

CITY OF COMBES
MICRO/SMALL PURCHASE VENDOR QUOTE FORM
ARPA #2403

RETURN QUOTE TO:		FROM COMPANY:	
Contact Name:	Aida Gutierrez	Contact Name:	
Entity Name:	City Administrator	Company Name:	
Address:	21626 Hand Road	Address:	
City, State & Zip:	Combes, Texas 78535	City, State & Zip:	
Phone:	956.425.7131	Phone:	
Fax:	n/A	Fax:	
E-mail:	agutierrez@townofcombes.com agutierrez@townofcombes.com	E-mail:	

Quotes per the specifications must be received by:	<u>December 10, 2024, by 1:30pm</u>
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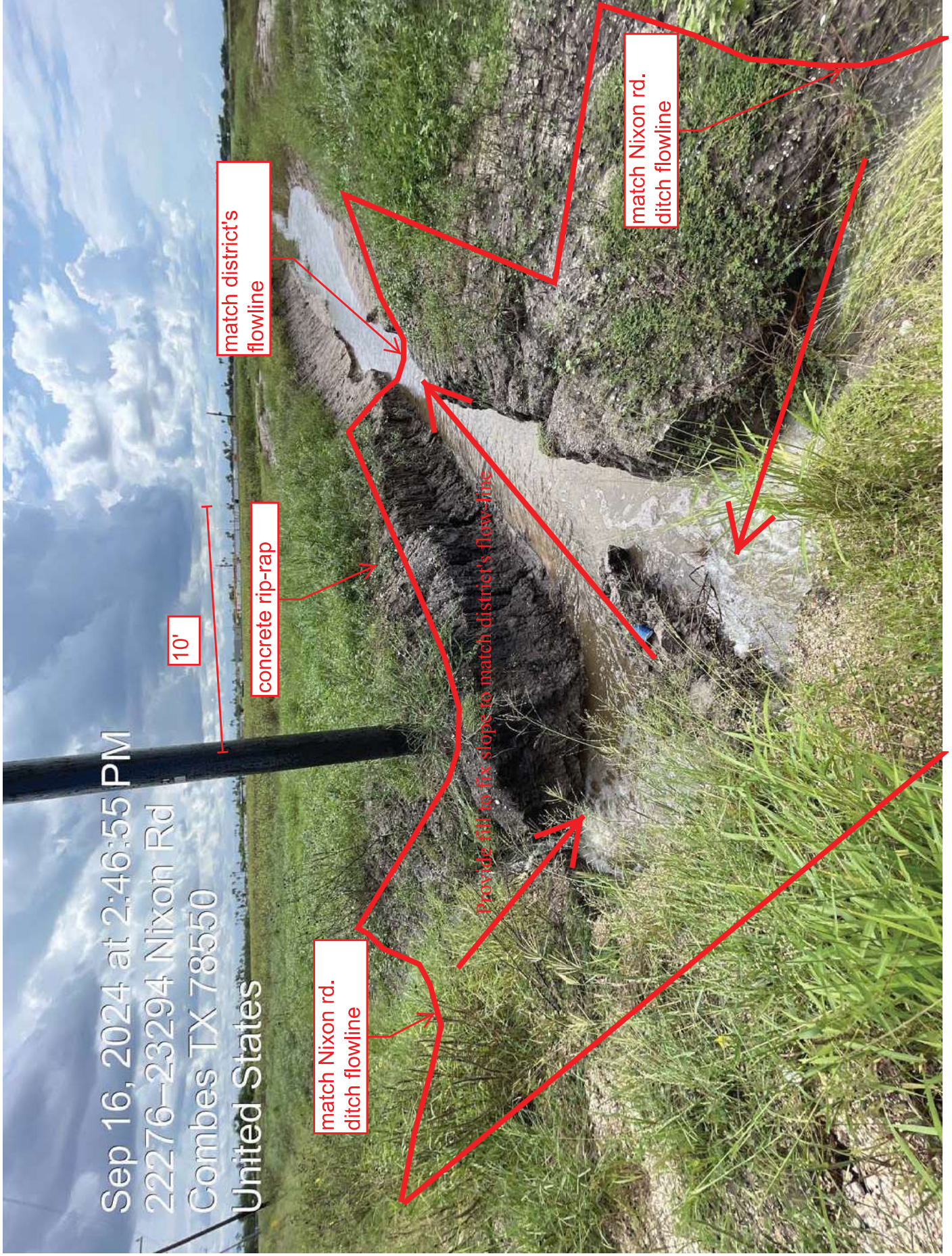
ITEM	DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
	Equal or Equivalent to			
1	Provide 55 square yards of fill and prepare a uniform slope from Nixon roadside ditch flowline to Drainage District No.5's flowline. (See Exhibit); Compact fill material; Provide 55 square yards of 4000 PSI concrete for concrete rip rap with a thickness of 6 inches; Footings to be constructed (4" thick and 1 foot deep); Reinforce with 6x6 No.6 welded wire fabric; Provide construction joints in between pours and expansion joints every 15'-00"; Broom Finish concrete riprap. See attachments			
	TOTAL			

Vendor agrees to have the Goods/Services completed and delivered on or before date indicated. *Any adjustments to the agreed upon delivery dates/times must be provided in writing.	Date:	
Is your company currently involved in any active litigation?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is your company registered with the System for Award Management (SAM.gov)? <i>(Attach proof of verification from SAM.gov with your returned quote)</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, please provide your SAM Unique Entity ID Number and document	Number:	
Sign Non-Debarment Self-Certification, attached	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is the company a Historically Underutilized Business (HUB) vendor?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is your company currently involved in any mergers or acquisitions?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The Vendor agrees that the quote provided will be valid for at least thirty (30) days unless otherwise indicated in the quote specifications.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The selected vendor agrees that Form 1295, Certificate of Interested Parties will be completed as required by the Texas Ethics Commission (and as applicable to the jurisdiction). Submit a signed Form 1295	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Vendor agrees to comply with the Standards of Conduct/Conflict of Interest Policy of City.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Company Representative Printed Name:	Signature:
Title:	Date:

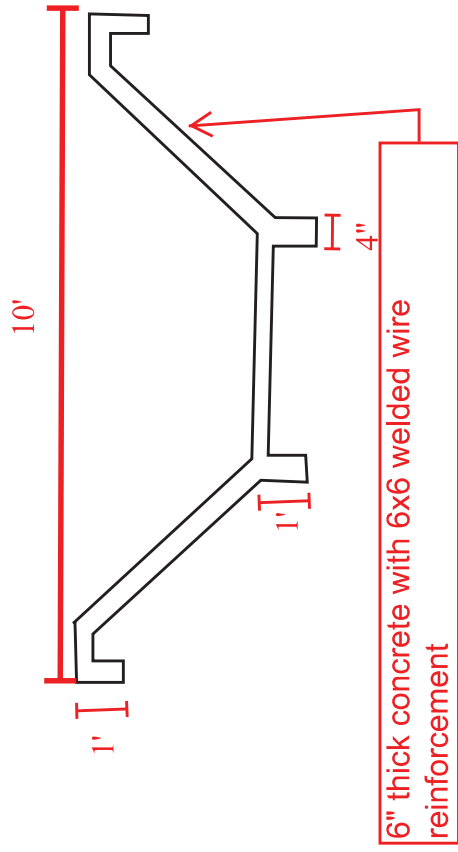
NOTE: THE VENDOR QUOTE FORM MUST BE SIGNED BY A COMPANY OFFICER OR AN AUTHORIZED AGENT FOR THIS QUOTE TO BE CONSIDERED VALID BY City of Combes. ALSO, BEFORE PAYMENT ISSUED ALL DOCUMENTS NEED TO BE SUBMITTED - (FEDERAL & AMERICAN RESCUE PLAN GUIDELINES)

Exhibit



Exhibit

Total Area for Concrete: 55 SY
Total Area for Fill: 55 SY

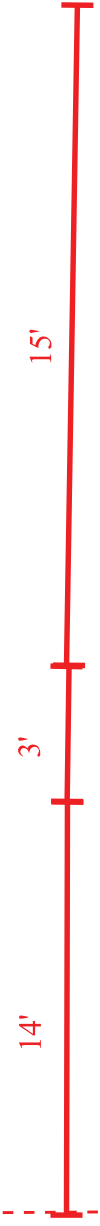


Match Nixon Rd. Ditch flow-line (South)

6" thick concrete with 6x6 welded wire reinforcement

Match Nixon Rd. Ditch flow-line (North)

Nixon Rd.
CL



Match District's Ditch flow-line (West)



Technical Specifications

Section 03300
CAST-IN-PLACE CONCRETE

1.00 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor and materials required and install cast in place concrete complete as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Concrete Formwork is included in Section 03100.
- B. Concrete Reinforcement is included in Section 03200.
- C. Concrete Joints and Joint Accessories are included in Section 03250.
- D. Concrete Finishes are included in Section 03350.
- E. Grout is included in Section 03600.

1.03 SUBMITTALS

- A. Submit to the Engineer, in accordance with Section 01300, shop drawings and product data including the following:
 - 1. Sources of cement, pozzolan and aggregates.
 - 2. Material Safety Data Sheets (MSDS) for all concrete components and admixtures.
 - 3. Air entraining admixture. Product data including catalogue cut, technical data, storage requirements, product life, recommended dosage, temperature considerations and conformity to ASTM standards.
 - 4. Water-reducing admixture. Product data including catalogue cut, technical data, storage requirements, product life, recommended dosage, temperature considerations and conformity to ASTM standards.
 - 5. High-range water reducing admixture (plasticizer). Product data including catalogue cut, technical data, storage requirements, product life, recommended dosage, temperature considerations, retarding effect, slump range and conformity to ASTM standards. Identify proposed locations of use.
 - 6. Concrete mix for each formulation of concrete proposed for use including constituent quantities per cubic yard, water-cementitious materials ratio, concrete slump, type and manufacturer of cement. Provide either a. or b. below for each mix proposed.
 - a. Standard deviation data for each proposed concrete mix based on statistical records.
 - b. The curve of water-cementitious materials ratio versus concrete cylinder strength for each formulation of concrete proposed based on laboratory tests. The cylinder strength shall be the average of the 28 day cylinder strength test results for each mix. Provide results of 7 and 14 day tests if available.
 - 7. Sheet curing material. Product data including catalogue cut, technical data and conformity to ASTM standard.
 - 8. Liquid curing compound. Product data including catalogue cut, technical data, storage requirements, product life, application rate and conformity to ASTM standards. Identify proposed locations of use.

B. Samples

1. Fine and coarse aggregates if requested by the Engineer.

C. Test Reports

1. Fine aggregates - sieve analysis, physical properties, and deleterious substance.
2. Coarse aggregates - sieve analysis, physical properties, and deleterious substances.
3. Cements - chemical analysis and physical properties for each type.
4. Pozzolans - chemical analysis and physical properties.
5. Proposed concrete mixes - compressive strength, slump and air content.

D. Certifications

1. Certify admixtures used in the same concrete mix are compatible with each other and the aggregates.
2. Certify admixtures are suitable for use in contact with potable water after 30 days of concrete curing.
3. Certify curing compound is suitable for use in contact with potable water after 30 days (non toxic and free of taste or odor).

1.04 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

1. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
2. ASTM C33 - Standard Specification for Concrete Aggregates.
3. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
4. ASTM C42 - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
5. ASTM C94 - Standard Specification for Ready Mixed Concrete.
6. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete
7. ASTM C150 - Standard Specification for Portland Cement
8. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete
9. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
10. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
11. ASTM C260 - Standard Specification for Air Entraining Admixtures for Concrete.
12. ASTM C309 - Standard Specification for Liquid Membrane Forming Compounds for Curing Concrete.
13. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.

14. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
15. ASTM C1017 - Standard Specification for Chemical Admixtures for use in Producing Flowing Concrete.

