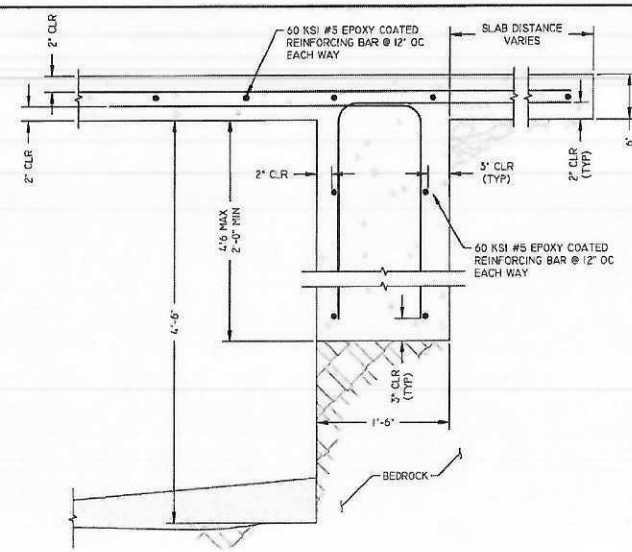
DETAILS III
TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

DRAWN BY: JEH	FILE NAME: CA-24-001-DTMISC
CHECKED BY: JAW	LAYOUT NAME: C-503
APPROVED BY: LPH	PROJ ENG: MR SCALE: 1/2" = 1'-0"

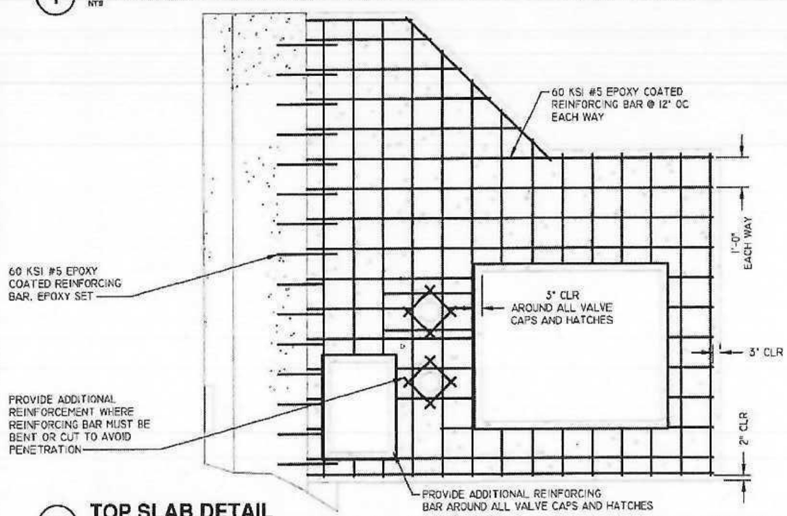
C-503
SHEET 9 OF 12



1 WALL DETAIL A
NTS



2 WALL DETAIL B
NTS



3 TOP SLAB DETAIL
NTS

DATE	REVISIONS	INIT.

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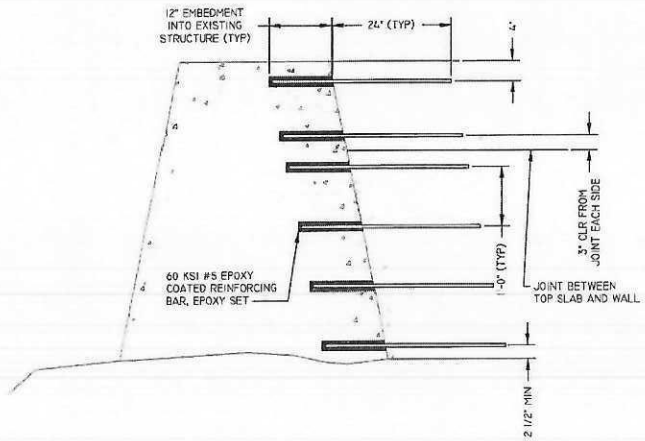
DETAILS IV
TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

DRAWN BY: JEH
CHECKED BY: JAW
APPROVED BY: LPH
FILE NAME: CA-24-001-DTMISC
LAYOUT NAME: C-504
PROJ ENG. MR
SCALE: 1/2" = 1'-0"

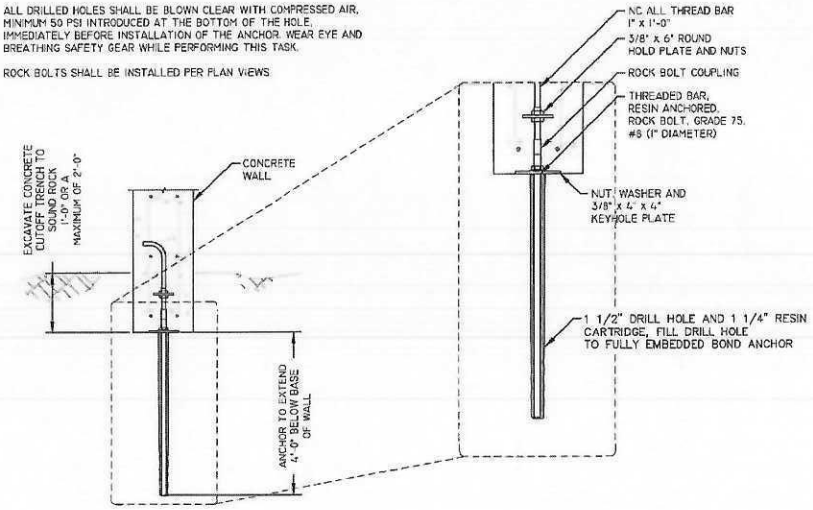
C-504
SHEET 10 OF 12



1 WALL CONNECTION TO EXISTING STRUCTURE
NTS

NOTES:

1. ROCK BOLTS SHALL BE WILLIAMS FORM ENGINEERING POLYESTER RESIN ROCK ANCHOR SYSTEM OR EQUAL. TORQUE ROCK BOLTS TO 400 FT-LBS.
2. ALL DRILLED HOLES SHALL BE BLOWN CLEAR WITH COMPRESSED AIR, MINIMUM 50 PSI INTRODUCED AT THE BOTTOM OF THE HOLE, IMMEDIATELY BEFORE INSTALLATION OF THE ANCHOR. WEAR EYE AND BREATHING SAFETY GEAR WHILE PERFORMING THIS TASK.
3. ROCK BOLTS SHALL BE INSTALLED PER PLAN VIEWS.