B. American Concrete Institute (ACI).

1. ACI 304 - Guide for Measuring, Mixing, Transporting and Placing Concrete.
2. ACI 305 - Hot Weather Concreting.
3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
4. ACI 318 - Building Code Requirements for Structural Concrete.
5. ACI 350 - Environmental Engineering Concrete Structures.
6. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. Reinforced concrete shall comply with ACI 318, the recommendations of ACI 350R and other stated requirements, codes and standards. The most stringent requirement of the codes, standards and this Section shall apply when conflicts exist.
- B. Only one source of cement and aggregates shall be used on any one structure. Concrete shall be uniform in color and appearance.
- C. Well in advance of placing concrete, discuss with the Engineer the sources of individual materials and batched concrete proposed for use. Discuss placement methods, waterstops and curing. Propose methods of hot and cold weather concreting as required. Prior to the placement of any concrete containing a high-range water-reducing admixture (plasticizer), the Contractor, accompanied by the plasticizer manufacturer, shall discuss the properties and techniques of batching and placing plasticized concrete. If, during the progress of the work, it is impossible to secure concrete of the required workability and strength with the materials being furnished, the Engineer may order such changes in proportions or materials, or both, as may be necessary to secure the desired properties. All changes so ordered shall be made at the Contractor's expense.
- D. If, during the progress of the work, the materials from the sources originally accepted change in characteristics, the Contractor shall, at his/her expense, make new acceptance tests of aggregates and establish new design mixes.
- E. Testing of the following materials shall be furnished by Contractor to verify conformity with this Specification Section and the stated ASTM Standards.
 1. Fine aggregates for conformity with ASTM C33 - sieve analysis, physical properties, and deleterious substances.
 2. Coarse aggregates for conformity with ASTM C33 - sieve analysis, physical properties, and deleterious substances.
 3. Cements for conformity with ASTM C150 - chemical analysis and physical properties.
 4. Pozzolans for conformity with ASTM C618 - chemical analysis and physical properties.
 5. Proposed concrete mix designs - compressive strength, slump and air content.

- F. Field testing and inspection services will be provided by the Owner. The cost of such work, except as specifically stated otherwise, shall be paid by the Owner. Testing of the following items shall be by the Owner to verify conformity with this Specification Section.
 - 1. Concrete placements - compressive strength (cylinders), compressive strength (cores), slump, and air content.
 - 2. Other materials or products that may come under question.
- G. All materials incorporated in the work shall conform to accepted samples.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Cement: Store in weathertight buildings, bins or silos to provide protection from dampness and contamination and to minimize warehouse set.
- B. Aggregate: Arrange and use stockpiles to avoid excessive segregation or contamination with other materials or with other sizes of like aggregates. Build stockpiles in successive horizontal layers not exceeding 3-ft in thickness. Complete each layer before the next is started. Do not use frozen or partially frozen aggregate.
- C. Sand: Arrange and use stockpiles to avoid contamination. Allow sand to drain to uniform moisture content before using. Do not use frozen or partially frozen aggregates.
- D. Admixtures: Store in closed containers to avoid contamination, evaporation or damage. Provide suitable agitating equipment to assure uniform dispersion of ingredients in admixture solutions which tend to separate. Protect liquid admixtures from freezing and other temperature changes which could adversely affect their characteristics.
- E. Pozzolan: Store in weathertight buildings, bins or silos to provide protection from dampness and contamination.
- F. Sheet Curing Materials: Store in weathertight buildings or off the ground and under cover.
- G. Liquid Curing Compounds: Store in closed containers.

2.00 PRODUCTS

2.01 GENERAL

- A. The use of manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.
- B. Cement: U.S. made portland cement complying with ASTM C150. Air entraining cements shall not be used. Cement brand shall be subject to approval by the Engineer and one brand shall be used throughout the Work. The following cement type(s) shall be used:

2.02 MATERIALS

- A. Materials shall comply with this Section and any applicable State or local requirements.
- B. Cement: Domestic portland cement complying with ASTM C150. Air entraining cements shall not be used. Cement brand shall be subject to approval by the Engineer and one brand shall be used throughout the Work. The following cement type(s) shall be used:
 - 1. Class A,B,C,D Concrete - Type II with the addition of fly ash resulting in C3A being below 5 percent of total cementitious content, Type III limited to 5 percent C3A or Type V.

- C. Fine Aggregate: Washed inert natural sand conforming to the requirements of ASTM C33.
- D. Coarse Aggregate: Well graded crushed stone or washed gravel conforming to the requirements of ASTM C33. Grading requirements shall be as listed in ASTM C33 Table 2 for the specified coarse aggregate size number. Limits of Deleterious Substances and Physical Property Requirements shall be as listed in ASTM C33 Table 3 for severe weathering regions. Size numbers for the concrete mixes shall be as shown in Table 1 herein.
- E. Water: Potable water free from injurious amounts of oils, acids, alkalis, salts, organic matter, or other deleterious substances.
- F. Admixtures: Admixtures shall be free of chlorides and alkalis (except for those attributable to water). When it is required to use more than one admixture in a concrete mix, the admixtures shall be from the same manufacturer. Admixtures shall be compatible with the concrete mix including other admixtures and shall be suitable for use in contact with potable water after 30 days of concrete curing.
 - 1. Air-Entraining Admixture: The admixture shall comply with ASTM C260. Proportioning and mixing shall be in accordance with manufacturer's recommendations.
 - 2. Water-Reducing Agent: The admixture shall comply with ASTM C494, Type A. Proportioning and mixing shall be in accordance with manufacturer's recommendations.
 - 3. High Range Water-Reducer (Plasticizer): The admixture shall comply with ASTM C494, Type F and shall result in non segregating plasticized concrete with little bleeding and with the physical properties of low water/cement ratio concrete. The treated concrete shall be capable of maintaining its plastic state in excess of 2 hours. Proportioning and mixing shall be in accordance with manufacturer's recommendations.
 - 4. Admixtures causing retarded or accelerated setting of concrete shall not be used without written approval from the Engineer. When allowed, the admixtures shall be retarding or accelerating water reducing or high range water reducing admixtures.
- G. Pozzolan (Fly Ash) Pozzolan shall be Class C or Class F fly ash complying with ASTM C618 except the Loss on Ignition (LOI) shall be limited to 3 percent maximum.
- H. Sheet Curing Materials. Waterproof paper, polyethylene film or white burlap polyethylene sheeting all complying with ASTM C171.
- I. Liquid Curing Compound. Liquid membrane forming curing compound shall comply with the requirements of ASTM C309, Type 1 D (clear or translucent with fugitive dye) and shall contain no wax, paraffin, or oil. Curing compound shall be approved for use in contact with potable water after 30 days (non toxic and free of taste or odor).

2.03 MIXES

- A. Development of mix designs and testing shall be by an independent testing laboratory acceptable to the Engineer engaged by and at the expense of the Contractor.
- B. Select proportions of ingredients to meet the design strength and materials limits specified in Table 1 and to produce concrete having proper placability, durability, strength, appearance and other required properties. Proportion ingredients to produce a homogenous mixture which will readily work into corners and angles of forms and around reinforcement without permitting materials to segregate or allowing excessive free water to collect on the surface.
- C. The design mix shall be based on standard deviation data of prior mixes with essentially the same proportions of the same constituents or, if such data is not available, be developed by a testing laboratory, acceptable to the Engineer, engaged by and at the expense of the Contractor. Acceptance of mixes based on standard deviation shall be based on the modification factors for standard deviation tests contained in ACI 318. The water content of the concrete mix, determined by laboratory testing, shall be based on a

curve showing the relation between water cementitious ratio and 7 and 28 day compressive strengths of concrete made using the proposed materials. The curves shall be determined by four or more points, each representing an average value of at least three test specimens at each age. The curves shall have a range of values sufficient to yield the desired data, including the specified design strengths as modified below, without extrapolation. The water content of the concrete mixes to be used, as determined from the curve, shall correspond to strengths 16 percent greater than the specified design strengths. The resulting mix shall not conflict with the limiting values for maximum water cementitious ratio and net minimum cementitious content as specified in Table 1.

- D. Compression Tests: Provide testing of the proposed concrete mix or mixes to demonstrate compliance with the specified design strength requirements in conformity with the above paragraph.
- E. Entrained air, as measured by ASTM C231, shall be as shown in Table 1.
 - 1. If the air-entraining agent proposed for use in the mix requires testing methods other than ASTM C231 to accurately determine air content, make special note of this requirement in the admixture submittal.
- F. Slump of the concrete as measured by ASTM C143, shall be as shown in Table 1. If a high-range water-reducer (plasticizer) is used, the slump indicated shall be that measured before plasticizer is added. Plasticized concrete shall have a slump ranging from 7 to 10-in.
- G. Proportion admixtures according to the manufacturer's recommendations. Two or more admixtures specified may be used in the same mix provided that the admixtures in combination retain full efficiency and have no deleterious effect on the concrete or on the properties of each other.

TABLE 1
CONCRETE MIX REQUIREMENTS

Class	Design Strength (1)	Cement (2)	Fine Aggregate (2)	Coarse Aggregate (3)	Cementitious Content (4)
A	2500	C150 Type II	C33	57	440 min.
B	3000	C150 Type II	C33	57	480 min.
C	4000	C150 Type II	C33	57	560 min.
D	5000	C150 Type II	C33	57	600 min.

Class	W/Cm Ratio (5)	Fly Ash	AE Range (6)	WR (7)	Slump HRWR (8)	Range Inches
A	0.62 max.	--	3.5 to 5	Yes	*	1-4
B	0.54 max.	--	3.5 to 5	Yes	*	1-3
C	0.44 max.	25% max	3.5 to 5	Yes	*	3-5
D	0.40 max.	--	3.5 to 5	Yes	*	3-5

NOTES:

(1) Minimum compressive strength in psi at 28 days

- (2) ASTM designation
- (3) Size Number in ASTM C33
- (4) Cementitious content in lbs/cu yd
- (5) W/Cm is Water-Cementitious ratio by weight
- (6) AE is percent air-entrainment
- (7) WR is water-reducer admixture
- (8) HRWR is high-range water-reducer admixture
- * HRWR used at contractor's option

3.00 EXECUTION

3.01 MEASURING MATERIALS

- A. Concrete shall be composed of portland cement, fine aggregate, coarse aggregate, water and admixtures as specified and shall be produced by a plant acceptable to the Engineer. All constituents, including admixtures, shall be batched at the plant except a high-range water-reducer may also be added in the field.
- B. Measure materials for batching concrete by weighing in conformity with and within the tolerances given in ASTM C94 except as otherwise specified. Scales shall have been certified by the local Sealer of Weights and Measures within 1 year of use.
- C. Measure the amount of free water in fine aggregates within 0.3 percent with a moisture meter. Compensate for varying moisture contents of fine aggregates. Record the number of gallons of water as batched on printed batching tickets.
- D. Admixtures shall be dispensed either manually using calibrated containers or measuring tanks, or by means of an automatic dispenser approved by the manufacturer of the specific admixture.
 - 1. Charge air entraining and chemical admixtures into the mixer as a solution using an automatic dispenser or similar metering device.
 - 2. Inject multiple admixtures separately during the batching sequence.

3.02 MIXING AND TRANSPORTING

- A. Batch plants shall have a current NRMCA Certification or equal.
- B. Concrete shall be ready mixed concrete produced by equipment acceptable to the Engineer. No hand mixing will be permitted. Clean each transit mix truck drum and reverse drum rotation before the truck proceeds under the batching plant. Equip each transit mix truck with a continuous, nonreversible, revolution counter showing the number of revolutions at mixing speeds.
- C. Ready mix concrete shall be transported to the site in watertight agitator or mixer trucks loaded not in excess of their rated capacities as stated on the name plate.
- D. Keep the water tank valve on each transit truck locked at all times. Any addition of water above the appropriate W/Cm ratio must be directed by the Engineer. Added water shall be incorporated by additional mixing of at least 35 revolutions. All added water shall be metered and the amount of water added shall be shown on each delivery ticket.
- E. All central plant and rolling stock equipment and methods shall comply with ACI 318 and ASTM C94.
- F. Select equipment of size and design to ensure continuous flow of concrete at the delivery end. Metal or metal lined non aluminum discharge chutes shall be used and shall have slopes not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 20-ft long and chutes not meeting slope requirements may be used if concrete is discharged into a hopper before distribution.

- G. Retempering (mixing with or without additional cement, aggregate, or water) of concrete or mortar which has reached initial set will not be permitted.
- H. Handle concrete from mixer to placement as quickly as practicable while providing concrete of required quality in the placement area. Dispatch trucks from the batching plant so they arrive at the work site just before the concrete is required, thus avoiding excessive mixing of concrete while waiting or delays in placing successive layers of concrete in the forms.
- I. Furnish a delivery ticket for ready mixed concrete to the Engineer as each truck arrives. Each ticket shall provide a printed record of the weight of cement and each aggregate as batched individually. Use the type of indicator that returns for zero punch or returns to zero after a batch is discharged. Clearly indicate the weight of fine and coarse aggregate, cement and water in each batch, the quantity delivered, the time any water is added, and the numerical sequence of the delivery. Show the time of day batched and time of discharge from the truck. Indicate the number of revolutions of the truck mixer.
- J. Temperature and Mixing Time Control
 - 1. In cold weather, do not allow the as mixed temperature of the concrete and concrete temperatures at the time of placement in the forms to drop below 40 degrees F.
 - 2. If water or aggregate has been heated, combine water with aggregate in the mixer before cement is added. Do not add cement to mixtures of water and aggregate when the temperature of the mixture is greater than 90 degrees F.
 - 3. In hot weather, cool ingredients before mixing to maintain temperature of the concrete below the maximum placing temperature of 90 degrees F. If necessary, substitute well crushed ice for all or part of the mixing water.
 - 4. The maximum time interval between the addition of mixing water and/or cement to the batch and the placing of concrete in the forms shall not exceed the values shown in Table 2.

TABLE 2

MAXIMUM TIME TO DISCHARGE OF CONCRETE

<u>Air or Concrete Temperature (whichever is higher)</u>	<u>Maximum Time</u>
80 to 90 Degree F (27 to 32 Degree C)	45 minutes
70 to 79 Degree F (21 to 26 Degree C)	60 minutes
40 to 69 Degree F (5 to 20 Degree C)	90 minutes

- K. If an approved high-range water-reducer (plasticizer) is used to produce plasticized concrete, the maximum time interval shall not exceed 90 minutes.

3.03 CONCRETE APPEARANCE

- A. Concrete mix showing either poor cohesion or poor coating of the coarse aggregate with paste shall be remixed. If this does not correct the condition, the concrete shall be rejected. If the slump is within the allowable limit, but excessive bleeding, poor workability, or poor finishability are observed, changes in the concrete mix shall be obtained only by adjusting one or more of the following:
 - 1. The gradation of aggregate.
 - 2. The proportion of fine and coarse aggregate.
 - 3. The percentage of entrained air, within the allowable limits.

- B. Concrete for the work shall provide a homogeneous structure which, when hardened, will have the required strength, durability and appearance. Mixtures and workmanship shall be such that concrete surfaces, when exposed, will require no finishing. When concrete surfaces are stripped, the concrete, when viewed in good lighting from 10-ft away, shall be pleasing in appearance, and at 20-ft shall show no visible defects.

3.04 PLACING AND COMPACTING

A. Placing

1. Verify that all formwork completely encloses concrete to be placed and is securely braced prior to concrete placement. Remove ice, excess water, dirt and other foreign materials from forms. Confirm that reinforcement and other embedded items are securely in place. Have a competent workman at the location of the placement who can assure that reinforcing steel and embedded items remain in designated locations while concrete is being placed. Sprinkle semi porous subgrades or forms to eliminate suction of water from the mix. Seal extremely porous subgrades in an approved manner.
2. Deposit concrete as near its final position as possible to avoid segregation due to rehandling or flowing. Place concrete continuously at a rate which ensures the concrete is being integrated with fresh plastic concrete. Do not deposit concrete which has partially hardened or has been contaminated by foreign materials or on concrete which has hardened sufficiently to cause formation of seams or planes of weakness within the section. If the section cannot be placed continuously, place construction joints as specified or as approved.
3. Pumping of concrete will be permitted. Use a mix design and aggregate sizes suitable for pumping and submit for approval.
4. Remove temporary spreaders from forms when the spreader is no longer useful. Temporary spreaders may remain embedded in concrete only when made of galvanized metal or concrete and if prior approval has been obtained.
5. Do not place concrete for supported elements until concrete previously placed in the supporting element (columns, slabs and/or walls) has reached adequate strength.
6. Where surface mortar is to form the base of a finish, especially surfaces designated to be painted, work coarse aggregate back from forms with a suitable tool to bring the full surface of the mortar against the form. Prevent the formation of excessive surface voids.
7. Slabs
 - a. After suitable bulkheads, screeds and jointing materials have been positioned, the concrete shall be placed continuously between construction joints beginning at a bulkhead, edge form, or corner. Each batch shall be placed into the edge of the previously placed concrete to avoid stone pockets and segregation.
 - b. Avoid delays in casting. If there is a delay in casting, the concrete placed after the delay shall be thoroughly spaded and consolidated at the edge of that previously placed to avoid cold joints. Concrete shall then be brought to correct level and struck off with a straightedge. Bullfloats or darbies shall be used to smooth the surface, leaving it free of humps or hollows.
 - c. Where slabs are to be placed integrally with the walls below them, place the walls and compact as specified. Allow 1 hour to pass between placement of the wall and the overlying slab to permit consolidation of the wall concrete. Keep the top surface of the wall moist so as to prevent cold joints.
8. Formed Concrete
 - a. Place concrete in forms using tremie tubes and taking care to prevent segregation. Bottom of tremie tubes shall preferably be in contact with the concrete already placed. Do not permit concrete to drop freely more than 4-ft. Place concrete for walls in 12 to 24 in lifts, keeping the

surface horizontal. If plasticized concrete is used, the maximum lift thickness may be increased to 7-ft and the maximum free fall of concrete shall not exceed 15-ft.

9. Underwater concreting shall be performed in conformity with the recommendations of ACI 304R. The tremie system shall be used to place underwater concrete. Tremie pipes shall be in the range of 8 to 12-in in diameter and be spaced at not more than 16-ft on centers nor more than 8-ft from an end form. Where concrete is being placed around a pipe, there shall be at least one tremie pipe on each side of each pipe. Where the tremie system is not practical, direct pumped concrete for underwater placement may be used subject to approval of the system including details by the Engineer.

B. Compacting

1. Consolidate concrete by vibration, puddling, spading, rodding or forking so that concrete is thoroughly worked around reinforcement, embedded items and openings and into corners of forms. Puddling, spading, etc, shall be continuously performed along with vibration of the placement to eliminate air or stone pockets which may cause honeycombing, pitting or planes of weakness.
2. All concrete shall be placed and compacted with mechanical vibrators. The number, type and size of the units shall be approved by the Engineer in advance of placing operations. No concrete shall be ordered until sufficient approved vibrators (including standby units in working order) are on the job.
3. A minimum frequency of 7000 rpm is required for mechanical vibrators. Insert vibrators and withdraw at points from 18 to 30-in apart. At each insertion, vibrate sufficiently to consolidate concrete, generally from 5 to 15 seconds. Do not over vibrate so as to segregate. Keep a spare vibrator on the site during concrete placing operations.
4. Concrete Slabs: Concrete for slabs less than 8 in thick shall be consolidated with vibrating screeds; slabs 8 to 12 in thick shall be compacted with internal vibrators and (optionally) with vibrating screeds. Vibrators shall always be placed into concrete vertically and shall not be laid horizontally or laid over.
5. Walls and Columns: Internal vibrators (rather than form vibrators) shall be used unless otherwise approved by the Engineer. In general, for each vibrator needed to melt down the batch at the point of discharge, one or more additional vibrators must be used to densify, homogenize and perfect the surface. The vibrators shall be inserted vertically at regular intervals, through the fresh concrete and slightly into the previous lift, if any.
6. Amount of Vibration: Vibrators are to be used to consolidate properly placed concrete but shall not be used to move or transport concrete in the forms. Vibration shall continue until:
 - a. Frequency returns to normal.
 - b. Surface appears liquefied, flattened and glistening.
 - c. Trapped air ceases to rise.
 - d. Coarse aggregate has blended into surface, but has not disappeared.

3.05 CURING AND PROTECTION

- A. Protect all concrete work against injury from the elements and defacements of any nature during construction operations.
- B. Curing Methods

1. Curing Methods for Concrete Surfaces: Cure concrete to retain moisture and maintain specified temperature at the surface for a minimum of 7 days after placement. Curing methods to be used are as follows:

- a. Water Curing: Keep entire concrete surface wet by ponding, continuous sprinkling or covered with saturated burlap. Begin wet cure as soon as concrete attains an initial set and maintain wet cure 24 hours a day.
 - b. Sheet Material Curing: Cover entire surface with sheet material. Securely anchor sheeting to prevent wind and air from lifting the sheeting or entrapping air under the sheet. Place and secure sheet as soon as initial concrete set occurs.
 - c. Liquid Membrane Curing: Apply over the entire concrete surface except for surfaces to receive additional concrete. Curing compound shall NOT be placed on any concrete surface where additional concrete is to be placed, where concrete sealers or surface coatings are to be used, or where the concrete finish requires an integral floor product. Curing compound shall be applied as soon as the free water on the surface has disappeared and no water sheen is visible, but not after the concrete is dry or when the curing compound can be absorbed into the concrete. Application shall be in compliance with the manufacturer's recommendations.
2. Specified applications of curing methods.
- a. Slabs for Water Containment Structures: Water curing only.
 - b. Slabs on Grade and Footings (not used to contain water): Water curing, sheet material curing or liquid membrane curing.
 - c. Structural Slabs (other than water containment): Water curing or liquid membrane curing.
 - d. Horizontal Surfaces which will Receive Additional Concrete, Coatings, Grout or Other Material that Requires Bond to the substrate: Water curing.
 - e. Formed Surfaces: None if nonabsorbent forms are left in place 7 days. Water cure if absorbent forms are used. Sheet cured or liquid membrane cured if forms are removed prior to 7 days. Exposed horizontal surfaces of formed walls or columns shall be water cured for 7 days or until next placement of concrete is made.
 - f. Concrete Joints: Water cured or sheet material cured.
- C. Finished surfaces and slabs shall be protected from the direct rays of the sun to prevent checking and crazing.
- D. Cold Weather Concreting:
1. "Cold weather" is defined as a period when for more than 3 successive days, the average daily outdoor temperature drops below 40 degrees F. The average daily temperature shall be calculated as the average of the highest and the lowest temperature during the period from midnight to midnight.
 2. Cold weather concreting shall conform to ACI 306.1 and the additional requirements specified herein. Temperatures at the concrete placement shall be recorded at 12 hour intervals (minimum).
 3. Discuss a cold weather work plan with the Engineer. The discussion shall encompass the methods and procedures proposed for use during cold weather including the production, transportation, placement, protection, curing and temperature monitoring of the concrete. The procedures to be implemented upon abrupt changes in weather conditions or equipment failures shall also be discussed. Cold weather concreting shall not begin until the work plan is acceptable to the Engineer.
 4. During periods of cold weather, concrete shall be protected to provide continuous warm, moist curing (with supplementary heat when required) for a total of at least 350 degree days of curing.
 - a. Degree days are defined as the total number of 24 hour periods multiplied by the weighted average daily air temperature at the surface of the concrete (eg: 5 days at an average 70 degrees F = 350 degree days).