2 WALL ROCK ANCHORING
NTS

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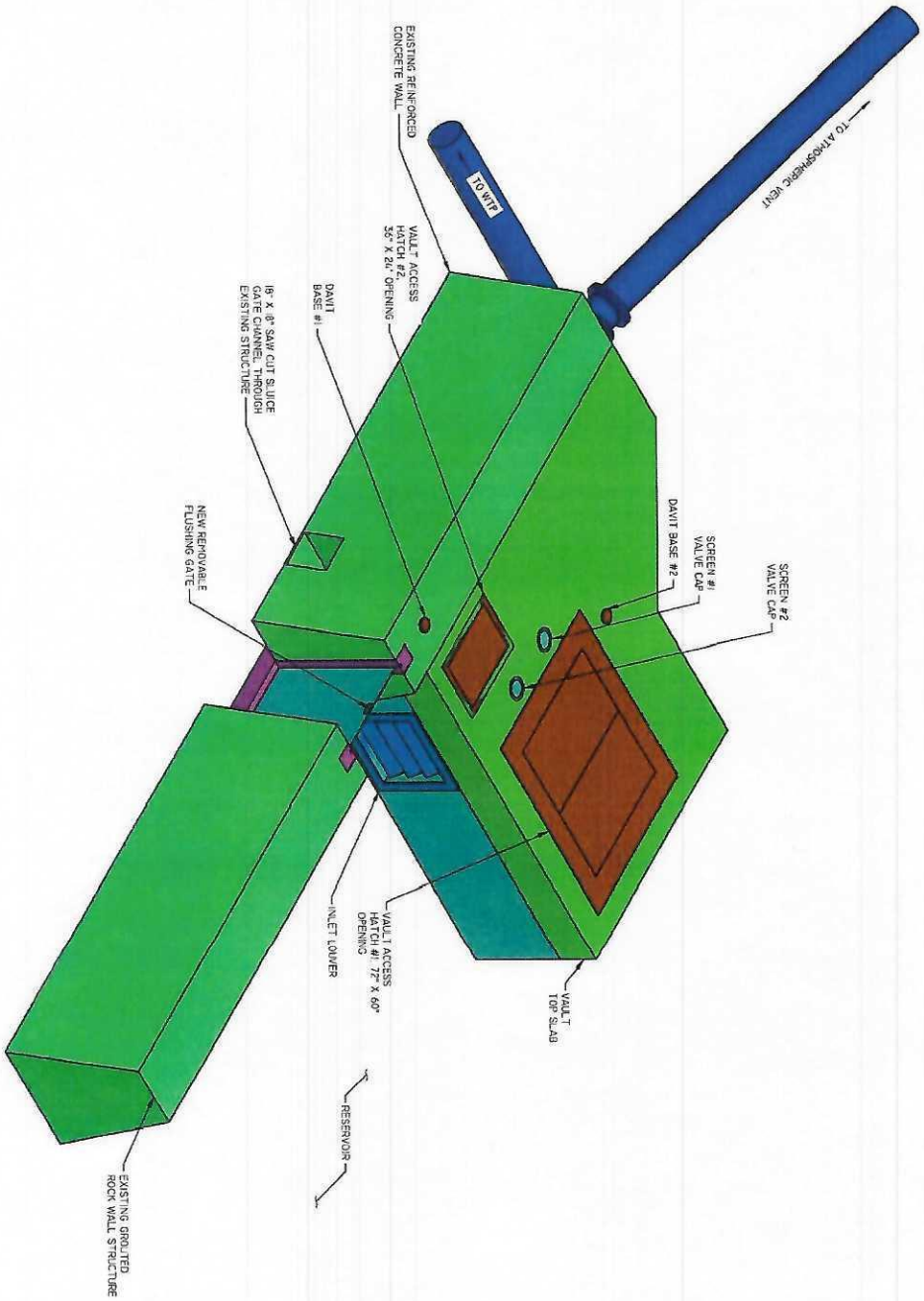
DETAILS V
TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564
PUBLIC LAW 86-121

DRAWN BY: JEH
CHECKED BY: JAW
APPROVED BY: LPH
FILE NAME: Ca-24-001-BTM/SC
LAYOUT NAME: C-505
PROJ ENG: MR
SCALE: 1/2" = 1'-0"

C-505
SHEET
11 OF 12



ISOMETRIC DRAWING

TULE RIVER, CA
TULE RIVER EMERGENCY WATER PROJECT
PUBLIC LAW 86-121
DWR AGREEMENT NO. 4600015434/BOR- R24AP00564

DRAWN BY: JEH
CHECKED BY: JAW
APPROVED BY: LPH

FILE NAME: CA-24-001-DTINTK
LAYOUT NAME: C-901
PROJ ENG: MR
SCALE: 1/8" = 1'-0"

SHEET 12 OF 12
C-901

INDIAN HEALTH SERVICE 1955

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