- b. To calculate the weighted average daily air temperature, sum hourly measurements of the air temperature in the shade at the surface of the concrete taking any measurement less than 50 degrees F as 0 degrees F. Divide the sum thus calculated by 24 to obtain the weighted average temperature for that day.
 - 5. Salt, manure or other chemicals shall not be used for protection.
 - 6. The protection period for concrete being water cured shall not be terminated during cold weather until at least 24 hours after water curing has been terminated.
- E. Hot Weather Concreting
- 1. "Hot weather" is defined as any combination of high air temperatures, low relative humidity and wind velocity which produces a rate of evaporation estimated in accordance with ACI 305R, approaching or exceeding 0.2 lbs/sqft/hr).
 - 2. Concrete placed during hot weather, shall be batched, delivered, placed, cured and protected in compliance with the recommendations of ACI 305R and the additional requirements specified herein.
 - a. Temperature of concrete being placed shall not exceed 90 degrees F and every effort shall be made to maintain a uniform concrete mix temperature below this level. The temperature of the concrete shall be such that it will cause no difficulties from loss of slump, flash set or cold joints.
 - b. All necessary precautions shall be taken to promptly deliver, to promptly place the concrete upon its arrival at the job and to provide vibration immediately after placement.
 - c. The Engineer may direct the Contractor to immediately cover plastic concrete with sheet material.
 - 3. Discuss with the Engineer a work plan describing the methods and procedures proposed to use for concrete placement and curing during hot weather periods. Hot weather concreting shall not begin until the work plan is acceptable to the Engineer.

3.06 REMOVAL OF FORMS

- A. Except as otherwise specifically authorized by the Engineer, forms shall not be removed before the concrete has attained a strength of at least 30 percent of its specified design strength, nor before reaching the following number of day degrees of curing (whichever is the longer):

TABLE 3

MINIMUM TIME TO FORM REMOVAL

<u>Forms for</u>	<u>Degree Days</u>
Beams and slabs	500
Walls and vertical surfaces	100

(See definition of degree days in Paragraph 3.05D above).

- B. Shores shall not be removed until the concrete has attained at least 70 percent of its specified design strength and also sufficient strength to support safely its own weight and construction live loads.

3.07 INSPECTION AND FIELD TESTING

- A. The batching, mixing, transporting, placing and curing of concrete shall be subject to the inspection of the Engineer at all times. The Contractor shall advise the Engineer of his/her readiness to proceed at least 24 hours prior to each concrete placement. The Engineer will inspect the preparations for concreting including the preparation of previously placed concrete, the reinforcing steel and the alignment, cleanliness and tightness of formwork. No placement shall be made without the inspection and acceptance of the Engineer.

- B. Sets of field control cylinder specimens will be taken by the Engineer (or inspector) during the progress of the work, in compliance with ASTM C31. The number of sets of concrete test cylinders taken of each class of concrete placed each day shall not be less than one set per day, nor less than one set for each 150 cu yds of concrete nor less than one set for each 5,000 sq ft of surface area for slabs or walls.
 - 1. A "set" of test cylinders consists of four cylinders: one to be tested at 7 days and two to be tested and their strengths averaged at 28 days. The fourth may be used for a special test at 3 days or to verify strength after 28 days if 28 day test results are low.
 - 2. When the average 28 day compressive strength of the cylinders in any set falls below the specified design strength or below proportional minimum 7 day strengths (where proper relation between seven and 28 day strengths have been established by tests), proportions, water content, or temperature conditions shall be changed to achieve the required strengths.
- C. Cooperate in the making of tests by allowing free access to the work for the selection of samples, providing an insulated closed curing box for specimens, affording protection to the specimens against injury or loss through the operations and furnish material and labor required for the purpose of taking concrete cylinder samples. All shipping of specimens will be paid for by the Owner. Curing boxes shall be acceptable to the Engineer.
- D. Slump tests will be made in the field immediately prior to placing the concrete. Such tests shall be made in accordance with ASTM C143. If the slump is greater the specified range, the concrete shall be rejected.
- E. Air Content: Test for air content shall be made on fresh concrete samples. Air content for concrete made of ordinary aggregates having low absorption shall be made in compliance with either the pressure method complying with ASTM C231 or by the volumetric method complying with ASTM C173.
- F. The Engineer may have cores taken from any questionable area in the concrete work such as construction joints and other locations as required for determination of concrete quality. The results of tests on such cores shall be the basis for acceptance, rejection or determining the continuation of concrete work.
- G. Cooperate in obtaining cores by allowing free access to the work and permitting the use of ladders, scaffolding and such incidental equipment as may be required. Repair all core holes. The work of cutting and testing the cores will be at the expense of the Owner.
- H. See Specification Section 01480 for Leak Testing.

3.08 FAILURE TO MEET REQUIREMENTS

- A. Should the strengths shown by the test specimens made and tested in compliance with the previous provisions fall below the values given in Table 1, the Engineer shall have the right to require changes in proportions outlined to apply to the remainder of the work. Furthermore, the Engineer shall have the right to require additional curing on those portions of the structure represented by the test specimens which failed. The cost of such additional curing shall be at the Contractor's expense. In the event that such additional curing does not give the strength required, as evidenced by core and/or load tests, the Engineer shall have the right to require strengthening or replacement of those portions of the structure which fail to develop the required strength. The cost of all such core borings and/or load tests and any strengthening or concrete replacement required because strengths of test specimens are below that specified, shall be entirely at the expense of the Contractor. In such cases of failure to meet strength requirements the Contractor and Engineer shall confer to determine what adjustment, if any, can be made in compliance with Sections titled "Strength" and "Failure to Meet Strength Requirements" of ASTM C94. The "purchaser" referred to in ASTM C94 is the Contractor in this Section.
- B. When the tests on control specimens of concrete fall below the specified strength, the Engineer will permit check tests for strengths to be made by means of typical cores drilled from the structure in compliance with ASTM C42 and C39. In the case of cores not indicating adequate strength, the Engineer, in addition to other recourses, may require, at the Contractor's expense, load tests on any one of the slabs, beams, piles, caps, and columns in which such concrete was used. Tests need not be made until concrete has aged 60 days.

- C. Should the strength of test cylinders fall below 60 percent of the required minimum 28 day strength, the concrete shall be rejected and shall be removed and replaced.

3.09 PATCHING AND REPAIRS

- A. It is the intent of this Section to require quality work including adequate forming, proper mixture and placement of concrete and curing so completed concrete surfaces will require no patching.
- B. Defective concrete and honeycombed areas as determined by the Engineer shall be repaired as specified by the Engineer.
- C. As soon as the forms have been stripped and the concrete surfaces exposed, fins and other projections shall be removed; recesses left by the removal of form ties shall be filled; and surface defects which do not impair structural strength shall be repaired. Clean all exposed concrete surfaces and adjoining work stained by leakage of concrete, to approval of the Engineer.
- D. Immediately after removal of forms remove plugs and break off metal ties as required by Section 03100. Promptly fill holes upon stripping as follows: Moisten the hole with water, followed by a 1/16 in brush coat of neat cement slurry mixed to the consistency of a heavy paste. Immediately plug the hole with a 1 to 1.5 mixture of cement and concrete sand mixed slightly damp to the touch (just short of "balling"). Hammer the grout into the hole until dense, and an excess of paste appears on the surface in the form of a spiderweb. Trowel smooth with heavy pressure. Avoid burnishing.
- E. When patching exposed surfaces the same source of cement and sand as used in the parent concrete shall be employed. Adjust color if necessary by addition of proper amounts of white cement. Rub lightly with a fine Carborundum stone at an age of 1 to 5 days if necessary to bring the surface down with the parent concrete. Exercise care to avoid damaging or staining the virgin skin of the surrounding parent concrete. Wash thoroughly to remove all rubbed matter.

3.10 SCHEDULE

- A. The following (Table 4) are the general applications for the various concrete classes and design strengths:

TABLE 4

CONCRETE SCHEDULE

<u>Class</u>	<u>Design Strength (psi)</u>	<u>Description</u>
A	2,500	Concrete fill and duct encasement
B	3,000	Concrete overlay slabs and pavements
C	4,000	Walls, slabs on grade, suspended slab and beam systems, columns, grade beams and all other structural concrete
D	5,000	Prestressed concrete

END OF SECTION

CONCRETE FORMWORK
Section 03100

1.00 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and cut, remove, repair or otherwise modify parts of existing concrete structures or appurtenances as shown on the Drawings and as specified herein. Work under this Section shall also include bonding new concrete to existing concrete.
- B. Secure to forms as required or set for embedment as required, all miscellaneous metal items, sleeves, reglets, anchor bolts, inserts and other items furnished under other Sections and required to be cast into concrete, or approved in advance by the Engineer.

1.02 RELATED WORK

- A. Concrete Reinforcement is included in Section 03200.
- B. Concrete Joints and Joint Accessories are included in Section 03250.
- C. Cast in Place Concrete is included in Section 03300.
- D. Grout is included in Section 03600.

1.03 SUBMITTALS

- A. Submit to the Engineer, in accordance with Section 01300, shop drawings and product data showing materials of construction and details of installation for:
 - 1. Form release agent
 - 2. Form ties
- B. Samples
 - 1. Demonstrate to the Engineer on a designated area of the concrete substructure exterior surface that the form release agent will not adversely affect concrete surfaces to be painted, coated or otherwise finished and will not affect the forming materials.

1.04 REFERENCE STANDARDS

- A. American Concrete Institute (ACI)
 - 1. ACI 301 - Standard Specification for Structural Concrete
 - 2. ACI 318 - Building Code Requirements for Reinforced Concrete
 - 3. ACI 347 - Formwork for Concrete

B. American Plywood Association (APA)

1. Material grades and designations as specified

C. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 SYSTEM DESCRIPTION

A. General: Architectural Concrete is wall, slab, beam or column concrete which will have surfaces exposed to view in the finished work. It includes similar exposed surfaces in water containment structures from the top of walls to 2-ft below the normal water surface in open tanks and basins.

B. Formwork shall be designed and erected in accordance with the requirements of ACI 301 and ACI 318 and as recommended in ACI 347 and shall comply with all applicable regulations and codes. The design shall consider any special requirements due to the use of plasticized and/or retarded set concrete.

2.00 PRODUCTS

2.01 GENERAL

A. The usage of a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configurations desired.

2.02 MATERIALS

A. Forms for cast in place concrete shall be made of wood, metal, or other approved material. Construct wood forms of sound lumber or plywood of suitable dimensions and free from knotholes and loose knots. Where used for exposed surfaces, dress and match boards. Sand plywood smooth and fit adjacent panels with tight joints. Metal forms may be used when approved by the Engineer and shall be of an appropriate type for the class of work involved. All forms shall be designed and constructed to provide a flat, uniform concrete surface requiring minimal finishing or repairs.

B. Wall Forms

1. Forms for all exposed exterior and interior concrete walls shall be "Plyform" exterior grade plywood panels manufactured in compliance with the APA and bearing the trademark of that group, or equal acceptable to the Engineer. Provide B grade or better veneer on all faces to be placed against concrete during forming. The class of material and grades of interior plies shall be of sufficient strength and stiffness to provide a flat, uniform concrete surface requiring minimal finishing and grinding.

2. All joints or gaps in forms shall be taped, gasketed, plugged, and/or caulked with an approved material so that the joint will remain watertight and will withstand placing pressures without bulging.

C. Rustication strips shall be at the location and shall conform to the details shown on the Drawings. Moldings for chamfers and rustications shall be milled and planed smooth. Rustications and corner strips shall be of a nonabsorbent material, compatible with the form surface and fully sealed on all sides to prohibit the loss of paste or water between the two surfaces.

D. Form Release Agent

1. Coat all forming surfaces in contact with concrete using an effective, non-staining, non-residual, water based, bond breaking form coating unless otherwise noted. Form release agents used in potable water containment structures shall be suitable for use in contact with potable water and shall be non-toxic and free of taste or odor and meet the requirements of NSF/ANSI Standard 61.

E. Form Ties

1. Form ties encased in concrete other than those specified in the following paragraphs shall be designed so that, after removal of the projecting part, no metal shall remain within 1-1/2-in of the face of the concrete. The part of the tie to be removed shall be at least 1/2-in diameter or be provided with a wood or metal cone at least 1/2-in diameter and 1-1/2-in long. Form ties in concrete exposed to view shall be the cone washer type.
2. Form ties for exposed exterior and interior walls shall be as specified in the preceding paragraph except that the cones shall be of approved wood or plastic.
3. Flat bar ties for panel forms, if used, shall have plastic or rubber inserts having a minimum depth of 1-1/2-in and sufficient dimensions to permit proper patching of the tie hole.
4. Ties for liquid containment structures shall have an integral waterstop that is tightly welded to the tie.
5. Common wire shall not be used for form ties.
6. Alternate form ties consisting of tapered through bolts at least 1 in in diameter at smallest end or through bolts that utilize a removable tapered sleeve of the same minimum size may be used at the Contractor's option. Obtain Engineer's acceptance of system and spacing of ties prior to ordering or purchase of forming. Clean, fill and seal form tie hole with non-shrink cement grout. A vinyl plug shall be inserted into the hole to serve as a waterstop. The Contractor shall be responsible for watertightness of the form ties and any repairs needed.

3.00 EXECUTION

3.01 GENERAL

- A. Forms shall be used for all cast in place concrete including sides of footings. Forms shall be constructed and placed so that the resulting concrete will be of the shape, lines, dimensions and appearance indicated on the Drawings.
- B. Forms for walls shall have removable panels at the bottom for cleaning, inspection and joint surface preparation. Forms for walls of considerable height shall have closable intermediate inspection ports. Tremies and hoppers for placing concrete shall be used to allow concrete inspection, prevent segregation and prevent the accumulation of hardened concrete on the forms above the fresh concrete.
- C. Molding, bevels, or other types of chamfer strips shall be placed to produce block outs, rustications, or chamfers as shown on the Drawings or as specified herein. Chamfer strips shall be provided at horizontal and vertical projecting corners to produce a 3/4-in chamfer. Rectangular or trapezoidal moldings shall be placed in locations requiring sealants where specified or shown on the Drawings. Sizes of moldings shall conform to the sealants manufacturer's recommendations.
- D. Forms shall be sufficiently rigid to withstand construction loads and vibration and to prevent displacement or sagging between supports. Construct forms so that the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for the adequacy of the forming system.
- E. Before form material is re used, all surfaces to be in contact with concrete shall be thoroughly cleaned, all damaged places repaired, all projecting nails withdrawn and all protrusions smoothed. Reuse of wooden forms for other than rough finish will be permitted only if a "like new" condition of the form is maintained.

3.02 FORM TOLERANCES

- A. Forms shall be surfaced, designed and constructed in accordance with the recommendations of ACI 347 and shall meet the following additional requirements for the specified finishes.
 - 1. Formed Surface Exposed to View: Edges of all form panels in contact with concrete shall be flush within 1/16-in and forms for plane surfaces shall be such that the concrete will be plane within 3/16-in in 4-ft. Forms shall be tight to prevent the passage of mortar, water and grout. The maximum deviation of the finish wall surface at any point shall not exceed 1/4-in from the intended surface as shown on the Drawings. Form panels shall be arranged symmetrically and in an orderly manner to minimize the number of seams.
 - 2. Formed surfaces not exposed to view or buried shall meet requirements of Class "C" Surface in ACI 347.
 - 3. Formed rough surfaces including mass concrete, pipe encasement, electrical duct encasement and other similar installations shall have no minimum

requirements for surface smoothness and surface deflections. The overall dimensions of the concrete shall be plus or minus 1-in.

3.03 FORM PREPARATION

- A. Wood forms in contact with the concrete shall be coated with an effective release agent prior to form installation.
- B. Steel forms shall be thoroughly cleaned and mill scale and other ferrous deposits shall be sandblasted or otherwise removed from the contact surface for all forms, except those utilized for surfaces receiving a rough finish. All forms shall have the contact surfaces coated with a release agent.

3.04 REMOVAL OF FORMS

- A. The Contractor shall be responsible for all damage resulting from removal of forms. Forms and shoring for structural slabs or beams shall remain in place in accordance with ACI 301 and ACI 347. Form removal shall conform to the requirements specified in Section 03100 and a curing compound applied.

3.05 INSPECTION

- A. The Engineer on site shall be notified when the forms are complete and ready for inspection at least 6 hours prior to the proposed concrete placement.
- B. Failure of the forms to comply with the requirements specified herein, or to produce concrete complying with requirements of this Section, shall be grounds for rejection of that portion of the concrete work. Rejected work shall be repaired or replaced as directed by the Engineer at no additional cost to the Owner. Such repair or replacement shall be subject to the requirements of this Section and approval of the Engineer.

END OF SECTION

Section 03250
CONCRETE JOINTS AND JOINT ACCESSORIES

1.00 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install accessories for concrete joints as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Concrete Formwork is included in Section 03100.
- B. Concrete Reinforcement is included in Section 03310.
- C. Cast-In-Place Concrete is included in Section 03300.
- D. Concrete Finishes are included in Section 03500.
- E. Grout is included in Section 03600.

1.03 SUBMITTALS

- A. Submit to the Engineer, in accordance with Section 01300, shop drawings and product data. Submittals shall include at least the following:
 - 1. Standard Waterstops: Product data including catalogue cut, technical data, storage requirements, splicing methods and conformity to ASTM standards.
 - 2. Special Waterstops: Product data including catalogue cut, technical data, location of use, storage requirements, splicing methods, installation instructions and conformity to ASTM standards.
 - 3. Premolded joint fillers: Product data including catalogue cut, technical data, storage requirements, installation requirements, location of use and conformity to ASTM standards.
 - 4. Bond breaker: Product data including catalogue cut, technical data, storage requirements, installation requirements, location of use and conformity to ASTM standards.
 - 5. Expansion joint dowels: Product data on the complete assembly including dowels, coatings, lubricants, spacers, sleeves, expansion caps, installation requirements and conformity to ASTM standards.
 - 6. Compressible joint filler: Product data including catalogue cut, technical data, storage requirements, installation requirements, location of use and conformity to ASTM standards.
 - 7. Bonding agents: Product data including catalogue cut, technical data, storage requirements, product life, application requirements and conformity to ASTM standards.
- B. Certifications
 - 1. Certification that all materials used within the joint system is compatible with each other.
 - 2. Certifications that materials used in the construction of joints are suitable for use in contact with potable water 30 days after installation.

1.04 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM A675 - Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties.
 - 2. ASTM C881 - Standard Specification for Epoxy Resin Base Bonding Systems for Concrete.
 - 3. ASTM C1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.
 - 4. ASTM D1751 - Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction. (Nonextruding and Resilient Bituminous Types).
 - 5. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- B. U.S. Army Corps of Engineers (CRD).
 - 1. CRD C572 - Specification for Polyvinylchloride Waterstops.
- C. Federal Specifications
 - 1. FS SS-S-210A - Sealing Compound for Expansion Joints.
- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

2.00 PRODUCTS

2.01 GENERAL

- A. The use of manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.
- B. All materials used together in a given joint (bond breakers, backer rods, joint fillers, sealants, etc) shall be compatible with one another. Coordinate selection of suppliers and products to ensure compatibility. Under no circumstances shall asphaltic bond breakers or joint fillers be used in joints receiving sealant.
- C. All chemical sealant type waterstops shall be products specifically manufactured for the purpose for which they will be used and the products shall have been successfully used on similar structures for more than five years.

2.02 MATERIALS

- A. Standard Waterstops
 - 1. PVC Waterstops - The waterstop shall be made by extruding elastomeric plastic compound with virgin polyvinylchloride as the basic resins. The compound shall contain no reprocessed materials. Minimum tensile strength of waterstop shall be 1750 psi. The waterstop shall conform to CRD C572. The waterstop shall be Greenstreak model No. 679 or approved equal for construction joints and Greenstreak Model No. 735 for expansion joints.
- B. Special Waterstops

1. Base Seal PVC Waterstop - The waterstop shall be made by extruding elastomeric plastic compound with virgin polyvinylchloride as the basic resins. The compound shall contain no reprocessed materials. Minimum tensile strength of waterstop shall be 1750 psi. The waterstop shall conform to CRD C572. Waterstops shall be style 925 for expansion joints, style 928 for control joints, and style 927 for construction joints by Greenstreak Plastic Products, St. Louis, MO or equal.
 2. Preformed adhesive waterstops - The waterstop shall be a rope type preformed plastic waterstop meeting the requirements of Federal Specification SS-S-210A. The rope shall have a cross-section of approximately one square inch unless otherwise specified or shown on the Drawings. The waterstop shall be Synko-Flex waterstop as manufactured by Synko-Flex Products of Houston, TX or equal. Primer for the material shall be as recommended by the waterstop manufacturer.
- C. Premolded Joint Filler
1. Premolded joint filler - structures. Self expanding cork, premolded joint filler shall conform to ASTM D1752, Type III. The thickness shall be 3/4 in unless shown otherwise on the Drawings.
 2. Premolded joint filler - sidewalk and roadway concrete pavements or where fiber joint filler is specifically noted on the Drawings. The joint filler shall be asphalt impregnated fiber board conforming to ASTM D1751. Thickness shall be 3/4 in unless otherwise shown on the Drawings.
- D. Bond Breaker
1. Bond breaker tape shall be an adhesive backed glazed butyl or polyethylene tape which will satisfactorily adhere to the premolded joint filler or concrete surface as required. The tape shall be the same width as the joint.
 2. Except where tape is specifically called for on the drawings, bond breaker for concrete shall be either bond breaker tape or a nonstaining type bond prevention coating such as Williams Tilt up Compound by Williams Distributors Inc.; Silco seal 77, by SCA Construction Supply Division, Superior Concrete Accessories or equal.
- E. Expansion Joint Dowels
1. Dowels shall be smooth steel conforming to ASTM A675, Grade 70. Dowels must be straight and clean, free of loose flaky rust and loose scale. Dowels may be sheared to length provided deformation from true shape caused by shearing does not exceed 0.04-in on the diameter of the dowel and extends no more than 0.04-in from the end. Bars shall be coated with a bond breaker on the expansion end of the dowel. Expansion caps shall be provided on the expansion end. Caps shall allow for at least 1-1/2-in of expansion.
- F. Bonding Agent
1. Epoxy bonding agent shall be a two component, solvent free, moisture insensitive, epoxy resin material conforming to ASTM C881, Type II. The bonding agent shall be Sikadur 32 Hi Mod by Sika Corporation of Lyndhurst, N.J.; Concessive Liquid (LPL) by Master Builders of Cleveland, OH or equal. Acrylic may be used if approved by the Engineer.
- G. Compressible Joint Filler
1. The joint filler shall be a non extruded watertight strip material use to fill expansion joints between structures. The material shall be capable of being compressed at least 40 percent for 70 hours at 68 degrees F and subsequently recovering at least 20 percent of its original thickness in the first 1/2 hour after unloading. Compressible Joint filler shall be Evasote 380 E.S.P, by E Poxo Industries, Inc., Ravena, NY , Sikaflex 1a by Sika or equal.

3.00 EXECUTION

3.01 INSTALLATION

A. Standard Waterstops

1. Install waterstops for all joints where indicated on the Drawings. Waterstops shall be continuous around all corners and intersections so that a continuous seal is provided. Splices shall be made by welding.
2. Horizontal waterstops in slabs shall be clamped in position by the bulkhead (unless previously set in concrete).
3. Waterstops shall be installed so that half of the width will be embedded on each side of the joint. Care shall be exercised to ensure that the waterstop is completely embedded in void free concrete.
4. Waterstops shall be terminated 3-in below the exposed top of walls. Expansion joint waterstop center bulbs shall be plugged with foam rubber, 1-in deep, at point of termination.

B. Special Waterstops

1. Install special waterstops at joints where specifically noted on the Drawings. Waterstops shall be continuous around all corners and intersections so that a continuous seal is provided.
2. Each piece of the waterstop shall be of maximum practicable length to provide a minimum number of connections or splices. Connections and splices shall conform to the manufacturer's recommendations and as specified herein.
3. Waterstops shall be terminated 3-in below the exposed top of walls.

C. Construction Joints

1. Make construction joints only at locations shown on the Drawings or as approved by the Engineer. Any additional or relocation of construction joints proposed by the Contractor, must be submitted to the Engineer for written approval.
2. Additional or relocated joints should be located where they least impair strength of the member. In general, locate joints within the middle third of spans of slabs, beams and girders. However, if a beam intersects a girder at the joint, offset the joint a distance equal to twice the width of the member being connected. Locate joints in walls and columns at the underside of floors, slabs, beams or girders and at tops of footings or floor slabs. Do not locate joints between beams, girders, column capitals, or drop panels and the slabs above them. Do not locate joints between brackets or haunches and walls or columns supporting them.
3. All joints shall be perpendicular to main reinforcement. Continue reinforcing steel through the joint as indicated on the Drawings. When joints in beams are allowed, provide a shear key and inclined dowels as approved by the Engineer.
4. Provide sealant grooves for joint sealant where indicated on the Drawings.
5. At all construction joints and at concrete joints designated on the Drawings to be "roughened", uniformly roughen the surface of the concrete to a full amplitude (distance between high and low points or side to side) of approximately 1/4 in to expose a fresh face. Thoroughly clean joint surfaces of loose or weakened materials by waterblasting or sandblasting and prepare for bonding.

6. Provide waterstops in all wall and slab construction joints in liquid containment structures and at other locations shown on the Drawings.
7. Keyways shall not be used in construction joints unless specifically shown on the Drawings or approved by the Engineer.

D. Expansion Joints

1. Do not extend through expansion joints, reinforcement or other embedded metal items that are continuously bonded to concrete on each side of joint.
2. Position premolded joint filler material accurately. Secure the joint filler against displacement during concrete placement and compaction. Place joint filler over the face of the joint, allowing for sealant grooves as detailed on the Drawings. Tape all joint filler splices to prevent intrusion of mortar. Seal expansion joints as shown on the Drawings.
3. Expansion joints shall be 3/4 in in width unless otherwise noted on the Drawings.
4. Where indicated on Drawings, install smooth dowels at right angles to expansion joints. Align dowels accurately with finished surface. Rigidly hold in place and support during concrete placement. Unless otherwise shown on the Drawings, apply oil or grease to one end of all dowels through expansion joints. Provide plastic expansion caps on the lubricated ends of expansion dowels.
5. Provide center bulb type waterstops in all wall and slab expansion joints in liquid containment structures and at other locations shown on the Drawings.

E. Control Joints

1. Provide sealant grooves, sealants and waterstops at control joints in slabs on grade or walls as detailed. Provide waterstops at all wall and slab control joints in water containment structures and at other locations shown on the Drawings.
2. Control joints may be sawed if specifically approved by the Engineer. If control joint grooves are sawed, properly time the saw cutting with the time of the concrete set. Start cutting as soon as concrete has hardened sufficiently to prevent aggregates from being dislodged by the saw. Complete cutting before shrinkage stresses have developed sufficiently to induce cracking. No reinforcing shall be cut during sawcutting.
3. Extend every other bar of reinforcing steel through control joints or as indicated on the Drawings. Where specifically noted on the Drawings, coat the concrete surface with a bond breaker prior to placing new concrete against it. Avoid coating reinforcement or waterstops with bond breaker at these locations.

END OF SECTION

SECTION 03310
CONCRETE REINFORCEMENT

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install all concrete reinforcement complete as shown on the Drawings and as specified herein.
- B. Furnish only all deformed steel reinforcement required to be entirely built into concrete masonry unit construction.

1.02 RELATED WORK

- A. Concrete Formwork is included in Section 03100.
- B. Concrete Joint and Joint Accessories are included in Section 03250.
- C. Cast in place Concrete is included in Section 03300.
- D. Grout is included in Section 03600.

1.03 SUBMITTALS

- A. Submit to the Engineer, in accordance with Section 01300, shop drawings and product data showing materials of construction and details of installation for:
 - 1. Reinforcing steel. Placement drawings shall conform to the recommendations of ACI 315. All reinforcement in a concrete placement shall be included on a single placement drawing or cross referenced to the pertinent main placement drawing. The main drawing shall include the additional reinforcement (around openings, at corners, etc) shown on the standard detail sheets. Bars to have special coatings and/or to be of special steel or special yield strength are to be clearly identified.
 - 2. Bar bending details. The bars shall be referenced to the same identification marks shown on the placement drawings.
 - 3. Schedule of all placements to contain synthetic reinforcing fibers. The amount of fibers per cubic yard to be used for each of the placements shall be noted on the schedule. The name of the manufacturer of the fibers and the product data shall be included with the submittal.
- B. Submit Test Reports, in accordance with Section 01300, of each of the following items.
 - 1. Certified copy of mill test on each steel proposed for use showing the physical properties of the steel and the chemical analysis.
 - 2. Welder's certification. The certification shall be in accordance with AWS D1.4 when welding of reinforcement required.

1.04 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. ASTM A184 - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
3. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
4. ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement
5. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement
6. ASTM A615 - Standard Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement
7. ASTM A616 - Standard Specification for Rail Steel Deformed and Plain Bars for Concrete Reinforcement
8. ASTM A617 - Standard Specification for Axle Steel Deformed and Plain Bars for Concrete Reinforcement
9. ASTM A706 - Standard Specification for Low Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
10. ASTM A767 - Standard Specification for Zinc Coated (Galvanized) Steel Bars for Concrete Reinforcement
11. ASTM A775 - Standard Specification for Epoxy Coated Reinforcing Steel Bars.
12. ASTM A884 - Standard Specification for Epoxy Coated Steel Wire and Welded Wire Fabric for Reinforcement.
13. ASTM A934 - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.

B. American Concrete Institute (ACI)

1. ACI 301 - Standard Specification for Structural Concrete
2. ACI 315 - Details and Detailing of Concrete Reinforcement.
3. ACI 318 - Building Code Requirements for Structural Concrete

4. ACI SP 66 - ACI Detailing Manual
 - 5.
- C. Concrete Reinforcing Steel Institute (CRSI)
1. Manual of Standard Practice
- D. American Welding Society (AWS)
1. AWS D1.4 - Structural Welding Code Reinforcing Steel
- E. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. Provide services of a manufacturer's representative, with at least 2 years experience in the use of the reinforcing fibers for a preconstruction meeting and assistance during the first placement of the material.

1.06 DELIVERY, HANDLING AND STORAGE

- A. Reinforcing steel shall be substantially free from mill scale, rust, dirt, grease, or other foreign matter.
- B. Reinforcing steel shall be shipped and stored with bars of the same size and shape fastened in bundles with durable tags, marked in a legible manner with waterproof markings showing the same "mark" designations as those shown on the submitted Placing Drawings.
- C. Reinforcing steel shall be stored off the ground and kept free from dirt, oil, or other injurious contaminants.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Materials shall be new, of domestic manufacture and shall comply with the following material specifications.
- B. Deformed Concrete Reinforcing Bars: ASTM A615, Grade 60 deformed bars.
- C. Concrete Reinforcing Bars required on the Drawings to be Welded: ASTM A706.
- D. Welded Steel Wire Fabric: ASTM A185. Provide in flat sheets.
- E. Welded Deformed Steel Wire Fabric: ASTM A497.
- F. Welded Plain Bar Mats: ASTM A704 and ASTM A615 Grade 60 plain bars.

- G. Fabricated Deformed Steel Bar Mats: ASTM A184 and ASTM A615 Grade 60 deformed bars.
- H. The following alternate materials are allowed:
1. ASTM A615 Grade 60 may be used for ASTM A706 provided the following requirements are satisfied:
 - a. The actual yield strength of the reinforcing steel based on mill tests shall not exceed the specified yield strength by more than 18,000 psi. Retests shall not exceed this value by more than an additional 3000 psi.
 - b. The ratio of the actual ultimate tensile strength to the actual tensile yield strength of the reinforcement shall not be less than 1.25.
 - c. The carbon equivalency (CE) of bars shall be 0.55 or less.
- I. Reinforcing Steel Accessories
1. Plastic Protected Bar Supports: CRSI Bar Support Specifications, Class 1 Maximum Protection.
 2. Stainless Steel Protected Bar Supports: CRSI Bar Support Specifications, Class 2 - Moderate Protection.
 3. Precast Concrete Block Bar Supports: CRSI Bar Support Specifications, Precast Blocks. Blocks shall have equal or greater strength than the surrounding concrete.
 4. Steel Protected Bar Supports: #4 Steel Chairs with plastic or rubber tips.
- J. Tie Wire
1. Tie Wires for Reinforcement shall be 16 gauge or heavier, black annealed wire or stranded wire.
- K. Mechanical reinforcing steel butt splices shall be positive connecting taper threaded type employing a hexagonal coupler such as Lenton rebar splices as manufactured by Erico Products Inc., Solon, OH or equal. They shall meet all ACI 318 Building Code requirements. Bar ends must be taper threaded with coupler manufacturer's bar threader to ensure proper taper and thread engagement. Bar couplers shall be torqued to manufacturer's recommended value.
1. Unless otherwise noted on the Drawings, mechanical tension splices shall be designed to produce a splice strength in tension or compression of not less than 125 percent of the ASTM specified minimum yield strength of the rebar.
 2. Compression type mechanical splices shall provide concentric bearing from one bar to the other bar and shall be capable of developing the ultimate strength of the rebar in compression.
- L. Fiber Reinforcement

1. Synthetic reinforcing fiber for concrete shall be 100 percent polypropylene collated, fibrillated fibers as manufactured by Propex Concrete Systems Chattanooga, TN - Propex or equal. Fiber length and quantity for the concrete mix shall be in strict compliance with the manufacturer's recommendations as approved by the Engineer.

2.02 FABRICATION

- A. Fabrication of reinforcement shall be in compliance with the CRSI Manual of Standard Practice.
- B. Bars shall be cold bent. Bars shall not be straightened or rebent.
- C. Bars shall be bent around a revolving collar having a diameter of not less than that recommended by the ACI 318.
- D. Bar ends that are to be butt spliced, placed through limited diameter holes in metal, or threaded, shall have the applicable end(s) saw cut. Such ends shall terminate in flat surfaces within 1 1/2 degrees of a right angle to the axis of the bar.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Surface condition, bending, spacing and tolerances of placement of reinforcement shall comply with the CRSI Manual of Standard Practice. The Contractor shall be solely responsible for providing an adequate number of bars and maintaining the spacing and clearances shown on the Drawings.
- B. Except as otherwise indicated on the Drawings, the minimum concrete cover of reinforcement shall be as follows:
 1. Concrete cast against and permanently exposed to earth: 3-in
 2. Concrete exposed to soil, water, sewage, sludge and/or weather: 2-in (Including bottom cover of slabs over water or sewage)
 3. Concrete not exposed to soil, water, sewage, sludge and/or weather:
 - a. Slabs (top and bottom cover), walls, joists, shells and folded plate members – 3/4-in
 - b. Beams and columns (principal reinforcement, ties, spirals and stirrups) – 1-1/2-in
- C. Reinforcement which will be exposed for a considerable length of time after being placed shall be coated with a heavy coat of neat cement slurry.
- D. No reinforcing steel bars shall be welded either during fabrication or erection unless specifically shown on the Drawings or specified herein, or unless prior written approval

has been obtained from the Engineer. All bars that have been welded, including tack welds, without such approval shall be immediately removed from the work. When welding of reinforcement is approved or called for, it shall comply with AWS D1.4.

- E. Reinforcing steel interfering with the location of other reinforcing steel, conduits or embedded items, may be moved within the specified tolerances or one bar diameter, whichever is greater. Greater displacement of bars to avoid interference, shall only be made with the approval of the Engineer. Do not cut reinforcement to install inserts, conduits, mechanical openings or other items without the prior approval of the Engineer.
- F. Securely support and tie reinforcing steel to prevent movement during concrete placement. Secure dowels in place before placing concrete.
- G. Reinforcing steel bars shall not be field bent except where shown on the Drawings or specifically authorized in writing by the Engineer. If authorized, bars shall be cold bent around the standard diameter spool specified in the CRSI. Do not heat bars. Closely inspect the reinforcing steel for breaks. If the reinforcing steel is damaged, replace, Cadweld or otherwise repair as directed by the Engineer. Do not bend reinforcement after it is embedded in concrete unless specifically shown otherwise on the Drawings.

3.02 REINFORCEMENT AROUND OPENINGS

- A. Unless specific additional reinforcement around openings is shown on the Drawings, provide additional reinforcing steel on each side of the opening equivalent to one half of the cross sectional area of the reinforcing steel interrupted by an opening. The bars shall have sufficient length to develop bond at each end beyond the opening or penetration.

3.03 SPLICING OF REINFORCEMENT

- A. Splices designated as compression splices on the Drawings, unless otherwise noted, shall be 30 bar diameters, but not less than 12-in. The lap splice length for column vertical bars shall be based on the bar size in the column above.
- B. Tension lap splices shall be provided at all laps in compliance with ACI 318. Splices in adjacent bars shall be staggered. Class A splices may be used when 50 percent or less of the bars are spliced within the required lap length. Class B splices shall be used at all other locations.
- C. Splicing of reinforcing steel in concrete elements noted to be "tension members" on the Drawings shall be avoided whenever possible. However, if required for constructability, splices in the reinforcement subject to direct tension shall be welded to develop, in tension, at least 125 percent of the specified yield strength of the bar. Splices in adjacent bars shall be offset the distance of a Class B splice.
- D. Install wire fabric in as long lengths as practicable. Wire fabric from rolls shall be rolled flat and firmly held in place. Splices in welded wire fabric shall be lapped in accordance with the requirements of ACI 318 but not less than 12-in. The spliced fabrics shall be tied together with wire ties spaced not more than 24 in on center and laced with wire of the same diameter as the welded wire fabric. Do not position laps midway between supporting beams, or directly over beams of continuous structures. Offset splices in adjacent widths to prevent continuous splices.

- E. Mechanical reinforcing steel splicers shall be used only where shown on the Drawings. Splices in adjacent bars shall be offset by at least 30 bar diameters. Mechanical reinforcing splices are only to be used for special splice and dowel conditions approved by the Engineer.

3.04 ACCESSORIES

- A. Determine, provide and install accessories such as chairs, chair bars and the like in sufficient quantities and strength to adequately support the reinforcement and prevent its displacement during the erection of the reinforcement and the placement of concrete.
- B. Use precast concrete blocks where the reinforcing steel is to be supported over soil.
- C. Stainless steel bar supports or steel chairs with stainless steel tips shall be used where the chairs are set on forms for a concrete surface that will be exposed to weather, high humidity, or liquid (including bottom of slabs over liquid containing areas). Use of galvanized or plastic tipped metal chairs is permissible in all other locations unless otherwise noted on the Drawings or specified herein.
- D. Alternate methods of supporting top steel in slabs, such as steel channels supported on the bottom steel or vertical reinforcing steel fastened to the bottom and top mats, may be used if approved by the Engineer.

3.05 INSPECTION

- A. In no case shall any reinforcing steel be covered with concrete until the installation of the reinforcement, including the size, spacing and position of the reinforcement has been observed by the Engineer and the Engineer's release to proceed with the concreting has been obtained. The Engineer shall be given ample prior notice of the readiness of placed reinforcement for observation. The forms shall be kept open until the Engineer has finished his/her observations of the reinforcing steel.

END OF SECTION

SECTION 03350
CONCRETE FINISHING

PART 1 - GENERAL 1.01 SECTION INCLUDES

- A. Repair of surface defects
- B. Finishing of formed surfaces
- C. Slabs and flatwork
- D. Curing

1.02 SECTION INCLUDES

- A. Concrete formwork is specified in Section 03100 - Concrete Forming.
- B. Cast-in-place concrete is specified in Section 03300 - Cast-In-Place Concrete.

1.03 MEASUREMENT AND PAYMENT

- A. Measurement: Repair of surface defects, finishing, and curing of concrete will not be measured separately for payment.
- B. Payment: Repair of surface defects, finishing, and curing of concrete will be paid for as part of the indicated Contract unit price for the associated concrete work as indicated in the Bid Schedule of the Bid Form.

1.04 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. AASHTO M182 Burlap Cloth Made from Jute or Kenaf
- B. American Concrete Institute (ACI):
 - 1. ACI 117 Standard Specification for Tolerances for Concrete Construction and Materials
 - 2. ACI 301 Standard Specifications for Structural Concrete
 - 3. ACI 308 Standard Practice for Curing Concrete
 - 4. ACI 503.4 Standard Specification for Repairing Concrete with Epoxy Mortars
- C. American Society for Testing and Materials (ASTM):
 - 1. ASTM C33 Specification for Concrete Aggregates

2. ASTM C150 Specification for Portland Cement
3. ASTM C171 Specifications for Sheet Materials for Curing Concrete
4. ASTM C309 Specification for Liquid Membrane-Forming Compounds for Curing Concrete
5. ASTM C881 Specification for Epoxy-Resin-Base Bonding Systems for Concrete
6. ASTM E1155 Standard Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers

D. State of California, Department of Transportation (CalTrans), Standard Specifications:

1. Section 51 Concrete Structures

1.05 SUBMITTALS

- A. General: Refer to Section 01300 - Submittal Procedures. Submittals involving exposed concrete finishes require approval of the Engineer before they may be incorporated in the Work.
- B. Shop Drawings: Submit drawings, or diagrams to scale, that indicate the location in plan and elevation of all concrete finishes.
- C. Product Data: Submit manufacturers' product data for manufactured products.
- D. Samples:
 1. Submit 1/2-pint sample container of aluminum oxide and silicon carbide abrasive grit for review and acceptance where "non-slip finish" is indicated.
 2. Submit samples not less than 12 inches by 12 inches in size of each type of sand blast finish, indicating materials and methods used to produce the sand blast finishes. Review by the Engineer will be for color and texture only. Approved samples will become the Engineer's control samples.

1.06 QUALITY ASSURANCE

- A. Finishes:
 1. Finishing of formed concrete surfaces shall conform to applicable requirements of ACI 301.
 2. Finishes for slabs and flatwork shall conform to applicable requirements of ACI 301.
 3. Special architectural finishes for formed concrete surfaces shall conform with applicable requirements of ACI 301.
 4. Bridge deck finishes shall conform to applicable requirements of Caltrans Standard Specifications Section 51.

- B. Curing: Conform to requirements of ACI 301 and ACI 308, as applicable, and requirements specified herein.
- C. Site Mock-Ups: Provide site mock-ups, at least 3 feet by 4 feet in size, of finishes of formed surfaces in exposed locations and of exposed slab finishes for the Engineer's review and approval. Refer to Section 01 43 38 - Field Samples and Mock-ups, for requirements and procedures.
- D. Site Mock-ups of Architectural Concrete: Provide site mock-ups of architectural concrete showing finish texture and pattern of exposed formed concrete surfaces.
 - 1. Size of mock-up shall be a minimum of 8 feet by 10 feet, unless otherwise approved by the Engineer to be smaller.
 - 2. The number of mock-up panels required shall be the number necessary to obtain the Engineer's approval of pattern and texture of panel.
 - 3. Approved mock-up shall be used as the standard for the aesthetic quality of the surface finish of architectural concrete.
- E. Requirements of Regulatory Agencies: Comply with air pollution regulations of governing authorities for sand-blasting activities and operations.

PART 2 - PRODUCTS

2.01 TOOLS AND EQUIPMENT: The Contractor shall furnish all materials, tools, equipment, facilities, and services as required for performing the required concrete-finishing work.

2.02 REPAIR AND FINISHING MATERIALS

- A. Portland Cement: ASTM C150, Type II, of same brand as used in the work. Furnish white portland cement where required to produce color matching color of surrounding concrete.
- B. Aggregate:
 - 1. For Bonding Grout: ASTM C33, washed clean sand passing a No. 30 sieve.
 - 2. For Patching Mortar: ASTM C33, washed clean, graded fine aggregate of suitable size for areas to be repaired. Clean coarse aggregate up to Size No. 8 may be added for repair of larger pockets and voids.
- C. Commercial Patching Mortar: A structural repair mortar may be furnished if appropriate for the use and approved by the Engineer.
- D. Epoxy Patching Mortar: As specified in ACI 503.4 for Epoxy Mortar.
- E. Epoxy Adhesive: ASTM C881, Type II or Type V, epoxy-based bonding agent.

- F. Anti-Slip Abrasive Grit: Virgin grain Aluminum Oxide or Silicon Carbide particles, or a mixture of the two.

2.03 CURING MATERIALS

A. Damp Curing Materials:

1. Waterproof Sheet Materials: ASTM C171, waterproof paper with white paper face, polyethylene film pigmented white, or white burlap-polyethylene sheeting.
2. Burlap: AASHTO M182, of class or weight suitable for the use and location. Do not use burlap where concrete is exposed to direct sunlight.

B. Curing Compound: ASTM C309, liquid membrane-forming curing compound, Type 1, Class A or B as appropriate for the use or location.

1. Where concrete surfaces will receive architectural finishes, such as resilient floor coverings or paint, or membrane waterproofing, membrane-forming curing compound shall not leave a coating or residue that will impair bond of adhesives, paints, and coatings with concrete.

PART 3 - EXECUTION 3.01 REPAIR OF SURFACE DEFECTS

A. Repair Standards: Repair of surface defects shall conform with applicable requirements of ACI 301. When using epoxy mortar, conform with applicable requirements of ACI 503.4.

B. Surface Defects:

1. Repair of surface defects shall begin immediately after form removal. For repair with epoxy mortar, concrete shall be dry.
2. Surface defects are defined to include: form-tie holes, air voids or pockets, bug holes with a nominal diameter or depth greater than 1/4-inch, honeycombed areas, rock pockets, visible construction joints, fins and burrs.
3. Repair of surface defects shall be tightly bonded and shall result in concrete surfaces of uniform color and texture, matching adjacent surfaces, and free of shrinkage cracks.

C. Repair Work:

1. Remove honeycombed and other defective concrete down to sound concrete. Saw-cut the edges perpendicular to the surface or slightly undercut. Feather-edges will not be permitted. Dampen the area to be patched and an area at least 6 inches wide surrounding it to prevent absorption of water from the patching mortar.
2. Where rock pockets or similar defects or voids expose steel reinforcement, cutout to solid surface behind the reinforcing steel to provide suitable key-lock for patching mortar. Patching mortar shall envelope the exposed reinforcing bar.
3. Bond patching mortar to concrete with bonding grout or epoxy adhesive. Bonding grout shall consist of 1 part portland cement to 1 part No. 30 mesh sand, mixed to the consistency of a

thick cream, and then well brushed onto the concrete. Bond commercial patching mortar to concrete in accordance with the manufacturer's instructions.

4. Make the patching mortar of the same materials and of approximately the same proportions as used for the concrete, except omit the coarse aggregate. Use not more than 1 part portland cement to 2-1/2 parts sand by damp loose volume, and substitute white portland cement for a portion of the regular gray portland cement to produce patching mix matching the surrounding concrete in color when dry. Determine the proportion of white portland cement by trial mixes and test areas, prior to repair of actual defective areas.
5. After surface water has evaporated from the area to be patched, brush the bond coat well into the surface. When the bond coat begins to lose the water sheen, apply the patching mortar. Compact the mortar into place and strike off so as to leave the patch slightly higher than the surrounding surface. To permit initial shrinkage, leave the patch undisturbed for at least 1 hour before being finally finished. Keep the patched area damp for 7 days.
6. Neatly finish patched surfaces to match adjacent surrounding surface texture of concrete. Grind or fill surfaces to produce level and plumb, true planes.
7. For walls exposed in the finish work, form tie holes shall be patched and finished flush with adjacent surface. For holes passing entirely through walls, a plunger type injection gun or other suitable device shall be used to completely fill the holes.
8. Patching of honeycombed areas or rock pockets that are too large and unsatisfactory for mortar patching shall be cut out to solid surface, keyed, and packed solid with matching concrete to produce firm bond and flush surface. Patching shall match texture of adjacent surfaces where exposed in the finished work.
9. Repair work in exposed locations that does not match the texture and color of surrounding adjacent surfaces or that was not well performed shall be removed and performed again until the repair work conforms with Specification requirements.
10. Surfaces to receive membrane waterproofing shall have fins and loose material removed, and voids and cracks patched flush with adjacent surfaces.
11. Completed repairs shall be cured as herein specified under Article 3.04, Curing.

3.02 FINISHING OF FORMED SURFACES

A. Unexposed Surfaces:

1. Concrete that will not be exposed in the completed structure shall be any form finish as specified in Section 03100 - Concrete Forming, and ACI 301 for "rough form finish."
2. Concrete to receive membrane waterproofing shall receive a "smooth form finish" in accordance with ACI 301.

B. Exposed Surfaces: Unless indicated otherwise, concrete that will be exposed in the completed structure shall receive the following finishes as indicated:

1. Smooth Form Finish: Conform to ACI 301.

2. Smooth Rubbed Finish: Conform to ACI 301.
3. Grout Cleaned Finish: Conform to ACI 301.
4. Unspecified Finish: When finish is not indicated, provide "smooth form finish" as specified above.

C. Sand Blast Finish:

1. Blasting Operations and Requirements:
 - a. Apply sandblasted finish to exposed concrete surfaces where indicated.
 - b. Perform sand blasting at least 72 hours after placement of concrete. Coordinate with formwork construction, concrete placement schedule, and formwork removal to ensure that surfaces to be blast finished are blasted at the same age for uniform results.
 - c. Determine type of nozzle, nozzle pressure, and blasting techniques required to match the Engineer's control samples.
 - d. Abrasive blast corners and edge of patterns carefully, using back-up boards, to maintain uniform corner or edge line.
2. Depths of Cut: Use an abrasive grit of proper type and gradation to expose aggregate and surrounding matrix surface to match the Engineer's control samples as follows:
 - a. Brush Sand Blast Finish: Remove cement matrix to expose face of fine aggregate; no reveal.
 - b. Light Sand Blast Finish: Expose fine aggregate with occasional exposure of coarse aggregate; maximum 1/16-inch reveal.
 - c. Medium Sand Blast Finish: Generally expose coarse aggregate; 3/16-inch to 1/4inch reveal.
3. Surface Continuity: Perform sand blast finishing in as continuous an operation as possible, utilizing the same work crew to maintain continuity of finish on each surface or area of work. Maintain patterns of variances in depths of cuts as indicated.
4. Construction Joints: Use technique acceptable to the Engineer to achieve uniform treatment of construction joints.
5. Protection and Repair:
 - a. Protect adjacent materials and finishes from dust, dirt, and other surface or physical damage during abrasive blast finishing operations. Provide protection as required and remove from site at completion of the work.
 - b. Repair or replace other work damaged by finishing operations.

6. Clean-up: Maintain control of concrete chips, dust, and debris in each area of the work. Clean up and remove such material at the completion of each day of operation. Prevent migration of airborne materials by use of tarpaulins, wind breaks, and similar containing devices.

3.03 SLABS AND FLATWORK

- A. Placement and Finishing Standards: Slabs and flatwork shall be placed, consolidated, and finished in accordance with applicable requirements of ACI 301. Coordinate with Section 03 30 00 - Cast-In-Place Concrete, as applicable.
 1. High volume fly ash concrete (HVFA) exhibits little or no bleed water. Commence finishing as soon as power screeding is complete, and commence initial curing as soon as finishing has been completed.
- B. Placement:
 1. Slabs and flatwork shall be placed and finished monolithically. Strike off and screed slabs to true, plane surfaces at required elevations, and thoroughly compact concrete with vibrators, floats, and tampers to force coarse aggregate below the surface. Finish slab within four hours of concrete placement.
 2. Whether indicated or not, in areas where drains occur, slope finished slab to drains. Slope shall be a minimum of 1/8-inch per foot unless otherwise indicated.
- C. Slab Finishes: Unless indicated otherwise, slabs and flatwork shall receive the following finishes as indicated:
 1. Scratched Finish: Conform to ACI 301. Provide "scratched finish" for slab substrates to receive cementitious toppings or finishes, such as terrazzo or mortar setting bed for ceramic tile.
 2. Floated Finish: Conform to ACI 301. Provide "floated finish" for track slabs and mud slabs and for slabs and flatwork to receive roofing and membrane waterproofing.
 3. Troweled Finish: Conform to ACI 301. Provide "troweled finish" for interior slabs and flatwork to be exposed in the completed structure, for slabs to receive resilient floor coverings, and for flatwork to receive elastomeric bearing pads.
 4. Broom Finish: Conform to ACI 301. Exact texture and coarseness of the broom finish shall match the approved site mock-up. Provide fine or medium-coarse "broom finish" as indicated for exterior sidewalks and paving, exterior ramps, equipment and transformer pads, and subway invert slab.
 5. Nonslip Finish: Conform to ACI 301. Nonslip materials shall be aluminum oxide and silicone carbide grit particles. Provide "nonslip finish" for interior pedestrian ramps, walkways, subway cross-passage floors, and other floor areas where indicated.
 6. Swirl Pattern Finish: Provide for garage floors. After basic floating operations have been completed, hand float slabs using wood float to product a continuous swirl patterned surface, free from porous spots, irregularities, depressions, and small pockets or rough spots such as may be caused by accidentally disturbing particles of coarse aggregate embedded near

surface. Use natural arm circular motion to produce rows of approximately one-foot radius swirl pattern covering approximately half of the preceding row with each successive row.

7. Unspecified Finish: When finish is not indicated or specified, provide finishes as specified in ACI 301.

D. Surface Tolerances: As specified herein:

1. Flat Tolerance: Slabs and flatwork with "troweled finish" and with "nonslip finish."
2. Straightedge Tolerance: Slabs and flatwork with fine "broom finish" or medium-coarse "broom finish."
3. Bullfloated Tolerance: Slabs and flatwork with "scratched finish," with "floated finish," and with coarse "broom finish."

E. Joints:

1. Construction, expansion, isolation, and contraction joints shall be located as indicated. Construction joints shall act as contraction joints. Where additional contraction joints are required to prevent shrinkage cracks, saw-cut such joints. All joints shall be straight and true to line.
2. Mark-off lines or edges at formed construction and expansion joints shall be finished with 1/4-inch radius curved edging tool, neat and true to line, uniform throughout.

3.04 CURING

- A. Curing Standards: Curing of concrete shall conform with applicable requirements of ACI 301 and ACI 308, except that the duration of the curing period shall be ten days. Curing with earth, sand, sawdust, straw, and hay will not be permitted.

B. Curing Requirements:

1. Concrete shall be cured with waterproof sheet materials, damp burlap, or curing compounds.
2. Curing compounds shall not be used on top of ballasted aerial structures and on surfaces when their use may be detrimental to bonding of concrete, mortar, membrane waterproofing, caulking and sealants, adhesives, plaster, paint, or the specified surface finish or coating.

C. Damp Curing:

1. Vertical surfaces shall be cured by keeping the forms wet at all times and by leaving the forms in place as long as possible as specified in Section 03 11 00 - Concrete Forming. After removal of forms, concrete shall be kept continuously damp by fog spraying or otherwise washing down the concrete in an accepted manner until ten days after placing. Protect exposed surfaces by covering with sheet materials or burlap kept continuously moist.
2. Horizontal surfaces shall be cured and protected by covering the finished surfaces with waterproof sheet materials or damp burlap, left in place for a minimum of ten days and kept continuously moist.

3. Fog spray freshly placed slabs until finishing operations commence. Allow no slabs to become dry until finishing operations are complete.
- D. Curing HVFAC: Initiate damp curing as soon as finishing has been completed. Damp cure for a minimum of ten days. Continue curing for a total of 28 days. Curing after initial ten days may be by damp curing or using membrane-forming curing compound. Use evaporation reducer between finish operations, as necessary, to protect concrete from rapid drying
- E. Curing Compound: Application of curing compound shall conform to applicable requirements of ACI 308.

3.05 PROTECTION

- A. Protect exposed concrete surfaces, including flatwork, as required to prevent damage from impact or strains.
- B. Protect fresh concrete from drying winds, rain, damage, or soiling.
- C. Refer to Section 03 30 00 - Cast-In-Place Concrete, Article 3.09, for additional requirements.

3.06 TOLERANCES

- A. Formed Surfaces: Conform to applicable requirements of ACI 117.
1. Where elastomeric bearing pads are indicated, the level plane upon which bearing pads are placed shall not vary more than 1/16-inch from a 10-foot straightedge placed in any direction across the area and the area shall extend a minimum of 1 inch beyond the limits of the pads.
 2. Bearing surfaces of girders on a slope or girders with a camber shall be finished on a horizontal/level plane so that loads are uniformly distributed over the entire surface of the elastomeric bearing pads.
 3. The finished plane shall not vary more than 1/8-inch from the elevation indicated.
- B. Slabs and Flatwork: Conform with applicable classification requirements of ASTM E1155, as follows:
1. Very Flat Tolerance: F_F 50, F_L 30. True plane with maximum variation of 1/8-inch in 10 feet when measured with a 10-foot straightedge placed anywhere on the slab in any direction.
 2. Flat Tolerance: F_F 30, F_L 20. True plane with maximum variation of 3/16-inch in 10 feet when measured with a 10-foot straightedge placed anywhere on the slab in any direction.
 3. Straightedge Tolerance: F_F 20, F_L 15. True plane with maximum variation of 5/16-inch in 10 feet when measured with a 10-foot straightedge placed anywhere on the slab in any direction.
 4. Bullfloated Tolerance: FF 15, FL 13. True plane with maximum variation of 1/2 inch in 10 feet when measured with a 10-foot straightedge placed anywhere on the slab in any direction.

END OF SECTION 033500

200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

"General Decision Number: TX20240003 01/05/2024

Superseded General Decision Number: TX20230003

State: Texas

Construction Types: Heavy and Highway

Counties: Cameron, Hidalgo and Webb Counties in Texas.

HEAVY & HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024

SUTX2011-003 08/02/2011

Rates Fringes

CEMENT MASON/CONCRETE
FINISHER (Paving & Structures)...\$ 12.46 **

FORM BUILDER/FORM SETTER
(Structures).....\$ 12.30 **

FORM SETTER (Paving & Curb).....\$ 12.16 **

LABORER

Asphalt Raker.....\$ 10.61 **

Flagger.....\$ 9.10 **

Laborer, Common.....\$ 9.86 **

Laborer, Utility.....\$ 11.53 **

Pipelayer.....\$ 11.87 **

Work Zone Barricade

Servicer.....\$ 12.88 **

POWER EQUIPMENT OPERATOR:

Asphalt Distributor.....\$ 13.48 **

Asphalt Paving Machine.....\$ 12.25 **

Broom or Sweeper.....\$ 10.33 **

Crane, Lattice Boom 80

Tons or Less.....\$ 14.39 **

Crawler Tractor.....\$ 16.63 **

Excavator, 50,000 lbs or

less.....\$ 12.56 **

Excavator, over 50,000 lbs..\$ 15.23 **

Foundation Drill, Truck

Mounted.....\$ 16.86 **

Front End Loader Operator,

Over 3 CY.....\$ 13.69 **

Front End Loader, 3 CY or

less.....\$ 13.49 **

Loader/Backhoe.....\$ 12.77 **

Mechanic.....\$ 15.47 **

Milling Machine.....\$ 14.64 **

Motor Grader Operator,

Rough.....\$ 14.62 **

Motor Grader, Fine Grade...\$ 16.52 **

Scraper.....\$ 11.07 **

Servicer.....\$ 12.34 **

Steel Worker (Reinforcing).....\$ 14.07 **

TRUCK DRIVER

Lowboy-Float.....\$ 13.63 **

Single Axle.....\$ 10.82 **

Single or Tandem Axle Dump..\$ 14.53 **

Tandem Axle Tractor with

Semi Trailer.....\$ 12.12 **

WELDER.....\$ 14.02 **

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher
minimum wage under Executive Order 14026 (\$17.20) or 13658

(\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor