CITY OF ROHNERT PARK

INFORMAL BID REQUEST

CONTRACT DOCUMENTS, SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS

FOR

ALICIA PARK POOL BUILDING DEMOLITION PROJECT

PROJECT NO. 2017-29

BID DUE DATE: January 21, 2020
NON-MANDATORY PRE-BID MEETING DATE: January 7, 2020

Prepared by
City of Rohnert Park-
Public Works Department
600 Enterprise Drive
Rohnert Park, CA 94928
(707) 588-3331

CITY COUNCIL
Mayor – Joseph Callinan
Vice-Mayor – Jake Mackenzie
Council Member – Susan Hollingsworth Adams
Council Member –Gina Belforte
Council Member – Pam Stafford
City Manager – Darrin Jenkins
City Engineer – Mary Grace Pawson

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INVITATION FOR INFORMAL BIDS

ALICIA PARK POOL BUILDING DEMOLITION PROJECT
PROJECT NO. 2017-29

Notice is hereby given that on TUESDAY, JANUARY, 21, 2020, at 2:00 P.M. at 600 Enterprise Drive, Rohnert Park, California, the City of Rohnert Park will receive bids for the ALICIA PARK POOL BUILDING DEMOLITION Project No. 2017-29. This is an informal bid process. The City will open bids and inform bidders of the results at a later date.

The project is located at 300 Arlen Drive, Rohnert Park, CA 94928. The work is described generally as the demolition of the vacant pool buildings and associated facilities. Please see Part 4 for more detailed information.

The Contractor must have a valid California contractor's license, a Class B license. The Engineer's estimate for this project is $110,000.

Under California Labor Code section 1770 et seq., copies of the determination of the Director of the Department of Industrial Relations of the general prevailing rate of per diem wages for each craft, classification and type of workman needed to execute the work are on file in and available to any interested person on request at the Department of Public Works, or on the Internet at http://www.dir.ca.gov/dlsr/PWD/index.htm, and are incorporated herein. (Labor Code § 1773.2.) Prevailing wage determinations will also be posted at each job site.

SB 854 (Stat. 2014, Chapter 28) establishes that no contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a]. No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. All contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement).

Per California Civil Code Section 3247, a performance bond in the amount of 100% of the bid total will be required from the successful bidder for bids exceeding $25,000. A labor and materials bond in the amount of 100% of the bid total will be required from the successful bidder. A bid bond is required. The bond(s) must be provided within fifteen calendar days from notice of award and prior to the performance of any work.

For any moneys earned by the Contractor and withheld by the City of Rohnert Park to ensure the performance of the contract, the Contractor may, at their request and sole expense, substitute certain securities equivalent to the amount withheld in the form and manner and subject to the terms and conditions provided in the California Public Contracts Code Section 22300.

This notice incorporates by reference the terms, conditions and requirements of the specifications approved by the City, any and all changes or amendments to the specifications and special instructions or special notice issued to or given to prospective bidders.

The City of Rohnert Park makes no representation or warranty of the condition of the jobsite. All prospective bidders are requested to carefully review the project scope and to examine and conduct tests or otherwise satisfy themselves as to the conditions at the project site, subject to coordination with the office of the Rohnert Park City Engineer.

Bids will be opened, examined and declared on said day and hour and referred to and considered by the City Manager for approval. Each bid must be submitted on the bid forms furnished by the City, and each bid must include all the items shown on these forms. Substitute forms may be used if specified in this Notice.

A non-mandatory prebid conference will be held at 2:00 p.m. on Tuesday, January 7, 2020 at 300 Arlen Drive,, Rohnert Park, CA 94928.

A copy of the drawings and specifications may be obtained from the City of Rohnert Park, Attn: Terrie Zwillinger, Project Manager, 600 Enterprise Drive, Rohnert Park, California 94928, telephone: (707) 588-3331, upon payment of a $20.00 nonrefundable fee, if picked up, or payment of a $30.00 nonrefundable fee, if mailed.

Posted Date: DECEMBER 23, 2019

/s/ JOANNE BUERGLER
City Clerk of the City of Rohnert Park

INSTRUCTIONS TO BIDDERS

The bidder must file its bid with the Project Manager, Department of Public Works and Community Services of the City of Rohnert Park, California, using the copy of the Bidder's Proposal and Schedule of Bid Prices furnished with the specifications. These documents must be placed in a sealed envelope marked,

ALICIA PARK POOL BUILDING DEMOLITION PROJECT

PROJECT NO. 2017-29

and addressed to the Project Manager, Department of Public Works and Community Services of the City of Rohnert Park, California, located at 600 Enterprise Drive, Rohnert Park, CA 94928.

The bidders attention is directed to the schedule of bid prices that requires this project be bid as a lump sum contract.

Bid Forms. Each proposal must conform and be responsive to the Invitation, the Plans, Specifications and Contract documents. The wording of the proposal must not be changed. Any additions, conditions, limitations, or provisions inserted by the bidder will render the proposal irregular and may cause its rejection. Erasures or interlineations in the proposal must be explained or noted over the signature of the bidder.

In case of discrepancy between a unit price and the total price set forth for the unit price item, the unit price shall prevail. Discrepancies between the indicated sum of any column of numerals and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of the words.

Prices. All proposals must give the prices proposed, both in writing and in figures in the respective spaces provided, and must be signed by the bidder, who must fill out all blanks in the proposal form as therein required.

Rejection of Bids. Proposals may be rejected if they show any alterations of form, additions not called for, conditional proposals, incomplete proposals, erasures, or irregularities of any kind, excepting that erasures or delineations in the proposal will be accepted providing they are initialed by the signator of the proposal.

When proposals are signed by an agent, other than the officer or officers of a corporation authorized to sign Contracts on its behalf or a member of a co-partnership, a Power of Attorney must be on file with the City prior to opening proposals or must be submitted with the proposal; otherwise, the proposal may be rejected as irregular and unauthorized.

Bid Security. All proposals must be presented under sealed cover and accompanied by one of the following forms of bidder's security: Cashier's check, certified check, or a bidder's bond executed by an admitted surety insurer authorized to transact business in this State, made payable to the City. Said bidder's bond submitted must be the City's bid bond or a bid bond approved in advance by the City Attorney. The security must be in an amount equal to at least 10 percent of the amount proposal. A proposal must not be considered unless one of the forms of bidder's security is enclosed with it. A bidder's bond will not be accepted unless it has been properly filled out and executed by the surety and by the bidder.

Withdrawal of Bid. Any bid may be withdrawn at any time prior to the time fixed in the notice for the proposals due date and time only by written request for the withdrawal of bid filed with the City Engineer. The request must be executed by the bidder or its duly authorized representative. The withdrawal of a bid does not prejudice the right of the bidder to file a new bid. This article does not authorize the withdrawal of any bid after the time fixed in the public notice for the opening of bids.

Means of Submittal. Proposals may be submitted by e-mail or hard copy; however proposals failing to

reach the office of the City prior to the date and time set for receipt of same will not be considered.

Multiple Proposals. More than one proposal from an individual, a firm or partnership, a corporation or an association under the same or different names, will not be considered. Reasonable grounds for believing that any bidder is interested in more than one proposal for the work contemplated will cause the rejection of all proposals in which such bidder is interested. If there is reason for believing that collusion exists among the bidders, none of the participants in such collusion will be considered in future proposals. Proposals in which the prices obviously are unbalanced may be rejected.

License Requirement. No proposal will be accepted from a Contractor who is not licensed in accordance with law under the provisions of Division III, Chapter 9, of the Business and Professions Code of the State of California, or from a Contractor that has been deemed irresponsible or unresponsive.

Subcontractors. Subcontractors listed by the bidder in accordance with the Special Provisions included herein must be properly licensed under the laws of the State of California for the type of work which they are to perform.

All bidders are hereby notified that they will be required to comply strictly with the provisions of Sections 4100 to 4113, inclusive, of the Government Code of the State of California.

Each bidder must file with its proposal the name and location of place of business, contractor's license number and Department of Industrial Relations registration number, of each Subcontractor who will perform a portion of the Contract work in an amount in excess of one-half of one percent of the total Contract price. In each such instance, the nature and extent of the work to be sublet must be described.

The General Contractor to whom the Contract is awarded will not be permitted, without the written consent of the City, to substitute any person as Subcontractor in place of the Subcontractor designated in the original proposal, or to permit any Subcontract to be assigned or transferred, or to allow it to be performed by anyone other than the original Subcontractor. The City may consent to the substitution of another person as Subcontractor if the original Subcontractor, after having reasonable opportunity so to do, fails or refuses to execute the written Contract presented to it by the General Contractor, when said written Contract is based upon the conditions of the general Contract and complies with the Subcontractor's written proposal.

The failure of the Contractor to specify a Subcontractor for any portion of the Contract work in excess of one-half of one percent of the total Contract price, must be deemed to indicate that the Contractor intends to perform such portion itself. The subletting or Subcontracting of work for which no Subcontractor was designated in the original proposal and which is in excess of one-half of one percent of the total Contract price will be allowed only with the written consent of the City and then only in cases of public emergency or necessity as determined by said City. Under such circumstances, the City is required to establish the facts constituting the emergency or necessity and reduce its findings to a written public record.

Violations of the provisions of these specified sections of the Code must be deemed to be a violation of the Contract, and the City, because of any such violations, must have the right to cancel the Contract. The Contractor, after any such violations, must be penalized to the extent of 20 percent of the amount of the Subcontract involved.

Material The bidder may be required to furnish, as part of the submittal process, a complete statement of the origin, composition, and manufacture of any or all materials to be used in the construction of the work, together with samples. Such samples may be subjected to the tests provided for in these specifications or in the Special Provisions to determine their quality and fitness for the work.

Additional Requirements. The bidder's attention is directed to Section 3 of the General Provisions for additional proposal requirements and conditions, and information regarding award and execution of the contract. Contractor submitting a bid to the City of Rohnert Park, a public entity, must state, under penalty

of perjury, the contractor's license number and the license's expiration date. This information must be entered in the Schedule of Bid Prices. No contractor or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

Explanations and Addenda. Any explanation desired by the bidders regarding the meaning or interpretation of the drawings and specifications must be requested in writing and in sufficient time to allow for a written reply to reach them and all other potential bidders before the date and time for submission of bids. Oral explanation or instructions given before award of the contract will not be binding. Any interpretations made will be in the form of an addendum to the specifications or drawings and will be furnished to all bidders and its receipt by the bidder must be acknowledged. Any explanation that makes a material change, addition, or deletion to the terms of the Invitation for Sealed Bids shall be issued no less than 72 hours before the date and time for submission of bids. If an explanation making a material change, addition, or deletion must be issued less than 72 hours before the scheduled date and time for submission of bids, the date and time for submission shall be extended so that a full 72 hours is provided for analysis of the change, addition, or deletion.

Quantity of Work. The quantity of work for the unit price items to be done under the contract as noted in the Bid Schedule is but an estimate and is not to be taken as an expressed or implied statement that the actual quantity of work will correspond to the estimate. The right is reserved to increase or decrease, or to entirely eliminate items from the work if found desirable or expedient. The Contractor will be allowed no claims for anticipated profits, loss of profits, or for any damages of any sort because of any difference between the estimated and the actual quantities of work done.

The quantities given in the schedule, for unit price items, are for comparing proposals and may vary from the actual final quantities. Some quantities may be increased and others may be decreased or entirely eliminated, and no claim must be made against the City for damage occasioned thereby or for loss of anticipated profits, the Contractor being entitled only to compensation for the actual work done at the unit prices proposal.

The City reserves and must have the right to increase or decrease the quantities of work to be performed under a scheduled unit item or to entirely omit the performance thereof and upon decision of the City to so do, the City Engineer will direct the Contractor to proceed with the said work as so modified. If an increase in the quantity of work so ordered should result in delay to the work, the Contractor will be given an equivalent extension of time.

All estimates and all measurements used in determining the quantities of unit price items of work done, the percentage of completion of lump sum items of work, and the quantity of materials furnished under the Contract at various times during the progress of the work must be the Engineer's estimates and measurements.

The planimeter must be considered an instrument of precision adapted to the measurements of all areas.

Insurance. The bidder’s attention is drawn to Section 2.02 of the Special Provisions, Location and Description of Work, and to Section 2.03B of the Special Provisions, Minimum Limits of Insurance.

Inspection of Site. The bidder must examine carefully the site of the work contemplated and the proposal, plans, specifications, and the Contract form therefor. It will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished, and as to the requirements of these specifications, the special provisions, and the Contract.

Where investigation of subsurface conditions has been made by the City in respect to foundation or other

design, bidders may inspect the records of the City as to such investigation, including examination of samples, if available. When the Plans include a log of test borings showing a record of the data obtained by the City's investigation of subsurface conditions, said log represents only the opinion of the City as to the character of material encountered by it in its test borings and is only included for the convenience of bidders.

Investigations of subsurface conditions are made for the purpose of design. The City assumes no responsibility whatever in respect to the sufficiency or accuracy of borings or of the log of test borings or other preliminary investigations, or of the interpretation thereof, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unlooked for developments may not occur.

Making such information available to the bidders is not to be construed in any way as a waiver of the provisions of the first paragraph of this article and bidders must satisfy themselves through their own investigations as to conditions to be encountered.

No information derived from such inspection of the records of preliminary investigations made by the City or from the maps, plans, specifications, profiles or drawings will in any way relieve the Contractor from any risk from properly fulfilling all the terms of the Contract.

Records of such preliminary investigations as may have been made by the City may be inspected at the office of the Engineer.

Pre-construction Meeting. At the pre-construction meeting, the successful bidder must submit a CPM progress schedule which will show the time he/she proposes to occupy in prosecuting the various major divisions of work and his/her proposed sequence of operations. The CPM progress schedule must be subject to the approval of the City Engineer.

Adjustment of Schedule. If at any time the construction schedule is inadequate to secure completion of the work within the time specified, and the work is being prosecuted inadequately or improperly, the Engineer must have the right to require the Contractor to submit a revised progress schedule, providing for proper and timely completion of the work.

The Contractor must not be entitled to additional compensation on account of revisions required by the City.

BIDDER'S PROPOSAL

ALICIA PARK POOL BUILDING DEMOLITION PROJECT
PROJECT NO. 2017-29

To: City Council, City of Rohnert Park

The undersigned hereby declares:

(a) That the only persons or parties interested in this proposal as principals are the following:

_____.

(If the bidder is a corporation, give the name of the corporation and the name of its president, secretary, treasurer, and manager. If a co-partnership, give the name under which the co-partnership does business, and the names and addresses of all co-partners. If an individual, state the name under which the contract is to be drawn.)

(b) That this proposal is made without collusion with any other person, firm, or corporation.

(c) That he/she has carefully examined the locations of the proposed work, and has familiarized himself/herself with all of the physical and climatic conditions, and makes this bid solely upon his/her own knowledge.

(d) That he/she has carefully examined the scope of work and makes this proposal in accordance therewith.

(e) That, if this bid is accepted, he/she agrees to enter into an agreement with City in the form included in the Contract Documents to complete all work as specified in the Contract for the contract price and within the contract time indicated in this bid and in accordance with the Contract Documents.

(f) That this bid will remain open and not be withdrawn for the period specified in the Instructions to Bidders. .

(g) That he/she has read the insurance requirements in Section 2.03, Insurance in the Special Provisions section of this bid document;

(h) That he/she has conferred with his/her insurance carriers or brokers to determine in advance of the bid submission the availability of insurance certificates and endorsements as prescribed and provided herein;

(i) That if the bid is accepted, he/she will enter into a written contract and within fifteen (15) calendar days furnish the required proof of insurance including certificates and endorsements;

(j) That failure to comply strictly with the insurance requirements may result in forfeiture of the bid security and withdrawal of the bid proposal.

(k) That he/she is properly licensed in accordance with California Business and Professions Code section 7000 et seq. Bidder acknowledges that if the bidder is not properly licensed at the time the bid is awarded or as otherwise required by law, the bid will be considered non-responsive and will be rejected.

(l) That he/she and any subcontractor relied on by him/her will keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the contractor or subcontractor in connection with the public work, as more fully set forth in the Contract. All contractors and subcontractors

must furnish electronic certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement).

(m) That in compliance with the Subletting and Subcontracting Fair Practices Act, California Public Contracts Code section 4100 et seq., he/she has listed on the attached "List of Subcontractors" each subcontractor who will perform work or labor or render service to the bidder in or about the construction of the work or will specifically fabricate and install a portion of the work in an amount in excess of one half of one percent (0.5%) of the total bid sum or in the case of bids or offers for the construction of streets or highways, including bridges, in excess of one-half of one percent (0.5%) of the total bid or $10,000, whichever is greater, and that no subcontractors may be used other than those specified without written approval of the City Engineer.

Accompanying this proposal is a certified or cashier's check, or bidder's bond payable to the order of the City Clerk of the City of Rohnert Park, in the sum of _____ Dollars ($_____). Said bidder's bond submitted is the City's bid bond form or a bid bond approved in advance by the City Attorney. Said bidder's bond has been duly executed by the undersigned bidder and by a financially sound surety company authorized to transact business in the State of California.

It is understood and agreed that should the bidder fail within fifteen (15) calendar days after the date of mailing written notice to the successful bidder that the contract has been awarded, to enter into the contract and furnish acceptable surety bonds and insurance on forms included herein, then the proceeds of said check, or bidder's bond, must become the property of the City. But if the contract is entered into and said bonds are furnished or if the bid is not accepted, then said check must be returned to the undersigned or the bidder will be released from the bidder's bond.

_____ _____

Address of Bidder Telephone Number of Bidder

_____ _____

City, State, Zip Signature of Bidder

SCHEDULE OF BID PRICES

ALICIA PARK POOL BUILDING DEMOLITION PROJECT
PROJECT NO. 2017-29

In accordance with the plans and specifications therefor approved by the City of Rohnert Park, the undersigned bidder is herewith submitting the following bid prices for the performance of the entire proposed work as described in these specifications and attached drawings:

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
1	Building Demolition	1	LS		
2	All Work of Contract Documents other than Work separately provided for under other Bid items	1	LS		
	TOTAL BASE BID PRICE				

Total Amount of Base Bid (written in words) is: _____

_____Dollars

and _____ Cents.

Any discrepancy between words and figures shall be resolved as provided in the Instructions to Bidders.

$_____
Total Amount of Base Bid (Figures)

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
BID ALTERNATE					
A-1	Irrigation Systems Design	1	LS		
A-2	New Sod at Disturbed Areas	1	LS		
A-3	Fence Removal	1	LS		

_____ _____
Address of Bidder Signature of Bidder

_____ _____
City, State, Zip Name of Bidder (Print)

_____ _____
Telephone Number of Bidder FAX Number of Bidder

_____ _____
Contractor's License Number License's Expiration Date

_____
Contractor's email address

ADDENDUM ACKNOWLEDGEMENT

ADDENDUM #1 Date_____Signature acknowledging receipt: _____

ADDENDUM #2 Date_____Signature acknowledging receipt: _____

ADDENDUM #3 Date_____Signature acknowledging receipt: _____

CONTRACTOR'S LICENSE DECLARATION
(Business and Professions Code Section 7028.15)

The undersigned declares that he or she is _____ of _____. (party making foregoing bid) (hereinafter the "Bidder")

1. Bidder's Contractor's License Number is as follows:_____.

2. The expiration date of Bidder's Contractor's License is _____, 20___.

3. Bidder acknowledges that Section 7028.15(e) of the Business and Professions Code provides as follows:

> "A licensed contractor must not submit a bid to a public agency unless his or her contractor's license number appears clearly on the bid, the license expiration date is stated, and the bid contains a statement that the representations therein are made under penalty of perjury. Any bid not containing this information, or a bid containing information which is subsequently proven false, must be considered non-responsive and must be rejected by the public agency."

The undersigned declares, under penalty of perjury, that the representations made by the undersigned in this bid proposal are true and correct.

Executed on _____, 20 ___, at _____ (insert city and state where Declaration signed).

_____
Signature

_____
Typed Name

_____
Title

_____
Name of Bidder

LIST OF SUBCONTRACTORS

In accordance with the provisions of Sections 4102 to 4108, inclusive, of the Public Contact Code of the State of California, each bidder must list below the name and location of place of business, contractors license number and Department of Industrial Relations registration number of each subcontractor who will perform a portion of the contract work in an amount in excess of one-half of one percent of the total contract price. In each such instance, the nature and extent of the work to be sublet must be described.

Name, State, Public Works Contractor Registration Number, and Contractor's License Number of Subcontractor	Address of Office, Mill or Shop	Description of Work to be Performed (also show bid Schedule Item No.)	Amount of work (dollar value and percentage)
Name:			Dollar Value:
State:			
CLN:			Percentage:
DIR:			
Name:			Dollar Value:
State:			
CLN:			Percentage:
DIR:			
Name:			Dollar Value:
State:			
CLN:			Percentage:
DIR:			
Name:			Dollar Value:
State:			
CLN:			Percentage:
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Name:			Dollar Value:
State:			
CLN:			Percentage:
DIR:			
Name:			Dollar Value:
State:			
CLN:			Percentage:
DIR:			
Name:			Dollar Value:
State:			
CLN:			Percentage:
DIR:			

**Note, the Subletting and Subcontracting Fair Practices Act also requires inclusion of any subcontractor who specially fabricates and installs a portion of the work according to detailed drawings.

BID BOND **Bond No. _____**

WHEREAS, _____ ("Principal") intends to submit a bid to the City of Rohnert Park ("City") for the above-referenced Project, and the terms of the bid require the Principal to submit bidder's security.

NOW, THEREFORE, Principal and _____, a corporation organized and existing under the laws of the State of _____and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bond unto City in the sum of _____ dollars ($_____) lawful money of the United States of America, such sum being not less than ten percent (10%) of the bid amount for the payment of which sum to be made, the Principal and Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. .

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the Principal submits a bid for the above-referenced Project, the terms and conditions of which are incorporated herein by reference, and if said bid is rejected by the City, or if said bid is accepted by the City and the Bidder properly executes and submits to the City the Agreement and all required documents (including the Faithful Performance bond, the Labor and Material Bond, and the proof of insurance), then this obligation must be null and void; otherwise it must be and remain in full force and effect.

The Surety hereby agrees, for value received, that its obligations under this bond must in no way be impaired or modified by an agreement between the City and the Principal to extend the time within which the City may accept the Principal's bid, and the surety hereby waives notice of any such extension.

In the event suit is brought upon this bond, the surety must pay reasonable attorneys' fees and costs incurred by the prevailing parties in such suit, which fees and costs must be in addition to the face amount of the bond.

IN WITNESS WHEREOF, the undersigned represent and warrant that they have the right, power, legal capacity, and authority to enter into and execute this document on behalf of the Principal and the Surety, and have caused this document to be executed by setting hereto their names, titles and signatures.

Principal: _____
(Name of Firm)

By: _____
Title: _____
Date: _____

Surety: _____
(Name of Firm)

By: _____
Title: _____
Date: _____

Address for Notices to Surety:
_____
_____
_____

Note: Notary acknowledgment for Surety and Surety's Power of Attorney must be attached.

NONCOLLUSION DECLARATION

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this _____ day of _____, 20___, at _____, California.

_____ _____

Firm (print or type) Signature

DECLARATION OF ELIGIBILITY TO CONTRACT

The undersigned, a duly authorized representative of the bidder, certifies and declares that:

1. The bidder is aware of California Labor Code sections 1771.1 and 1777.7, which prohibit a contractor or subcontractor who has been found by the Labor Commissioner or the Director of Industrial Relations to be in violation of certain provisions of the Labor Code from bidding on, being awarded, or performing work as a subcontractor on a public works project for specified periods of time.

2. The bidder is not prohibited from bidding on, being awarded, or performing work as a contractor or subcontractor on a public works project under Labor Code sections 1771.1 and 1777.7, or any other provision of law.

3. The bidder is aware of California Public Contract Code section 6109, which states:

   "(a) A public entity, as defined in Section 1100 [of the Public Contract Code], may not permit a contractor or subcontractor who is ineligible to bid or work on, or be awarded, a public works project pursuant to Section 1771.1 or 1777.7 of the Labor Code to bid on, be awarded, or perform work as a subcontractor on, a public works project. Every public works project shall contain a provision prohibiting a contractor from performing work on a public works project with a subcontractor who is ineligible to perform work on the public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code.

   (b) Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract, and any public money that may have been paid to a debarred subcontractor by a contractor on the project will be returned to the awarding body. The contractor is responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the project."

4. The bidder has investigated the eligibility of each and every subcontractor that bidder intends to use on this public works project, and determined that none of them is ineligible to perform work as a subcontractor on a public works project by virtue of Public Contract Code section 6109, Labor Code sections 1771.1 and 1777.7, or any other provision of law.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this _____ day of _____, 20___, at _____, California.

_____

Signature and Title of Authorized Official

C O N T R A C T

ALICIA PARK POOL BUILDING DEMOLTION PROJECT
PROJECT NO. 2017-29

THIS AGREEMENT, made and entered into this _____ day of_____, 20___, by and between _____, hereinafter called "Contractor", and the City of Rohnert Park, hereinafter called "City".

W I T N E S S E T H :

WHEREAS, the City Council of said City has awarded a contract to Contractor for performing the work hereinafter mentioned in accordance with the sealed proposal of said Contractor.

NOW, THEREFORE, IT IS AGREED, as follows:

1. Scope of Work: The Contractor must perform all the work and furnish all the labor, materials, equipment and all utility and transportation services required to complete all of the work of construction and installation of the improvements the items and quantities of which are more particularly set forth in the Contractor's bid therefor on file in the office of the City Clerk, except work to be performed by subcontractors as set forth in the Contractor's bid and for which the Contractor retains responsibility.

2. Time of Performance and Liquidated Damages: The Contractor must begin work within fifteen (15) calendar days after official notice by the City Engineer to proceed with the work and must diligently prosecute the same to completion within **30** calendar days of that Notice. The Contractor acknowledges and agrees that time is of the essence with respect to Contractor's work and that Contractor shall diligently pursue performance of the work.

In the event the Contractor does not complete the work within the time limit so specified or within such further time as said City Council must have authorized, the Contractor must pay to the City liquidated damages in the amount of $500.00 (Five Hundred) per day for each and every day's delay in finishing the work beyond the completion date so specified. Additional provisions with regard to said time of completion and liquidated damages are set forth in the specifications, which provisions are hereby referred to and incorporated herein by reference.

3. Payments: Payments will be made by City to the Contractor for said work performed at the times and in the manner provided in the specifications and at the unit prices stated in Contractor's bid.

The award of the contract is for a total amount of <<AMOUNT>>.

4. Component Parts and Interpretation: This contract must consist of the following documents, each of which is on file in the office of the City Clerk and all of which are incorporated herein and made a part hereof by reference thereto:

a) This Agreement
b) Notice Inviting Sealed Proposals
c) Instruction and Information to Bidders
d) Accepted Proposal, with all attachments and certifications
e) Faithful Performance Bond
f) Labor and Material Bond
g) Special Provisions
h) Standard Specifications

i) Technical specifications
j) Design Standards
k) Plans, Profiles and Detailed Drawings

In the event of conflict between these documents, the following order of precedence will govern: this contract; change orders; supplemental agreements and approved revisions to plans and specifications; special conditions; standard specifications; detail plans; general plans; standard plans; reference specifications. In the absence of a controlling or contrary provision in the foregoing, the *Standard Specifications* (2010 edition) of the California Department of Transportation shall apply to this project.

5. Independent Contractor. Contractor is and will at all times remain as to City a wholly independent contractor. Neither City nor any of its officers, employees, or agents will have control over the conduct of Contractor or any of Contractor's officers, employees, agents or subcontractors, except as expressly set forth in the Contract Documents. Contractor may not at any time or in any manner represent that it or any of its officers, employees, agents, or subcontractors are in any manner officers, employees, agents or subcontractors of City.

6. Prevailing Wages: Copies of the determination of the Director of the Department of Industrial Relations of the prevailing rate of per diem wages for each craft, classification or type of worker needed to execute this Contract will be on file in, and available at, the office of the Director at 601 Carmen Drive, Camarillo, California 93010.

Contractor must post at the work site, or if there is no regular work site then at its principal office, for the duration of the Contract, a copy of the determination by the Director of the Department of Industrial Relations of the specified prevailing rate of per diem wages. (Labor Code § 1773.2.)

Contractor, and any subcontractor engaged by Contractor, may pay not less than the specified prevailing rate of per diem wages to all workers employed in the execution of the contract. (Labor Code § 1774.) Contractor is responsible for compliance with Labor Code section 1776 relative to the retention and inspection of payroll records.

Contractor must comply with all provisions of Labor Code section 1775. Under Section 1775, Contractor may forfeit as a penalty to City up to $200.00 for each worker employed in the execution of the Contract by Contractor or any subcontractor for each calendar day, or portion thereof, in which the worker is paid less than the prevailing rates. Contractor may also be liable to pay the difference between the prevailing wage rates and the amount paid to each worker for each calendar day, or portion thereof, for which each worker was paid less than the prevailing wage rate.

Nothing in this Contract prevents Contractor or any subcontractor from employing properly registered apprentices in the execution of the Contract. Contractor is responsible for compliance with Labor Code section 1777.5 for all apprenticeable occupations. This statute requires that contractors and subcontractors must submit contract award information to the applicable joint apprenticeship committee, must employ apprentices in apprenticeable occupations in a ratio of not less than one hour of apprentice's work for every five hours of labor performed by a journeyman (unless an exception is granted under § 1777.5), must contribute to the fund or funds in each craft or trade or a like amount to the California Apprenticeship Council, and that contractors and subcontractors must not discriminate among otherwise qualified employees as apprentices solely on the ground of sex, race, religion, creed, national origin, ancestry or color. Only apprentices defined in Labor Code section 3077, who are in training under apprenticeship standards and who have written apprentice contracts, may be employed on public works in apprenticeable occupations.

If federal funds are used to pay for the Work, Contractor and any subcontractor agree to comply,

as applicable, with the labor and reporting requirements of the Davis-Bacon Act (40 USC § 276a-7), the Copeland Act (40 USC § 276c and 18 USC § 874), and the Contract Work Hours and Safety Standards Act (40 USC § 327 and following).

7. Hours of Labor: Contractor acknowledges that under California Labor Code sections 1810 and following, eight hours of labor constitutes a legal day's work. Contractor will forfeit as a penalty to City the sum of $25.00 for each worker employed in the execution of this Contract by Contractor or any subcontractor for each calendar day during which such worker is required or permitted to work more than eight hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of Labor Code section 1810. .

8. Apprentices: Attention is directed to the provisions in Sections 1777.5 (Chapter 1411, Statutes of 1968) and 1777.6 of the Labor Code concerning the employment of apprentices by the Contractor or any Subcontractor under him.

Section 1777.5, as amended, requires the Contractor or Subcontractor employing tradesmen in any apprenticeable occupation to apply to the joint apprenticeship committee nearest the site of the public works project and which administers the apprenticeship program in that trade for a certificate of approval. The certificate will also fix the ratio of apprentices to journeymen that will be used in the performance of the Contract. The ratio of apprentices to journeymen in such cases must not be less than one to five except:

A. When unemployment in the area of coverage by the joint apprenticeship committee has exceeded an average of 15 percent in the 90 days prior to the request for certificate, or
B. When the number of apprentices in training in that area exceeds a ratio of one to five, or
C. When the trade can show that it is replacing at least 1/30 of its membership through apprenticeship training on an annual basis statewide or locally, or
D. When the assignment of an apprentice to any work performed under a public works Contract would create a condition which would jeopardize his life or the life, safety, or property of fellow employees or the public at large, or if the specified task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyman, or
E. When the Contractor provides evidence that he employs registered apprentices on all of his Contracts on an annual average of not less than one apprentice to eight journeymen.

The Contractor is required to make contributions to funds established for the administration of apprenticeship program if he employs registered apprentices or journeymen in any apprenticeable trade on such Contracts and if other Contractors on the public works site are making such contributions.

The Contractor and any Subcontractor under him must comply with the requirements of Section 1777.5 and 1777.6 in the employment of apprentices.

Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices. .

9. Labor Discrimination: Attention is directed to Section 1735 of the Labor Code, which reads as follows:

> "A contractor must not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter. "

10. Workmen's Compensation Insurance: In accordance with the provisions of Article 5,

Chapter 1, Part 7, Division 2 (commencing with Section 1860) and Chapter 4, Part 1, Division 4 (commencing with Section 3700) of the Labor Code of the State of California, the Contractor is required to secure the payment of compensation to his employees and must for that purpose obtain and keep in effect adequate Workmen's Compensation Insurance.

The undersigned Contractor is aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for workmen's compensation or to undertake self-insurance in accordance with the provisions of that Code, and will comply with such provisions before commencing the performance of the work of this contract.

11. Indemnity and Insurance: To the fullest extent permitted by law, Contractor must indemnify, hold harmless, release and defend City, its officers, elected officials, employees, agents, volunteers, and consultants from and against any and all actions, claims, demands, damages, disability, losses, expenses including, but not limited to, attorney's fees and other defense costs and liabilities of any nature that may be asserted by any person or entity including Contractor, in whole or in part, arising out of Contractor's activities hereunder, including the activities of other persons employed or utilized by Contractor including subcontractors hired by the Contractor in the performance of this Agreement excepting liabilities due to the active negligence of the City. This indemnification obligation is not limited in any way by any limitation on the amount or type of damages or compensation payable by or for Contractor under Worker's Compensation, disability or other employee benefit acts or the terms, applicability or limitations of any insurance held or provided by Contractor and must continue to bind the parties after termination/completion of this Agreement.

Contractor shall procure and maintain throughout the time for performance of the work under this Contract the insurance required by the Special Provisions. The requirement that Contractor procure and maintain insurance shall in no way be construed to limit the Contractor's duty to indemnify City as provided in the paragraph above.

Failure of City to monitor compliance with these requirements imposes no additional obligations on City and will in no way act as a waiver of any rights hereunder.

12. City Right of Termination and Right to Complete the Work. The City may terminate the Contract when conditions encountered during the work make it impossible or impracticable to proceed, or when the City is prevented from proceeding with the Contract by act of God, by law, or by official action of a public authority. In addition, the occurrence of any of the following is a default by Contractor under this Contract:

A. Contractor refuses or fails to prosecute the Work or any part thereof with such diligence as will insure its completion within the time specified or any permitted extension.

B. Contractor fails to complete the Work on time.

C. Contractor is adjudged bankrupt, or makes a general assignment for the benefit of creditors, or a receiver is appointed on account of Contractor's insolvency.

D. Contractor fails to supply enough properly skilled workers or proper materials to complete the Work in the time specified.

E. Contractor fails to make prompt payment to any subcontractor or for material or labor.

F. Contractor fails to abide by any applicable laws, ordinances or instructions of City in performing the Work.

G. Contractor breaches or fails to perform any obligation or duty under the Contract.

Upon the occurrence of a default by Contractor, the Director will serve a written notice of default on Contractor specifying the nature of the default and the steps needed to correct the default. Unless

Contractor cures the default within 10 days after the service of such notice, or satisfactory arrangements acceptable to City for the correction or elimination of such default are made, as determined by City, City may thereafter terminate this Contract by serving written notice on Contractor. In such case, Contractor will not be entitled to receive any further payment, except for Work actually completed prior to such termination in accordance with the provisions of the Contract Documents.

In event of any such termination, City will also immediately serve written notice of the termination upon Contractor's surety. The surety will have the right to take over and perform pursuant to this Contract; provided, however, that if the surety does not give City written notice of its intention to take over and perform this Contract within five days after service of the notice of termination or does not commence performance within 10 days from the date of such notice, City may take over the Work and prosecute the same to completion by contract or by any other method it may deem advisable for the account and at the expense of Contractor. Contractor and the surety will be liable to City for any and all excess costs or other damages incurred by City in completing the Work.

If City takes over the Work as provided in this Section, City may, without liability for so doing, take possession of, and utilize in completing the Work, such materials, appliances, plant, and other property belonging to Contractor as may be on the site of the Work and necessary for the completion of the Work.

13. Substitution of Securities for Withheld Amounts: Pursuant to California Public Contracts Code Section 22300, securities may be substituted for any moneys withheld by a public agency to ensure performance under a contract. At the request and sole expense of the Contractor, securities equivalent to the amount withheld must be deposited with the public agency, or with a state or federally chartered bank as the escrow agent, who must pay such moneys to the Contractor upon satisfactory completion of the contract.

Securities eligible for substitution under this section must include those listed in the California Public Contracts Code Section 22300 or bank or savings and loan certificates of deposit. The Contractor must be the beneficial owner of any securities substituted for moneys withheld and must receive any interest thereon.

Alternatively, the Contractor may request and the City shall make payment of retentions earned directly to the escrow agent at the expense of the Contractor. At the expense of the Contractor, the Contractor may direct the investment of the payments into securities and the Contractor shall receive the interest earned on the investments upon the same terms provided for in Section 22300 for securities deposited by the Contractor. Upon satisfactory completion of the Contract, the Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the City, pursuant to the terms of this section.

Any escrow agreement entered into pursuant to this section must contain as a minimum the following provisions:

a. The amount of securities to be deposited;
b. The terms and conditions of conversion to cash in case of the default of the Contractor; and
c. The termination of the escrow upon completion of the contract.

14. General Provisions

A Authority to Execute. Each Party represents and warrants that all necessary action has been taken by such Party to authorize the undersigned to execute this Contract and to bind it to the performance of its obligations.

B Assignment. Contractor may not assign this Contract without the prior written consent of City, which consent may be withheld in City's sole discretion since the experience and qualifications of Contractor were material considerations for this Contract.

C. Binding Effect. This Agreement is binding upon the heirs, executors, administrators, successors and permitted assigns of the Parties.

D Integrated Contract. This Contract, including the Contract Documents, is the entire, complete, final and exclusive expression of the Parties with respect to the Work to be performed under this Contract and supersedes all other agreements or understandings, whether oral or written, between Contractor and City prior to the execution of this Contract.

E. Modification of Contract. No amendment to or modification of this Contract will be valid unless made in writing and approved by Contractor and by the City Council or City Manager, as applicable. The Parties agree that this requirement for written modifications cannot be waived and that any attempted waiver will be void.

F. Counterparts, Facsimile or other Electronic Signatures. This Contract may be executed in several counterparts, each of which will be deemed an original, and all of which, when taken together, constitute one and the same instrument. Amendments to this Contract will be considered executed when the signature of a party is delivered by facsimile or other electronic transmission. Such facsimile or other electronic signature will have the same effect as an original signature.

G. Waiver. Waiver by any Party of any term, condition, or covenant of this Contract will not constitute a waiver of any other term, condition, or covenant. Waiver by any Party of any breach of the provisions of this Contract will not constitute a waiver of any other provision, or a waiver of any subsequent breach or violation of any provision of this Contract. Acceptance by City of any Work performed by Contractor will not constitute a waiver of any of the provisions of this Contract.

H. Interpretation. This Contract will be interpreted, construed and governed according to the laws of the State of California. Each party has had the opportunity to review this Contract with legal counsel. The Contract will be construed simply, as a whole, and in accordance with its fair meaning. It will not be interpreted strictly for or against either party.

I. Severability. If any term, condition or covenant of this Contract is declared or determined by any court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this Contract will not be affected and the Contract will be read and construed without the invalid, void or unenforceable provision.

J. Venue. In the event of litigation between the parties, venue in state trial courts will be in the County of Sonoma. In the event of litigation in a U.S. District Court, venue will be in the Northern District of California.

IN WITNESS WHEREOF, the City of Rohnert Park has caused these presents to be executed by its officers, thereunto duly authorized, and Contractor has subscribed same, all on the day and year first above written.

CITY OF ROHNERT PARK

_____

City Manager Date

Per Purchasing Policy as approved by Resolution 2016-51

<<CONTRACTOR>>

_____

Name/Title Date

ATTEST:

_____

Deputy City Clerk

INSURANCE

Bidder's attention is directed to the following insurance forms and to Section 2.03 of the Special Provisions, located on Pages 2-1 through 2-4 in the Special Provisions section. It is highly recommended that bidders confer with their respective insurance carriers or brokers to determine in advance of bid submission the availability of insurance certificates and endorsements as prescribed and provided herein. Failure to comply strictly with the insurance requirements may result in forfeiture of the bid security and withdrawal of the bid proposal.

CERTIFICATE OF INSURANCE

ISSUE DATE MM/DD/YY)

CITY OF ROHNERT PARK (the "City")

PRODUCER

INSURED

THIS CERTIFICATE OF INSURANCE IS NOT AN INSURANCE POLICY AND DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

	COMPANIES	BEST'S RATING
COMPANY LETTER **A**		
COMPANY LETTER **B**		
COMPANY LETTER **C**		
COMPANY LETTER **D**		
COMPANY LETTER **E**		

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

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	ALL LIMITS IN THOUSANDS	
	GENERAL LIABILITY □ COMMERCIAL GENERAL LIABILITY □ CLAIMS MADE □ OCCUR. □ OWNER'S & CONTRACTOR'S PROT. □ OTHER _____				GENERAL AGGREGATE	$
					PRODUCTS-COMP/OPS AGGREGATE	$
					PERSONAL & ADVERTISING INJURY	$
					EACH OCCURRENCE	$
					FIRE DAMAGE (Any one fire)	$
					MEDICAL EXPENSE (Any one person)	$
	AUTOMOBILE LIABILITY □ ANY AUTO □ ALL OWNED AUTOS □ SCHEDULED AUTOS □ HIRED AUTOS □ NON-OWNED AUTOS □ GARAGE LIABILITY				COMBINED SINGLE LIMIT	$
					BODILY INJURY (Per person)	$
					BODILY INJURY (Per accident)	$
					PROPERTY DAMAGE	$
	EXCESS LIABILITY □ UMBRELLA □ OTHER THAN UMBRELLA FORM				EACH OCCURRENCE	$
					AGGREGATE	$
	□ WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY	
					EACH ACCIDENT	$
					DISEASE-POLICY LIMIT	$
					DISEASE-EACH EMPLOYEE	$
	PROPERTY INSURANCE □ COURSE OF CONSTRUCTION				AMOUNT OF INSURANCE	$

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/RESTRICTIONS/SPECIAL ITEMS

THE FOLLOWING PROVISIONS APPLY:

1. None of the above-described policies will be canceled until after 30 days' written notice has been given to the City at the address indicated below.
2. The City of Rohnert Park, its officers, elected officials, employees, agents and volunteers are added as insureds on all liability insurance policies listed above.
3. It is agreed that any insurance or self-insurance maintained by the City will apply in excess of and not contribute with, the insurance described above.
4. The City is named a loss payee on the property insurance policies described above, if any.
5. All rights of subrogation under the property insurance policy listed above have been waived against the City.
6. The workers' compensation insurer named above, if any, agrees to waive all rights to subrogation against the City for injuries to employees of the insured resulting from work for the City or use of the City's premises or facilities.

CERTIFICATE HOLDER/ADDITIONAL INSURED

CITY OF ROHNERT PARK
130 AVRAM AVENUE
ROHNERT PARK, CA 94928

AUTHORIZED REPRESENTATIVE

SIGNATURE _____

TITLE _____

PHONE NO. _____

Rev. 11/08

INSURERISO FORM CG 20 10 11 85 (MODIFIED)
POLICY NO: **COMMERCIAL GENERAL LIABILITY**
ENDORSEMENT NO:

THIS ENDORSEMENT CHANGES THE POLICY, PLEASE READ IT CAREFULLY

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART.

SCHEDULE

Name of Organization:

The City of Rohnert Park, its officers, elected officials, employees, agents and volunteers are named as additional insured.

(If no entry appears above, the information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement).

WHO IS INSURED (Section II) is amended to include as an insured the person or organization shown in the Schedule but only with respect to liability arising out of "your work" performed for that insured.

Modifications to ISO for CG 20 10 11 85

1. The insured scheduled above includes the insured's elected or appointed officers, officials, employees, agents and volunteers.

2. This insurance must be primary as respects the insured shown in the schedule above, or if excess, must stand in an unbroken chain of coverage excess of the Named Insured's scheduled underlying primary coverage. In either event, any other insurance maintained by the Insured scheduled above must be in excess of this insurance and must not be called upon to contribute with it.

3. The insurance afforded by this policy must not be canceled except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the Entity.

4. Coverage must not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insurance would be invalid under Subdivision (b) of Section 2782 of the Civil Code.

_____
Signature-Authorized Representative
_____

_____
Address
_____

CG 20 10 11 85 Insurance Services Office, Inc. Form (Modified)

SUBMIT IN DUPLICATE

AUTOMOBILE LIABILITY SPECIAL ENDORSEMENT FOR ____CITY OF ROHNERT PARK____ (the "City")	ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER Telephone	POLICY INFORMATION: Insurance Company: Policy No.: Policy Period: (from) (to) LOSS ADJUSTMENT EXPENSE □ Included in Limits □ In Addition to Limits □ Deductible □ Self-Insured Retention (check which) of $_____
NAMED INSURED	APPLICABILITY. This insurance pertains to the operation and/or tenancy of the named insured under all written agreements and permits in force with the City unless checked here ☜ in which case only the following specific agreements and permits with the City are covered: CITY AGREEMENTS/PERMITS
TYPE OF INSURANCE □COMMERCIAL AUTO POLICY □BUSINESS AUTO POLICY □OTHER _____	OTHER PROVISIONS
LIMIT OF LIABILITY $ _____ per accident, for bodily injury and property damage.	CLAIMS: Underwriter's representative for claims pursuant to this insurance. Name: _____ Address: _____ Telephone: (___) _____

In consideration of the premium charged and notwithstanding an inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, it is agreed as follows:

1. INSURED. The City of Rohnert Park, its officers, elected officials, employees, agents and volunteers are included as insureds with regard to damages and defense of claims arising from: the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Named Insured, or for which the Named Insured is responsible.
2. CONTRIBUTION NOT REQUIRED. As respects work performed by the Named Insured for or on behalf of the City, the insurance afforded by this policy must: (a) be primary insurance as respects the City, its officers, officials, employees, agents or volunteers; or (b) stand in an unbroken chain of coverage excess of the Named Insured's primary coverage. Any insurance or self-insurance maintained by the City, its officers, officials, employees and volunteers must be excess of the Named Insured's insurance and not contribute with it.
3. CANCELLATION NOTICE. With respect to the interests of the City, this insurance must not be cancelled, except after thirty 30) days prior written notice by receipted delivery has been given to the City.
4. SCOPE OF COVERAGE. This policy affords coverage at least as broad as:
   (1) If primary, Insurance Services Office form number CA0001 (Ed. 1/87), Code 1 ("any auto"); or
   (2) If excess, affords coverage which is at least as broad as the primary insurance forms referenced in the preceding section (1).

Except as stated above nothing herein must be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER	
CITY **CITY OF ROHNERT PARK** **130 AVRAM AVENUE** **ROHNERT PARK, CA 94928**	AUTHORIZED REPRESENTATIVE ☜ Broker/Agent ☜ Underwriter ☜ _____ I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement. Signature _____ (original signature required) Telephone: ( ) Date signed: _____

REV. 11/08

SUBMIT IN DUPLICATE

WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY SPECIAL ENDORSEMENT FOR ____CITY OF ROHNERT PARK____ (the "City")	ENDORSEMENT NO.	ISSUE DATE (MM/DD/YY)

PRODUCER

Telephone

POLICY INFORMATION:
Insurance Company:
Policy No.:
Policy Period: (from) (to)

OTHER PROVISIONS

NAMED INSURED

CLAIMS: Underwriter's representative for claims pursuant to this insurance.
Name:_____
Address: _____
_____
Telephone: (_____)_____

EMPLOYERS LIABILITY LIMITS

$ _____ (Each Accident)

$_____ (Disease - Policy Limit)

$_____ (Disease - Each Employee)

In consideration of the premium charged and notwithstanding an inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, it is agreed as follows:

1. CANCELLATION NOTICE. This insurance must not be cancelled, except after thirty (30) days prior written notice by receipted delivery has been given to the City.
2. WAIVER OF SUBROGATION. This insurance Company agrees to waive all rights of subrogation against the City, its officers, officials, employees, agents and volunteers for losses paid under the terms of this policy which arise from the work performed by the Named Insured for the City.

Except as stated above nothing herein must be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER

CITY

CITY OF ROHNERT PARK
130 AVRAM AVENUE
ROHNERT PARK, CA 94928

AUTHORIZED REPRESENTATIVE ☜ Broker/Agent ☜ Underwriter ☜ _____

I _____ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature _____
(original signature required)

Telephone: ( ) Date signed: _____

REV. 11/08

PART 2 – SPECIAL PROVISIONS

SPECIAL PROVISIONS

2.01 PROJECT OWNER

The Project Owner is the City of Rohnert Park, California. Wherever in these or the Standard Specifications the word "Owner" appears, it must be interpreted to mean the City of Rohnert Park.

2.02 LOCATION AND DESCRIPTION OF WORK

Location of work is within the City of Rohnert Park, 300 Arlen Drive, Rohnert Park, CA 94928

The work generally consists of, but not limited to, the demolition of the vacant pool buildings and associated facilities, and appurtenances as shown on the plans and specified in these Special Provisions.

2.03 INSURANCE

INSURANCE REQUIREMENTS FOR CONTRACTORS

The following parties or entities must be listed as additional insured by endorsement:

A. The City of Rohnert Park, its officers, elected officials, employees, agents and volunteers

BIDDER'S ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW. IT IS HIGHLY RECOMMENDED THAT BIDDERS CONFER WITH THEIR RESPECTIVE INSURANCE CARRIERS OR BROKERS TO DETERMINE IN ADVANCE OF BID SUBMISSION THE AVAILABILITY OF INSURANCE CERTIFICATES AND ENDORSEMENTS AS PRESCRIBED AND PROVIDED HEREIN. IF AN APPARENT LOW BIDDER FAILS TO COMPLY STRICTLY WITH THE INSURANCE REQUIREMENTS, THAT BIDDER MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

Contractors must procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, the contractor's agents, representatives, employees or subcontractors. The coverage of the above-named parties as additional insureds shall be "primary and non-contributory" and must state that it will not seek contribution from the City's insurance or self-insurance. The cost of Contractor's insurance must be included in the Contractor's bid. The Notice To Proceed with the Work will not be issued, and the Contractor must not commence work, until such insurance has been approved by the City. Such insurance must remain in full force and effect at all times during the prosecution of the Work and until the final completion and acceptance thereof. In addition, the Commercial General Liability Insurance must be maintained for a minimum of three (3) years after final completion and acceptance of the Work. It must be the Contractor's responsibility to ensure that proof of insurance is sent to the City during this time. The Notice to Proceed does not relieve the Contractor of the duty to obtain such insurance as required herein.

A. Minimum Scope of Insurance

Coverage must be at least as broad as:

1. Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 0001).
2. Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, Code 1 "any auto" or the exact equivalent. If Contractor owns no vehicles, this requirement may be satisfied by a non-owned auto endorsement to the general liability policy described above. If Contractor or Contractor's employee(s) will use personal autos in any way on this project, Contractor must provide evidence of personal auto liability coverage for each such person.
3. Workers' Compensation and Employers Liability: Workers' Compensation on a state-approved policy form providing statutory benefits as required by law with employer's liability insurance, with minimum limits of One Million Dollars ($1,000,000) per occurrence.
4. Pollution Exposure and/or Asbestos Pollution Liability

Coverage must not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subsection (b) of Section 2782 of the Civil Code.

B. Minimum Limits of Insurance

Contractor must maintain limits no less than:

1. Commercial General Liability: $2,000,000 per occurrence for bodily injury, personal injury and property damage and $2,000,000 general aggregate. It is permissible to use excess/umbrella coverage to meet limit requirements provided the umbrella policies are appropriately endorsed and meet all other requirements. Additionally, a letter clearly identifying the primary policy or policies to which the excess umbrella coverage applies must be submitted attesting to the following: *"Umbrella or excess liability policies must provide coverage at least as broad as specified for underlying coverages and covering those insured in the underlying policies. Coverage must be "pay on behalf", with defense costs payable in addition to policy limits. There must be no cross liability exclusion of claims or suits by one insured against another, and such coverage must also apply on a primary and non-contributory basis for the benefit of the City before the City's own insurance or self-insurance shall be called upon to protect it as a named insured."*
2. Automobile Liability: $2,000,000 combined single limit per accident for bodily injury and property damage.
3. Workers' Compensation and Employers Liability: Workers' Compensation providing statutory benefits as required by the Labor Code of the State of California with employers liability insurance, with minimum limits of $1,000,000 per accident or disease.
4. Pollution and/or Asbestos Pollution Liability: $1,000,000 each occurrence/ $1,000,000 policy aggregate. If coverages are written on a Claims Made form:
    a. The "Retro Date" must be shown and must be before the date of the contract or the beginning of contract work.

b. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of contract work.

c. If coverage is canceled or non-renewed, and not replaced with another claims made policy form with a "Retro Date" prior to the contract effective date, Contractor must purchase "extended reporting" coverage for a minimum of five (5) years after completion of contract work.

d. A copy of the claims reporting requirements must be submitted to the City for review.

C. Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: the insurer must reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, elected officials, employees, agents, and volunteers; or the Contractor must procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. Other Insurance Provisions

The policies are to contain, or be endorsed to contain, the following provisions:

1. General Liability and Automobile Liability Coverages

a. The City, its officers, elected officials, employees, agents and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor, including the insured's general supervision of the Contractor; products and completed operations of the Contractor, premises owned, occupied or used by the Contractor, or automobiles owned, leased, hired or borrowed by the Contractor. The coverage must contain no special limitations on the scope of protection afforded to the City, its officers, elected officials, employees, agents or volunteers.

b. The Contractor's insurance coverage must be primary insurance as respects the City, its officers, elected officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the City, its officers, elected officials, employees, agents or volunteers must be in excess of Contractor's insurance and must not contribute with it.

c. Any failure to comply with reporting provisions of the policies must not affect coverage provided to the City, its officers, elected officials, employees, agents or volunteers.

d. The Contractor's insurance must apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

2. Workers' Compensation and Employers Liability Coverage

The insurer must agree to waive all rights of subrogation against the City, its officers, elected officials, employees, agents and volunteers for losses arising from work performed by Contractor for the City.

3. All Coverages

a. Each insurance policy required by this clause must be endorsed to state that coverage must not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the City.

b. **Coverage must not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subsection (b) of Section 2782 of the Civil Code.**

E. Acceptability of Insurers

Insurance is to be placed with insurers with a Best's rating of no less than A:VII or as approved by the City.

F. Verification of Coverage

Contractor must furnish the City with certificates of insurance and with original endorsements affecting coverage required by this clause. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be on forms provided by the City. Where by statute, the City's workers' compensation-related forms cannot be used, equivalent forms approved by the Insurance Commissioner are to be substituted. All certificates and endorsements are to be received and approved by the City before work commences. The City reserves the right to require complete, certified copies of all required insurance policies, at any time.

G. Subcontractors

Contractor must include all subcontractors as insureds under its policies or must furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors must be subject to all of the requirements stated herein.

2.04 BONDS

In accordance with Section 3.4 of the Standard Specifications, the Contractor must provide the following bonds:

Labor and Material Bond equal to 100% of the Contract Bid Price, Faithful Performance Bond equal to 100% of the Contract Bid Price. The Faithful Performance Bond must, by its term, remain in full force and effect for a period of one (1) year after the completion and acceptance of said work to guarantee the replacing or making acceptable of any defective materials or faulty workmanship.

The Contractor may elect to post a maintenance bond equal to 100% of the contract bid price, which will run for one year after completion and acceptance of said work to guarantee replacing or making acceptable any defective materials or faulty workmanship prior to the acceptance of said work.

2.05 LIQUIDATED DAMAGES

In accordance with Section 8.6 of the Standard specifications, Liquidated Damages shall be agreed to amount to $500.00 per calendar day

2.06 WITHDRAWALS OF PROPOSALS

The City reserves the right to reject any and all bids and to waive any informality or irregularity in the bids received.

No bidder may withdraw his/her bid for a period of ninety (90) days from the opening thereof.

2.07 DRAWINGS AND SPECIFICATIONS

The drawings showing location and character of work are entitled ALICIA POOL BUILDING DEMO, numbered T101 through C502 inclusive, and are included as a part of these specifications. The City of Rohnert Park 2010 Manual of Standards, Details and Specifications are the adopted Standard Plans for the City of Rohnert Park and are included as a part of these specifications.

Also included by reference as part of these specifications are the Standard Specifications of the CITY OF ROHNERT PARK, Sections 1-10 inclusive, hereinafter referred to as GENERAL PROVISIONS.

In addition, the technical provisions of the Standard Plans and Standard Specifications, State of California, Department of Transportation, Business and Transportation Agency, most current edition, and to revisions thereof are included by reference as a part of these specifications insofar as they refer to materials and methods of work where applicable. Wherever in the SPECIAL PROVISIONS reference is made to Caltrans STANDARD SPECIFICATIONS or Caltrans STANDARD PLANS, it is these specifications or plans referred to.

2.08 COOPERATION AND COLLATERAL WORKS

The Contractor must conform to the provisions of Section 7.26, "Cooperation and Collateral Works," of the STANDARD SPECIFICATIONS.

The Contractor must ascertain the nature and extent of any simultaneous collateral work and must coordinate his operations and cooperate to minimize interference.

2.09 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS

The Contractor must conform to the provisions of Section 7.15, "Preservation of Property," of the STANDARD SPECIFICATIONS.

Without additional compensation, the Contractor may remove and replace, in a condition as good as or better than original, such small miscellaneous structures as fences and sign posts, that interfere with the Contractor's operations.

All costs to the Contractor for protecting, removing, modifying, relocating and restoring existing improvements must be considered as included in the contract prices paid for the various items of work, and no additional allowance will be made therefor.

2.10 PERMITS AND LICENSES

The Contractor will not be required to obtain a City permit for this work. The City has already a demolition permit ready for the project.

The Contractor must have a valid California contractor's license, a Class B license. The Contractor and all subcontractors will be required to obtain a City Business license.

2.11 APPROVED DEBRIS HAULERS

There are two approved debris haulers within the City and contact information is listed below. The Contractor shall contract with one of the two debris haulers for service on the project. Payment for debris hauling shall be included within the Contractor's bid and no additional payment will be made for using one of the two approved debris haulers.

Industrial Carting	Recology Sonoma Marin	Pacific Sanitation
(Global Materials Recovery Services C&D Recycling Facility) (707) 585-0511 www.industrial-carting.com	(800) 243-0291 www.recology.com/recology-sonoma-marin/	(707) 838-2597 www.pacificsanitation.com

When the Contractor utilizes a staging area or storage yard that is fenced and screened, final cleanup of the staging area and storage yard will be completed before the fence and screen are removed, except for spot cleanup or trimming that may be required in areas directly under or adjacent to the fence and screen.

Unless expressly waived by the City Engineer, when the contractor utilizes an area for storage of material or staging its activities, the area will be fenced and locked and all fencing will be installed with protective screening (i.e., green screen) to minimize the visual impact of the storage and staging area.

2.12 FIELD REVIEW PRIOR TO BIDDING

The bidder must examine carefully the site of the work contemplated and the proposal, plans, specifications, and the contract forms therefor. It will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of these specifications, the Special Provisions, and the contract.

2.13 TESTING

The City of Rohnert Park will only pay for passing compaction tests meeting the requirements of these specifications. All failing tests will be charged to the Contractor and the costs of such failing tests will be deducted from the contract. In addition, the decision as to when and from what areas tests are to be made will be at the judgment of the Engineer only.

2.14 PROJECT IDENTIFICATION SIGN

Contractor shall post notification door hangers at each residence or commercial establishment within the work limit two (2) weeks prior to commencement of work and three days prior to commencement of work. Cost for notification shall be considered as part of mobilization, and no additional payment shall be made.

The Contractor shall supply a 4' X 8' sign to be displayed at the project site as approved by the Engineer in wording to be provided by the City. The signs shall be constructed in accordance with City STD 742.

PART 3 – STANDARD SPECIFICATIONS

PART 3
CONDITIONS OF THE CONTRACT

SECTION 1

DEFINITIONS AND TERMS

Whenever in these specifications, or in any documents or instruments where these specifications govern, the following terms, or pronouns in place of them, are used, the intent and meaning must be interpreted as follows (except as the context requires a different meaning):

Abbreviations

AAI	American Asphalt Institute
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute Steel Construction
AISI	American Iron and Steel Institute
API-ASME	American Pressure Institute - American Society of Mechanical Engineers
AREA	American Railway Engineering Association
ASA	American Standards Association
ASTM	American Society for Testing Materials
AWPA	American Wood Preservers Association
AWA	American Welding Society
AWWA	American Water Works Association
CRA	California Redwood Association
DFPA	Douglas Fir Plywood Association
NEMA	National Electrical Manufacturers' Association
WCLA	West Coast Lumbermen's Association

Acceptance

The formal written acceptance by the City of an entire Contract which has been completed in all respects in accordance with the plans and specifications and any modifications thereof previously approved.

Bidder

Any individual, firm or corporation submitting a proposal for the work contemplated, acting directly or through a duly authorized representative.

City

City of Rohnert Park

City Engineer

The City Engineer of the City of Rohnert Park.

Contract

The Contract or agreement to be entered into by the successful bidder for the performance of the work must consist of the following documents, each of which is on file in the office of the City Clerk and all of which are incorporated in the Contract and made a part thereof by reference thereto: Contract, Invitation for Proposals, Instructions and Information to Bidders, Accepted Proposal, Faithful Performance Bond, Labor and Material Bond, Special Provisions, Standard Specifications, Design and Construction Standards, Plans, Profiles and Detailed Drawings.

Contractor

The word "Contractor" must mean the person, persons, partnership or corporation entering into a Contract for the performance of the work required and the legal representative of said party of the agent appointed to act for said party in the performance of the work.

Contract Prices

Either the unit prices or lump sum amounts to be named in the Contract, or the total of all payments under the Contract at the unit prices or lump sum amounts, as the case may be. This definition is for convenience and reference only, and must not be construed to alter the fact that the Contract is an entire Contract for the performance of all work depicted on the plans and as described herein.

Directed

Whenever in these specifications the words "directed," "required," "permitted," "ordered," "instructed," "designated," "considered necessary," "prescribed," or words of like import are used, it must be understood that the directions, requirements, permission, order, instruction, designation, or prescription, etc. of the City Engineer are intended; and, similarly, the words "approved," "acceptable," "satisfactory," or words of like import, must mean approved by, or acceptable or satisfactory to the City Engineer, unless otherwise stated.

Engineer

Engineer must mean properly authorized engineers, inspectors, and superintendents acting severally within their scope of the particular duties entrusted to them by the City Engineer.

Federal Agencies

Whenever in these specifications reference is made to any Federal Agency or officer, such references must be deemed made to any agency or officer succeeding in accordance with law to the powers, duties, jurisdictions and authority of the agency or officer mentioned.

Inspector

The word "Inspector" must mean the authorized individual or firm acting within the jurisdiction entrusted to it by the City Engineer.

Plans

The Plans must mean collectively all of the drawings or plans referenced by the project specifications and made a part thereof, and also such supplemental drawings or plans as the City

Engineer must issue from time to time in order to elucidate drawings or plans attached to these specifications, or for showing details which are not shown thereon, or for the purpose of showing changes in the work, as authorized in later paragraphs describing changes and extra work.

Specifications

The directions, provisions, and requirements contained herein as supplemented by such special provisions or special specifications as may be necessary, pertaining to the method and manner of performing the work or the quantities and qualities of materials to be furnished under the Contract. The special provisions or special specifications are specified clauses setting forth conditions or requirements peculiar to the project under consideration and covering work or materials involved in the proposal and estimate but not satisfactorily covered by these Standard Specifications.

State

State of California.

Supervision

The word "supervision" where used in these specifications to indicate supervision by the City Engineer must mean the performance of obligations and the exercise of rights specifically imposed and granted upon and to the City in becoming a party to the Contract, of which the text of these specifications form a part. Excepting as specifically stated herein, supervision by the City must not be construed to mean active and direct superintendence of the details of work.

Surety

The word "surety" or "sureties" must mean the bondsmen or party or parties who may guarantee the fulfillment of the Contract by bond, and whose signatures are attached to said bond.

SECTION 2

PROPOSAL REQUIREMENTS AND CONDITIONS

2.1 INTENT

It is the intent of these specifications that the provisions of all sections must apply unless otherwise specified in the Special Provisions, in which case the provisions contained therein must have precedence over those specified in the Standard Specifications. It is also the intent where reference is made to specifications or other organizations for portions of the work, that such reference must apply only to construction methods and materials used in said work.

SECTION 3

AWARD AND EXECUTION OF CONTRACT

3.1 AWARD OF CONTRACT

The City reserves the right to accept or reject any or all proposals and waive technical defects as the best interests of the City may require. Award of the Contract, if it be awarded, will be to the lowest responsive, responsible bidder whose proposal complies with all the requirements prescribed. The award, if made, will be awarded as soon as practicable after the opening of the proposals but not before the time for bid protests set forth below. Proposals in which the prices are obviously unbalanced will be rejected.

The proposals will be compared on a basis of the sum of the totals of the items of the schedule as calculated from the given estimated quantities and the unit prices or lump sums of the amount submitted. The entire work will be awarded to one bidder, unless otherwise specified in the Special Provisions.

3.2 BID PROTESTS

Any bid protest ("Bid Protest") must be filed in writing with the City Clerk, with a copy to the bidder whose bid is being protested, and served by email or facsimile transmission within 7 (seven) calendar days of the bid opening day. Proof of service of the Bid Protest must be submitted to the City Clerk within one business day of the filing of the Bid Protest.

The Bid Protest must state all grounds upon which the protest is based and include all facts and documents in support of each protest ground.

Any bidder whose bid is subject to a protest may submit to the City Clerk a written response ("Response") to the Bid Protest, with a copy to the protesting bidder, and served by email or facsimile transmission within 5 (five) calendar days of the service of the Bid Protest.

The Bid Protest, and any Response, shall be submitted by the City Clerk 12 (twelve) days after bid opening day to the City Manager or his/her designee for decision ("Decision"). The Decision on the Bid Protest shall be in writing and shall be served upon the protesting bidder, and the bidder whose bid is being protested, via email or facsimile transmission within 5 (five) calendar days of receipt of Bid Protest and any Response. If the City Manager or his/her designee has not issued a written Decision on the Bid Protest within said 5 (five) calendar day period, then the Bid Protest shall be deemed denied. The Decision, by written Decision or deemed denial, shall be final.

Failure to comply with these Bid Protest Procedures shall be deemed to be a waiver of the right to protest a bid.

3.3 RETURN OF PROPOSAL GUARANTEES

Within 10 days after award of Contract, the City will upon demand return the proposal guarantees accompanying the proposals of all bidders, except those of the three lowest responsible bidders as

determined by the City. Proposal guarantees of such three lowest responsible bidders will be held until the Contract has been finally executed, after which they will be returned to the respective bidders whose proposals they accompany.

3.4 BONDS

Prior to the execution by the City of the Contract, the successful bidder must file good and sufficient bonds to be approved by the City conditioned upon the faithful performance of the Contract and upon the payment of claims for labor and materials in connection therewith. The Contractor must pay all premiums and costs thereof and incidental thereto. Such bonds must not be subject to cancellation.

The payment bond should contain the terms and conditions set forth in Sections 3247 through 3252, inclusive, of the Civil Code of the State of California, and must be subject to the provisions of that chapter and, in addition, must be in the amounts which are specified in the Special Provisions.

The "Bond for Faithful Performance" must be in an amount specified in the Special Provisions and must be so conditioned as to insure the faithful performance of the Contract without exception. The faithful performance bond must also insure the replacing or making acceptable of any defective materials or faulty workmanship which may be discovered at any time, prior to date of final payment or one year after final payment, after which no liability must accrue thereunder except in the case of fraud.

Should any surety or sureties be deemed unsatisfactory at any time by the City, notice will be given to the Contractor to that effect, and he must forthwith substitute a new surety or sureties satisfactory to the City. No further payment must be deemed due or will be made under this Contract until the new surety must qualify and be accepted by the City.

Any alterations in the work to be done, or increase or decrease of the materials to be furnished, which may be made pursuant to the terms of said Contract, must not in any way release either the principal or surety thereunder, nor must any extensions of time granted under the provisions of said Contract release either the principal or surety, and notice of such alterations or extensions of the Contract must be waived by the surety. The bonds must be maintained in full force and effect until the Contract has been completely performed and until all claims for material and labor have been paid.

3.5 EXECUTION OF CONTRACT

The Contract must be signed by the successful bidder and returned, together with the Contract Bonds and valid insurance on City forms, within fifteen (15) calendar days after the date of mailing written notice to the successful bidder that the Contract has been awarded.

3.6 FAILURE TO EXECUTE CONTRACT

Failure to execute a Contract, file acceptable bonds, and/or acceptable insurance as provided herein within said fifteen (15) calendar days shall allow the City, at its discretion, to annul the award and claim the proposal guarantee as provided in the California Public Contract Code. If the successful bidder refuses or fails to execute the Contract, the City may award the Contract to the

second lowest responsible bidder. If the second lowest responsible bidder refuses or fails to execute the Contract, the City may award the Contract to the third lowest responsible bidder. On the failure or refusal of the second or third lowest responsible bidder, to whom any Contract is so awarded, to execute the same, such bidders' guarantees must be likewise forfeited to the City. The work may then be re-advertised or may be constructed by other means as the City may decide.

SECTION 4

SCOPE OF WORK

4.1 WORK TO BE DONE BY CONTRACTOR

The work to be done consists of furnishing all labor, methods or processes, implements, tools, machinery, transportation, insurance, permits, bonds, taxes and materials, except as otherwise specified which are required to demolish the vacant pool buildings and associated facilities in complete order for use and to leave the grounds in a neat and orderly condition.

Where items contain a description of work to be included for payment under a particular item, such description must be considered as including, but not being limited to, the work described. It must be further understood that it is the intent that the cost of all work necessary for the completion of the particular item must be included in the price proposal for the item, unless the cost of such work is specifically included in another item.

4.2 FINAL CLEANUP

Before final inspection by the City, the Contractor must clean the site and grounds occupied by it in connection with the work of all rubbish, excess materials, falsework, temporary structures, and equipment, and all parts of the work must be left in a neat and presentable condition. Nothing herein, however, must require the Contractor to remove warning and directional signs prior to formal acceptance by the City.

4.3 CHANGES IN THE CONTRACT - EFFECT BETWEEN PARTIES

The City reserves the right to make such alterations or deviations, additions to or omissions from the plans and specifications, as may be determined during the progress of the work to be necessary and advisable for the proper completion thereof. When such change is ordered, the City Engineer must determine and state in his/her written order to the Contractor made pursuant thereto whether or not in his/her opinion such change constitutes a material change and what adjustment of consideration provided for in the Contract is warranted. Upon written order of the City Engineer, the Contractor must proceed with the work as so increased, decreased or altered. Such action and any disposition thereof may be taken without notice by City to Insurance Underwriters, Sureties, or Guarantors required by this Contract and absence of notice thereto must in no way whatsoever discharge the obligation of any such party.

When the City and the Contractor fail to agree as to whether an omission of a portion of the work or alterations, or deviations or additions to or omissions from the plans and specifications ordered by the Engineer or City constitute a material change or difference in character of work as herein contemplated sufficient to warrant adjustment in the consideration provided to be paid to the Contractor or fail to agree on the consideration adjustment or compensation to be allowed for such change, the Contractor must forthwith proceed with the changed work upon receipt of written order from the City Engineer and the following procedures must become operative.

Pending a settlement of the dispute, the Contractor must file with the City Engineer, within ten (10) days after receiving such written notice to proceed, a protest setting forth in detail in what

particulars the character of the work was changed so as to warrant a consideration adjustment or by what amount the unit cost or other cost was increased or to what extent the consideration demand or reduction in consideration determined by the City Engineer as warranted is excessive. The failure of the parties to agree must in nowise be construed as relieving the Contractor of its duty and responsibility for continuing with performance under the Contract as changed and filing a protest as above provided for. Failure to continue performance under such circumstances must constitute a breach of Contract by the Contractor and the appropriate provisions hereof with relation thereto must apply. The determination of the City Engineer of the amount of reduction in Contract consideration or other consideration to City or increase in consideration or other basis of compensation to Contractor arising out of any such change must be final and binding upon the Contractor, unless it files such a protest as hereinabove provided within ten (10) days after receiving notice from the City Engineer to proceed. Payment by City on the basis of Contract prices so adjusted must constitute full and final performance of City obligation hereunder. If the parties fail to agree prior to completion of the Contract, final payments must not be delayed but must be made in accordance with the City Engineer's determinations subject to further claim of the Contractor and compliance by City with court order, but nothing contained in this clause must excuse the Contractor from proceeding with the prosecution of the work as changed.

4.3.1 Reduction in Cost

If the cost of work to the Contractor is reduced by reason of any modification of the Contract, compensation must be made to the City therefor or proportionate reduction in Contract consideration must be made therefor.

4.3.2 Quantity Changes

The quantities given in the proposal schedule for unit price items are for comparing proposals and may vary from the actual final quantities. Some quantities may be increased and others may be decreased or entirely eliminated, and no claims must be made against the City for damage occasioned thereby or for loss of anticipated profits, the Contractor being entitled only to compensation for the actual work done at the unit prices proposed.

4.3.3 Extra Work

(a) The City reserves and must have the right, when confronted with unpredicted conditions, unforeseen events, or emergencies, to revise the details of the contemplated work or to add work of a different character or function and have the Contractor perform such revised or added work, as extra work, when such extra work is considered by the City Engineer to be vitally appurtenant to the satisfactory completion of the project. Extra Work is defined as added work of a different character or function and for which no basis for payment is prescribed; or that involving revisions of the details of the work in such a manner as to render inequitable payment under items upon which the Contractor proposed; or that work to be done under stipulated prices as given in the Schedule of Bid Prices.

The signing of the Contract by the Contractor will be deemed to be an agreement on its part to perform extra work, as and when ordered by the City Engineer. The Contractor must give notice to the sureties on the Contractor's bonds if the estimated total value of the Contract, as changed or

supplemented, must exceed the original total proposal price by more than twenty-five percent (25%), but failure to give such notice must in no way whatsoever affect the surety's obligation under said bonds. If required extra work results in delay to the work, the Contractor will be given an equivalent extension of time.

(b) Upon decision of the City to have extra work performed, the City Engineer will so inform the Contractor, acquainting it with the details of the new work. Should an item of work within the proposal schedule correspond with the type of work to be done under extra work to the mutual satisfaction of the Contractor and the City, the extra work must be performed at the stipulated bid price and in the manner provided for said item. Should such extra work not correspond to a stipulated bid price, the Contractor must prepare a price for said work based upon its estimate of cost and submit said price and estimate to the City Engineer based on one of the following methods as requested by the City:

(1) For a stated unit price or lump sum amount based upon current prevailing fair prices for materials, labor, plant, overhead, and profit.

(2) On a cost plus markup basis (force account by the Contractor). All work done by the Contractor on a cost plus markup basis will be computed in the manner hereinafter described, and the compensation thus provided must be accepted as payment in full by the Contractor, and no additional payment will be allowed for the use of small tools, superintendent's services, timekeeper's services, nor any other overhead expenses incurred in the prosecution of the force account work.

Total Cost Must Include:

MATERIALS: For all materials purchased by the Contractor and used in this specific work, it will receive the actual cost less normal discounts of such materials, including freight and delivery charges, as shown by original receipted bills. It must be understood, however, that such salvage value, as may be agreed upon between the City and the Contractor for materials which are not permanently incorporated in the work, will be deducted from the total amount as derived above. The City reserves the right to furnish such materials required as it deems advisable, and the Contractor must have no claim for profit on the cost of such materials.

LABOR: For all direct labor engaged in the specific operation, the Contractor will receive the prevailing wage paid on the project for each and every hour that said labor is actually engaged in such work. In addition, the City will reimburse the Contractor for compensation insurance payments; contributions made to the State as required by the provisions of the Unemployment Reserve Act, Chapter 352, Statutes of 1935, as amended; and for taxes paid to the Federal Government, as required by the Social Securities Act, approved August 14, 1935, as amended.

EQUIPMENT RENTAL: For any machine, power and equipment which is deemed necessary, the Contractor must receive the actual cost of rented equipment furnished by it as shown on its paid vouchers.

For the use of equipment owned by the Contractor, it must be paid the rental rates

currently prevailing in the locality, and said rental rates must be deemed to include profit and overhead, and no extra compensation will be allowed, nor will any percentage or amount whatsoever be added thereto.

MARKUP:

(i) **Work by Contractor**. A 15% allowance must be added to Contractor's direct costs and must constitute the markup for all overhead and profit on work by the Contractor. The Contractor must also be compensated for the actual increase in the Contractor's bond premium caused by the extra work.

(ii) **Work by Subcontractor.** When any of the extra work is performed by a Subcontractor, a 15% allowance must be added to the Subcontractor's direct costs and must constitute the markup for all overhead and profit on work by the Subcontractor. In addition, a 5% allowance must also be added to the Subcontractor's direct cost and must constitute the markup for all overhead and profit for the Contractor on work by the Subcontractor. The Contractor must also be compensated for the actual increase in the Contractor's bond premium caused by the extra work.

(c) The Contractor must not commence extra work until it has secured the approval of the City as to the method and amount of payment thereunder, excepting that the City Engineer may, in writing, order the Contractor to proceed with extra work in advance of such approval.

(d) Upon receipt of the Contractor's price, the City Engineer will make an analysis thereof, and the City will adopt one of the following procedures for prosecuting extra work:

(1) Accept the Contractor's price for lump sum or unit price amount in the original or amended form and direct Contractor to proceed with the work; or direct Contractor to perform the work on a cost plus markup basis.

(2) Have the work performed by the City under separate contract, without undue interference or hindrance to the Contractor and without claim or suit by the Contractor for damages on account thereof.

4.4 MAINTENANCE OF DETOURS

The Contractor must construct and maintain detours and detour bridges for the use of public traffic as provided in the Special Provisions, or as shown on the plans or as directed by the Engineer, and payment for such work will be made as set forth in the Special Provisions or at the contract prices for the items of work involved if the work being performed is covered by contract items of work, and no other method of payment therefor is provided in the Special Provisions. Otherwise, the work will be paid for as extra work as specified under Paragraph 4.3 of this section.

When public traffic is routed through the work, provisions for passageway through construction operations will not be considered as detour construction or detour maintenance.

Detours used exclusively by the Contractor for hauling materials and equipment must be constructed and maintained by Contractor at Contractor’s expense.

The failure or refusal of the Contractor to construct and maintain detours at the proper time must be sufficient cause for closing down the work until such detours are in satisfactory condition for the use of public traffic.

Where the Contractor's hauling is causing such damage to the detour that its maintenance in a condition satisfactory for public traffic is made difficult and unusually expensive, the Engineer must have authority to regulate the Contractor's hauling over the detour.

4.5 USE OF MATERIALS FOUND ON THE WORK

The Contractor, with the approval of the Engineer, may use in the proposed construction such stone, gravel, sand or other material suitable, in the opinion of the Engineer, as may be found in the excavation, but must replace at its own expense with other suitable material all of that portion of the material so removed and used which was contemplated for use in the embankments, backfills, bridge approaches, or otherwise. No charge for materials so used will be made against the Contractor. The Contractor must not excavate or remove any materials from within the project location which is not within the excavation, as indicated by the slope and grade lines, without written authorization from the Engineer.

SECTION 5

CONTROL OF THE WORK

5.1 AUTHORITY OF CITY ENGINEER

The City Engineer must decide all questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work and all questions which may arise as to the interpretation of the Plans and Specifications. His/her decision must be final, unless otherwise ordered by the City Manager, and he/she will have authority to enforce and make effective such decisions and orders which the Contractor fails to carry out promptly.

5.2 PLANS

The approved Plans, if any, are hereby made a part of these Specifications. These Plans show in general the nature and dimensions of the work to be done. It is hereby understood that changes may be made according to the best interests of the City.

5.3 CONFORMITY WITH PLANS

Finished surfaces in all cases must conform with the lines, grades, cross sections, and dimensions shown on any approved plans. Deviations from any approved plans and working drawings, as may be required by the exigencies of construction, will in all cases be determined by the City Engineer and must be authorized in writing by him/her.

The Contractor must have Plans and Specifications, if available for the project on the project location at all times and must make these Plans and Specifications available to the Engineer upon request.

5.4 WORKING DRAWINGS

The Contractor must submit such working drawings, in quadruplicate, as required by the Technical Specifications. Working drawings for any structure must consist of such detailed plans as may be required for the prosecution of the work and are not included in the plans furnished by the City. They must include shop details, erection plans, masonry layout diagrams, and bending diagrams for reinforcing steel, which must be approved by the Engineer before any work involving these plans is performed. Plans for cribs, cofferdams, falsework, centering, and form work will be required and must be subject to approval, unless approval is waived by the Engineer. These plans will be subject to approval insofar as the details affect the character of the finished work, but other details of design will be left to the Contractor, who must be responsible for the successful construction of the work.

It is expressly understood, however, that approval by the Engineer of the Contractor's working drawings does not relieve the Contractor of any responsibility for accuracy of dimensions and details, or for mutual agreement of dimensions and details.

Full compensation for furnishing all working drawings must be considered as included in the prices paid for the various Contract items of work, and no additional allowance will be made

therefor.

5.5 COORDINATION OF PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS

These specifications, the Plans, Special Provisions, Contract Change Orders, and all supplementary documents are essential parts of the Contract, and a requirement occurring in one is binding as though occurring in all. They are intended to be cooperative and to describe and provide for a complete work.

In case of discrepancy either in the Plans or Specifications, the matter must be promptly submitted to the City Engineer who must make a determination in writing. Any adjustment by the Contractor without this determination must be at its own risk and expense. If the Contractor, in the course of the work, finds any discrepancy in the Plans in the physical conditions of the locality or any errors or omissions in the Plans or in the layout as given by survey points and instructions, it must immediately notify the Engineer in writing who must promptly verify the same. Any work or material not herein specified or shown on the Plans, but which be fair implication in the judgment of the City Engineer, should be included therein, must be done or furnished as a part of the Contract as though shown or included in the Plans or Specifications. Any work done after such discovery, until authorized, must be done at the Contractor's risk.

5.6 INTERPRETATION OF PLANS AND SPECIFICATIONS

Should it appear that the work to be done or any of the matter relative thereto are not sufficiently detailed or explained in the Plans and Specifications, the Contractor must apply to the Engineer for such further explanations as may be necessary and must conform to them as part of the Contract, so far as may be consistent with the original Specifications; and in the event of any doubt or question arising respecting the true meaning of the Specifications, reference must be made to the City Engineer, whose decision thereon must be final.

In the event of any discrepancy between any Plans and the figures written thereon, the figures must be taken as correct.

5.7 SUPERINTENDENCE

Whenever the Contractor is not present on any part of the work where it may be desired to give direction, orders will be given by the Engineer, which must be received and obeyed by the superintendent or foreman or authorized representative who may have charge of the particular work in reference to which the orders are given. Any order given by the Engineer, not otherwise required by the Specifications to be in writing, will, on request of the Contractor, be given or confirmed by the Engineer in writing.

An authorized representative of the Contractor must be present at the site of the work at all times, both while work is actually in progress of the Contract and during periods when work is suspended.

Where the Contractor is comprised of two or more persons, co-partnership or corporations, functioning on a joint venture basis, said Contractor must designate in writing to the City the name of their authorized representative who must have supreme authority to direct the work and to whom orders will be given by the Engineer, to be received and obeyed by the Contractor.

The Contractor must have a sufficient number of superintendents or foremen on the site of the work to adequately supervise and direct each major type of its construction work, and when, in the opinion of the Engineer, the Contractor's required supervisory personnel are considered inadequate, the Contractor, upon request from the City, must promptly provide adequate personnel.

5.8 LINES, GRADES AND MEASUREMENTS

Surveys and survey data to be furnished by the City will be as follows: Initial staking out of the work will be done by the City, unless otherwise stated in the Special Provisions. If the Contractor finds any additional staking necessary, he must notify the Engineer sufficiently in advance in order that such work may be properly scheduled. The City will establish control lines and offset lines and set all stakes normally required in order that the Contractor can make the necessary measurements therefrom for the layout of the details of its work without the need for surveyors. Survey stakes and bench marks removed by the carelessness of the Contractor or its employees will be replaced by the City at the Contractor's expense.

The Contractor must employ skilled personnel for making measurements and skilled mechanics for setting equipment or metal parts that are to be permanently imbedded in or attached to proposed structures. Any inaccuracies in the placing of equipment or metal parts must be remedied by the Contractor at its own cost. Any inaccuracies in the performance of the Contractor's work due to faulty transfer or measurements must be remedied by the Contractor at its own expense.

5.9 INSPECTION

5.9.1 Except as otherwise provided in paragraph 5.9.4 below, all material and workmanship, if not otherwise designated by the Specifications, must be subject to inspection, examination and test by the Engineer at any and all times during manufacture and/or construction and at any and all places where such manufacture and/or construction are carried on. The Engineer must have the right to reject defective material and workmanship or require its correction. Rejected workmanship must be satisfactorily corrected, and rejected material must be satisfactorily replaced with proper material without charge therefor, and the Contractor must promptly segregate and remove the rejected material from the premises. If the Contractor fails to proceed at once with the replacement of rejected material and/or the correction of defective workmanship, the Engineer may by Contract or otherwise replace such material and/or correct such workmanship and charge the cost thereof to the Contractor, or may terminate the right of the Contractor to proceed.

5.9.2 The Contractor must furnish promptly without additional charge, all reasonable facilities, labor, and materials necessary for the safe and convenient inspection and tests that may be required by the Engineer. All inspection and tests by the Engineer must be performed in such a manner as not unnecessarily to delay the work. Special, full size, and performance tests must be as described in the Specifications. The Contractor must be charged with any additional cost of inspection when material and workmanship are not ready at the time inspection is requested by the Contractor.

5.9.3 Inspection of material and finished articles to be incorporated in the work at the site must be made at the place of production, manufacture, or shipment, whenever the quantity justifies it, unless otherwise stated in the Specifications; and such inspection and written or other formal acceptance, unless otherwise stated in the Specifications, must be final, except as regards latent defects, departures from specific requirements of the Contract, damage or loss in transit, frauds, or such gross mistakes amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of material and workmanship for final acceptance as a whole or in part must be made at the site. Nothing contained in this paragraph must in any way restrict the City's rights under any warranty or guarantee. No work must be covered by a succeeding operation until the Engineer has had adequate notice and a sufficient opportunity to inspect the work. Any violation of this requirement will be deemed an attempt to defraud the City, and the work covered may be rejected. The Contractor must comply promptly with the instructions of the Engineer. Failure to so comply must be sufficient cause for breach of Contract. The Engineer may, when in the best interests of the City, order a suspension of the work or any part of the work which is not, in hisher opinion, proceeding satisfactorily.

The inspection of the work must not relieve the Contractor of any of its obligations to fulfill its Contract as prescribed.

5.9.4 Should it be considered necessary or advisable by the Engineer at any time before final acceptance of the entire work to make an examination of work already completed, and upon which adequate notice and sufficient opportunity for inspection was as provided in the previous paragraph, by removing or tearing out same, the Contractor must on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or non-conforming in any material respect due to fault of the Contractor or its Subcontractors, it must defray all the expense of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual direct cost of labor and material necessarily involved in the examination and replacement, plus markup as determined in Section 4.3, must be allowed the Contractor, and it must, in addition, if completion of the work has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

5.9.5 All inspection by the City, the Engineer, or the Engineer's representative is for the use by the City in determining the acceptability of the project by the Engineer. The Contractor is responsible for the quality of all materials supplied and all workmanship. The Contractor must provide and implement a quality control program independent of the inspections provided by the City. Such quality control program must be designed to ensure materials and workmanship are of first quality in conformance with these specifications and the best practices of the construction industry. The contractor's quality control plan must be submitted to the Engineer for review within 15 days of Notice to Proceed. Approval of the quality control plan by the Engineer does not relieve the contractor of providing sufficient tests or certifications to provide a complete and useable product in accordance with these specifications.

5.10 UNAUTHORIZED WORK AND DEFECTIVE WORK OR MATERIALS

Any work done beyond the scope of the Plans, Specifications, established by the City Engineer, or any extra work done without written authority, will be considered as unauthorized and will not be

paid for. Work so done may be ordered removed at the Contractor's expense. Upon failure on the part of the Contractor to comply promptly with any order of the Engineer made under the provisions of this Section 5, the City Engineer must have authority to cause defective work or materials to be remedied or removed and replaced, and unauthorized work to be removed, and to deduct the cost from any moneys due or to become due the Contractor notwithstanding that such defective work and materials have been previously overlooked by the Engineer and accepted or estimated for payment.

5.11 METHODS AND EQUIPMENT

Equipment not suitable to produce the quality of work required will not be permitted to operate on the project.

Plants must be designed and constructed in accordance with general practice for such equipment and must be of sufficient capacity and of such character to insure the production of sufficient material to carry the work to completion within the time limit.

The Contractor must provide adequate and suitable equipment and plants to meet the above requirements and, when ordered by the Engineer, must remove unsuitable equipment from the work and discontinue the operation of unsatisfactory plants.

Each machine or unit of equipment must be operated by a person experienced in handling the particular make of machine or unit of equipment in use, at a speed or rate of production not to exceed that recommended by the manufacturer.

All vehicles used to haul materials over existing highways must be equipped with pneumatic tires.

Beam scales for use in batchers, proportioning plants, platform scales, or for other purposes must be equipped with “V” blocks and pivots of hard steel in all hangers or other points of support which are used as parts of the weighing mechanism.

5.12 FINAL INSPECTION AND ACCEPTANCE

The work will be inspected by the City for acceptance promptly upon receipt of notice in writing, for the Contractor, that the work required under the Contract has been performed.

If, in the judgment of the City Engineer, the work has been completed in accordance with the Plans and the Specifications and is ready for acceptance, he/she will so certify to the City Council which may accept the completed work The City Engineer will, in his/her certification to the City, give the date upon which the work was completed. Upon acceptance by the City pursuant to such certification, the date of completion as certified by the City Engineer will be the date of completion of work up to which penalties for liquidated damages, if any, will be computed.

5.13 CLEANUP WORK

During construction the Contractor must keep the site reasonably free and clear from all rubbish and debris. Care must be taken to prevent spillage when hauling is being done on any public road or street, and any such spillage or debris resulting from the Contractor's operation must be immediately cleaned up.

Upon the completion of the work, the Contractor must remove all plants, building, rubbish,

unused materials, concrete forms and other like material belonging to it or used under its direction during the construction. In the event of its failure to do so, the same may be removed by the City at the expense of the Contractor.

SECTION 6

CONTROL OF MATERIALS

6.1 CITY-FURNISHED MATERIALS

The Contractor must notify the City as to the time at which it will require those materials which are to be furnished by the City. This notice must be given in sufficient advance of actual need to avoid delay.

City-furnished materials will be delivered Freight on Board (f.o.b.) trucks at the site of the work. The site of the work must be construed as meaning the nearest point to the work which is readily accessible to trucks. The Contractor will be charged with any standby or demurrage charges which may accrue at the point of delivery because of his failure to unload the trucks immediately upon their arrival at the site of work.

The Contractor must receive and be responsible for these materials, storing those which may be damaged by the elements, in a safe, substantial manner until they are used in the work.

Any materials delivered in an acceptable condition to the Contractor by the City and subsequently lost to or rejected by the City due to damages from handling, transporting, storing, flood waters, fire, or for any other reasons before its acceptance in the completed work, must be paid for by the Contractor. The total value of such materials will be deducted from moneys due or becoming due the Contractor. Any condemned material must be immediately and permanently removed from the site of work by the Contractor.

Any of the City's materials, remaining unused after all requirements for said materials have been met, must be promptly returned to the City in acceptable condition. These materials must be returned by the Contractor f.o.b. the City's truck at the site of work and at such points as will be conveniently accessible to City transportation.

The Contractor must not sell, assign, mortgage, hypothecate, or remove equipment or materials which have been installed or delivered and which may be necessary for the completion of the Contract, without the formal consent of the City.

6.2 MATERIALS TO BE FURNISHED BY THE CONTRACTOR

Unless otherwise specified herein, or on the Plans and Specifications, the Contractor must furnish all materials required for the completion of the Contract. The cost of hauling, storing and handling of all the materials required to be furnished by the Contractor must be included in the unit price proposal in the schedule for the work for which the materials are required.

6.3 SOURCE OF SUPPLY AND QUALITY OF MATERIALS

It must be the Contractor's responsibility to require material suppliers and Subcontractors to furnish materials which meet the requirements of the Specifications. All materials which are to become part of the completed project must be new and must conform to the requirement prescribed therefor in these Specifications or as specified in the Special Provisions.

Unless otherwise waived in writing by the Engineer, the Contractor will be required to furnish the City with certification prepared and signed by the manufacturer and/or supplier to the effect that items furnished meet all the requirements of the Specifications. Such certification must be furnished prior to the use of the material in any part of the construction.

In the case of sand and gravel to be used for concrete construction, the Contractor must notify the City's representative in writing, the sources of the available materials and secure source approval in writing prior to placing order for delivery of this material to the job site.

6.4 WATER AND ELECTRIC POWER

Unless otherwise indicated in the proposal schedules, the responsibility must be upon the Contractor to provide, pay all cost for, and maintain at its own expense an adequate supply of water and electric power of a quality suitable for its construction and domestic purposes.

The Contractor must indemnify, defend, and save harmless the City against any and all claims or suits for damages arising from its acquisition and use of electric power and water.

6.5 MATERIALS AND WORKMANSHIP

All material furnished by the Contractor must be of the specified quality and equal to approved samples, if samples have been submitted. All work must be performed and completed in a thorough, workmanlike manner, notwithstanding any omission from the contract documents. All work done and all materials furnished must comply with these contract documents to the satisfaction of the City.

Materials furnished by the Contractor and condemned by the Engineer as being unfit for use must be immediately and permanently removed from the site of work. Unused materials, except such as furnished by the City, must remain the property of the Contractor.

6.6 STORAGE OF MATERIALS

Materials must be so stored as to insure the preservation of their quality and fitness for the work. When considered necessary by the Engineer, they must be placed on wooden platforms or other hard, clean surfaces and not on the ground. They must be placed under cover when so directed. Stored materials must be so located as to facilitate prompt inspection.

6.7 SAMPLES AND SPECIMENS

The Contractor must submit specimens or samples of materials to be used in the work as the Engineer may require.

6.8 TRADE NAMES AND ALTERNATIVES

For convenience in designation on the Plans or in the Specifications, certain equipment or articles or materials may be designated under a trade name of a manufacturer and its catalogue information. The use of alternative equipment or an article or material which is of equal quality and of the required characteristics for the purpose intended will be permitted, subject to the approval of the City Engineer, in accordance with the following requirements:

The burden of proof as to the comparative quality and suitability of alternative equipment or

articles or materials must be upon the Contractor, and its must furnish, at its own expense, all information necessary or related thereto as required by the City Engineer. The City Engineer must be the sole judge as to the comparative quality and suitability of alternative equipment or articles or materials, and his/her decision must be final.

The price proposal by the Contractor is assumed to be on the basis of trade names specified or designated in the Specifications. Savings resultant from use of a less expensive equal or alternate must accrue to the City and must be subtracted from the unit price for this item.

6.9 REMOVAL OF EQUIPMENT OR MATERIALS

The Contractor must not sell, assign, mortgage, hypothecate or remove equipment or materials which have been installed or delivered and which may be necessary for the completion of the Contract without the formal consent of the City.

6.10 TESTING OF MATERIALS

Unless otherwise specified elsewhere in the Specifications or in the Special Provisions or called for in the Plans, all tests of materials and work for determining compliance with specified requirements must be performed by the City or its authorized representative.

SECTION 7

LEGAL RELATIONS AND RESPONSIBILITY

7.1 LAWS TO BE OBSERVED

The Contractor must keep itself fully informed of all existing and future State and Federal laws and County and municipal ordinances and regulations which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. The contractor must at all times observe and comply with all such existing and future laws, ordinances, regulations, orders, and decrees of bodies or tribunals having any jurisdiction or authority over the work; and must indemnify, defend, and save harmless the City and all its officers, agents and servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by itself or its employees. If any discrepancy or inconsistency is discovered in the Plans, Drawings, Specifications, or Contract for the work in relation to any such law, ordinance, regulation, order or decree, the Contractor must forthwith report the same to the City Engineer in writing.

7.2 PERMITS

The City will obtain all necessary rights and approvals for the work to occupy properties in streets, highways or railways. The Contractor must obtain all permits and pay any fees connected therewith having to do with its construction operations. The Contractor must furnish the City with a copy of all permits and must fully comply with all conditions and provisions of same.

Bidders must contact railway companies affected by the work under the project and ascertain their requirements in respect to indemnification agreements, bonds and insurance. Upon award of Contract, the Contractor must immediately again contact the railway company and, if required, enter into an indemnification agreement, and furnish bonds and insurance, and pay the fees therefor.

All expenses incurred by the railway company as a result of the Contractor's operations must be borne by the Contractor.

7.3 PATENT CLAIMS

The bidder must include in the price proposal for the work the patent fees or royalties or charges upon any patented article or process which it may furnish or use in the prosecution of the work, and the bidder to whom the Contract is awarded must indemnify, defend and save harmless the City against any legal action that may be brought for infringement of patents upon any articles or processes that may be used by it in the prosecution of the work. The contractor must furnish satisfactory evidence of release of all claims of this nature before the final payment is made upon the Contract.

7.4 SANITARY PROVISIONS

The Contractor must provide and maintain in a neat and sanitary condition such accommodations

for the use of its employees as may be necessary to comply with all applicable laws, ordinances and regulations pertaining to the public health and sanitation of dwellings and camps. Enclosed toilets must be provided for the use of the persons employed or engaged on any work under these Specifications.

7.5 RIGHT OF WAY AND RIGHT OF ACCESS

The City will acquire all permanent rights of way or permanent easements required for the constructed project. The Contractor is hereby empowered to use the site for the purposes described in the Specifications.

The responsibility for obtaining the right to enter, remove, alter, or make use of any existing road, culvert, bridge, canal, pipeline, levee, fence or similar barrier, lines of communications or improvement of any nature, or the trespassing on privately owned lands, must be in the hands of the Contractor, and it must indemnify, defend and save harmless the City from any and all claims for such damages occasioned by such entering, removing, altering, using or trespassing.

In case of interference to the work by delay of the City in furnishing permanent rights of way or permanent easements, the Contractor will be allowed an extension of time equivalent to the time lost by unavoidable delay in the completion of the Contract because of the failure to furnish the rights of way on time, but no damages will be allowed or paid for such delay.

Rights of way and/or easements and construction easements have been secured for work sites, and for trails and roadways as considered necessary for ingress and egress to the work site. Such rights and/or easements have been delineated on the Plans. The right to enter, remove, alter, or otherwise make use of adjacent property, roads, utility lines, fences, vegetation and other improvements as not included within the rights of way or easements must be at the sole expense and responsibility of the Contractor.

7.6 PUBLIC CONVENIENCE AND ACCESS

The Contractor must conduct its operations so as to cause the minimum obstruction and inconvenience to traffic and to places of business and residence adjacent to the work. No greater quantity of work must be under construction at any one time than can be properly conducted with due regard for the rights of the public. Where existing streets are not available as detours, all traffic must be permitted to pass through the work with as little inconvenience and delay as possible, unless otherwise provided or authorized. If half the street only is under improvement, the other half must be conditioned and maintained as a detour.

The work must be conducted by tunneling, backfilling or bridging where necessary to provide access to fire hydrants and water gates; driveways to service stations, markets or other places of business requiring public vehicular access; and driveways to private residences, unless the Contractor makes other arrangements satisfactory to the City. Temporary approaches to intersecting streets and alleys must be provided and maintained in good condition. Safe crossings for pedestrians must be provided at intervals of not more than 300 feet.

7.7 STORAGE OF MATERIALS IN PUBLIC STREETS, ROADS OR HIGHWAYS

Construction materials must not be stored in streets unless permitted by the City Engineer.

7.8 PUBLIC SAFETY

Attention is called to the "Construction Safety Order," "Trench Construction Safety Orders," "General Safety Orders," and "Tunnel Safety Rules" of the California Division of Occupational Safety and Health to which the Contractor is required by law to conform. The contractor must provide itself with copies of these rules and orders and must keep a copy of each at the site of its operations and must be governed by the requirements thereof. The requirements concerning Ventilation, General Safety Precautions, Transportation, Roof Inspection, Timbering, and all rules and regulation concerning the use of explosives are of particular importance.

7.9 STREET CLOSURES, DETOURS, BARRICADES

In addition to the requirements of this paragraph and Section 4 of these Specifications, the Contractor must, unless otherwise permitted by the City Engineer, conform to the requirements for street closures, detours and barricades as stipulated in the Special Provisions. However, the City Engineer may permit deviations from the requirements stipulated therein when such deviations are to the best interests of the City and are approved by the County, City or State authorities concerned.

During the progress of the work, adequate provisions must be made by the Contractor to accommodate the normal traffic along streets and highways immediately adjacent to or crossing the work so as to cause a minimum of inconvenience to the general public.

The Contractor must give due notice to local police and fire departments prior to beginning construction and must cooperate with said departments in complying with their requirements pertaining to emergency vehicles and equipment.

The Contractor must comply with the requirements of the County, City or State authorities concerned in regard to their requirements for closure of streets; the providing of barriers, guards, lights, temporary bridges, flagmen and watchmen; and the posting of proper notices or signals to the public regarding detours and the condition of the work under construction so as to effectively guard the public from danger as a result of the work being done under the Contract. The Contractor must fully comply with such requirements. The Contractor must also be held responsible for compliance with any additional requirements as may arise during the progress of the work. All costs involved in respect to the above requirements will be considered as included in the prices proposal for the various items of work.

The Contractor must furnish, install, and upon completion of the work, remove all signs and warning devices required for directing and protecting the public during construction.

The signs and posting thereof must conform to the current requirements as specified in the manuals covering signs published by the Division of Highways, Department of Public Works of the State of California. Copies of these manuals are on file in the office of the Engineer.

The Contractor must notify the appropriate authorities of any municipality or unincorporated area 24 hours in advance of the start of any construction work being done in said municipality or area.

The provisions of Paragraph 7.18, "Emergencies and Responsibility for Damage," must apply to

the precautions and safeguards taken by the Contractor in connection with the closure of streets, barricades, detours, signs, etc., as required by the above authorities.

7.10 USE OF EXPLOSIVES

The use of explosives will not be permitted unless otherwise stated in the Special Provisions. If permitted, the method employed and the quantity of explosives used must at all times be subject to the approval of the Engineer. Explosives must be handled, used and stored in accordance with the provisions and requirements of all applicable laws, ordinances and regulations with respect thereto.

The approval by the Engineer for the use of explosives must not relieve the Contractor from its responsibility to indemnify, defend and save harmless the City from any legal actions or claims brought against it because of or on account of the use of explosives.

7.11 PRESERVATION OF PROPERTY

The Contractor must be held responsible for the protection of the restoration of, or the replacement of, any improvements such as, but not limited to, lawns, trees, shrubs, hedges, fences, walls, sidewalks, driveways, curbs, gutters and pavement existing on public or private property at the start of work or placed there during the progress of work and not being specified or shown on the drawings to be either temporarily or permanently removed. Replacement or restoration must meet the approval of the Engineer.

With respect to trees, the Contractor must obtain permission from the Engineer and from the jurisdictional agency concerned prior to the removal or trimming of any trees, except where a tree is specifically indicated on the Plans or in the Specifications to be removed. Trees which are so indicated need not be replaced except where otherwise stipulated in the Specifications.

All costs involved in the protection and restoration of existing improvements as herein specified must be included in the prices proposal for the various items of work.

7.12 PRESERVATION OF MONUMENTS

The Contractor must not disturb any monuments or stakes found on the line of improvements without permission from the Engineer, and must bear the expenses of resetting any monuments or stakes which may have been disturbed with such permission. The Contractor must reset all street signs and traffic signs disturbed by him during the progress of the work.

7.13 SAFEGUARDING EXCAVATIONS AND STRUCTURES

In making excavations for the project, the Contractor must be fully responsible for providing and installing adequate sheeting and/or timbering and bracing as may be necessary as a precaution against slides or cave-ins, and to protect all existing improvements of any kind, either on public or private property, full from damage. The Contractor must make necessary repairs to or reconstruction of any such improvements damaged at its own expense and as directed by the Engineer.

The Contractor must remove all shattered rock or other loose material which appears dangerous to workmen or to structures. The fact that such removal may enlarge the excavation beyond the

required limits must not operate to relieve the Contractor from the necessity of making such removal, and the Contractor must be entitled to no additional compensation under any Contract item on account of such removal and enlargement.

All material required for sheeting, bracing and shoring must be furnished by the Contractor and upon completion of the work, except for such as may be left in place, must become the property of the Contractor.

7.14 EMERGENCIES AND RESPONSIBILITY FOR DAMAGE

The Contractor, at all times throughout the performance of the Contract, must take all precautions necessary to effectually prevent any accident or other cause of damage to life or property in any place affected by the operations in consequence of work being done under the Contract and in consequence of any unusual conditions which may arise, and must to this end erect and maintain suitable and sufficient barriers, signs, lights, or other necessary protection. This requirement must also apply to interruption or contamination of public water supply, irrigation, or other public services, or from the failure of partly completed works.

If, in the opinion of the Engineer, the precautions taken by the Contractor are not safe or adequate at any time during the life of the Contract, he/she may order the Contractor to take further precautions, and if the Contractor must fail so to do, the Engineer may order the work done by the City forces and charge the Contractor for the cost thereof, such cost to be deducted from any moneys due or becoming due the Contractor. Failure of the Engineer to order such additional precautions, however, must not relieve the Contractor from its full responsibility for public safety.

The Contractor must indemnify, defend and save harmless the City from any legal actions or claims of every name and description brought against it for, or on account of, any injury or damage to person or property received or sustained by any person or persons by or from the Contractor, or any duly authorized Subcontractor or any agent, employee or workman, by or on account of work done under the Contract of any extension or addition thereof caused by its negligence, or by or in consequence of any negligence in guarding the same, or any material used or to be used for the same, or by or on account of any material, implement, appliance or machine used in the construction, or by or on account of any accident or of any act or omission of the Contractor, or of any duly authorized Subcontractor or any agent, employee or workman.

A sufficient amount of the money due the Contractor under the Contract as must be determined to be necessary by the City may be retained until all legal actions or claims for damages as aforesaid have been settled and evidence to that effect has been furnished to the City. This amount may be retained in addition to that provided for in Paragraph 9.5.

All of the above provisions must include suits for loss of business and/or obstruction or inconvenience to business or private property owners.

7.15 DISPOSAL OF MATERIAL OUTSIDE OF CITY'S RIGHT OF WAY

Unless otherwise specified in the Special Provisions, the Contractor must make its own arrangements for disposing of materials outside of City's right of way at its own profit or loss, and it must pay all costs involved therewith.

When any material, including excess or unsuitable excavated earth or other materials are to be disposed of outside of City's right of way, the Contractor must first obtain a written permit from the property City on whose property the disposal is to be made, and it must file said permit or a certified copy thereof, together with a written release from the property owner, absolving the City from any and all responsibility in connection with disposal of material on said property.

Unless otherwise provided in the Special Provisions, full compensation for all costs involved for disposing of materials, as above specified, must be considered as included in the prices paid for the various Contract items of work, and no additional allowance will be made therefor.

7.16 CONTRACTOR'S RESPONSIBILITY FOR WORK

The submitting of a proposal hereunder must be considered as evidence that the bidder has carefully examined the site of the work with regard to the climatic and physical conditions which will affect construction operations.

The Contractor must, throughout the entire term of the Contract, assume all risks and expense of interference and delay in its operations, and the protection from or the repair of damage to improvements being built by it under the Contract as may be caused by water of whatever quantity from floods, storms, industrial waste, irrigation, underground, or other sources. The Contractor must also assume full responsibility and expense of protecting or removing and returning to the site of work all equipment or materials under its care endangered by any action of the elements.

Furthermore, the Contractor must indemnify, defend and save harmless the City against all claims or suits for damage arising from his operations in dewatering the work and control or diversion of water.

All works installed by the Contractor in connection with dewatering, control, and diversion of water, but not specified to become a permanent part of the project, must be removed and the site restored, insofar as practical, to original condition at the Contractor's own expense.

7.17 CITY ENGINEER CANNOT WAIVE OBLIGATIONS

It is expressly agreed that neither the City Engineer nor any of his/her agents must have the power to waive any of the obligations of these Specifications for the furnishing by the Contractor of good and suitable material and for performing the work as herein described. Failure or omission on the part of the City Engineer, or any of his/her assistants or agents, to condemn defective or inferior work or materials, must not imply acceptance of the work, nor release of the Contractor from obligations at once to tear out, remove and properly replace the same without compensation, at its own cost and expense at any time, upon the discovery of said defective work and material, prior to the final acceptance of the entire Contract; neither must such failure or omission nor any acceptance by the City or by the City Engineer or any other officer or employee of the City be construed as barring the City at any subsequent time from recovery of damages from the Contractor and its sureties, and of such a sum of money as may be needed to remove and to build anew all portions of the work in which fraud was practiced, or improper work or material hidden.

7.18 RIGHTS IN LAND IMPROVEMENTS

Nothing in these Specifications must be considered as allowing the Contractor to make any arrangements with any person to permit occupancy or use of any land, structure or building within the limits of the Contract for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the City and any owner, former owner, or tenant of such land, structure or building.

7.19 PERSONAL LIABILITY

Neither the City, the City Engineer, nor any of his/her agents or other officer or authorized employee of the City must be personally responsible for any liability arising under the Contract. The Contractor must maintain in full force and effect, during the entire life of the Contract, public liability, property damage and personal injury insurance in amounts not less than specified in the Special Provisions. The Contractor must maintain on file with the City during the entire life of the Contract a memorandum of coverage or other evidence of such insurance, issued by the underwriter. Said insurance referred to must not be cancelled or renewal thereof declined unless notice is mailed to the named insured at least 45 days prior to the effective date or renewal or at least 60 days prior to the effective date of cancellation. In addition, if a public agency is named as an additional insured by way of endorsement or certificate of insurance, notice should be given to said public agency. The Contractor must pay all premiums whether said premiums cover extra work or work under regular contract items.

7.20 REPAIR OF EQUIPMENT

The work of installing, assembling, repairing or reconditioning, or other work of any nature on machinery, equipment, or tools used in or upon the work must be considered a part of the work to be performed under the Contract, and any laborers, workmen, or mechanics working on such machinery, equipment or tools, unless employed by bonafide commercial repair shops, garages, blacksmith shops, or machine shops, which have been established and operating on a commercial basis for a period of at least two months prior to the award of the Contract, must be subject to all of the requirements relating to labor set forth herein and in these Provisions.

7.21 CONTRACTOR'S LEGAL ADDRESS

The address given in the proposal must be considered the Contractor's legal address, but this may be changed at any time by notice in writing to the City at its office. The delivery to such address, or the depositing in the United States mails in a sealed envelope, postpaid, registered and properly directed to the Contractor's legal address, of any communications must be considered a legal and sufficient service of the same upon the Contractor.

7.22 COOPERATION AND COLLATERAL WORKS

Where two or more contractors are employed in related or adjacent work, each must conduct its operations in such manner as not to cause any unnecessary delay or hindrance to the other. Each contractor must be responsible to the other for all damage to work, to person or property, or for loss caused by failure to finish the work within the specified time for completion.

The Contractor must also coordinate its work and cooperate with contractors or workmen

employed by other agencies on or adjacent to the site of the work.

7.23 UTILITIES

Utilities for the purpose of these specifications must be considered as including, but not limited to, pipelines, conduits, transmission lines, and appurtenances of "Public Utilities" (as defined in the Public Utilities Act of the State of California) and those of private industry, businesses, or individuals solely for their own use or for use of their tenants; and storm drains, sanitary sewers, street lighting, and traffic signal systems.

All utility service interrupted or severed by the Contractor's operation must be immediately reinstated by temporary connections, and permanent reconstruction must be made as soon as construction operations permit.

The City has, by a search of known records, endeavored to locate and indicate on the drawings, all utilities which exist within the limits of the work. However, the accuracy or completeness of the utilities indicated on the drawings is not guaranteed. Service connections to adjacent property may or may not be shown on the drawings. It must be the responsibility of the Contractor to determine the exact location of all utilities and their service connections. The Contractor must make its own investigation as to the location and type of existing utilities and their appurtenances and service connections which may be affected by the Contract work and must notify the City as to any utility located by it which has been incorrectly shown or omitted from the drawings.

Work required in connection with utilities because of interference with Contract work will be performed and paid for as specified in the following paragraphs, 7.27.1 through 7.22.8; however, when directed or approved by the City Engineer, changes in line or grade of structure being built may be made in order to avoid utilities. The cost of such changes will be paid for as extra work.

7.23.1 By Other Than the Contractor:

When it is stated in the Special Provisions or indicated on the drawings that a utility is to be relocated, altered, or reconstructed by other than the Contractor, the City will conduct all negotiations with the owners in respect to such work, and the work will be done at no cost to the Contractor.

7.23.2 By the Contractor Under A Specified Contract Item:

When the bidding schedule contains a separate item covering the relocation, alteration, or reconstruction of a utility by the Contractor, the price proposal for said item must cover all costs involved in such work.

The utility owner's drawings and Special Provisions will give the construction details for the work, and, unless the time at which the work must be done is specified in the Special Provisions, the Contractor must coordinate with the utility owner in respect to when the work is to be done.

7.23.3 By the Contractor But Not Under a Specified Contract Item:

When work on a utility is specified or indicted on the Plans to be done by the Contractor, but is not included as a separate Contract item in the bidding schedule, the City will make all arrangements with owner of the utility in respect to the construction details; however, the

Contractor must coordinate with the utility owner as to when the work is to be done. Any costs for such work must be absorbed in the unit prices or included in the lump sum amounts proposal for the various Contract items.

7.23.4 By the Contractor - - Service Connections:

The alteration, temporary relocation or reconstruction of service connections to adjacent property must be the responsibility of the Contractor, and the contractor must notify occupants of the affected properties before service is interrupted and make all arrangements with the utility owners regarding requirements of interruption and reconstruction of service connections. The costs for such work on service connections must be absorbed in the unit prices or included in the lump sum amounts proposal for the various Contract items, unless otherwise specified in the Special Provisions. Reconstruction of sanitary sewer house connections must be accomplished in the manner shown on the Plans.

7.23.5 By the Contractor for His Own Convenience:

The temporary relocation or the alteration of any utility desired by the Contractor solely for its own convenience in the performance of the Contract work to a position or condition other than that provided for in the Special Provisions or shown on the Plans must be the Contractor's own responsibility, and the contractor must make all arrangements with the owners of the utility regarding such work. Any cost of such work for the Contractor's own convenience must be absorbed in the unit prices or included in the lump sum amounts proposal for the various Contract items.

7.23.6 By the Contractor or by Others – Unknown Utilities Disclosed during Contract Work:

In the event that a utility is disclosed subsequent to the award of Contract, such utility not being indicated on the drawings, the alteration, relocation, or proper support and protection must be done and paid for as follows:

7.23.6.1 When said utility is found to occupy the space required to be occupied by a part of the permanent works to be constructed under the Contract, or when said utility is more or less parallel with the conduit and, in the case of the pipe conduit, found to be within vertical planes of each side of the pipe a distance away from the pipe equal to ten inches for pipe 96 inches or less in diameter and equal to twelve inches for pipe greater than 96 inches in diameter or to be within the specified excavation pay lines (when such are specified or shown on the drawings), the City will arrange for the relocation or alteration of said utility or require the Contractor to do same as extra work. However, when said utility is found to cross the excavation laterally, but not to intercept the permanent works to be constructed, then the Contractor will be required to maintain the utility in place at its own expense.

7.23.6.2 When said utility is more or less parallel with and any portion of it does not lie within the vertical planes specified hereinabove (for pipe conduit) or does not lie within the excavation pay lines (when such are specified or shown on the drawings), the Contractor must advise the City thereof, and, in cooperation with the City, provide and place the necessary support for proper protection to insure continuous and safe operation of the utility structure. All costs for such work

must be borne by the Contractor, unless it is ascertained by the City that the utility's franchise is such as to require the utility to bear such costs, in which case it must be the responsibility of the Contractor to secure enforcement of said franchise if it so desires.

7.23.7 Responsibility of the Contractor

The Contractor must be held responsible for all costs for the repair of any and all damage to the Contract work or to any utility (whether previously known or disclosed during the work), as may be caused by its operations. Utilities not shown on the drawings to be relocated or altered by others must be maintained in place by the Contractor. Utilities which are relocated by others in order to avoid interference with structures and which cross the project work must be maintained in their relocated positions by the Contractor.

At the completion of the Contract work, the Contractor must leave all utilities and appurtenances in a condition satisfactory to the owners and the City.

7.23.8 Delays Caused by Failure to Relocate Utilities

Where parties other than the Contractor are responsible for the relocation of utilities, in accordance with the provisions of these Plans and Specifications, and a delay in the Contractor's work is caused by the failure on the part of said parties to remove or relocate such utilities in time to prevent such delay. It must be understood that the Contractor must not be entitled, as a result of such delay to its work, to damages or additional payments over and above the Contract price. If delays in the Contractor's work are caused by the reason mentioned hereinabove, the Contractor must be entitled to an extension of time. The length of such extension of time will be determined by the City, with consideration as to the effect of the delay on the project as a whole.

In order to minimize delays to the Contractor caused by the failure of other parties to relocate utilities which interfere with construction works, the Contractor, upon request to the City, may be permitted to temporarily omit the portion of work affected by the utility. The portion thus omitted must be constructed by the Contractor immediately following the relocation of the utility involved. Should the omitted portion of the work consist of concrete pipe, the Contractor may complete said portion by constructing a field joint.

Unless otherwise specified, where sewers, drainage water, gas or any other conduits and related structures and appurtenances which have been abandoned or which are to be abandoned as a result of the construction of this project are found to interfere with construction, the interfering portions must be removed and the remaining exposed portions sealed with either a wall of concrete not less than six inches thick. All salvable castings or steel parts which interfere with construction must be removed, and the Contractor must contact the owners and, if required, must deliver such materials f.o.b. the owner's trucks at the site of the work; otherwise, such material must become the property of the Contractor and must be disposed of by the contractor away from the site of work.

The cost of all such work must be absorbed in the prices proposal for the various items of work, unless it is ascertained that the franchise of the former owner is such as to require it to bear such costs, in which case it must be the responsibility of the Contractor to secure enforcement of said franchise if it so desires.

SECTION 8

PROSECUTIONS AND PROGRESS

8.1 SUBCONTRACTS

The Contractor may sublet the Contract work only in accordance with the provisions of these Specifications and with the consent of the City. The prime Contractor must be held responsible to see that its subcontractors and material suppliers conform to all the provisions of these Specifications. If the Contractor, after complying with these conditions, must sublet any portion of the proposed work to a Subcontractor, the Contractor under the original Contract must remain directly responsible to the City for all work being performed by it or by any Subcontractor under it, and all obligations imposed upon the Contractor in the original Contract must be equally binding upon any Subcontractor under it. The City will deal directly with and make all payment to the original Contractor. Contractor understands and acknowledges that the Subletting and Subcontracting Fair Practices Act (as set forth in the California Public Contracts Code) applies to the Contract and Contractor Agrees to comply with the terms of said Act.

8.2 ASSIGNMENT

The Contractor must not assign the Contract or sublet it as a whole without the written consent of the City. The Contractor must not assign or permit the assignment of or any lien on any money due or to become due to it hereunder without the proper consent of the City.

8.3 PROGRESS OF THE WORK

Time is of the essence in this Contract. Unless otherwise provided in the Special Provisions, the Contractor must begin work not later than 15 calendar days after the date of the Notice to Proceed, and he contractor must prosecute the work with due diligence so as to complete the work within the time specified in the Special Provisions or within such extension of time as may be granted.

Should the Contractor begin work in advance of receiving notice that the Contract has been approved as above provided, any work performed by it in advance of said date of approval must be considered as having been done by it at its own risk and as a volunteer, unless such Contract is so approved.

8.4 CHARACTER OF WORKMEN

The Contractor must employ none but skilled foremen and workmen upon work requiring special qualifications. When required by the Engineer, the contractor must discharge from the work and must not again employ without the consent of the Engineer any employee who is incompetent, disorderly, abusive, dangerous, insubordinate, or who in any way attempts to interfere with the employees of the City in the inspection and supervision of the work.

Any representative of the Contractor who is proven to have deliberately given false information about the performance of any part of the work must be discharged if so ordered by the City Engineer.

8.5 TEMPORARY SUSPENSION OF WORK

The City Engineer may order the Contractor to suspend work when, in his/her opinion, the conditions are such as to prevent the work being properly carried out. Such conditions may include: war, government regulations, labor disputes, strikes, fire, floods, adverse weather or elements, inability to obtain material, labor or equipment, required extra work, or other specific as may be further described in the Specifications. When delay is caused by such order, an extension of time may be granted when the conditions, in the opinion of the City Engineer, are such as could not have reasonably been foreseen. It is agreed that under no circumstances must the Contractor be excused from performance or entitled to any extra compensation or reimbursement because of any such suspension.

8.6 TIME OF ESSENCE, LIQUIDATED DAMAGES, EXTENSION OF TIME BY CITY

Time is of the essence, and, in case all the work called for under the Contract in all parts and requirements is not finished or completed by the date set forth in the Special Provisions, it is agreed by the parties to the Contract that circumstances and conditions as reflected by records of the City are such that material damage will be sustained by the City, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the City will sustain in the event of any by reason of such delay. It is, therefore, expressly agreed that the Contractor will pay to the City the sum stated in Special Provisions per day for each and every calendar days delay in finishing the work beyond the date prescribed; and the Contractor agrees to pay said liquidated damages as herein provided. In case the same are not paid, Contractor agrees that the City may deduct the amount thereof from any monies due or that may become due the Contractor under the Contract.

It is further agreed that in case the work called for under the Contract is not finished and completed in all parts and requirements by the date specified, the City must have the right to extend the time of completion or not, as may be deemed to best serve the interest of the City. If it is decided to increase said time, said City must further have the right to charge to the Contractor, its heirs, assigns or sureties and to deduct from the final payment for the work all or any part, as may be deemed proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the Contract and which accrue during the period of such extension, except that cost of final surveys and preparation of final estimate must not be included in such charges.

The time of completion will be extended and the Contractor must not be assessed with liquidated damages during any delay beyond the day named for completion of the work caused by Acts of God or acts of the public enemy, fires, floods, epidemics, quarantine restrictions, strikes, and freight embargoes or delay of subcontractors due to such causes, provided the Contractor must notify the Engineer in writing of such cause or causes of delay within ten (10) days from the beginning of any such delay and includes in each monthly pay request the number of days of such delay which occurred in said pay period. Subject to and until entry of a judgment of a court of competent jurisdiction holding contrary to the decision of the Engineer's ascertainment of the facts of existence of such a cause of delay, the extent of the delay and of what constitutes a reasonable

extension of time of completion in consequence thereof must be final and conclusive. Failure to give notice of cause of such time delay and failure of inclusion of the Contractor's request for extension based thereon in the monthly pay request as hereinabove provided will be deemed a waiver of right to extension of time for such cause subject only to impossibility of compromise therewith by the Contractor.

It is agreed that under no circumstances must the Contractor be excused from performance or entitled to any extra compensation or reimbursement because of any delay occasioned by or in any way arising out of any Acts of God or acts of the public enemy, fires, floods, epidemics, quarantine restrictions, strikes, and freight embargoes or delay of subcontractors due to such causes.

8.7 DEFAULT BY CONTRACTOR

If the Contractor fails to begin delivery of material and equipment, to commence the work within the time specified, to maintain the rate of delivery of material, to execute the Work in the manner and at such locations as specified, or fails to maintain the work schedule which will insure the City’s interest, or, if the Contractor is not carrying out the intent of the Contract, the City may serve written notice upon the Contractor and the Surety on its Faithful Performance Bond demanding satisfactory compliance with the Contract.

The Contract may be canceled by the City without liability for damage, when in the City's opinion the Contractor is not complying in good faith, has become insolvent, or has assigned or subcontracted any part of the work without the City's consent. In the event of such cancellation, the Contractor will be paid the actual amount due based on Contract unit prices or lump sums proposal and the quantity of the work completed at the time of cancellation, less damages caused to the City by acts of the Contractor. The Contractor, in having tendered a Proposal, must be deemed to have waived any and all claims for damages because of cancellation of Contract for any such reason. If the City declares the Contract canceled for any of the above reasons, written notice to that effect must be served upon the Surety. The Surety must, within 5 days, assume control and perform the work as successor to the Contractor.

If the Surety assumes any part of the work, it must take the Contractor's place in all respects for that part, and must be paid by the City for all work performed by it in accordance with the Contract. If the Surety assumes the entire Contract, all money due the Contractor at the time of its default must be payable to the Surety as the work progresses, subject to the terms of the Contract.

If the Surety does not assume control and perform the work within 5 days after receiving notice of cancellation, or fails to continue to comply, the City may exclude the Surety from the premises. The Agency may then take possession of all material and equipment and complete the work by City forces, by letting the unfinished work to another Contractor, or by a combination of such methods. In any event, the cost of completing the work must be charged against the Contractor and its Surety and may be deducted from any money due or becoming due from the Agency. If the sums due under the Contract are insufficient for completion, the Contractor or Surety must pay to the City within 5 days after the Notice of Completion resolution, all costs in excess of the sums due.

The provisions of this subsection must be in addition to all other rights and remedies available to the City under law.

8.8 WORK AT NIGHT – Not Applicable

8.9 MAXIMUM LENGTH OF OPEN TRENCH

Except by special permission of the Engineer, the maximum length of open trench where prefabricated pipe is used must not be greater than 500 feet, or the distance necessary to accommodate the amount of pipe installed in a single day, whichever is the greater. The distance is the collective length, including excavation, construction, pipe laying, backfilling, and compaction at any one location.

Except by special permission of the Engineer, the maximum length of open trench in any one location where concrete structures are poured in place will be that which is necessary to permit the uninterrupted progress of construction of the concrete structure, with construction pursued as follows: excavation, setting of reinforcing steel, pouring of floor slab, walls, and cover slab or arch are to follow each other without any one of these operations preceding the next nearest operation by more than 200 feet.

Except by special permission of the Engineer, the maximum length of open trench in any one location where prefabricated concrete box conduit is used will be that which is necessary to permit the uninterrupted progress of construction of the concrete structure with construction pursued as follows: excavation, setting of reinforcing steel, pouring of floor slab, erection of side walls, erection of cover slab, and pouring of filler spaces are to follow each other without any one of these operations preceding the next nearest operation by more than 200 feet.

8.10 LIMITED ACCEPTANCE OF WORK

At any time during the progress of the work, the City may, upon written notice to the Contractor, take over and utilize the whole or part of the work, or appurtenance thereto which has been completed, giving, if desired, permits to utilize the same. Such use by the City must constitute a limited acceptance of that part of the work so taken over and utilized which must relieve the Contractor and its sureties from responsibility for any damage to, or defect in, that part of the work not inherent in its construction which may be caused by the use of such part by the City or by property owners under its permits.

SECTION 9

MEASUREMENT AND PAYMENT

9.1 MEASUREMENT FOR PAYMENT

Measurement and calculations of quantities for payment will be as hereinafter specified for the particular material to be furnished or class of work to be performed, unless otherwise specified in the Special Provisions.

It must be understood that the unit prices or lump sum amounts proposal must include full compensation for furnishing all labor, materials, tools, and equipment and doing all work shown on the Plans or stipulated in the Specifications for that particular item of work, unless otherwise specified in the Special Provisions.

When payment is specified to be made on the basis of weight, the weighing must be done on certified platform scales, and the Contractor must furnish the Engineer with the duplicate Certified Weighmaster's Certificates showing the actual net weights. When weighing is done on certified scales at a mixing plant, duplicate weight delivery tickets will be accepted. One ticket must be furnished to the inspector at the plant and one ticket to the Engineer at the site of work. The City will accept the certificates as evidence of the weight delivered.

9.2 SCOPE OF PAYMENT

The Contractor must accept the compensation as herein provided, in full payment for furnishing all materials, labor, tools, and equipment necessary to the completed work and for performing all work contemplated and embraced under the Contract; also for loss or damage arising from the nature of the work, or from the action of the elements, except as hereinbefore provided or from any unforeseen difficulties which may be encountered during the prosecution of the work until the acceptance by prosecution of the work; also for all expenses incurred in consequence of the suspension or discontinuance of the work as herein specified; and for completing the work according to the Plans and Specifications. Neither the payment of any estimate nor of any retained percentage must relieve the Contractor of any obligation to make good any defective work or material.

9.3 DEDUCTIONS FROM PAYMENTS

The City may, at its option and at any time, retain out of any amounts due the Contractor sums sufficient to cover any unpaid claims, provided that sworn statements of said claims must have been filed with the City.

9.4 SCHEDULE OF VALUES

Prior to the Contractor’s application for the first progress payment, Contractor must submit a detailed breakdown of its bid by scheduled Work items and/or activities, including coordination responsibilities and project record document responsibilities. Where more than one subcontractor comprises the work of a work item or activity, the Schedule of Values must show a separate line item for each subcontract. Contractor must furnish such breakdown, of the total

Contract Sum, by assigning dollar values (cost estimates) to each applicable Progress Schedule network activity, which cumulative sum equals the total Contract Sum. The format and detail of the breakdown must be as directed by City to facilitate and clarify future progress payments to Contractor for direct Work under Contract Documents. This breakdown must be referred to as the Schedule of Values.

Contractor's overhead, profit, insurance, cost of bonds and/or other financing, as well as "general conditions costs," (e.g., site cleanup and maintenance, temporary roads and access, off site access roads, temporary power and lighting, security and the like), must be prorated through all activities so that the sum of all the Schedule of Values line items equal Contractor's total Contract Sum.

City will review the breakdown in conjunction with the Progress Schedule to ensure that the dollar amounts of this Schedule of Values are, in fact, fair market cost allocations for the Work items listed. Upon favorable review by City, City will accept this Schedule of Values for use. City must be the sole judges of fair market cost allocations.

Any attempt to increase the cost of early activities, i.e., "front loading," will be rejected by City, resulting in a complete reallocation of monies until such "front loading" is corrected. Repeated attempts at "front loading" may result in suspension or termination of the Work or refusal to process progress payments, until such time as the Schedule of Values is acceptable to City.

9.5 PAYMENTS AND MONTHLY ESTIMATES

The City Engineer will, after the award of Contract, establish a monthly payment closure date. This date will be the date which will terminate each working month during the life of the Contract for which a monthly payment is payable. The Contractor will, within 5 days after the established monthly payment closure date of each month during the period in which work is being performed, make and deliver to the City two signed copies of monthly Contract payment applications stating the amount or percentage of work completed according to the Contract, as of the closure date established, estimated on the basis of the unit or lump sum Contract prices. No allowance will be made for materials and equipment not incorporated into the work. The City will independently verify the Contractor's monthly payment application and create a monthly progress payment request. The City's determinations for the amounts or percentages of work completed are final.

The City will prepare a warrant in an amount sufficient with all previous payments to make the aggregate 95 percent of the amount earned as certified, provided, however, that the City at any time after 50 percent of the work has been completed, if it finds that satisfactory progress is being made, may make any of the remaining partial payments in full, less authorized deductions.

The partial payments made as the work progresses will be payments on account and must in no way be considered as an acceptance of any part of the work or materials of the Contract, nor must they in any way govern the final estimate. Extra work will be paid for as specified in Section 4.3.3. Payments for unit price items will be made upon the basis of the unit prices proposal and the quantities of work done, calculated as hereinafter specified, for each particular item of work. However, where several types of work are included in a unit price item, the City will make partial payment for the portions of such work as are completed at the time of making the monthly

estimates. All monies due the Contractor under the Contract will be paid on demand by the City, prepared and approved as required by law, and it is understood that any delay in the preparation, approval and payment of these demands will not constitute a breach of Contract on the part of the City.

Payments for lump sum items will be based upon the lump sum proposal and the City's estimate as to the percentage of completion.

9.6 PAYMENT FOR EXTRA WORK

Payment for extra work will be made as provided by Section 4.3.3. Where payment is to be made on a force account basis, the Contractor and the City's representative must compare records of extra work performed by the Contractor on a force account basis at the end of each day. Copies of these records will be made in duplicate by the City's representative and must be signed by both the inspector and the Contractor's Representative, one copy being forwarded to the Contractor and one copy to the City. Bills for extra work must be signed by the Contractor and submitted to the City.

Each month the Contractor must include in the monthly payment application an estimate of the amount or cost of extra work performed as included in approved Contract Change Orders. The Contractor must submit, at the same time he/she returns the signed monthly payment application, a complete itemized statement of claim for all costs of extra work performed. Failure to include such a statement or claim for extra work for the pay period, or failure to deliver a complete statement for extra work in excess of that estimated by the City Engineer, must constitute a waiver on the part of the Contractor to any claim for payment for extra work not therein included.

9.6.1 Method of payment for extra work approved as specified in Section 4 under unit price or lump sum amounts or at stipulated prices must be the same as that for Contract items as set forth in this Section.

9.6.2 Payment for extra work by Contractor's force account must be made in the following manner:

Upon verification by the Engineer of the Contractor's statement for force account work, a claim will be prepared upon the proper claims form for approval of the City Engineer and presentation to the City Manager, for his approval and direction.

9.7 FINAL PAYMENT

Upon completion of the Contract work, the City Engineer will, upon acceptance of the work by the City and 35 days after the date of recordation of the Notice of Completion, present the Contractor's claim for the balance of the total Contract price, less any sums which may lawfully be retained under the Contract.

Unless qualified by the Contractor under the procedure established in Section 9.5 hereof, the final progress payment request of the City Engineer must be taken as conclusive evidence of the amount of work done under the Contract. If the Contractor qualified its acceptance of the final progress payment and the parties fail to agree prior to the termination of the 35-day period after recordation of Notice of Completion, the final payment must not be delayed but must be made in

accordance with the City Engineer's determination, subject to further claim of the Contractor and compliance by City with court order.

SECTION 10

CLAIMS BY CONTRACTOR

10.1 OBLIGATION TO FILE CLAIMS FOR DISPUTED WORK

10.1.1 Should it appear to Contractor that the Work to be performed or any of the matters relative to the Contract Documents are not satisfactorily detailed or explained therein, or should any questions arise as to the meaning or intent of the Contract Documents, or should any dispute arise regarding the true value of any work performed, work omitted, extra work that the Contractor may be required to perform, time extensions, payment to the Contractor during performance of this Contract, performance of the Contract, and/or compliance with Contract procedures, or should Contractor otherwise seek extra time or compensation FOR ANY REASON WHATSOEVER, then Contractor shall first follow all other procedures set forth in the Contract Documents and Standard Specifications. If a dispute remains, then Contractor shall give written notice to City that expressly invokes this Section 10. City shall decide the issue in writing within 15 days; and City's written decision shall be final and conclusive. If Contractor disagrees with City's decision, or if Contractor contends that City failed to provide a decision timely, then Contractor's SOLE AND EXCLUSIVE REMEDY is to promptly file a written claim setting forth Contractor's position as required herein.

10.1.2 Contractor shall present as its claims all Subcontractor, sub-Subcontractor and supplier claims of any type, and prove them under the terms of the Contract Documents. City shall not be directly liable to any Subcontractor, any supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages or extra costs of any type arising out of or resulting from the Project.

10.2 FORM AND CONTENTS OF CLAIM

10.2.1 Contractor's written claim must be submitted via registered mail or certified mail with return receipt requested and must identify itself as a "Claim" under this Section 10 and must include the following: (i) a narrative of pertinent events; (ii) citation to contract provisions; (iii) theory of entitlement; (iv) complete pricing of all cost impacts; (v) a time impact analysis of all time delays that shows actual time impact on the critical path; (vi) reasonable documentation supporting items (i) through (v); and (vii) a verification under penalty of perjury of the claim's accuracy. The Claim shall be submitted to City within thirty (30) calendar days of receiving City's written decision, or the date Contractor contends such decision was due, shall be priced like a change order, and must be updated monthly as to cost and entitlement if a continuing claim. Routine contract materials, for example, correspondence, RFI, change order requests, or payment requests shall not constitute a Claim. Contractor shall bear all costs incurred in the preparation and submission of a Claim.

10.2.2 Upon receipt of a Claim, City shall conduct a reasonable review of the Claim. Within 45 days, or such expended period as City and Contractor may agree, City shall provide Contractor with a written statement identifying what portion of the claim is disputed and what portion is undisputed.

10.2.3 If City's governing body must approve City's response to the Claim and the governing body has not met within the 45-day (or extended) period, then City shall provide its written statement within three (3) days of the governing body's meeting.

10.2.4 City shall pay the undisputed portions of the Claim within 60 days of the issuance of a written statement identifying an undisputed portion.

10.2.5 Claims must be submitted on or before the day of final payment. Claims not submitted before final payment are deemed waived.

10.2.6 Notwithstanding and pending the resolution of any claim or dispute, Contractor shall diligently prosecute the disputed work to final completion in accordance with City's determination.

10.3 INFORMAL CONFERENCE AFTER CLAIM SUBMISSION

10.3.1 If the Contractor disputes City's response to its Claim, including a failure to respond, it may submit via registered mail or certified mail, return receipt requested, a written demand for an informal conference to meet and confer for settlement of the issues in dispute. City shall schedule such a meet and confer conference within 30 days for settlement of the dispute.

10.3.2 Within ten (10) days of the meet and confer conference City shall provide Contractor with a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed.

10.3.3 City shall pay the undisputed portions of the Claim within 60 days of the issuance of a written statement identifying an undisputed portion.

10.4 MEDIATION

10.4.1 If the Contractor disputes City's statement provided under Paragraph 10.3(B) it shall inform City and the parties shall mutually agree to a mediator within 10 business days of the written statement. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator.

10.4.2 Mediation shall be confidential and non-binding. Unless otherwise agreed, by the parties or as provided in this Paragraph 10.4, the mediation shall be pursuant to the construction mediation procedures of JAMS and held at the JAMS office closest to the Project site.

10.4.3 The cost of mediation shall be equally shared by all parties to the mediation. The parties shall, prior to the commencement of mediation upon notice of the other party, exchange relevant, non-privileged project documents in compliance with Code of Civil Procedure Sections 2031.010, et seq. The parties may agree mutually to engage in additional discovery prior to mediation. Should the parties proceed with additional discovery, they shall, unless mutually agreed otherwise, comply with Code of Civil Procedure Sections 2019, et. seq. The mediator will undertake to resolve any discovery disputes relating to the mediation.

10.4.4 For Claims under $375,000, unless the parties agree otherwise in writing, mediation pursuant to this Paragraph 10.4 shall excuse the mediation obligation under Public Contract Code Section 20104.4(a).

10.4.5 If mediation is unsuccessful, the parts of the Claim remaining in dispute shall be resolved as otherwise provided by the Contract and applicable law.

10.4.6 Following receipt of a Claim, the parties may mutually agree, in writing, to waive the mediation requirements of this Paragraph 10.4 and proceed to the commencement of a civil action.

10.4.7 All statutes of limitation shall be tolled from the date of the demand for mediation until a date two weeks following the mediation's conclusion.

10.5 OTHER MATTERS

10.5.1 The provisions of this Section 10 constitute a non-judicial claim settlement procedure that, pursuant to Government Code Section 930.2, shall constitute a condition precedent to submission of a valid Government Code Claim under the Government Code. Contractor shall bear all costs incurred in the preparation, submission and administration of a claim. Any claims presented in accordance with the Government Code must affirmatively indicate Contractor's prior compliance with the claims procedure herein and the previous dispositions under Paragraphs 10.3 and 10.4 above of the claims asserted. No suit may be brought against City arising out of or in connection with the Project unless and until Contractor presents to City a statutory Government Code Claim, in accordance with Government Code Sections 910, et seq. Pursuant to Government Code Section 930.2, the one-year period in Government Code Section 911.2 shall be reduced to 150 days from either accrual of the cause of action, substantial completion or termination of the contract, whichever occurs first; in all other respects, the Government Code shall apply unchanged.

10.5.2 Failure to submit and administer claims as required in Section 10 shall waive Contractor's right to claim on any specific issues not included in a timely submitted claim. Claim(s) or issue(s) not raised in a timely protest and timely claim submitted under this Section 10 may not be asserted in any subsequent litigation, Government Code Claim, or legal action.

10.5.3 Contractor shall submit Subcontractor claims in the same manner as other Claims. In the event a Subcontractor (on behalf of the Subcontractor or a lower-tier subcontractor) requests Contractor in writing to present a Claim to the City and furnishes reasonable documentation supporting the Claim, Contractor shall, within 45 days of receipt of the written request, notify the Subcontractor in writing as to whether the Contractor presented the claim to City and, if the Contractor did not present the Claim, provide the Subcontractor with a statement of the reasons for not doing so.

10.5.4 All waivers or modifications of this Section 10 may only be made a writing signed by City and Contractor, and approved as to form by legal counsel for both; oral or implied modifications shall be ineffective.

10.5.5 Any failure by City to respond within any time frame contained in Paragraphs 10.2 through 10.5 of this Section shall result in the Claim being deemed rejected in its entirety. No failure to meet a time requirement shall constitute an adverse finding with regards to the merits of the Claim or the responsibility or qualifications of the Contractor.

10.6 COMPLIANCE WITH STATUTORY PROCEDURES

10.6.1 The foregoing provisions of Paragraphs 10.2 through 10.5 are intended to comply with Public Contract Code Section 9204 and, to the extent applicable, Public Contract Code Section 20104, et seq. In the event of any conflict, the applicable Public Contract Code provision will apply.

PART 4 – TECHNICAL SPECIFICATIONS

Specifications

Alicia Park Pool Building Demolition
Project #2017-29
and

City of Rohnert Park
Rohnert Park, CA

Bid & Permit Submittal

August 2019

BrokawDesign

TABLE OF CONTENTS
TECHNICAL SPECIFICATIONS

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SECTION 01 10 00
SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
   1. See also “CONTRACT DOCUMENTS, SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS” by City of Rohnert Park.

1.2 SUMMARY

A. Section Includes:

   1. Project information.
   2. Work covered by Contract Documents.
   3. Work performed by Owner.
   4. Contractor's use of site and premises.
   5. Coordination with occupants.
   6. Work restrictions.
   7. Specification and Drawing conventions.
   8. Miscellaneous provisions.

B. Related Requirements:

   1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 DEFINITIONS

A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

A. Project Identification:
   1. Alicia Pool Building Demolition Project #2017-29

B. Project Location: 300 Arlen Drive, City of Rohnert Park, CA.

C. Owner: City of Rohnert Park.

1. Owner's Representative:
Terrie Zwillinger
Direct Line: 707-588-3308
Cell: 707-495-0878

Civil Engineer:
Tim Lengyel, P.E.
Brokaw Design, Inc.
Direct Line: 415-466-6666
Cell: (415) 999-0323

1.5 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Alicia Park: Demolish existing single-story wood framing building & contents; remove foundations, remove former in-ground gunnite pool upper approximately 36" and surrounding concrete flatwork. Terminate/modify utilities. Restore site to park-like condition. Provide design & permitting of irrigation system modifications. Provide irrigation system modifications based on contractor's design. Provide all miscellaneous and ancillary work required for a complete and usable system.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.6 WORK PERFORMED BY OWNER

A. Cooperate fully with Owner, so work may be carried out smoothly, without interfering with or delaying Work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.7 CONTRACTOR'S USE OF SITE AND PREMISES

A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. Limits on Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits on Use of Site: Confine construction operations to Area of Work as defined by Engineer's Site Plan.

2. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.8 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy Project site and adjacent building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.9 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work to. Hours indicated by City. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Project site is not permitted.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. RFIs.
4. Digital project management procedures.
5. Web-based Project management software package.
6. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:
1. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. BIM: Building Information Modeling.

B. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.

2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Owner name.
3. Owner's Project number.
4. Name of Architect and Construction Manager.
5. Architect's Project number.
6. Date.
7. Name of Contractor.
8. RFI number, numbered sequentially.
9. RFI subject.
10. Specification Section number and title and related paragraphs, as appropriate.
11. Drawing number and detail references, as appropriate.
12. Field dimensions and conditions, as appropriate.
13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
14. Contractor's signature.
15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. Architect's and Construction Manager's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven days for Architect's response for each RFI. RFIs received by Architect or Construction Manager after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect or Construction Manager of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

D. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect and Construction Manager.
4. RFI number, including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's and Construction Manager's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

E. On receipt of Architect's and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within seven days if Contractor disagrees with response.

1.7 PROJECT MEETINGS

A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager, and Architect, within three days of the meeting.

B. Preconstruction Conference: Construction Manager will schedule and conduct Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Owner's Representative of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Sustainable design requirements.
    i. Review of mockups.
    j. Possible conflicts.
    k. Compatibility requirements.
    l. Time schedules.
    m. Weather limitations.
    n. Manufacturer's written instructions.
    o. Warranty requirements.
    p. Compatibility of materials.
    q. Acceptability of substrates.
    r. Temporary facilities and controls.
    s. Space and access limitations.
    t. Regulations of authorities having jurisdiction.
    u. Testing and inspecting requirements.
    v. Installation procedures.
    w. Coordination with other work.
    x. Required performance results.
    y. Protection of adjacent work.
    z. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and

other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

    a. Preparation of Record Documents.
    b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    c. Procedures for completing and archiving web-based Project software site data files.
    d. Submittal of written warranties.
    e. Requirements for completing sustainable design documentation.
    f. Requirements for preparing operations and maintenance data.
    g. Requirements for delivery of material samples, attic stock, and spare parts.
    h. Requirements for demonstration and training.
    i. Preparation of Contractor's punch list.
    j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    k. Submittal procedures.
    l. Coordination of separate contracts.
    m. Owner's partial occupancy requirements.
    n. Installation of Owner's furniture, fixtures, and equipment.
    o. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: Conduct progress meetings at biweekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.

3) Resolution of BIM component conflicts.
4) Status of submittals.
5) Status of sustainable design documentation.
6) Deliveries.
7) Off-site fabrication.
8) Access.
9) Site use.
10) Temporary facilities and controls.
11) Progress cleaning.
12) Quality and work standards.
13) Status of correction of deficient items.
14) Field observations.
15) Status of RFIs.
16) Status of Proposal Requests.
17) Pending changes.
18) Status of Change Orders.
19) Pending claims and disputes.
20) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Conduct Project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each contractor present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Resolution of BIM component conflicts.
4) Status of submittals.
5) Deliveries.
6) Off-site fabrication.
7) Access.
8) Site use.
9) Temporary facilities and controls.
10) Work hours.
11) Hazards and risks.
12) Progress cleaning.
13) Quality and work standards.
14) Status of RFIs.
15) Proposal Requests.
16) Change Orders.
17) Pending changes.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 01 10 00
SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
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   2. Work covered by Contract Documents.
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   5. Coordination with occupants.
   6. Work restrictions.
   7. Specification and Drawing conventions.
   8. Miscellaneous provisions.

B. Related Requirements:

   1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 DEFINITIONS

A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

A. Project Identification:
   1. Alicia Pool Building Demolition Project #2017-29

B. Project Location: City of Rohnert Park, CA.

C. Owner: City of Rohnert Park.

1. Owner's Representative:

Laura Bryan
Direct Line: 707-588-3308
Cell: 707-486-3487

Civil Engineer:
Tim Lengyel, P.E.
Brokaw Design, Inc.
Direct Line: 415-466-6666
Cell: (415) 999-0323

1.5 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Alicia Park Pool Building and Pool: Demolish existing single-story wood framing building & contents; remove foundations, remove surrounding concrete flatwork at former pool. Terminate/modify utilities. Restore site to park-like condition. Provide design & permitting of irrigation system modifications. Provide irrigation system modifications based on contractor's design. Provide all miscellaneous and ancillary work required for a complete and usable system.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.6 WORK PERFORMED BY OWNER

A. Cooperate fully with Owner, so work may be carried out smoothly, without interfering with or delaying Work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.7 CONTRACTOR'S USE OF SITE AND PREMISES

A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. Limits on Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits on Use of Site: Confine construction operations to Area of Work as defined by Engineer's Site Plan.

2. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.8 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy Project site and adjacent building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.9 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work to. Hours indicated by City. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Project site is not permitted.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 013233

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Concealed Work photographs.
3. Periodic construction photographs.
4. Final Completion construction photographs.
5. Preconstruction video recordings.
6. Periodic construction video recordings.

B. Related Requirements:
1. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.
2. Section 311000 "Site Clearing" for photographic documentation before site clearing operations commence.

1.3 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.

1. Submit photos on CD-ROM or thumb-drive. Include copy of key plan indicating each photograph's location and direction.
2. Identification: Provide the following information with each image description:

a. Name of Project.
b. Name and contact information for photographer.
c. Name of Contractor.
d. Date photograph was taken.
e. Description of location, vantage point, and direction.
f. Unique sequential identifier keyed to accompanying key plan.

C. Video Recordings: Submit video recordings within3 days of recording.

1. Submit video recordings on CD-ROM or thumb drive. Include copy of key plan indicating each video's location and direction.
2. Identification: With each submittal, provide the following information:

    a. Name of Project.
    b. Name and address of photographer.
    c. Name of Contractor.
    d. Date video recording was recorded.
    e. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

1.4 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400. Use flash in low light levels or backlit conditions.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full high-definition mode. Provide supplemental lighting in low light levels or backlit conditions.

C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

D. Metadata: Record accurate date and time from camera.

E. File Names: Name media files with date. Project and location and sequential numbering suffix.

1.5 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs with maximum depth of field and in focus.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Construction Manager.

1. Flag excavation areas & construction limits before taking construction photographs.
2. Take 50 photographs minimum each site to show existing conditions adjacent to property before starting the Work.
3. Take 50 photographs minimum of existing adjacent buildings each site either on or adjoining property, to accurately record physical conditions at start of construction.
4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

C. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:

1. Underground utilities.
2. Underslab services.
3. Piping.
4. Electrical conduit.

D. Periodic Construction Photographs: Take 20 photographs weekly at each site. Select vantage points to show status of construction and progress since last photographs were taken.

E. Final Completion Construction Photographs: Take 50 photographs after date of Substantial Completion for submission as Project Record Documents. Construction Manager will inform photographer of desired vantage points.

F. Additional Photographs: Construction Manager may request photographs in addition to periodic photographs specified.

1. Three days' notice will be given, where feasible.
2. In emergency situations, take additional photographs within 24 hours of request.
3. Circumstances that could require additional photographs include, but are not limited to, the following:
    a. Immediate follow-up when on-site events result in construction damage or losses.
    b. Substantial Completion of a major phase or component of the Work.
    c. Extra record photographs at time of final acceptance.

1.6 CONSTRUCTION VIDEO RECORDINGS

A. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed, recent events, and planned activities. At each change in location, describe vantage point, location, direction (by compass point), and elevation or story of construction.

1. Confirm date and time at beginning and end of recording.
2. Begin each video recording with name of Project, Contractor's name, videographer's name, and Project location.

B. Preconstruction Video Recording: Before starting demolition, record video recording of Project site and surrounding properties from different vantage points, as directed by Construction Manager.

1. Flag construction limits before recording construction video recordings.
2. Show existing conditions adjacent to Project site before starting the Work.
3. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of demolition.
4. Show protection efforts by Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 013233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.
4. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
5. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Contractor’s responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for

review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Construction Manager and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Construction Manager's final release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled date of fabrication.
    i. Scheduled dates for installation.
    j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Construction Manager.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractor, manufacturer, and supplier.
8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
9. Category and type of submittal.
10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.

15. Other necessary identification.
16. Remarks.
17. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Construction Manager on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Paper Submittals:

1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
2. Provide a space approximately 6 by 8 inches on cover page or beside title block to record Contractor's review and approval markings and action taken by Construction Manager.
3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated by Construction Manager, will return two copies.
4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Construction Manager will not return copies.

E. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

F. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.

2. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.
3. Paper: Prepare submittals in paper form and deliver to Architect.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

3. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect and Construction Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Construction Manager's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's and Construction Manager's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's and Construction Manager's action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.

e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams that show factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 11 by 17 inches , but no larger than 30 by 42 inches.

C. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

E. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

F. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

G. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.
    g. Limitations of use.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

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SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

E. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

F. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" shall have the same meaning as the term "testing agency."

G. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
2. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

F. Reports: Prepare and submit certified written reports and documents as specified.

G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice of Award, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Owner's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.

B. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

C. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
3. Owner-performed tests and inspections indicated in the Contract Documents.

D.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

1.8 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged in the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.9 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
2. Payment for these services will be made from testing and inspection allowances specified in Section 012100 "Allowances," as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Engage a qualified testing agency to perform quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

E. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

F. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspection equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.

1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
2. Distribution: Distribute schedule to Owner, Construction Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures, and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect, through Construction Manager, with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for and Construction Manager's and authorities' having jurisdiction reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 USE CHARGES

A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Sewer Service: Owner will pay sewer-service use charges for sewer usage by all entities for construction operations.

C. Water Service: Owner will pay water-service use charges for water used by all entities for construction operations.

D. Electric Power Service: Owner will pay electric-power-service use charges for electricity used by all entities for construction operations.

E. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

F. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.

C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.

D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste-handling procedures.
5. Other dust-control measures.

See section 02 81 00 HAZARDOUS MATERIAL REMEDIATION AND DUST CONTROL

G. Noise and Vibration Control Plan: Identify construction activities that may impact the occupancy and use of existing spaces within the building or adjacent existing buildings, whether occupied by others, or occupied by the Owner. Include the following:

1. Methods used to meet the goals and requirements of the Owner.
2. Concrete cutting method(s) to be used.
3. Location of construction devices on the site.
4. Show compliance with the use and maintenance of quieted construction devices for the duration of the Project.
5. Indicate activities that may disturb building occupants and that are planned to be performed during non-standard working hours as coordinated with the Owner.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete or galvanized-steel bases for supporting posts.

B. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain-link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.

C. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats, minimum 36 by 60 inches.

2.2 TEMPORARY FACILITIES

A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

E. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Use of Permanent Toilets: Use of Owner's existing or new toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

F. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service overhead OR underground as indicated.
2. Connect temporary service to Owner's existing power source, as directed by Owner.

H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.4 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:
   1. Utilize designated area within existing building for temporary field offices.
   2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Drawings.

   1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Temporary Use of Planned Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

   1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
   2. Prepare subgrade and install subbase and base for temporary roads and paved areas in accordance with Section 312000 "Earth Moving."
   3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
   4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course in accordance with Section 321216 "Asphalt Paving."

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.

   1. Protect existing site improvements to remain, including curbs, pavement, and utilities.
   2. Maintain access for fire-fighting equipment and access to fire hydrants.

E. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

F. Storage and Staging: Use designated areas of Project site for storage and staging needs.

G. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

   1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
   2. Remove snow and ice as required to minimize accumulations.

H. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

   1. Identification Signs: Provide Project identification signs as indicated on Drawings.
   2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touch up signs, so they are legible at all times.

I. Waste Disposal Facilities: Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

J. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

K. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

L. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.

1. Do not load elevators beyond their rated weight capacity.
2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work, so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

M. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.

N. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas, so no evidence remains of correction work.

O. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 011000 "Summary."

C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings.

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
4. Remove erosion and sedimentation controls,and restore and stabilize areas disturbed during removal.

D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

E. Tree and Plant Protection: Comply with requirements specified in Section 015639 "Temporary Tree and Plant Protection."

F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

G. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

H. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.

1. Extent of Fence: As indicated on Drawings.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

K. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.

L. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.
5. Do not install material that is wet.
6. Discard and replace stored or installed material that begins to grow mold.
7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 01 50 00

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SECTION 01 56 39
TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide temporary fencing, barricades, and guards as necessary or required to protect trees which are to remain, from damage above and below grade.

B. Protect root systems from smothering and compaction. Do not store construction materials or permit vehicles to drive or park within the drip line area of any tree to remain.

C. Protect all plant growth, including root systems of trees from the dumping of refuse or chemically injurious material or liquids, and continual puddling of running water.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 32 84 00, Planting Irrigation

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect all trees and document by written memorandum and photograph any unusual existing conditions. Submit copies to the Owner prior to commencement of work.

3.2 FIELD SUPERVISION

A. The owner must be present during demolition of existing conditions within the drip line of trees to remain.

3.3 GENERAL

A. Protect root systems of trees to remain from damage due to noxious materials in solution caused by run-off or spillage during mixing and placement of construction materials, or drainage from stored materials.

B. Protect root systems of trees to remain from flooding, erosion or excessive wetting resulting from dewatering operations and compaction.

C. Protect all existing trees to remain against unauthorized cutting, breaking, or skinning roots and branches, skinning, and bruising of bark.

D. Do not allow fires on the project site.

E. Where cutting seems necessary, review conditions with the owner before proceeding, and comply with its directives.

F. All tree pruning or root cutting to be performed with sharp pruning instruments; do not break or chop. Do not prune without explicit approval of the owner.

3.4 EXCAVATION AROUND TREES

A. Excavate within drip line of trees only where indicated on drawings or as approved by the Owner.

B. Where trenching for utilities is required within drip lines, tunnel under or around roots by hand digging or boring. Do not cut main lateral roots or tap roots over 1 inch diameter; cut smaller roots which interfere with installation of new work. Cut roots with sharp pruning instruments; do not break or chop.

C. Do not allow exposed roots to dry out before permanent backfill is placed; provide temporary earth cover, or pack with peat moss and wrap with burlap. Water and maintain in moist condition and temporarily support and protect from damage until permanently relocated and covered with backfill.

D. If existing roots over one inch in diameter are cut during the course of the work, the cut faces shall be thoroughly coated with root sealer and growth inhibitor. Exposed roots shall be covered with wet burlap to prevent them from drying out.

3.5 GRADING AND FILLING AROUND TREES

A. Maintain existing grade within drip line of trees unless otherwise indicated on the drawing and approved by the Owner.

3.6 REPAIR AND REPLACEMENT OF TREES

A. Repair trees damaged by construction operations as directed by the Owner. Make repairs promptly after damage occurs to prevent progressive deterioration of damaged trees.

B. Remove and replace dead trees and damaged trees which are determined by the Owner to be incapable of restoration to normal growth pattern.
   1. Provide new trees of same size (up to 13 inch caliper) as those damaged. Plant and maintain as directed. Species to be selected by the Owner.

2. For trees exceeding replaceable size (over 13 inch caliper) the Owner shall be compensated on the basis of an evaluation schedule on the damaged trees by a qualified consulting arborist registered with the American Society of Consulting Arborists.

END OF SECTION 015639

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SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 011000 "Summary"
2. Section 01770 "Closeout Procedures" for submitting warranties.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in Part 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.

1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities

related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:

1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.

E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."

F. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Resolution of Compatibility Disputes between Multiple Contractors:

a. Contractors are responsible for providing products and construction methods compatible with products and construction methods of other contractors.
b. If a dispute arises between the multiple contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

a. Name of product and manufacturer.
b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

3. See individual identification Sections in Divisions 21, 22, 23, and 26 for additional equipment identification requirements.

1.5 COORDINATION

A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.

C. Storage:

1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
2. Store products to allow for inspection and measurement of quantity or counting of units.
3. Store materials in a manner that will not endanger Project structure.
4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.
5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Owner or endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

a. Submit additional documentation required by Architect through Construction Manager in order to establish equivalency of proposed products. Unless otherwise

indicated, evaluation of "or equal" product status is by the Architect, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

    a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.

    a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
    b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

    a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."

6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.

a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

E. Sustainable Product Selection: Where Specifications require product to meet sustainable product characteristics, select products complying with indicated requirements. Comply with requirements in Division 01 sustainability requirements Section and individual Specification Sections.

1. Select products for which sustainable design documentation submittals are available from manufacturer.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type,

function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.

3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation, as specified in Section 013300 "Submittal Procedures."

1. Form of Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

C. Submittal Requirements, Two-Step Process: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

D. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by the Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Recycling nonhazardous demolition and construction waste.
   2. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:
   1. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.
   2. CALGREEN Checklist

1.3 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner’s property.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 7 days of date established for commencement of the Work. Include CALGREEN requirements in plan.

1.6 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use Insert Owner's form designation. Include the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste.
4. Quantity of waste salvaged, both estimated and actual.
5. Quantity of waste recycled, both estimated and actual.
6. Total quantity of waste recovered (salvaged plus recycled).
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan. Plan shall include CALGREEN Checklist requirements.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling of 50 percent by weight of total nonhazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

1. Demolition Waste:

    a. Asphalt paving.
    b. Concrete.
    c. Concrete reinforcing steel.
    d. Brick.
    e. Concrete masonry units.
    f. Wood studs.
    g. Wood joists.
    h. Plywood and oriented strand board.
    i. Wood paneling.
    j. Wood trim.
    k. Structural and miscellaneous steel.
    l. Rough hardware.
    m. Roofing.
    n. Insulation.
    o. Doors and frames.
    p. Door hardware.
    q. Windows.
    r. Glazing.
    s. Metal studs.
    t. Gypsum board.
    u. Acoustical tile and panels.
    v. Carpet.
    w. Carpet pad.
    x. Demountable partitions.
    y. Equipment.
    z. Cabinets.
    aa. Plumbing fixtures.
    bb. Piping.
    cc. Supports and hangers.
    dd. Valves.

ee. Sprinklers.
ff. Mechanical equipment.
gg. Refrigerants.
hh. Electrical conduit.
ii. Copper wiring.
jj. Lighting fixtures.
kk. Lamps.
ll. Ballasts.
mm. Electrical devices.
nn. Switchgear and panelboards.
oo. Transformers.

2. Construction Waste:

a. Masonry and CMU.
b. Lumber.
c. Wood sheet materials.
d. Wood trim.
e. Metals.
f. Roofing.
g. Insulation.
h. Carpet and pad.
i. Gypsum board.
j. Piping.
k. Electrical conduit.
l. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
6) Wood crates.
7) Wood pallets.
8) Plastic pails.

m. Construction Office Waste: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following construction office waste materials:

1) Paper.
2) Aluminum cans.
3) Glass containers.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale and Donation: Permitted on Project site.

C. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

F. Plumbing Fixtures: Separate by type and size.

G. Lighting Fixtures: Separate lamps by type and protect from breakage.

H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.4 RECYCLING DEMOLITION WASTE

A. Asphalt Paving: Grind asphalt to maximum 4-inch size or as required by waste management company.

1. Crush asphaltic concrete paving and screen to comply with requirements in Section 312000 "Earth Moving" for use as general fill.

B. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.

C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 4-inch size or as required by waste management company.
2. Crush concrete and screen to comply with requirements in Section 312000 "Earth Moving" for use as satisfactory soil for fill or subbase.

D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 4-inch size or as required by waste management company.

a. Crush masonry and screen to comply with requirements in Section 312000 "Earth Moving" for use as satisfactory soil for fill or subbase.
b. Crush masonry and screen to comply with requirements in Section 329300 "Plants" for use as mineral mulch.

2. Clean and stack undamaged, whole masonry units on wood pallets.

E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

F. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

G. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.

H. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

I. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

J. Metal Suspension System: Separate metal members, including trim and other metals from acoustical panels and tile, and sort with other metals.

K. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet and pad in a closed container or trailer provided by carpet reclamation agency or carpet recycler.

L. Carpet Tile: Remove debris, trash, and adhesive.

1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by carpet reclamation agency or carpet recycler.

M. Piping: Reduce piping to straight lengths and store by material and size. Separate supports, hangers, valves, sprinklers, and other components by material and size.

N. Conduit: Reduce conduit to straight lengths and store by material and size.

O. Lamps: Separate lamps by type and store according to requirements in 40 CFR 273.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

    a. Comply with requirements in Section 329300 "Plants" for use of clean sawdust as organic mulch.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

    a. Comply with requirements in Section 329300 "Plants" for use of clean ground gypsum board as inorganic soil amendment.

D. Paint: Seal containers and store by type.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner’s property.

C. Burning: Do not burn waste materials.

D. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

END OF SECTION 017419

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SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.

B. Related Requirements:
1. Section 013233 "Photographic Documentation" for submitting Final Completion construction photographic documentation.

1.3 DEFINITIONS

A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.5 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest-control inspection.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items required by other Sections.

1.7 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit redlined construction drawings that indicate the location of all utilities and other underground objects encountered during the project.
4. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
5. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number.
6. Submit testing, adjusting, and balancing records.
7. Submit sustainable design submittals not previously submitted.
8. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in utility services.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.

8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.8 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:

1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.
5. Submit Final Completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

C. Warranties in Paper Form:

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
g. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations.
h. Vacuum and mop concrete.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
o. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
p. Clean strainers.
q. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.

D. Construction Waste Disposal: Comply with waste-disposal requirements in Section 017419 "Construction Waste Management and Disposal."

END OF SECTION 017700

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SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of whole or selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 015639 "Temporary Tree and Plant Protection" for temporary protection of existing trees and plants that are affected by selective demolition.
3. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade improvements not part of selective demolition.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled. Remove structures in full unless otherwise indicated.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Engineering Survey: Submit engineering survey of condition of building.

C. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and , for noise control. Indicate proposed locations and construction of barriers.

D. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure adjacent tenant’s on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

E. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before Work begins.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that

recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

G. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Owner will occupy portions of buildings immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Owner’s representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.10 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding.

B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

1.11 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.

1. Comply with requirements specified in Section 013233 "Photographic Documentation."

2. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
3. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
1. Arrange to shut off utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

C. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least 2 hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
10. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area .
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition[and cleaned] and reinstalled in their original locations after selective demolition operations are complete.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 1 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.

C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings."[Do not use methods requiring solvent-based adhesive strippers.]

F. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Section <Insert Section number and title> for new roofing requirements.

1. Remove existing roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site [and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.] [and recycle or dispose of them according to Section 017419 "Construction Waste Management and Disposal."]

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 02 81 00

HAZARDOUS MATERIALS REMEDIATION & DUST CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Project drawings including, but not limited to, Civil and Architectural.

C. "Pre-Demolition Hazardous Materials Survey, City of Rohnert Park, Gold Ridge Administration and Alicia Park Pool Buildings, Rohnert Park, California" dated September 14, 2018, and prepared by Terracon Consultants, Inc. of Emeryville, CA.

1.2 SUMMARY

A. This Section includes the following:

1. A general description of the hazardous materials related work associated with this project and including information regarding known and assumed (presumed) existing hazardous materials be impacted and abated by this project in support of the general demolition of the two buildings and a swimming pool.
2. Requirements and procedures related to asbestos abatement in support of building and pool demolition.
3. Requirements and procedures related to lead-related demolition work.
4. Requirements for removal and disposal of PCB ballasts, universal waste items, Tritium exit signs, and equipment with ozone depleting refrigerant gasses (CFCs, Freon) prior to building demolition.
5. Requirements for dust control during all phases of hazardous materials remediation and structural demolition of buildings, infrastructure and pool. This includes dusts that are not recognized or known to be of a specific hazardous material origin. All dusts may result in health concerns as well as nuisance conditions.

B. Existing Hazardous Materials Conditions.

1. The Contractor shall take into account the known and presumed existing asbestos, lead-containing materials, and other hazardous materials known or assumed present based on the existing survey report provided by City of Rohnert Park and the contract documents.
2. The Contractor's work requires removal of hazardous materials such as asbestos, PCBs, deteriorated lead containing paints, universal wastes (UW), and other hazardous material and the disturbance/demolition of building components with lead containing paints and coatings. It also includes dust control during all phases of remediation and demolition. All associated costs of hazardous material remediation, worker protection, clean up and disposal, and construction dust control are to be included in the bid price submitted.

3. Hazardous Materials known or assumed to be present in two buildings and pool to be demolished at the two separate sites for this project include:

    a. Asbestos-Containing Materials:

        1) Alicia Park Pool Building

            a) No asbestos was detected in any samples collected for this building including the following suspect materials: Wallboard with joint compound; Wall texture; Asphalt Shingles; and Sink Undercoating.
            b) In the event that any new or different suspect ACM material is discovered during the project report it immediately to the Owner or Owner's Construction Manager to allow for evaluation prior to disturbance of suspect material.

        2) Alicia Park Pool:

            a) Pool Plaster, white, (<1% asbestos by point count; specifically 0.25-0.75% asbestos by PLM point count); approximately 6,000 SF of ACCM pool plaster total is present, however only the upper approximately 36 inches of the pool are to be removed by this project. Coordinate removal extent with project drawings.
            b) Note: The following suspect materials at and surrounding the pool reported no asbestos detected: Concreted Trim Pool Grout, Mortar & Adhesives; Concrete Slab surrounding pool; Blue Ceramic tile with Grout and Mortar trimming at pool; Caulking around slab at pool perimeter.
            c) In the event that any new or different suspect ACM material is discovered during the project, report it immediately to the Owner or Owner's Construction Manager to allow for evaluation prior to disturbance of the suspect material.

        3) Subsurface Utility Piping & Conduit (Where required to be demolished or disturbed)

            a) Any subsurface utility (water, storm drain, & sewer) piping and conduit present at these two sites shall be assumed to be of asbestos cement (AC) type unless proven otherwise.

            b) Refer to Civil drawings for existence of subsurface piping and conduit and the approximate location and extent to be demolished.

            c) Include cost of demolition, removal, and disposal of assumed subsurface AC piping and conduit to be demolished in bid for this project.

    b. Lead-Containing Paints (LCP) - All untested paints shall be considered lead-containing paint (LCP) with detectable levels of lead and for pre-1978 construction shall be considered to be lead-based paint (LBP) unless proven otherwise. Existing survey results by paint chip and bulk sample analysis reported lead results as follows:
        1) Alicia Park Pool Building: LBP was detected in the brown painted metal furnace; No LCP was detected in blue painted wood window, white painted interior or exterior wood walls. All reported paint results were less than 50 ppm lead.
        2) Alicia Park Pool: Lead was detected in blue ceramic pool trim at 5,570 ppm lead.

    c. Polychlorinated Biphenyl (PCB): Both buildings contain fluorescent light fixtures with assumed PCB ballasts pending the Contractor's inspection of each fixture's ballast for labeling or marking regarding date of manufacture and/or PCB content.

There are 162 fluorescent light fixtures at the Gold Ridge Administration building and 12 fluorescent light fixtures at the Alicia Park Pool Building.

d. Universal Waste (UW) Items: Both buildings have UW items including:
   1) Alicia Park Pool Building and Pool Area: 24 fluorescent light tubes and 8 high intensity discharge (HID) lamps that are considered to be UW items
e. Tritium Exit Signs (& Smoke Detectors with radiation sources): No tritium exit signs were reported present at the building. The survey report did not mention the presence of smoke detectors. Smoke detectors, if present, must be assumed to contain radioactive material sources requiring special handling and disposal procedures pending inspection by the Contractor.
f. Crystalline silica is present in many construction materials such as concrete and plasters and site soils.
g. Review the referenced hazardous materials survey report for more specific information regarding hazardous materials present at these two buildings and the pool at the two sites. Location and quantity of each type of material to be field verified by the Contractor prior to submitting a bid.

C. Summary of Hazardous Materials Remediation and Dust Control Work

1. The work of this project involves removing all asbestos-containing construction materials (ACCMs) and other identified hazardous materials prior to general building at both sites and pool area demolition at Alicia Park. ACCM's include roofing materials, pool plasters, & assumed AC piping and conduit. At the Alicia Pool only the top 36 inches are to be demolished with the remainder of the pool ACCM plaster to be abandoned in place. Removal of other hazardous materials includes: removing all assumed PCB lighting ballasts; all Universal Waste Items; properly reclaiming regulated coolant gases from each HVAC & refrigerant equipment present; removing, inspecting for radioactive sources, and proper disposal of any smoke detectors with radioactive material ionization sources; and removing or stabilizing all loose and flaking LCP prior to general structural demolition. Refer to the Existing Hazardous Material Conditions detailed in 1.2 B. 3. above for more detail and requirements related to the Contractor's work scope.
2. The structural demolition of this project involves disturbing lead in the paints and coatings on the two buildings and the swimming pool. The Contractor is responsible for proper removal and disposal of all hazardous and non-hazardous waste generated by this demolition project and is responsible for completing all work without causing site contamination above background levels as determined by the Owner or the Observation Service prior to the start of work.
3. The Contractor shall employee effective dust control measures throughout all phases of the project to prevent visible dust fugitive emissions of any type from being generated and leaving the immediate remediation and demolition project areas. Visible dust emissions from any and all building materials and construction activities can be a health issue for nearby facility occupants and the public.
4. The Contractor shall review all project demolition plans for the buildings and infrastructure associated with this project (including as-built plans if made available) and coordinate the hazardous materials work with those plans and the information they provide in coordination with this section and the referenced survey report.
5. This project will require Contractor personnel qualified to conduct asbestos–related work primarily of OSHA Class II ACM and Unclassified asbestos removal work and lead-related demolition work. The project also requires removal, inspection, and proper disposal of PCB ballasts, Universal Wastes, Smoke Detectors (where occur) and Coolant Gasses. Review the referenced hazardous material survey report and project drawings in

detail to verify the location and approximate extent of hazardous materials-impacted work and include all costs of that work in the project bid price.

6. All hazardous materials removal and disturbance work shall be undertaken utilizing the proper asbestos, lead and hazardous materials work practices, protective measures, airborne dust and contamination controls, waste stream profiling and testing, and waste disposal of properly characterized removed materials as required to support this project.
    a. Removed lead paint chips, PCB ballasts are to be disposed of as hazardous waste;
    b. Removed non-friable asbestos wastes shall be labeled, manifested and disposed of as non-hazardous asbestos wastes; ACCM wastes less than 1% asbestos shall be disposed of as a non-hazardous asbestos waste at a disposal site permitted for asbestos wastes.
    c. Universal Wastes shall be disposed of as hazardous waste or recycled by a permitted TSD.
    d. Coolant gasses must be reclaimed and recycled in accordance with federal and state regulation.
    e. Smoke detectors with radioactive sources (if present) must be inspected and properly disposed of per specification and regulation.
7. The Contractor's work scope includes all required lead-related protective measures for Cal/OSHA and Cal/EPA compliance associated with demolition and other finish disturbing activities of this project.
8. Conduct removal of existing asbestos-containing materials and disturbance of lead-containing paints and coating in compliance with Cal/OSHA worker protection rules and this section.
9. Clean up all surfaces affected by demolition so as to leave each work area and both project sites with no visible contamination and with asbestos and lead levels below pre-start background levels and below all recognized hazard thresholds at the end of each day's work shift and prior to any site preparation for new construction.
10. No visible dusts shall be allowed to drift or be blown outside of the immediate project area. All nearby and adjacent buildings and grounds shall not be subjected to visible fugitive emissions or visible settled dusts from this project.

D. Owner's Observation Service

1. The Owner will retain the services of a qualified industrial hygiene consultant certified for asbestos and lead consulting in the State of California, for the purpose of monitoring the day to day operations of the Contractor on an ongoing or as needed basis to ensure each work area is completed before it is released for unrestricted access by the Owner or others. This consultant shall be referred to as the Owner's Observation Service (Observation Service) and shall have authority to review the Contractor's pre-start, progress, and close out submittals, inspect containments, observe Contractor's procedural compliance, review Work Areas for completion, and conduct clearance inspection and testing with regard to asbestos and, where appropriate, other hazardous material removals and lead-related demolition.
2. The Contractor is obligated to provide notification to the Observation Service at least 48 hours in advance of starting site work that will disturb asbestos-containing materials or removal of other hazardous materials to allow for startup inspection and 48 hours prior to any final clearance inspection and testing. Any delay caused by the failure to give proper notification to the Observation Service shall be at no cost to the Owner.
3. Effectiveness of visible dust control may be monitored by the Owner, Owner's Representatives, Construction Manager or Inspector, and hazardous material Observation Service at any time on a periodic basis. The Contractor shall take immediate action to

mitigate any condition or practice resulting in visible emissions leaving the immediate work areas upon being informed by the Owner or any of the Owners Representative or consultants.

1.3 REFERENCES:

A. General: Codes, regulations, and references to hazardous materials abatement work include, but are not limited to the most current versions of the following:

B. California Code of Regulations (CCR):

Title 8; Article 2.5	Registration Asbestos-Related Work
Title 8, Section 1529	Construction Safety Orders, Asbestos Regulations
Title 8, Section 1531	Construction Safety Orders, Respiratory Protection
Title 8, Section 1532.1	Construction Safety Orders, Lead in Construction
Title 17, Div. 1, Ch. 8	Accreditation, Certification, and Work Practices for Lead-Based Paint and Lead Hazards
Title 22, Div. 4.5	Environmental Health Standards for the Management of Hazardous Waste

1. California Health and Safety Code, Division 20, Chapter 6.5, Section 25143.2 (d)(7), (e), & (f) and sections 25143.9 & 25143.10 – regarding the recycling of CFC or HCFC gases.
2. Code of Federal Regulations (CFR):
    a. 40 CFR Part 82 Protection of Stratospheric Ozone: Supplemental Rule Regarding a Recycling Standard Under Section 608 of the Clean Air Act; Final Rule
    b. 40 CFR Part 61 USEPA NESHAPS Rule
    c. 40 CFR Part 745 Lead; Identification of Dangerous Levels of Lead
    d. 40 CFR Part 761 , PCB's Manufacturing, Processing, Distribution, in Commerce, and use Prohibitions
    e. 40 CFR Part 763 USEPA AHERA Asbestos-Containing Materials In School; Final Rule and Notice
3. Regional Air Quality Management District or Air Pollution Control District and Air Pollution Control District rules including notifications as applicable

1.4 DEFINITIONS

A. Definitions Specific to Work of this Section.

1. Abatement – Procedures to control airborne contaminates and other releases from hazardous material-containing building materials. Includes removal, repair, encapsulation, and enclosure as well as proper packaging, transportation and disposal of removed hazardous materials.
2. Aggressive Method – removal of building materials by sanding, abrading, grinding, or other methods that causes intact ACM to become friable.

3. Air Monitoring – The processing of measuring the air contaminants such as asbestos or lead for a measured volume of air collected over the specific period of time being monitored.
4. Amended Water – A water to which a suitable surfactant has been added in accordance with the manufacturer's instructions for the surfactant product.
5. Asbestos – The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.
6. Asbestos Containing Construction Material (ACCM) – Any construction material with an asbestos content of 0.1 percent or greater by weight.
7. Asbestos Containing Material (ACM) – Any material which contains over one percent asbestos as determined by current EPA bulk sample analysis method.
8. Asbestos Fibers – This expression refers to asbestos fibers longer than five micrometers with an aspect ratio of 3:1 or larger under phase contrast microscopy (PCM) analytical procedures.
9. Authorized Visitor – Any Owner Representative, Consultant or Agent and any representative of a regulatory of other agency having jurisdiction over the project and who meets regulatory requirements for entry including training, medical, and proper personal protective equipment use.
10. Class I Asbestos Removal – Class I Asbestos work means activities involving the removal of known or presumed thermal system insulation (TSI) ACM and surfacing ACM.
11. Class II Asbestos Work – Class II Asbestos Work means activities associated with removal of any ACM that is not a Class I surfacing material or thermal system insulation. This includes but is not limited to, removal of resilient flooring materials, roofing materials, asbestos cement products, sealants, caulking materials as well as other ACM's.
12. Class III Asbestos Work – For this project-small scale removal work incidental to support removal or installation of equipment and devices where not intentional asbestos abatement work or removal is involved and the quantity of asbestos waste can be contained in one standard waste bag or glove bag with dimension no greater than 60"by60" (60 inches square).
13. Class IV Asbestos Work- work by maintenance and custodial workers that requires contact with ACM but for this section does not involve activities that required disturbance of ACM in a manner that could result in airborne asbestos fiber exposure to the workers.
14. Clean Room (or Area) – An uncontaminated area or room that is a part of the worker decontamination enclosure with provisions for storage of Workers' street clothes and uncontaminated protective equipment and other uncontaminated materials and equipment.
15. Competent Person – An individual who is capable of identifying asbestos or lead hazards in the workplace and who has sufficient experience and authority to take prompt corrective measures to eliminate them. The Competent Person is required to have been specially trained for the type and level of work to be conducted. The Competent Person is responsible for conducting all required setup/containment pre-start inspections; in process, completion, and pre-clearance inspections as specified subject to verification and approval by the Owner's Consultant.
16. Coolant gasses – Refrigerant gasses that are known or suspected to contain regulated chlorofluorocarbon (CFC) or HCFC gasses whose release to the atmosphere is prohibited and that required special equipment and EPA certified refrigerant reclaimer personnel to safely and properly remove the gas for recycling or destruction at a permitted facility so that the remaining equipment to be demolished or removed can be disposed of in accordance with regulation.

17. Critical Barrier – A unit of temporary construction of air-tight and impermeable barrier which provides effective separation between a contained asbestos Work Area and an adjacent, potentially occupied area. Typically consists of at least two layers of plastic sealed to prevent fiber migration into a non-involved adjacent area.
18. Decontamination Enclosure System (Decon Unit) – A series of connected rooms, with air lock doorways between any two adjacent rooms, for the decontamination of Workers and of materials and equipment. The decontamination enclosure system includes an Equipment Room, Shower Room, and Clean Room and must be contiguous to the Work Area Containment. Alternative systems including remote Decon Units and/or showers require prior approval.
19. Differential Pressure Equipment – A portable local exhaust system equipped with HEPA filtration and capable of maintaining a constant, low velocity air flow into contaminated area from adjacent uncontaminated areas. Also referred to as HEPA Exhaust Units, Negative Air Machines (NAM's) or Negative Pressure Units (NPU's). This equipment must meet the HEPA filter efficiency as an installed system, typically by on-site testing prior to use.
20. Disturbance – contact with asbestos-containing construction materials that disrupt their matrix (e.g. render friable) and create visible dust or debris and potential airborne fiber exposure.
21. Encapsulant (sealant) – A liquid material which can be applied to asbestos-containing material or surface and which controls the possible release of asbestos fiber from the material or surface by creating a membrane over the surface (bridging encapsulant), or by penetrating into the material and binding its components together (penetrating encapsulant), or by locking down invisible fibers (lockdown encapsulant).
22. Equipment Room (or Area) – a contaminated room or area in the Decon Unit for decontamination of PPE and equipment prior to entering the shower room or area. The Equipment Room or area is supplied with impermeable waste bags or containers for the disposal of contaminated PPE and equipment.
23. Fluorescent Light Ballast (FLB) -- A device that electrically controls fluorescent light fixtures. Most existing FLBs include a capacitor containing 0.1 kilograms or less of a dielectric fluid that may contain PCBs if the ballast was manufactured prior to 1979. More recently, electronic ballasts that do not contain PCBs have come into use. Pre-1979 ballasts may also contain asphalt potting compounds that also contain PCB.
24. Fluorescent Lamp or Tube – A low pressure electric discharge lamp that generates ultraviolet light radiation by the passage of an arc through mercury vapor; the inner surface of the lamp or tube is coated with a phosphor which absorbs the ultraviolet light and converts some of it to visible light. Spent fluorescent light tubes typically contain mercury in concentrations exceeding the total threshold limit concentration (TTLC) and/or the soluble threshold limit concentration (STLC) making them a presumptive hazardous waste in California. Under current regulation, they are considered a Universal Waste requiring special handling and disposal or recycling.
25. Friable ACM – An ACM that that when dry can be crumbled, pulverized, or reduced to power by hand pressure. A non-friable ACM that has not be rendered friable by mechanical or other means is considered "intact."
26. Hazardous Materials – Hazardous materials include, but are not limited to: asbestos-containing construction materials, lead and lead-based paint, mercury, PCB, coolant gases, universal wastes, low level radioactive source materials, solvents, fuels and other chemical products or wastes.
27. Hazardous Waste – Any waste material ta is listed or meets the criteria for hazardous waste as set forth in the California Code of Regulations (CCR), Title 22, Chapter 11.

28. HEPA Filter – A high-efficiency particulate absolute (HEPA) filter capable of trapping and retaining 99.97 percent of particles equal or greater than 0.3 micrometers (micron) in mass median aerodynamic equivalent diameter.
29. HEPA Vacuum Equipment – Vacuuming equipment with a HEPA (UL 586 labeled) filter system. The vacuum must meet the HEPA efficiency of 99.97% efficiency for mono-dispersed 0.3 micron diameter particle as a system. On site testing may be required to verify the vacuum system meets HEPA requirements.
30. Ionization Technology Smoke Detector – Smoke detectors with radioactive isotope source (Americium 241) for smoke detection. Should be designated as such by an "i" or the word "Ionization" on front or back. Special disposal restriction apply. Photoelectric technology smoke detectors do not have a radioactive material source and are usually designated with a "P" or the word "Photoelectric".
31. Lead-Based Paint (LBP) – Lead-Containing Paint (LCP) that is at least 0.5% lead by weight or 1.0 milligrams of lead per square centimeter of surface area (as measured by XRF lead analyzer). Note: any untested paints or coatings must be presumed to be LBP for structures constructed prior to1978 and any other untested paints or paints found to have no detectable lead by XRF testing only must be assumed to contain some detectable lead subject to OSHA regulation.
32. Lead Hazardous Waste – Lead-based paint waste or other debris that has been classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4.5. A lead hazardous waste is any substance(s) at concentrations greater than its listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC). The STLC for lead is 5.0 parts per million (ppm) and the TTLC for lead is 1000 ppm lead. If either of these values are exceeded, the lead related waste will need to be further characterized by the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with 40 CFR 261 and possibly other tests prior to disposal as a hazardous waste. Waste testing for proper disposal is the responsibility of the Contractor.
33. Lead Paint Surface Preparation – The process of conducting surface preparation on building surfaces and components that a coated with LCP or LBP in order to remove loose, peeling, flaking paint and associated chalking, if present, to prepare surface for paint stabilization, painting or demolition.
34. Mercury – A silvery liquid, metallic element which is toxic by inhalation and skin absorption. Mercury is a poison to the central nervous system and gastrointestinal tract and is considered to be an inorganic persistent and bioaccumulative toxic substance subject to Cal/PPA hazardous waste regulation. Mercury can often be found in various gauges, thermostats, mercury switches, fluorescent and high intensity lamps, and other items or equipment.
35. Negative Pressure Enclosure (NPE) – An enclosed or contained area of any configuration constructed of polyethylene sheeting (6 mil minimum) with a minimum of four (4) air changes per hour and a negative pressure of -0.02 inches of water as compared to surrounding areas outside the enclosure. NPE conditions must be maintained operational until the Work Area passes final clearance inspection and clearance air testing.
36. Non-Friable Asbestos-Containing Material – Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.

37. Non-hazardous Asbestos Waste – Wastes which are non-friable and/or are below one percent asbestos by weight as determined by objective testing. Non-friable (intact) ACM wastes require OSHA Asbestos Hazard warning labels and disposal at landfills that accept such asbestos wastes. ACCM with asbestos content below 1% is also considered a non-hazardous asbestos waste.
38. Observation Service – Environmental Consultant hired to conduct various construction administration services including but not limited to compliance observation and air monitoring services on behalf of the Owner. Sometimes referred to as the Owner's Observation Service.
39. Owner - City of Rohnert Park
40. Owner's Representative – Representative(s) that the Owner has assigned to manage, oversee, and inspect this project. This may include an architectural and/or construction management consultant hired by Owner to oversee the project and/or the assigned Construction Inspector.
41. Polychlorinated Biphenyl (PCB) – PCBs are chemical substances consisting of the biphenyl molecule chlorinated to varying degrees or any combination of such molecules. PCBs were used in the past as dielectric fluids in transformers and capacitors. PCB was often a contaminant in hydraulic fluids systems. PCBs are clear to yellow oily substances toxic to liver and reproductive system and are suspect human carcinogens.
42. PCB Ballast – A FLB known or suspected to contain PCB's. All FLBs must be considered to be PCB ballasts unless they are: Labeled or marked "No PCB" by the manufacturer; Manufactured in 1979 or later as indicated and verified on a date stamp or code located on the ballast; labeled as electronic ballast by the manufacturer; or General Electric HDF ballasts manufactured between 1977 to 1978 and which have a "W" added to their catalogue number on the ballast label.
43. PCB Equipment – Equipment such as transformers, switch gear, circuit breakers that contain oils or dielectric fluids likely to have been manufactured prior to July 2, 1979. If there is no date and the dielectric fluid is unknown, the equipment must be assumed to contain PCB.
44. PCB Contaminated Equipment – Equipment which contains fluid with a PCB concentration equal to or greater than 50 parts per million (ppm) PCB and less than 500 ppm PCB.
45. PCB Contaminated Material – A non-liquid material containing PCBs at concentrations greater than 50 ppm but less than 500 ppm PCB or where insufficient liquid material is available for analysis; a non-porous surface having a surface concentration of greater than 10 micrograms PCB per 100 square centimeter but less than 100 micrograms PCB, measured by a standard wipe test defined in 40 CFR 761.123.
46. Regulated Area – A Work Area established to demarcate areas where Class I, Class II, Class III is conducted and any other Work Area (e.g with Unclassified asbestos work) where airborne asbestos is reasonably likely to exceed the Permissible Exposure Limit (PEL). The Regulated Area must include all adjoining areas where asbestos waste and debris may accumulate. Demarcation must include warning signage and must limit access to authorized and properly trained, medically qualified, and protected personnel.
47. Removal – Procedures necessary to remove hazardous materials such as, but not limited to, asbestos or lead from designated areas and to dispose of these materials at an acceptable properly permitted waste disposal site.
48. Surfactant – An approved chemical wetting agent added to water to improve penetration.
49. Stabilization – Lead Paint Surface Preparation followed by application of at minimum a primer coat and usually followed by finish coating(s).
50. Trigger Task – Operation, process or task type specifically identified in the OSHA or Cal/OSHA lead standard as a potential lead exposure requiring certain protective

measures to be implemented prior to obtaining the results of an initial exposure assessment. Trigger Tasks include, but are not limited to, any of the following task types when materials or paints that contain lead are present and will be disturbed:

a. Manual Demolition;
b. Manual Scraping or Sanding;
c. Heat Gun Application;
d. Use of power tools for cleaning or removal;
e. Rivet busting;

f. Abrasive blasting and cleanup of spent abrasive; &
g. Welding, cutting or torch burning.

51. TSD Facility – An US EPA or State EPA permitted facility for transportation, storage, treatment, and disposal of hazardous wastes including Universal Wastes for recycling.
52. Unclassified Asbestos Work – work involved in removal or disturbance of construction materials with 1% asbestos or less (e.g. trace asbestos). OSHA worker protection and certain work practices are required for this work.
53. Universal Waste – Certain common designated hazardous wastes that are required to be handled and disposed of or recycled in accordance with special rules. Includes fluorescent light tubes, HID lamps, sodium vapor lamps, mercury switches, mercury thermostats, NiCad, Silver, & Mercury & other batteries (often used in building alarms and emergency systems), and other items.
54. Visually Clean – Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of visible construction and paint debris, chips or dust distinguishable from the initial soil or ground conditions (after exterior pre-cleaning).
55. Waste Generator Label – Waste Generator label shall include the Generator's Name, ID Number, Address, and Waste Manifest Number.
56. Wet Cleaning – The process of eliminating asbestos or lead contamination from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with water or water/detergent solution, and by afterwards disposing of these cleaning tools and materials as contaminated waste.
57. Work Area – Designated rooms, spaces, or areas of the project in which hazardous material removal actions are to be undertaken or which may become contaminated as a result of such removal actions during the process and prior to final clean-up and decontamination. A contained Work Area is a Regulated Work Area that has been sealed and equipped with a Decontamination Enclosure System.
58. Worker Decontamination Enclosure System (Worker Decon) – That portion of a Decontamination Enclosure System (or Area) designed for controlled passage of workers, and other personnel and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room. No eating, drinking or smoking is allowed in Work Areas.

1.5 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site and properly disposed or recycled.

1.6 SUBMITTALS

A. Requirements are as set forth in Contract for items required to be submitted under this section. Submit the following:

B. Pre-Start Submittals:

1. Submit the following:

a. Licensing and Registration for Contractor or Subcontractor responsible for removal of hazardous materials. Submit copies of current and valid:

1) The Contractor's license and Contractor's asbestos certificate issued by the California State Contractor's Licensing Board (CSLB);

2) C-22 Asbestos Abatement Contractor license and Registration for Asbestos-Related Work from the Division of Occupational Safety and Health in accordance with CCR, Title 8, Article 2.5 of the California Administrative Code for any removal or disturbance involving greater than 100 square feet of ACM.

b. Personnel Qualifications: Personnel documents required per this section shall be organized by individual employee and include the following information:

1) Personnel Training:
a) Competent Person/Supervisor (Asbestos-Class I, II, and Unclassified Removal Work) Contractor/supervisor Training by Cal/OSHA accredited provider.
b) Workers (Class I, II, & Unclassified Removal Work): Submit training certificates for Asbestos Workers Training by Cal/OSHA accredited provider.
c) All workers and their supervisors performing lead-related construction or other hazardous material (PCBs, UW, etc.) work shall have proper hazard communication training as appropriate to the associated hazard in accordance with Cal/OSHA regulation and have documentation available for examination upon request.

2) Medical Examination:
a) Asbestos-related work: Submit proof that personnel who will be performing asbestos-related work have had medical examinations within the last 12 months in conformance with Title 8 CCR; Section 1529 asbestos, and furnish the results of each exam in the form of the physician's written opinion or approval with regard to worker fitness to wear a respirator and perform asbestos work as applicable;
b) Lead-Related Work: Submit proof of medical surveillance completion for each worker performing a "trigger task" or any work likely to result in an airborne lead exposure greater than the PEL or lead.

3) Respirator fit tests: Submit proof that personnel who will be entering asbestos or lead Regulated Areas have had a qualitative respiratory fit test performed within 12 months from the scheduled completion date of the project.

2. Notifications, Communications, and Postings.

a. Submit copies of notifications to appropriate government agencies where required, including the following:

1) Cal/OSHA District Office: Submit Temporary Work Site Notification for asbestos removal involving greater than 100 SF of ACCM at least 24 in advance of start of asbestos work providing date and time of commencement of work, location, approximate duration, type of business, and kind of job. Provide a copy to Observation Service in pre-start submittal package.

2) Cal/OSHA District Office: Submit Lead-Work Pre-Job Notification for Lead-Based Paint (LBP) related construction work that includes any Trigger Tasks that will involve removing or disturbing greater than 100 SF or 100 LF of LBP. Submit written notification at least 24 hours in advance of startup of the work. Include contractor name and contact information, address of work location, planned start and estimated end dates, number of workers, type of structure, number of workers, amount of lead containing material to be disturbed, description of work and work practices to be used. Provide a copy to Observation Service in pre-start submittal package. *Note: Not anticipated to be required for this project due to limited LBP results according to referenced survey report.*

3) Regional Air Quality Management District (AAQMD) or Air Pollution Control District (APCD): Submit notification of every demolition regardless of presence or absence of RACM and every renovation involving removal of RACM in amounts greater or equal to 100 SF, 100LF or 35 cubic feet. Submit according to AQMD/APCD regulation at least ten (10) working days prior to start of work and provided copy to the Observation Service with the Pre-Start Submittal.

4) Submit copies of any agency notification amendments and changes on a timely basis with a copy to the Observation Service concurrently.

3. Respiratory Protection Plan: Submit a written standard operating procedure governing selection, fit-testing, and use of respirators for asbestos, lead, or other airborne toxic material exposure protection.

4. Detailed Hazardous Materials Remediation Work Plan: Submit a detailed work plan proposed for use in complying with the requirements of these specifications and project plans. The detailed work plan shall include, at a minimum, the following information:

   a. Procedures: Job-specific procedures proposed for completing the scope of work outlined herein including: means of controlling and containing dust, preventing fugitive emissions, and controlling worker exposure for lead-related construction/demolition work and all Class I, Class II and Unclassified asbestos removal and clean-up work. Include work plan details for:
      1) Removal of ACCM Pool Plaster at the Alicia Park Pool;
      2) Lead-Related Building Demolition at the Alicia Park Pool and Pool Building;

5. Detailed Work Plans for Effective Dust Control during all Phases of Construction. This plan is to include the Contactors proposed means and methods for dust control including equipment, materials, products, procedures, competent person/supervisorial surveillance used to ensure effective control and suppress visible dust for each of the following categories of project work:

   a. Demolition of both buildings, one pool, and associated infrastructure;
   b. Site preparation including clearing & grubbing and earthwork.

6. Plan for personnel air monitoring required by regulation to be performed by the Contractor's Air Sampling Professional or qualified Competent Person for protection of project workers and ensure adequacy of hazard controls and employee protective equipment. The Plan shall include, but not be limited to the following:

   a. Personnel Air Monitoring conducted in strict accordance with 8 CCR 1529 for asbestos and 8CCR 1532.1 for lead-related work. Include calibration data for the secondary standard to be used for air sampling pump calibration on-site. This data must be within six (6) months of the projected completion of this project;
   b. Name, address, and accreditation and/or certification of laboratory selected by the contractor to analyze air samples;

c. The plan shall include a commitment by the Contractor to submit copies of laboratory results with information regarding personnel and operation sampled as required by Cal/OSHA to the Observation Service within 24 hours of receipt of results as and no later than 72 hours from date of the exposure monitoring.

7. Product Data: Manufacturers product data for all items required for complete and proper execution of the work, this includes product data for all items listed under Part 2 - Products. Product data shall include manufacturing product data, specifications, samples and application instructions, safety data sheets (SDS), and other pertinent information as necessary.

8. Waste Disposal & Recycling Sites: Submit Name Location, Class, and EPA # for each waste disposal site to be used for any asbestos or lead paint wastes, PCB ballasts, Universal Wastes, other hazardous wastes or hazardous materials or substances required recycling. Include information on permitted recycling sites or firms to be used for Universal Wastes, metallic lead, and regulated reclaimed refrigerant gasses.

C. Daily Submittals: Within 72 hours following the completion of the first Work Shift for each different operation, the Contractor shall submit the following information to the Observation Service by fax or e-mail:

1. OSHA exposure monitoring sample results for asbestos including Eight (8) hour Time Weighted Average (TWA) sampling and results for asbestos excursion limit samples. Sample results must indicate the person sampled, description of work activity, start and stop times, liters per minute, total volume and laboratory result expressed as an eight-hour TWA or excursion limit sample.
2. OSHA exposure monitoring sample results for 8-hour TWA monitoring of "trigger tasks" associated with lead-related construction/demolition activities.
3. Waste profiles, waste testing results (as applicable), and waste manifests for asbestos and other hazardous materials including but not limited to PCB ballasts. Hazardous waste manifests are required to be reviewed and signed by the Owner and copies shall be provided before waste is transported off site and copies of manifests indication receipt by the permitted disposal facility shall be provided to the Owner within 24 hours of shipping and receipt from disposal site.

D. Close-Out Submittals:

1. Within 10 days of completion of all hazardous material removal work, submit a copy of all outstanding Daily Submittals and one copy of each hazardous waste manifest for asbestos, lead, and PCBs as applicable, each non-hazardous asbestos waste manifest, each Universal Waste manifest, and each refrigerant reclaiming certificate to the Observation Service.
2. Work Area entry/exit logs completed for each asbestos Work Area and each Work Shift.

1.7 POSTINGS

A. Before the commencement of any asbestos related removal work at the site, post Cal/OSHA warning signs in and around the Work Area to comply with Cal/OSHA regulations.

B. Copies of the Contractor's SCLB license (e.g. C-22), Cal/OSHA registration certificate, temporary job-site notifications, pre-start LBP notifications to Cal/OSHA (where applicable), local agency notifications, emergency exit diagram (except exterior work), emergency phone numbers, Cal/OSHA poster on worker's rights, and worker's compensation poster shall be posted proximate to the entrance to each Work Area.

C. The Contractor shall have at least one copy of the Contract Documents including project plans and specifications, and a current copy of 8 CCR 1529 & 1532.1.

PART 2 - PRODUCTS

2.1 GENERAL

A. Submit manufacturer's product data for all items to be used including the items listed below. Include a SDS for each product as applicable.

B. All materials to be used on the project shall be new in original packages, containers, or bundles bearing the name of the manufacturer and the brand name. Used materials will not be permitted.

2.2 PROTECTIVE COVERING (PLASTIC SHEETING)

A. For standard containment, critical barrier, drop sheet, burrito wrap or bin lining usage: Polyethylene sheets 6 mil and 4 mil in sizes to minimize frequency of joints. In addition, Fire retardant polyethylene sheeting, approved and listed by the State Fire Marshall per Section 13121 and/or 13144.1 of the California Health and Safety Code, is required for all renovation projects and all abatement in occupied buildings.

2.3 TAPE, ADHESIVES, SEALANTS

A. Duct tape two inches or wider, or equivalent, capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

B. Spray adhesives for sealing polyethylene to polyethylene shall contain no methylene chloride compounds.

2.4 PROTECIVE PACKAGING

A. Appropriately labeled 6 mil sealable polyethylene bags as a minimum for asbestos.

B. Appropriately labeled, impermeable drum containers with sealable lids for RCRA lead waste and PCB fluorescent light ballasts (FLBs).

C. For PCB ballasts the following protective packaging applies:

1. Clear, air and liquid tight, sealable 6 mil polyethylene bags shall be used for inner packaging of PCB FLBs for disposal in small quantities and /or for "leakers";
2. Sealable drums shall be DOT type 17 C or 17 H with tight fitting lids;
3. Absorbent materials for lab packing drums for Class I landfill shall be oil adsorbent and non-toxic;
4. Labels - all drums and shipping containers for PCB ballasts and other PCB hazardous wastes shall be labeled at minimum per below (Article 2.5 Paragraph D)

D. Bilingual labels (English and Spanish) on waste packages, contaminated material packages and other containers shall be in accordance with EPA or OSHA standards.

2.5 WARNING SIGNS AND LABELS

A. All warning signs and labels must meet all applicable regulatory requirements for wording, size of lettering, and use of language, pictographs, and graphics to effectively convey the warning. Additional requirements apply for hazardous waste containers and shipments for transportation to disposal sites. Only asbestos warning signs are anticipated to be required for this project.

B. Asbestos Warning signs for Regulated Areas must contain the following wording:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND PROTECTIVE
CLOTHING IN THIS AREA

C. Labels for packaging and containers containing ACM waste (friable and non-friable) must contain the following wording:

DANGER
CONTAINS ASBESTO FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATH DUST
AVOID CREATING DUST

D. Labels for drums and shipping containers for PCB ballasts and other PCB hazardous wastes shall be at minimum as follows:

1. Yellow PCB caution label with the following information:

CAUTION
CONTAINS PCBs
(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring special handling and disposal in according with U. S. Environmental Protection Agency Regulations 40 CFR 761 – For Disposal Information Contact the nearest U.S. E. P. A. Office.

In case of accident or spill, call toll free the U.S. Coast Guard National Response Center: 800 - 424 – 8802

Also Contact: _____
Telephone Number: _____

2. Shipping Label containing the following information:
   a. RQ, Polychlorinated Biphenyls, 9, UN 2315 , PG
   b. Name and address of generator
   c. Date Removed
   d. Contents: (e.g. PCB lighting ballasts)
   e. Waste manifest number

E. Lead Warning signs for Regulated Areas where exposure is known or anticipated to exceed the PEL must contain the following wording:

DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK, OR SMOKE IN THIS AREA

2.6 SURFACTANT

A. Surfactant, or wetting agent, for amending water to ensure asbestos is adequately wet during asbestos removal and subsequent waste handling, packaging/containerizing for disposal. Products such as Fiberlock “Penewet”, Foster 32-90 Asbestos Removal Surfactant, or equivalent products are acceptable for this purpose.

2.7 PERSONAL PROTECIVE EQUIPMENT

A. Personal Protective Equipment shall comply with the requirements of 29 CFR 1910, Subpart 1 and 8CCR 1514, 1515, 1516, and 1517.

B. Asbestos abatement and lead-related work clothes shall consist of impervious disposable, full-body coveralls, head covers, boots, rubber gloves, and work boots (or sneakers). Sleeves at wrists and cuffs at ankles shall be secure. Disposable coveralls shall be a non-see through type and constructed of DuPont Tyvek, Kimberly-Clark KleenGuard A40 or equivalent fabrics that provide acceptable protection from asbestos and other toxic particulate penetration. Protective clothing for other hazardous must be impervious to those chemical hazards.

C. Eye protection and hard hats shall be available and worn when required by applicable safety regulations.

D. Provide Authorized Visitors with suitable protection clothing, headgear, eye protection, and footwear whenever they enter the Work Area.

2.8 RESPIRATORS

A. Provide all workers, foremen, superintendents, authorized visitors, and inspectors with personally-issued and marked, clean and sanitized respiratory equipment approved by

NIOSH. When respirators with disposable filters are employed, provide sufficient filters for replacement as recommended by manufacturers or this specification. Selection of respirators shall be made according to the Cal/OSHA respirator standard and applicable hazard specific regulation.

B. The minimum respiratory protection for asbestos abatement for this project is a half mask respirator as long as the airborne levels do not exceed one tenth of the PEL (e.g. 0.01 f/cc). For other airborne chemical hazards, respirator protection shall selected to ensure protection to below established the Action Level (AL) established by regulation or otherwise 1/2 of the applicable PEL in the absence of an AL.

PART 3 - EXECUTION

3.1 PROJECT PROCEDURES

A. Prior to the start of on-site work, the Contractor shall hold an on-site start-up safety meeting for all of contractor and facility employees that addresses at least the following issues specific for the project:

1. Safety and health hazards;
2. Procedures and work practices;
3. Respiratory protection and instruction;
4. Special conditions and/or work requirements.

B. Worker Protection Procedures (Asbestos, Lead, PCB's, and other hazardous material/substance impacted by project.

C. Provide Authorized Visitors with suitable protective clothing, respirators, headgear, eye protection, and footwear whenever they are required to enter the Work Area. All provided equipment shall be new or in good working condition

3.2 GENERAL WORK AREA PREPARATION FOR ABATEMENT

A. General Requirements

1. Isolate, effectively protect, or de-energize electrical power to Work Area. Electrical circuits shall be deactivated if they do not include ground fault circuit interrupters.
2. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground fault interrupter circuits with power source for electrical equipment to be used.
3. Provide temporary supply of water adequate for wet removal, cleaning, decontamination and operation of employee shower system (where required).
4. Cordon off all other accesses to Work Areas with barrier tape and warning signage.
5. Pre-clean work area using wet cleaning and/or HEPA vacuuming to remove all visible dust and debris prior to starting hazardous material removal, major disturbance or demolition work.

3.3 PREPARATION FOR CLASS II & UNCLASSIFIED ASBESTOS WORK

A. Class II and Unclassified Asbestos Removal Work:

1. In addition to general preparation requirements (above):

a. Establish a Regulated Area with barrier tape at minimum and asbestos warning signs for exterior asbestos removal areas.

   1) For pool plaster demolition, include the entire area of equipment operation and as necessary lined disposal bins within the Regulated Area.
   2) For removal of roofing materials, the Regulated Area will consist of the roof itself without barriers and the area below where the roof will be accessed and waste lowered down to ground level.

b. Install a contiguous three stage decontamination (Decon) unit for interior work and for exterior Work Areas establish a Regulated Area with barriers, signage, and a decontaminating area at the point of egress with cleaning and washing materials for personnel and equipment decontamination, a HEPA vacuum, and appropriate waste bags and containers.

c. Where a contiguous decontamination unit is not feasible, establish a remote Decon unit on site with a shower and/or cleaning/decontamination materials and provide a double suiting or re-suiting procedure for egress from the Work Area containment in non-contaminated work clothing.

d. Alternate containment systems and procedures may be used for exterior work (roof, utility trenches, etc.) subject to approval by the Owner's Observation Service.

3.4 PREPARATION FOR LEAD-PAINT DISTURBANCE WORK

A. In addition to the general preparation requirements (above):

1. Pre-clean areas around building and structures to be demolished to remove any visible paint chips and debris prior to general demolition.
2. For loose paint removal or selected demolition of lead-based ceramic tiles, install plastic drop sheets that extends at least five feet beyond area of disturbance to contain and collect lead contaminated paint chips, dust, and debris.
3. Clean and decontaminate Work Area prior to end of shift and place all waste in tightly sealed labeled waste containers. Paint chips shall be considered hazardous pending evaluation of lead hazardous waste characteristics.
4. Remove all waste containers and place in secure storage pending disposal.

3.5 ASBESTOS REMOVAL AND DISTURBANCE PROCEDURES

A. Prohibitions. The following methods shall not be used to remove or clean up asbestos:

1. Use of high speed abrasive disc saws without effective HEPA filtered attachments;
2. Compressed air to remove or clean-up asbestos;
3. Dry sweeping or shoveling of asbestos containing dust or debris;
4. Aggressive removal methods where non-aggressive methods are feasible. Where aggressive methods are required, they must include special containment and control procedures acceptable to regulatory agencies and approved by the Observation Service in advance.

B. Gross Removal and Clean-up of ACCM Plaster (pool)

1. Protect surfaces to remain and other surfaces to prevent contamination of flat work and soils surrounding the Work Area with poly sheeting.
2. Wet ACM to be removed with amended water and continue wetting during removal process.

3. Demolish pool plaster using methods that do not pulverize or crush the plaster and which allow removal of larger intact plaster debris to the extent possible. Include any pool liner or moisture barrier material found to be present. Ensure all demolition is conducted with adequate wetting of materials during removal and waste packaging for disposal. Allow no visible emissions during pool demolition.
4. Place adequately wetted and removed materials promptly in labeled waste disposal bags or containers, or lined and labeled bins as it is removed.
5. Close and seal bags and containers as they are filled. Plastic waste bags are to be sealed using the "goose neck" technique by twisting the neck of the bag, bending it over, and taping it with multiple wraps of tape.
6. Clean exterior waste bags and container surfaces by wet wiping. Double bag asbestos waste bags in the equipment decontamination area prior to waste load out and placement is secure lined and labeled asbestos waste storage bins or equivalent.
7. Decontaminate all tools and equipment prior to them leaving the Regulated Area.

3.6 CLASS II ASBESTOS REMOVAL OPERATIONS

A. Prepare Work Area as indicated above for Class II Operations.

B. Removal of Non-friable ACM Roofing Sealants, Mastics, & Tars

1. Entire roof may serve as the Regulated Area with barrier tape and warning signage are posted at point of roof access at ground level;
2. Use wet methods (where safe) and remove intact to extent feasible;
3. Use manual cutting and prying tools to remove intact;
4. Do not allow ACM roofing materials or mastics to fall off roof during removal;
5. HEPA vacuum or wet wipe any resulting dust and/or debris;
6. Place in labeled bags or containers and lower to ground carefully by end of shift.

C. Asbestos Cement (AC) Pipe Excavation, Cutting, Tapping, & Removal

1. Carefully machine excavate to expose AC piping as necessary. Once exposed manually, excavate areas to prevent breakage where cuts, breaks, or taps are to be made;
2. Establish a Regulated Area surrounding the location of cutting, tapping, and, or removal using barrier tape and signage at minimum;
3. Place plastic sheeting below area to be cut or altered to catch any resulting ACM chips, dust or debris;
4. Use methods and procedures to cut AC pipe without causing it to shatter, crumble, be pulverized or release visible dust into the air;
5. Keep AC pipe wetted during all cutting and tapping work;
6. Use only industry recommended practices for cutting, splicing, and tapping AC pipe. At minimum:

    a. Cutting is to be completed by special carbide tipped blade cutters that are frame adjustable to the circumference of the pipe and that have self-tracking rollers or "snap cutters" that operate with cutting wheels on a chain wrapper around the pipe barrow;
    b. Machining, if necessary, shall be conducted wet using manual field lathe or manual rasp;
    c. Tapping, whether under pressure or on non-pressured lines, shall be conducted wet and include provisions for internal pipe cleaning by flushing, purging, or other means to prevent asbestos dust and chips from entering the drinking water system.
    d. Do not blow out with compressed air or dry sweep. Do not vacuum without a HEPA filtered vacuum; &

e. All cutting, machining, tapping procedures must be conducted wet and all resulting AC dust and debris must be cleaned up and disposed of as ACM contaminated waste.

7. Piping sections to be demolished shall be carefully cut into manageable sections, wrapped and sealed in plastic sheeting, labeled, and carefully placed in labeled and lined asbestos waste disposal bin;

8. All intact AC pipe waste and debris shall be disposed of as non-hazardous asbestos waste transported by non-hazardous asbestos waste manifest to a permitted asbestos disposal site.

3.7 FINAL ASBESTOS DECONTAMINATION

A. Previous Work: During completion of the asbestos removal and visible debris clean up work specified, the first cleaning of all exposed equipment, building, hardscape and soil surfaces must be completed.

B. Clean any remaining materials and debris exposed by the protective barrier removal;

C. Clean all exposed surfaces in the Work Area containment or Regulated Area by wet wiping and HEPA vacuuming.

D. At the completion of this cleaning phase, the Work Area shall be free of all unnecessary equipment/materials and waste containers.

E. The Contractor's Competent Person/Supervisor shall perform a complete visual inspection of the Work Area under adequate lighting to ensure that the Work Area is free of visible asbestos material, debris, and dust.

F. Notify the Owner's Observation Service at least 48 hours in advance of the day and time when the Work Area will be ready for Final Inspection and Clearance.

G. The Contractor's Competent Person/Supervisor shall ensure that additional cleaning is completed if the area is not acceptably clean. The Contractor shall request a final visual inspection by the Observation Service once the Competent Person/Supervisor concludes that the area is acceptable for final visual inspection.

H. After written notification to proceed from the Observation Service, encapsulate all surfaces within the Work Area.

I. After written notification from the Observation Service that the abatement was fully completed and successfully decontaminated based on clearance inspection and testing, the Contactor may proceed with removal of critical barriers and containment barrier materials.

3.8 LEAD-RELATED DEMOLITION

A. General: Some painted or coated surfaces at this site are known or presumed to contain lead subject to worker protection and environmental regulations. Refer to referenced survey documents and hazardous materials plans for additional information including components with LBP requiring agency notification.

B. Remove any loose, peeling and/or flaking LCP prior to structural demolition. Remove using wet methods such as wet scraping with horizontal surfaces below protected by plastic drop sheets extending at least five feet out but to the extent necessary to contain all paint chip debris.

C. Conduct demolition work in a manner that does not result in site contamination above background levels. Use wet methods for dust suppression during demolition.

D. Clean up any demolition-related lead wastes including any resulting paint chips and debris. Containerize and treat has hazardous lead waste pending evaluation with laboratory proving otherwise.

E. The Contractor shall evaluate each demolition debris waste stream and ensure proper disposal of all generated wastes. All waste profiling and testing required by the disposal site is the responsibility of the Contractor.

3.9 LEAD WASTE CLEAN UP AND EVALUATION

A. Clean up paint chips and debris using wet cleaning methods and HEPA vacuuming. All surfaces shall be free of all visible paint chips, dust and debris. Place all paint chips in a labeled waste bag or container.

B. Place all contaminated cleaning materials, disposal personal protective equipment (PPE) and contaminated plastic in separate waste bags. The Contactor shall assume all lead-related waste is RCRA hazardous waste and shall conduct required waste testing as necessary for disposal at a permitted waste disposal site.

C. All waste streams and waste categories listed below shall be considered lead hazardous waste until proven otherwise through testing. All testing of demolition wastes is the responsibility of the Contractor. The Contractor shall be responsible for segregating suspect lead hazardous waste based on potential for exhibiting hazardous waste characteristics. Lead-related wastes are to be segregated into the below listed categories at a minimum.

1. Category I: LBP/LCP paint chips, vacuum bags, used cleaning materials. These materials are typically hazardous wastes.
2. Category II: Plastic sheeting and tape, disposable clothing, and equipment. These materials should be non-hazardous if properly cleaned and decontaminated. However, these items are to be considered hazardous subject to testing.
3. Category III: For general structural building demolition, the demolition debris will typically be non-hazardous if the vast bulk of the waste materials are non-lead containing materials (lumber, brick, cement, etc.). For selective demolition of LBP finishes and high lead content ceramic tile, the waste stream is likely to be hazardous unless proven otherwise by testing.

D. Based on the testing protocols, any waste greater than or equal to five (5) ppm lead using STLC or any waste greater than or equal to 1000 ppm lead using the TTLC test shall be considered a California hazardous waste. Any waste greater than 5 ppm based on the federal TCLP test is an RCRA hazardous lead waste.

E. When the TTLC test result is less than 50 ppm lead, no further testing is required for that waste category sampled unless the waste stream or waste generating process changes.

3.10 PCB BALLASTS & UNIVERSAL WASTES

A. Each fluorescent light ballast associated with a light fixture to be demolished shall be inspected for labeling. Any non-electronic ballast not labeled “PCB Free” or “No PCB” shall be considered a PCB ballast and properly packaged and disposed of as a hazardous waste.

B. Carefully remove all fluorescent lighting tubes or lamps and high intensity lamps. Package for disposal as a universal waste at a permitted recycling and/or disposal site.

C. Emergency and exit lighting batteries must be removed, packaged and disposed of as a Universal Waste.

D. Carefully remove mercury-containing thermostats, switches, and gauges scheduled for demolition or replacement, package for disposal as a universal waste at a permitted mercury recycling site.

3.11 REMOVAL AND RECYCLING OF OZONE DEPLETING COOLANT GASSES

A. All air conditioning units, refrigerators, refrigerated drinking water fountains, and other equipment with coolant gasses shall be assumed to contain regulated chlorofluorocarbon (CFC) and/or HCFC gasses subject to federal and state regulation pertaining to containment and recycling of the gasses.

B. Use only properly EPA certified Refrigerant Reclaimers to remove CFC or HCFC from equipment to be demolished and scrapped.

C. Remove CFC & HCFC gasses using approved equipment and methods which prevent escape to the atmosphere and recycle removed gasses in accordance with applicable federal and state regulation.

D. Removed refrigerant gasses must be recycled or destroyed per regulation.

3.12 IONIZATION TECHNOLOGY SMOKE DETECTORS

A. Assume all smoke detectors are of ionization technology type with radioactive sources (Americium 241) unless visual inspection of each unit indicates otherwise. Ionization technology smoke detectors are typically indicated with an “I” or the word “ionization” on the front or back side of the detector. Photoelectric smoke detectors do not contain radioactive materials and are indicated with a “P” or the work “photoelectric”.

B. Inspect each smoke detector and determine if it is of “ionization” type or “photoelectric” type.

C. Photoelectric Technology Smoke Detectors. Remove the smoke detector batteries and dispose of photoelectric type smoke detectors as construction trash.

D. Ionization Technology Smoke Detectors (with radioactive material sources): Remove the battery and dispose of the ionization type smoke detector in accordance with federal, state and local regulation.

E. Some smoke detector manufacturers will accept spent smoke detectors they manufactured; some hazardous waste collection centers will accept ionization type smoke detectors, and there is one recycling company that accepts spent ionization type detectors (Curie Environmental Services). It is the Contractor’s responsibility to properly identify, remove and dispose of all ionization smoke detectors.

3.13 WASTE PACKAGING & LABELING

A. All asbestos wastes shall be adequately wetted prior to packaging.

B. Place asbestos waste in six (6) mil labeled asbestos waste bags or approved equivalent containers.

C. Goose neck and seal each bag and place in a second clean-labeled bag, drum or impervious container.

D. Decontaminate waste bags and containers prior to removing from regulated or contained area.

E. Label all asbestos waste bags or containers with OSHA warning label and other information as required by regulation.

F. All other hazardous wastes including lead, PCB, and universal wastes shall be properly labeled and containerized in leak tight containers.

3.14 WASTE DISPOSAL

A. Waste Transportation: Submit the method of transport of hazardous asbestos wastes including name, address, EPA ID number, and telephone number of transporter.

B. Waste Disposal Site(s): Submit for approval the name, class, address, EPA ID number, and telephone number of waste disposal site(s) to be utilized.

C. Waste Manifest: Submit for approval at the Pre-construction meeting a filled out Waste Manifest form. For Waste Manifest purposes, the Generator is the facility of the subject work.

1. Obtain necessary information including generator EPA number for this purpose from the Owner or Owner's Representative prior to start up of any abatement or demolition.
2. After removal and packaging waste for shipment, provide a copy of the Waste Manifest to the Observation Service for each required shipment.
3. Use the Uniform Hazardous Waste Manifest for hazardous wastes including lead and asbestos. Each manifest must be submitted for signature by the generator (Owner).
4. Use a non-hazardous wastes manifest for disposal of non-friable asbestos wastes.

D. Each hazardous waste manifest and each non-hazardous asbestos waste manifest shall be prepared for the Owner or Owner's Representative's review and approval prior to shipment.

E. The sealed hazardous waste containers shall be delivered to the Contractor's pre-designated, approved hazardous waste treatment and waste disposal site for treatment, destruction, and/or burial in accordance with applicable state and federal regulations. Likewise, non-hazardous asbestos waste shall be delivered under manifest to a permitted asbestos waste disposal site.

F. Notify the Owner's facility representative 48 hours in advance of the time when contaminated materials are to be removed and transported from the site to allow for manifest review and approval.

G. The Contractor shall be responsible for safe handling and transportation of all hazardous waste generated by this Contract to the designated Hazardous Waste Site and shall hold the Owner and the Owner's agents and consultants harmless for claims, damages, losses, and expenses against the Owner, including attorney's fees arising out of our resulting from asbestos and hazardous materials spills on the site or en route to the disposal site.

3.15 REMEDITION, DEMOLITION, AND CONDUCTION DUST CONTROLS

A. The Contractor shall implement controls to prevent visible dust emissions from all construction activities throughout the project from leaving the immediate project area according to a detailed plan submitted and approved prior to start of site work.

B. Wet methods shall be used to extent necessary to control dust at the point of generation. Other dust suppression products and methods shall be implemented as necessary to control visible dust on a sustained basis.

C. In the event that visible dust is observed leaving the project site, the Contractor will stop work, evaluate the situation to determine the cause and identify corrective actions required, and then implement corrective actions that can mitigate the problem on a sustained basis. Exception: Very short episodes (*less than 10-15 minutes duration) upon start-up of a new or different task that are noted and corrected immediately by the Contractor through diligent supervision. Repeated frequent episodes due to lack of proper implementation shall not be allowed*.

3.16 AIR MONITORING & CLEARANCE TESTING

A. Area Air Monitoring:

1. Throughout the asbestos removal or disturbance process, area air monitoring may be conducted by the Observation Service to ensure work is done in conformance with the fiber concentration limits of these specifications. Likewise, lead removal work areas may be visually inspected and/or air monitored during disturbance activities including removal, treatment or demolition.
2. If results of area air monitoring outside the Work Area are in excess of 0.01 f/cc for asbestos regulated work areas or 30 micrograms of airborne lead per cubic meter of air (ug/m^3) for lead demolition area perimeters, the Contractor shall make changes in work procedures to assure compliance with minimum standards. At a minimum, the Contractor shall stop all work and implement additional remedial controls and conduct decontamination as necessary in response to exceeding these limits.
3. Unsatisfactory asbestos results are fiber counts in excess of 0.01 f/cc by PCM Method NIOSH 7400 determined as a TWA outside the Work Area by general air monitoring. All results greater than 0.01 f/cc shall be subject to further laboratory analysis by the TEM method at the Contractor's sole expense.

B. Clearance Inspection & Testing

1. Asbestos Removal or Disturbance. When all work including decontamination of a specific asbestos removal work area is complete, the Owner's Observation Service shall conduct inspection prior to containment removal and opening the area to un-restricted access. No clearance air testing will be required for exterior work areas. In order to facilitate clearance inspection, the Contractor is obligated to provide at least 48 hours notice to allow scheduling of the Owner's Observation Service.
2. Lead Demolition or significant disturbance (>2 square feet/work area) of lead-based paint (LBP). After all removal/disturbance work is completed and the work area has been cleaned up and decontaminated by wet cleaning and HEPA vacuuming, the Owner's Observation Service will inspect areas to verify if all visible dust and debris has been cleaned. If deemed necessary, the Observation Service may collect exterior soil samples for comparison with pre-start background levels.

3.17 CLOSE-OUT

A. All submittal and punch list items must be complete and provided to the Observation Service.

END OF SECTION

SECTION 02 90 00

PLANTING

PART 1 GENERAL

1.01 SUMMARY

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications sections, apply to Work of this Section.

B. Work Included: All services, labor, materials, transportation and equipment necessary to perform the work indicated on the Drawings and as specified.

C. Contractor is responsible for removing and disposing of lime treated soils from planting areas, if lime treatment was used in construction of buildings and paving. Clean top soil from site is to replace lime treated soil in planting areas where shown on plans, or imported top soil may be used, subject to review and approval. Amend replacement soil as outlined in these specifications. Method and extent of lime treated soil removal shall be approved by project geotechnical engineer.

1.02 SUBMITTALS

A. Installer Qualifications: A firm or individual experienced in installing, erecting or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

B. Installer's Field Supervision: Installer to maintain an experienced full-time supervisor on the Project site when work of this section is in progress.

C. Samples: samples of quarry fines, soil amendments, fertilizers, mulches, binders/tackifiers, seed mixes, shall be submitted for review and stored on site until furnishing of materials is completed. Delivery may begin upon approval of samples or as directed by the City Designated Representative.
   1. Written certification for the quantity of seed material shall be submitted to the City Designated Representative prior to installation.
   2. Submit mixed product samples for mulches, per specifications.

D. Fertilizers and Soil Conditioners: Submit product data for fertilizers and soil conditioners, and planting tablets. Quantities of fertilizers and soil conditioners shall be per the Agronomy Reports, including adjustments as required based on the results of the Agricultural Suitability Test for the reclaimed water, where applicable.
   1. Cost adjustments: Contractor shall provide a line item cost for installation of the soil conditioners and fertilizers according to these specifications. Should the agronomy reports recommend a lesser degree of soil conditioning and fertilizing, Contractor shall adjust fees or provide a credit to the Client accordingly. In the event that the required soil conditioners and fertilizers are greater than these specifications, the Contractor shall submit a request for change order per general conditions.

1.03 GUARANTEES AND REPLACEMENTS

A. Turf, Sod shall be guaranteed to remain healthy and vigorously growing for 3 months from time of final acceptance.

B. Turf, found to be dead, and not in a vigorous condition noted within the Maintenance Period shall be replaced within fourteen (14) days.

1.04 OBSERVATIONS & ACCEPTANCE

A. Observation will be required for the following parts of the work:
   1. Incorporation of soil conditioning and fertilizing into the soil.
   2. Upon the completion of grading prior to planting.
   3. Approval of plant materials (refer to 1.6 General Requirements).
   4. When trees and shrubs are spotted in place for planting, but before planting holes are excavated. Approval of mulch product prior to spreading.
   5. When all planting, except the Maintenance Period, has been completed. Acceptance and written approval shall establish beginning of the Maintenance Period.
   6. Final Observation at the completion of the 90 day Maintenance Period. This observation shall establish the beginning date for the one year guarantee of all trees.

B. Acceptances: Upon completion of the Final Observation and the work of this section, the Contractor will be notified in writing (1) whether the work is acceptable; (2) of any requirements necessary for completion and acceptance.

C. The Contractor or his authorized representative shall be on the site at the time of each observation.

1.05 MAINTENANCE

A. The Maintenance Period begins on the day the City Designated Representative has been given Notice of Completion and shall continue thereafter for no less than 90 continuous calendar days.

B. The Contractor shall continuously protect and maintain all involved areas of the Contract during the progress of the work and during the Maintenance Period until the Final Acceptance of the work. A protective temporary fence shall be installed and remain in place until final acceptance of the project. Contractor is responsible for removal of the fencing at the close of the maintenance period and after final acceptance of the project.

C. Regular planting maintenance operations shall begin immediately after each plant or turf is planted. Plants and turf shall be kept in a healthy, growing condition and in a visually pleasing appearance by watering, pruning, mowing, rolling, trimming, edging, fertilizing, restaking, pest and disease controlling, spraying, weeding, cleaning up and any other necessary operation of maintenance. Landscape areas shall be kept free of weeds, noxious grass, and all other undesired vegetative growth and debris. All plants found to be dead or in an impaired condition shall be replaced immediately. Final acceptance of turf areas shall occur when:

1. A healthy active turf provides complete coverage with no bare area greater than 3 inches in diameter.
2. The turf cover is essentially free of weeds.

D. The Contract completion date of the Contract Maintenance Period will be extended, when in the opinion of the City Designated Representative, improper maintenance and/or possible poor or unhealthy condition of planted material or un-established non-covering turf areas are evident at the termination of the scheduled Maintenance Period. The Contractor shall be responsible for additional maintenance of the work at no change in Contract price until all of the work is completed and acceptable.

E. The Contractor shall be responsible for maintaining adequate protection of the areas. Damaged areas shall be repaired immediately at the Contractor's expense.

F. See Post-Planting Fertilizing requirements.

G. Contractor shall remove temporary protective fencing around turf and planted areas at the conclusion of the maintenance period.

H. Turf, found to be dead, and not in a vigorous condition noted within the Maintenance Period shall be replaced within fourteen (14) days

1.06 GENERAL REQUIREMENTS

A. The term "Planting Area" shall mean all areas to be planted with trees, shrubs, and groundcovers, and areas covered with organic mulch or specialty pebble mulch.

B. The term “Turf Area” shall mean all areas to be planted with fescue grasses.

C. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.

D. All rock and other growth or debris accumulated during the duration of the project shall be removed from the site.

E. Prior to excavation for planting or placing of plant materials, locate all underground utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the City Designated Representative who shall arrange for the relocation of one or the other. The Contractor assumes all responsibility for making any and all repairs for damages resulting from work as herein specified.

F. Grading and soil preparation work shall be performed only during the period when beneficial and optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, spreading and grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels and the desired results are likely to be obtained.

G. All scaled dimensions are approximate. Before proceeding with any work carefully check and verify all dimensions and immediately inform the City Designated Representative of any discrepancy between the drawings and/or specifications and actual conditions.

H. Quantities for plant materials are shown for convenience only, and not guaranteed. Check and verify count and supply sufficient number to fulfill intent of drawings.

I. Adequately stake, barricade, and protect all irrigation equipment, manholes, utility lines, and other existing property during all phases of the soil amending and grading operations.

1.07 REVIEW OF PLANT INVOICES AND SOIL PREPARATION CONFORMANCE TEST

A. Upon delivery of materials and/or completion of all soil conditioning and grading but prior to initiating planting operations, the Contractor shall provide City Designated Representative with signed copies of required certificates, trip slips and invoices for soil preparation materials. The City Designated Representative shall review such material, comparing the total quantities of each material furnished against the total area to each operation. If the minimum rates of application have not been met, the City Designated Representative will require the incorporation of additional quantities of these materials to fulfill the minimum application requirements specified.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products shall be delivered to the site in manufacturer's unopened standard containers bearing original labels showing quantity, analysis and name of manufacturer.

B. All materials shall be stored in designated areas and in such a manner as to protect from weather or other conditions that might impair the effectiveness of the product.

PART 2 PRODUCTS

2.01 SOIL AMENDMENT AND FERTILIZER

A. The following amendments and fertilizers are to be used for bidding purposes only.

B. Organic Material (composted humus materials) PH of 5.5 to 6.5

C. Gypsum shall be a commercially processed and packaged gypsum (CaSo4, 2 H2O @ .90%).

D. PAM (polyacrylamide)'Complete Green'

E. Calcium Nitrate (Ca[NO3]2 à 15/0/0)

F. Potassium Nitrate (KNO_3--> 13/0/44).

G. SCU ([urea] [NH2]2CO à 37/0/0)

H. Triple Superphos (Ca $[H_2PO_4]_2$-->0/45/0)

I. Oyster Shell Lime (CaCO3. à 95%)

J. Planting Tablets: Agriform 20-10-5, 21-gram planting tablet plus minors, by The Scotts Company, 1-800-492-8255, www.scotts.com, or approved equal.

K. Quantities shall be furnished as needed to complete work shown on drawings.

2.02 PLANTING

A. Weed Eradication:
   1. Weed control shall adhere to city policy
   2. No Glyphosate shall be used within park boundaries

2.03 PLANT MATERIALS

A. Sod: 100% Dwarf Fescue

B. Sod shall be vigorous, of normal growth, free from disease, insects, insect eggs, and meet or exceed the measurements specified.

C. Substitutions will be considered for use of the nearest equivalent size or variety and cost in the event that the proposed plant is unavailable. All proposed substitutions shall be approved by City Designated Representative prior to planting.

2.04 MULCH

A. Arbor Mulch: Planting areas shall be covered with 'Arbor Mulch', or approved equal. Mulch shall be a recycled soft wood, dark color product shredded into small pieces consisting of a mix of finely shredded wood and medium shredded wood processed through an industrial tub grinder. No 'gold' color, rounded wood chips will be accepted. Available from Grab n' Grow Soil Products, 707-575-7275.

2.05 TEMPORARY PROTECTIVE FENCING

A. 4'-0" orange plastic snow fencing to be placed around planting areas and turf for the duration of the maintenance period. Install with metal posts 8'-0" o.c. spacing minimum.

2.06 FILTER FABRIC

A. Filter fabric shall be a uv resistant non- woven geotextile composed of polypropylene fibers such as Mirafi 140N or equal. Flow rate through the fabric will be 135 gallons per minute minimum.

PART 3 EXECUTION

3.01 WEED ERADICATION PROGRAM
   1. Weed control will be performed in compliance with city policy
   2. No Glyphosate will be used within park boundaries

3.02 SOIL CONDITIONING, FERTILIZING & ROTOTILLING

A. Grub and clean planting area, removing all weeds, debris and rocks from the site.

B. Rip and cross rip soil in planting areas to 12" deep, or as recommended in soils analysis.

C. Contractor to install amendments per agronomy reports. The following soil amendment incorporation is to be used for bidding purposes only. The soil conditioning and amendment materials shall be evenly spread over all planting areas and shall be thoroughly scarified to an average depth of 8 inches by rototilling a minimum of two alternating passes.

Organic Material (composted humus materials)	8 C.Y / 1000 sf
PAM (polyacrylamide)*	20 lbs / 1000 sf
Gypsum	300 lbs / 1000 sf
Oyster Shell Lime	20 lbs / 1000 sf
Calcium Nitrate	20 lbs/1000 sf
Potassium Nitrate	10 lbs/1000 sf
SCU	12 lbs/1000 sf
Triple Superphosphate	10 lbs / 1000 sf.
MicroMax	15 lbs / 1000 sf
Lava Rock	8 C.Y. / 1000sf

*Do not allow PAM to become wet before installation

D. The thoroughness and completeness of the rototilling and incorporation of the soil conditioners/amendments shall be acceptable to the City Designated Representative.

3.03 FINISH GRADING

A. Finish grades shall be as indicated on the Civil Engineer's drawings.

B. Finish grades shall be measured as the final water compacted and settled surface grades and shall be to the satisfaction of the City Designated Representative.

C. All undulations and irregularities in the planting surfaces resulting from tillage, rototilling and all other operations shall be leveled and floated out before planting operations are initiated.

D. The Contractor shall take every precaution to protect and avoid damage to sprinkler heads, irrigation lines, and other underground utilities during his grading and conditioning operations.

E. Final finish grades shall insure positive drainage of the site with all surface drainage away from buildings, walls, and toward roadways, drains and catch basins.

F. All planting areas shall be uniformly graded and rolled, and final grades shall be acceptable to the City Designated Representative, before planting operations will be allowed to begin.

G. Planting surfaces shall be graded with no less than 2 percent surface slope for positive drainage, or as otherwise noted for field areas according to Civil Engineer's plans.

3.04 EROSION CONTROL MAT

A. All other specifications for soil preparation and planting apply.

B. Mat shall be installed after soil preparation and after digging holes for plants, but prior to plant placement and initial backfilling. Install per manufacturer's specifications.

C. When cut openings for plants are necessary, the cut in the mat shall not be larger than necessary to accommodate placement and backfilling. Opening shall be secured on four sides with staple fasteners.

3.05 PLANTING

A. The layout of locations for plants and outlines of groundcover to be planted shall be approved on the site by the City Designated Representative, prior to their planting. All such locations shall be checked for possible interference with existing underground piping, prior to excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, other locations for the planting may be selected by the City Designated Representative. Damage to existing utilities shall be the responsibility of the Contractor.

B. Planting Sod:

1. After soil amendment, roll the area to receive sod with a lawn roller in two different directions. Soil should be dry before rolling to avoid excess compaction. Remove ridges and fill depressions to meet specified finish grades.
2. Irrigation coverage should be approved by City Designated Representative prior to sod planting. Thoroughly water area to receive sod before planting. Do not create muddy soil.
3. Check area once again for finish grading. Re-grade if necessary.
4. Plant sod immediately upon delivery, within 24 hours of cutting. Contractor to protect sod from damage and drying-out prior to, during, and after planting.
5. Begin laying sod along a straight edge (paving, or string line in irregularly shaped areas) staggering strips or pads to offset joints of adjacent courses. Butt and push edges and ends of sod against each other to fit tightly without stretching.
6. Lay sod at an angle on slopes exceeding 3:1.
7. Anchor sod to slopes exceeding 3:1. Application rate per industry standard.
8. After planting, roll the entire area with a lightweight roller to improve sod to soil contact and remove air pockets.
9. Trim edges with a sharp knife, cutting sod to conform to curved boundaries, sprinklers, paving, etc.
10. Thoroughly water the sod immediately after planting, soaking the sod and the soil under the sod to 2 inches depth. Water the sod daily to maintain soil moisture (for approximately 2 weeks) until sufficiently rooted to survive less frequent but deeper watering (regular watering schedule).
11. Wait to mow the sod until approximately 2-3 weeks after planting. Allow turf to dry out before mowing to protect it from damage by mowing equipment. Do not mow more than 1/3 of the grass blade, and to no shorter than 2.5 inches.

3.06 CLEANUP

A. As project progresses, Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. Contractor shall sweep and clean all sidewalks, asphalt, and concrete, and planter walls adjacent to plantings.

END OF SECTION

SECTION 22 11 13
FACILITY WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes water-distribution piping and related components outside the building for water service.

B. Utility-furnished products include water meters that will be furnished to the site, ready for installation.

1.3 DEFINITIONS

A. EPDM: Ethylene propylene diene terpolymer rubber.

B. LLDPE: Linear, low-density polyethylene plastic.

C. PA: Polyamide (nylon) plastic.

D. PE: Polyethylene plastic.

E. PP: Polypropylene plastic.

F. PVC: Polyvinyl chloride plastic.

G. RTRF: Reinforced thermosetting resin (fiberglass) fittings.

H. RTRP: Reinforced thermosetting resin (fiberglass) pipe.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control test reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For water valves and specialties to include in emergency, operation, and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with requirements of utility company supplying water. Include tapping of water mains and backflow prevention.
2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.
3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.

B. Piping materials shall bear label, stamp, or other markings of specified testing agency.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Comply with ASTM F645 for selection, design, and installation of thermoplastic water piping.

E. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.

F. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.

1. Potable-water piping and components shall comply with NSF 14, NSF 61, and NSF 372..

1.8 DELIVERY, STORAGE, AND HANDLING

A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:

1. Ensure that valves are dry and internally protected against rust and corrosion.
2. Protect valves against damage to threaded ends and flange faces.
3. Set valves in best position for handling. Set valves closed to prevent rattling.

B. During Storage: Use precautions for valves, including fire hydrants, according to the following:

1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

C. Handling: Use sling to handle valves and fire hydrants if size requires handling by crane or lift. Rig valves to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

D. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.

F. Protect flanges, fittings, and specialties from moisture and dirt.

G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.9 PROJECT CONDITIONS

A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of service.
2. Do not proceed with interruption of water-distribution service without Owner's written permission.

1.10 COORDINATION

A. Coordinate connection to water main with utility company.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Application" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

B. Potable-water piping and components shall comply with NSF 14, NSF 61, and NSF 372.

2.2 COPPER TUBE AND FITTINGS

A. Soft Copper Tube: ASTM B88, Type K ASTM B88, Type L, water tube, annealed temper.

1. Copper, Solder-Joint Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.

B. Hard Copper Tube: ASTM B88, Type K and ASTM B88, Type L, water tube, drawn temper.

1. Copper, Solder-Joint Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.

C. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match piping.

D. Copper Unions:

1. MSS SP-123.
2. Cast-copper-alloy, hexagonal-stock body.
3. Ball-and-socket, metal-to-metal seating surfaces.
4. Solder-joint or threaded ends.

E. Copper, Brass or Bronze, Pressure-Seal-Joint Fittings:
1. Fittings: Cast-brass, cast-bronze, or wrought-copper with EPDM O-ring seal in each end. Sizes NPS 2-1/2 and larger with stainless steel grip ring and EPDM O-ring seal.
2. Minimum 200-psig working-pressure rating at 250 deg F.

2.3 DUCTILE-IRON PIPE AND FITTINGS

A. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless grooved or flanged ends are indicated.

1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
2. Gaskets: AWWA C111, rubber.

2.4 PE PIPE AND FITTINGS

A. PE, ASTM Pipe: ASTM D2239, SIDR No. 5.3, 7, or 9; with PE compound number required to give pressure rating not less than 160 psig.

1. Insert Fittings for PE Pipe: ASTM D2609, made of PA, PP, or PVC with serrated male insert ends matching inside of pipe. Include bands or crimp rings.
2. Molded PE Fittings: ASTM D3350, PE resin, socket- or butt-fusion type, made to match PE pipe dimensions and class.

B. PE, AWWA Pipe: AWWA C906, DR No. 7.3, 9, or 9.3; with PE compound number required to give pressure rating not less than 160 psig.

1. PE, AWWA Fittings: AWWA C906, socket- or butt-fusion type, with DR number matching pipe and PE compound number required to give pressure rating not less than 160 psig.

2.5 PVC PIPE AND FITTINGS

A. PVC, Schedule 40 Pipe: ASTM D1785.

1. PVC, Schedule 40 Socket Fittings: ASTM D2466.

B. PVC, Schedule 80 Pipe: ASTM D1785.

1. PVC, Schedule 80 Socket Fittings: ASTM D2467.
2. PVC, Schedule 80 Threaded Fittings: ASTM D2464.

C. PVC, AWWA Pipe: AWWA C900, Class 150 and Class 200, with bell end with gasket, and with spigot end.

1. Comply with UL 1285 for fire-service mains if indicated.
2. PVC Fabricated Fittings: AWWA C900, Class 150 and Class 200, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
4. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

    a. Gaskets: AWWA C111, rubber.

5. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

    a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

2.6 JOINING MATERIALS

A. Refer to Section 330500 "Common Work Results for Utilities" for commonly used joining materials.

B. Brazing Filler Metals: AWS A5.8, BCuP Series.

C. Plastic Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Refer to Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

A. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.

B. Do not use flanges or unions for underground piping.

C. Flanges, unions, grooved-end-pipe couplings, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.

D. Underground water-service piping shall match existing piping.

3.3 PIPING SYSTEMS - COMMON REQUIREMENTS

A. See Section 330500 "Common Work Results for Utilities" for piping-system common requirements.

3.4 PIPING INSTALLATION

A. Make connections larger than NPS 2 with tapping machine according to the following:

1. Install tapping sleeve and tapping valve according to MSS SP-60.
2. Install tapping sleeve on pipe to be tapped. Position flanged outlet for gate valve.
3. Use tapping machine compatible with valve and tapping sleeve; cut hole in main. Remove tapping machine and connect water-service piping.
4. Install gate valve onto tapping sleeve. Comply with MSS SP-60. Install valve with stem pointing up and with valve box.

B. Make connections NPS 2 and smaller with drilling machine according to the following:

1. Install service-saddle assemblies and corporation valves in size, quantity, and arrangement required by utility company standards.
2. Install service-saddle assemblies on water-service pipe to be tapped. Position outlets for corporation valves.
3. Use drilling machine compatible with service-saddle assemblies and corporation valves. Drill hole in main. Remove drilling machine and connect water-service piping.
4. Install corporation valves into service-saddle assemblies.
5. Install manifold for multiple taps in water main.
6. Install curb valve in water-service piping with head pointing up and with service box.

C. Install ductile-iron, water-service piping according to AWWA C600 and AWWA M41.

1. Install PE corrosion-protection encasement according to ASTM A674 or AWWA C105.

D. Install PE pipe according to ASTM D2774 and ASTM F645.

E. Install PVC, AWWA pipe according to ASTM F645 and AWWA M23.

F. Install fiberglass AWWA pipe according to AWWA M45.

3.5 JOINT CONSTRUCTION

A. See Section 330500 "Common Work Results for Utilities" for basic piping joint construction.

B. Make pipe joints according to the following:

1. Copper-Tubing, Pressure-Sealed Joints: Join copper tube and pressure-seal fittings with tools and procedures recommended by pressure-seal-fitting manufacturer. Leave insertion marks on pipe after assembly.

2. Ductile-Iron Piping, Gasketed Joints for Water-Service Piping: AWWA C600 and AWWA M41.
3. Ductile-Iron Piping, Gasketed Joints for Fire-Service-Main Piping: UL 194.
4. Ductile-Iron Piping, Grooved Joints: Cut-groove pipe. Assemble joints with grooved-end, ductile-iron-piping couplings, gaskets, lubricant, and bolts according to coupling manufacturer's written instructions.
5. PE Piping Insert-Fitting Joints: Use plastic insert fittings and fasteners according to fitting manufacturer's written instructions.
6. PVC Piping Gasketed Joints: Use joining materials according to AWWA C900. Construct joints with elastomeric seals and lubricant according to ASTM D2774 or ASTM D3139 and pipe manufacturer's written instructions.
7. Fiberglass Piping Bonded Joints: Use adhesive and procedure recommended by piping manufacturer.
8. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

3.6 CONNECTIONS

A. See Section 330500 "Common Work Results for Utilities" for piping connections to valves and equipment.

3.7 FIELD QUALITY CONTROL

A. Piping Tests: Conduct piping tests before joints are covered and after concrete thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.

B. Hydrostatic Tests: Test at not less than one-and-one-half times working pressure for two hours.

1. Increase pressure in 50-psig increments and inspect each joint between increments. Hold at test pressure for 1 hour; decrease to 0 psig. Slowly increase again to test pressure and hold for 1 more hour. Maximum allowable leakage is 2 quarts per hour per 100 joints. Remake leaking joints with new materials and repeat test until leakage is within allowed limits.

C. Prepare reports of testing activities.

3.8 IDENTIFICATION

A. Install continuous underground detectable warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Underground warning tapes are specified in Section 312000 "Earth Moving."

B. Permanently attach equipment nameplate or marker indicating plastic water-service piping, on main electrical meter panel. See Section 330500 "Common Work Results for Utilities" for identifying devices.

3.9 CLEANING

A. Clean and disinfect water-distribution piping as follows:

1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.
3. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or do as follows:

    a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
    b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.
    c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
    d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.

B. Prepare reports of purging and disinfecting activities.

END OF SECTION 221113

SECTION 22 13 13
FACILITY SANITARY SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Hub-and-spigot, cast-iron soil pipe and fittings.
2. Hubless cast-iron soil pipe and fittings.
3. Ductile-iron, gravity sewer pipe and fittings.
4. Ductile-iron, pressure pipe and fittings.
5. ABS pipe and fittings.
6. PVC pipe and fittings.
7. Fiberglass pipe and fittings.
8. Concrete pipe and fittings.
9. Nonpressure-type transition couplings.
10. Pressure-type pipe couplings.
11. Expansion joints and deflection fittings.
12. Backwater valves.
13. Cleanouts.
14. Encasement for piping.
15. Manholes.
16. Concrete.

1.3 DEFINITIONS

A. FRP: Fiberglass-reinforced plastic.

1.4 ACTION SUBMITTALS

A. Product Data: For the following:

1. Pipe and fittings.
2. Non-pressure and pressure couplings

1.5 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of pipe and fitting.

B. Field quality-control reports.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic manholes, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle manholes according to manufacturer's written rigging instructions.

1.7 FIELD CONDITIONS

A. Interruption of Existing Sanitary Sewerage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of service.
2. Do not proceed with interruption of service without Owner's written permission.

PART 2 - PRODUCTS

2.1 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A74, Service class Service and Extra-Heavy classes and Extra-Heavy class.

B. Gaskets: ASTM C564, rubber.

C. Calking Materials: ASTM B29, pure lead and oakum or hemp fiber.

2.2 HUBLESS CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A888 or CISPI 301.

B. CISPI-Trademark, Shielded Couplings:

1. Description: ASTM C1277 and CISPI 310, with stainless-steel corrugated shield; stainless-steel bands and tightening devices; and ASTM C564, rubber sleeve with integral, center pipe stop. Couplings in "Heavy-Duty, Shielded Couplings" Paragraph below are made in NPS 1-1/2 to NPS 15 (DN 40 to DN 375).

C. Heavy-Duty, Shielded Couplings:

1. Description: ASTM C1277 and ASTM C1540, with stainless-steel shield; stainless-steel bands and tightening devices; and ASTM C564, rubber sleeve with integral, center pipe stop. Couplings in "Cast-Iron, Shielded Couplings" Paragraph below are made in NPS 1-1/2 to NPS 10 (DN 40 to DN 250).

D. Cast-Iron, Shielded Couplings:

1. Description: ASTM C1277 with ASTM A48/A48M, two-piece, cast-iron housing; stainless-steel bolts and nuts; and ASTM C564, rubber sleeve with integral, center pipe stop. Couplings in "Unshielded Couplings" Paragraph below are made in NPS 1-1/2 to NPS 4 (DN 40 to DN 100). They should not be used for liquids at temperatures below 0 deg F (minus 18 deg C) or above 130 deg F (54 deg C).

E. Unshielded Couplings:

1. Description: ASTM C1277 and ASTM C1461, rigid, sleeve-type, reducing- or transition-type mechanical coupling, with integral, center pipe stop, molded from ASTM C1440, thermoplastic elastomer (TPE) material; with corrosion-resistant-metal tension band and tightening mechanism on each end.

2.3 DUCTILE-IRON, GRAVITY SEWER PIPE AND FITTINGS

A. Pipe: ASTM A746, for push-on joints.

B. Standard Fittings: AWWA C110/A21.10, ductile or gray iron, for push-on joints.

C. Compact Fittings: AWWA C153/A21.53, ductile iron, for push-on joints.

D. Gaskets: AWWA C111/A21.11, rubber.

2.4 DUCTILE-IRON, PRESSURE PIPE AND FITTINGS

A. Push-on-Joint Piping:

1. Pipe: AWWA C151/A21.51.
2. Standard Fittings: AWWA C110/A21.10, ductile or gray iron.
3. Compact Fittings: AWWA C153/A21.53.
4. Gaskets: AWWA C111/A21.11, rubber, of shape matching pipe and fittings.

B. Mechanical-Joint Piping:

1. Pipe: AWWA C151/A21.51, with bolt holes in bell.
2. Standard Fittings: AWWA C110/A21.10, ductile or gray iron, with bolt holes in bell.
3. Compact Fittings: AWWA C153/A21.53, with bolt holes in bells.
4. Glands: Cast or ductile iron; with bolt holes and high-strength, cast-iron or high-strength, low-alloy steel bolts and nuts.
5. Gaskets: AWWA C111/A21.11, rubber, of shape matching pipe, fittings, and glands.

2.5 ABS PIPE AND FITTINGS

A. ABS Sewer Pipe and Fittings: ASTM D2661, with bell-and-spigot ends for gasketed joints.

1. NPS 3 to NPS 6: SDR 35.
2. NPS 8 to NPS 12: SDR 42.

B. Gaskets: ASTM F477, elastomeric seals.

2.6 PVC PIPE AND FITTINGS

A. PVC Cellular-Core Sewer Piping:

1. Pipe: ASTM F891, Sewer and Drain Series, PS 50 minimum stiffness, PVC cellular-core pipe with plain ends for solvent-cemented joints.
2. Fittings: ASTM D3034, SDR 35, PVC socket-type fittings.

B. PVC Corrugated Sewer Piping:

1. Pipe: ASTM F949, PVC corrugated pipe with bell-and-spigot ends for gasketed joints.
2. Fittings: ASTM F949, PVC molded or fabricated, socket type.
3. Gaskets: ASTM F477, elastomeric seals.

C. PVC Profile Sewer Piping:

1. Pipe: ASTM F794, PVC profile, gravity sewer pipe with bell-and-spigot ends for gasketed joints.
2. Fittings: ASTM D3034, PVC with bell ends.
3. Gaskets: ASTM F477, elastomeric seals.

D. PVC Type PSM Sewer Piping:

1. Pipe: ASTM D3034, SDR 35, PVC Type PSM sewer pipe with bell-and-spigot ends for gasketed joints.
2. Fittings: ASTM D3034, PVC with bell ends.
3. Gaskets: ASTM F477, elastomeric seals.

E. PVC Gravity Sewer Piping:

1. Pipe and Fittings: ASTM F679, T-1 wall thickness, PVC gravity sewer pipe with bell-and-spigot ends and with integral ASTM F477, elastomeric seals for gasketed joints.

F. PVC Pressure Piping:

1. Pipe: AWWA C900, Class 100 PVC pipe with bell-and-spigot ends for gasketed joints.
2. Fittings: AWWA C900, Class 100 PVC pipe with bell ends.
3. Gaskets: ASTM F477, elastomeric seals.

G. PVC Water-Service Piping:

1. Pipe: ASTM D1785, Schedule 40 and Schedule 80 PVC, with plain ends for solvent-cemented joints.
2. Fittings: ASTM D2466, Schedule 40 and ASTM D2467, Schedule 80 PVC, socket type.

2.7 NONPRESSURE-TYPE TRANSITION COUPLINGS

A. Comply with ASTM C1173, elastomeric, sleeve-type, reducing or transition coupling; for joining underground nonpressure piping. Include ends of same sizes as piping to be joined and include corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:

1. For Cast-Iron Soil Pipes: ASTM C564, rubber.
2. For Concrete Pipes: ASTM C443, rubber.
3. For Fiberglass Pipes: ASTM F477, elastomeric seal or ASTM D5926, PVC.
4. For Plastic Pipes: ASTM F477, elastomeric seal or ASTM D5926, PVC.
5. For Dissimilar Pipes: ASTM D5926, PVC or other material compatible with pipe materials being joined.

C. Unshielded, Flexible Couplings:

1. Description: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Shielded, Flexible Couplings:

1. Description: ASTM C1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

2. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring. Couplings in "Nonpressure-Type, Rigid Couplings" Paragraph below should not be used for liquids at temperatures below 0 deg F (minus 18 deg C) or above 130 deg F (54 deg C).

E. Nonpressure-Type, Rigid Couplings:

1. Description: ASTM C1461, sleeve-type, reducing- or transition-type mechanical coupling; molded from ASTM C1440, TPE material; with corrosion-resistant-metal tension band and tightening mechanism on each end.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details to indicate general location and arrangement of underground sanitary sewer piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements.

C. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

D. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.

E. Install gravity-flow, nonpressure, drainage piping according to the following:

1. Install piping pitched to match existing conditions.
2. Install piping material to match existing.
3. Install hub-and-spigot, cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
4. Install hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
5. Install ductile-iron, gravity sewer piping according to ASTM A746.
6. Install ABS sewer piping according to ASTM D2321 and ASTM F1668.
7. Install PVC cellular-core sewer piping according to ASTM D2321 and ASTM F1668.
8. Install PVC corrugated sewer piping according to ASTM D2321 and ASTM F1668.
9. Install PVC profile sewer piping according to ASTM D2321 and ASTM F1668.
10. Install PVC Type PSM sewer piping according to ASTM D2321 and ASTM F1668.
11. Install PVC gravity sewer piping according to ASTM D2321 and ASTM F1668.
12. Install fiberglass sewer piping according to ASTM D3839 and ASTM F1668.
13. Install nonreinforced-concrete sewer piping according to ASTM C1479 and ACPA's "Concrete Pipe Installation Manual."
14. Install reinforced-concrete sewer piping according to ASTM C1479 and ACPA's "Concrete Pipe Installation Manual."

F. Clear interior of piping and manholes of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed. Place plug in end of incomplete piping at end of day and when work stops.

3.3 PIPE JOINT CONSTRUCTION

A. Join gravity-flow, nonpressure, drainage piping according to the following:

1. Join hub-and-spigot, cast-iron soil piping with gasket joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
2. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.
3. Join hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-coupling joints.
4. Join ductile-iron, gravity sewer piping according to AWWA C600 for push-on joints.
5. Join ABS sewer piping according to ASTM D2321 for elastomeric-seal joints.
6. Join PVC cellular-core sewer piping according to ASTM D2321 and ASTM F891 for solvent-cemented joints.

7. Join PVC corrugated sewer piping according to ASTM D2321.
8. Join PVC profile sewer piping according to ASTM D2321 for elastomeric-seal joints or ASTM F794 for gasketed joints.
9. Join PVC Type PSM sewer piping according to ASTM D2321 and ASTM D3034 for elastomeric-seal joints or ASTM D3034 for elastomeric-gasket joints.
10. Join PVC gravity sewer piping according to ASTM D2321 and ASTM D3034 for elastomeric-seal joints or ASTM D3034 for elastomeric-gasket joints.
11. Join fiberglass sewer piping according to ASTM D4161 for elastomeric-seal joints.
12. Join nonreinforced-concrete sewer piping according to ASTM C14 and ACPA's "Concrete Pipe Installation Manual" for rubber-gasket joints.
13. Join reinforced-concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasket joints.
14. Join dissimilar pipe materials with nonpressure-type, flexible couplings.

B. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

1. Use nonpressure flexible couplings where required to join gravity-flow, nonpressure sewer piping unless otherwise indicated.

    a. Shielded flexiblecouplings for pipes of same or slightly different OD.
    b. Unshielded, increaser/reducer-pattern, flexiblecouplings for pipes with different OD.
    c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

2. Use pressure pipe couplings for force-main joints.

3.4 CONNECTIONS

A. Connect nonpressure, gravity-flow drainage piping to building's sanitary building drains specified in Section 221316 "Sanitary Waste and Vent Piping."

B. Connect force-main piping to building's sanitary force mains specified in Section 221316 "Sanitary Waste and Vent Piping." Terminate piping where indicated.

C. Make connections to existing piping and underground manholes.

1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye fitting plus 6-inch overlap with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes by cutting opening into existing unit large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of, and be flush with, inside wall unless otherwise indicated. On outside of pipe or manhole wall, encase entering

connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.

a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.
b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.

4. Protect existing piping and manholes to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

3.5 CLOSING ABANDONED SANITARY SEWER SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:

1. Close open ends of piping with plug per drawings.

B. Backfill to grade according to Section 312000 "Earth Moving."

3.6 IDENTIFICATION

A. Comply with requirements in Section 312000 "Earth Moving" for underground utility identification devices. Arrange for installation of green warning tapes directly over piping and at outside edges of underground manholes.

1. Use warning tape or detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping and over edges of underground manholes.

3.7 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate report for each system inspection.
2. Defects requiring correction include the following:

a. Alignment: Less than full diameter of inside of pipe is visible between structures.
b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
d. Infiltration: Water leakage into piping.
e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.

4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to requirements of authorities having jurisdiction.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
4. Submit separate report for each test.
5. Hydrostatic Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction and the following:

    a. Fill sewer piping with water. Test with pressure of at least 10-foot head of water, and maintain such pressure without leakage for at least 15 minutes.
    b. Close openings in system and fill with water.
    c. Purge air and refill with water.
    d. Disconnect water supply.
    e. Test and inspect joints for leaks.

6. Air Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction, UNI-B-6, and the following:

    a. Test plastic gravity sewer piping according to ASTM F1417.
    b. Test concrete gravity sewer piping according to ASTM C1628.

7. Force Main: Perform hydrostatic test after thrust blocks, supports, and anchors have hardened. Test at pressure not less than 1-1/2 times the maximum system operating pressure, but not less than 150 psig.

    a. Ductile-Iron Piping: Test according to AWWA C600, "Hydraulic Testing" Section.
    b. PVC Piping: Test according to AWWA M23, "Testing and Maintenance" Chapter.

8. Manholes: Perform hydraulic test according to ASTM C969 .

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.8 CLEANING

A. Clean dirt and superfluous material from interior of piping. Flush with potable water.

END OF SECTION 221313

SECTION 31 10 00
SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Stripping and stockpiling rock.
6. Removing above- and below-grade site improvements.
7. Disconnecting, capping or sealing, removing site utilities and abandoning site utilities in place.
8. Temporary erosion and sedimentation control.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

1.3 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow.

D. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

E. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

F. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction

G. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.6 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

B. Topsoil stripping and stockpiling program.

C. Rock stockpiling program.

D. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

E. Burning: Documentation of compliance with burning requirements and permitting of authorities having jurisdiction. Identify location(s) and conditions under which burning will be performed.

1.7 QUALITY ASSURANCE

A. Topsoil Stripping and Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

B. Rock Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

1.8 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Architect.

C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

D. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

E. Tree- and Plant-Protection Zones: Protect according to requirements in Section 015639 "Temporary Tree and Plant Protection."

F. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

B. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer complying with SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.4 EXISTING UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.
2. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Locate, identify, and disconnect utilities indicated to be abandoned in place.

D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify owner not less than 7 days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.

E. Excavate for and remove underground utilities indicated to be removed.

F. Removal of underground utilities is included in earthwork sections; in applicable fire suppression, plumbing, HVAC, electrical, communications, electronic safety and security, and utilities sections; and in Section 024116 "Structure Demolition" and Section 024119 "Selective Demolition."

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods or air spade for grubbing within protection zones.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth indicated on Drawings of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within protection zones.
3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Burning tree, shrub, and other vegetation waste is permitted according to burning requirements and permitting of authorities having jurisdiction. Control such burning to produce the least smoke or air pollutants and minimum annoyance to surrounding properties. Burning of other waste and debris is prohibited.

C. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 31 20 00
EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade walks pavements turf and grasses and plants.
3. Excavating and backfilling for buildings and structures.
4. Drainage course for concrete slabs-on-grade.
5. Subbase course for concrete walks.
6. Subbase course and base course for asphalt paving.
7. Subsurface drainage backfill for walls and trenches.
8. Excavating and backfilling trenches for utilities and pits for buried utility structures.
9. Excavating well hole to accommodate elevator-cylinder assembly.

B. Related Requirements:

1. Section 013233 "Photographic Documentation" for recording preexcavation and earth-moving progress.
2. Section 311000 "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions.
2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock-excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Equipment for Footing, Trench, and Pit Excavation: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch-maximum-width, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,700 lbf and stick-crowd force of not less than 18,400 lbf with extra-long reach boom.
2. Equipment for Bulk Excavation: Late-model, track-mounted loader; rated at not less than 230-hp flywheel power and developing a minimum of 47,992-lbf breakout force with a general-purpose bare bucket.

I. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 3/4 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows/2 inches when tested by a geotechnical testing agency, according to ASTM D1586.

J. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

K. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

L. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

M. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct preexcavation conference at Project site.

1. Review methods and procedures related to earthmoving, including, but not limited to, the following:

a. Personnel and equipment needed to make progress and avoid delays.
b. Coordination of Work with utility locator service.
c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.
d. Extent of trenching by hand or with air spade.
e. Field quality control.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.
2. Controlled low-strength material, including design mixture.
3. Geofoam.
4. Warning tapes.

B. Samples for Verification: For the following products, in sizes indicated below:

1. Geotextile: 12 by 12 inches.
2. Warning Tape: 12 inches long; of each color.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D2487.
2. Laboratory compaction curve according to ASTM D698.

C. Blasting plan: no blasting is allowed.

D. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

1.7 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E329 and ASTM D3740 for testing indicated.

1.8 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Architect.

C. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.

D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 015000 "Temporary Facilities and Controls" and Section 311000 "Site Clearing" are in place.

E. Do not commence earth-moving operations until plant-protection measures specified in Section 015639 "Temporary Tree and Plant Protection" are in place.

F. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Do not direct vehicle or equipment exhaust towards protection zones.

H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

H. Drainage Course: Narrowly graded mixture ofcrushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.

I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and zero to 5 percent passing a No. 4 sieve.

J. Sand: ASTM C33/C33M; fine aggregate.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Survivability: As follows:

    a. Grab Tensile Strength: 157 lbf; ASTM D4632.
    b. Sewn Seam Strength: 142 lbf; ASTM D4632.
    c. Tear Strength: 56 lbf; ASTM D4533.
    d. Puncture Strength: 56 lbf; ASTM D4833.

3. Apparent Opening Size: No. 40 sieve, maximum; ASTM D4751.

4. Permittivity: 0.5 per second, minimum; ASTM D4491.
5. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Survivability: As follows:

    a. Grab Tensile Strength: 247 lbf; ASTM D4632.
    b. Sewn Seam Strength: 222 lbf; ASTM D4632.
    c. Tear Strength: 90 lbf; ASTM D4533.
    d. Puncture Strength: 90 lbf; ASTM D4833.

3. Apparent Opening Size: No. 60 sieve, maximum; ASTM D4751.
4. Permittivity: 0.02 per second, minimum; ASTM D4491.
5. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.

2.3 CONTROLLED LOW-STRENGTH MATERIAL

A. Controlled Low-Strength Material: Self-compacting, flowable concrete material produced from the following:

1. Portland Cement: ASTM C150/C150M, Type I Type II or Type III.
2. Fly Ash: ASTM C618, Class C or F.
3. Normal-Weight Aggregate: ASTM C33/C33M, 3/4-inch nominal maximum aggregate size.
4. Foaming Agent: ASTM C869/C869M.
5. Water: ASTM C94/C94M.
6. Air-Entraining Admixture: ASTM C260/C260M.

B. Produce conventional-weight, controlled low-strength material with 140-psi compressive strength when tested according to ASTM C495/C495M.

2.4 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide

and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

A. Provide dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

D. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

3.3 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:

    a. 24 inches outside of concrete forms other than at footings.
    b. 12 inches outside of concrete forms at footings.
    c. 6 inches outside of minimum required dimensions of concrete cast against grade.
    d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
    e. 6 inches beneath bottom of concrete slabs-on-grade.
    f. 6 inches beneath pipe in trenches and the greater of 24 inches wider than pipe or 42 inches wide.

B. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract Time may be authorized for rock excavation.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; and soil, boulders, and other materials not classified as rock or unauthorized excavation.

    a. Intermittent drilling; blasting, if permitted; ram hammering; or ripping of material not classified as rock excavation is earth excavation.

2. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the following dimensions:

    a. 24 inches outside of concrete forms other than at footings.
    b. 12 inches outside of concrete forms at footings.
    c. 6 inches outside of minimum required dimensions of concrete cast against grade.
    d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
    e. 6 inches beneath bottom of concrete slabs-on-grade.
    f. 6 inches beneath pipe in trenches and the greater of 24 inches wider than pipe or 42 inches wide.

3.4 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

2. Pile Foundations: Stop excavations 6 to 12 inches above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.
3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.5 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.6 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.
3. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.
4. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

E. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.
3. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.7 SUBGRADE INSPECTION

A. Notify Architect when excavations have reached required subgrade.

B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired vehicle to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.8 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.9 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.10 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring, bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.11 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Section 033000 "Cast-in-Place Concrete."

D. Trenches under Roadways: Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase course. Concrete is specified in Section 033000 "Cast-in-Place Concrete."

E. Backfill voids with satisfactory soil while removing shoring and bracing.

F. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of subbase material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

2. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the pipe or conduit. Coordinate backfilling with utilities testing.

G. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.
2. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

H. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.12 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.13 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.14 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D698:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 90 percent.

3.15 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1/8 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.
1. layers to final subgrade.

3.16 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place base course material over subbase course under hot-mix asphalt pavement.
3. Shape subbase course and base course to required crown elevations and cross-slope grades.
4. Place subbase course and base course 6 inches or less in compacted thickness in a single layer.

5. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
6. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 <**Insert number**> percent of maximum dry unit weight according to ASTM D698.

C. Pavement Shoulders: Place shoulders along edges of subbase course and base course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D698.

3.17 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place drainage course 6 inches or less in compacted thickness in a single layer.
3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D698.

3.18 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material classification and maximum lift thickness comply with requirements.
3. Determine, during placement and compaction, that in-place density of compacted fill complies with requirements.

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing

subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

E. Testing agency will test compaction of soils in place according to ASTM D1556, ASTM D2167, ASTM D2937, and ASTM D6938, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab but in no case fewer than three tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length but no fewer than two tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length but no fewer than two tests.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.19 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Architect.

1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 32 13 13
CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes Concrete Paving Including the Following:

1. Driveways.
2. Walks.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to concrete paving, including but not limited to, the following:

a. Concrete mixture design.
b. Quality control of concrete materials and concrete paving construction practices.

2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete paving Subcontractor.
e. Manufacturer's representative of stamped concrete paving system used for stamped detectable warnings.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color selection.

C. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.6 INFORMATIONAL SUBMITTALS

A. Material Certificates: For the following, from manufacturer:

1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Fiber reinforcement.
4. Admixtures.
5. Curing compounds.
6. Applied finish materials.
7. Bonding agent or epoxy adhesive.
8. Joint fillers.

B. Material Test Reports: For each of the following:

1. Aggregates: Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.

C. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Stamped Detectable Warning Installer Qualifications: An employer of workers trained and approved by manufacturer of stamped concrete paving systems.

B. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

C. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures.

1.9 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

C. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.2 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

C. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

D. Zinc Repair Material: ASTM A 780/A 780M.

2.4 CONCRETE MATERIALS

A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:

1. Portland Cement: ASTM C 150/C 150M, white portland cement Type I/II.
2. Fly Ash: ASTM C 618, Class C or Class F.
3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.
4. Blended Hydraulic Cement: ASTM C 595/C 595M, cement.

B. Normal-Weight Aggregates: ASTM C 33/C 33M,, uniformly graded. Provide aggregates from a single source.

1. Maximum Coarse-Aggregate Size: 1 inch nominal.

C. Air-Entraining Admixture: ASTM C 260/C 260M.

D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

E. Water: Potable and complying with ASTM C 94/C 94M.

2.5 CURING MATERIALS

A. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.6 RELATED MATERIALS

A. Joint Fillers: ASTM D 1752, cork or self-expanding cork in preformed strips.

B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

D. Epoxy-Bonding Adhesive: ASTM C 881/C 881M, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:

2.7 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301 , for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.

B. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

C. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture high-range, water-reducing admixture high-range, water-reducing and retarding admixture plasticizing and retarding admixture in concrete as required for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

D. Concrete Mixtures: Normal-weight concrete.

1. Compressive Strength (28 Days): 4000 psi.
2. Maximum W/C Ratio at Point of Placement: 0.45.

3. Slump Limit: 4 inches , plus or minus 1 inch.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.

F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M.

G. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
2. Provide tie bars at sides of paving strips where indicated.
3. Butt Joints: Use bonding agent or epoxy-bonding adhesive at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 50 feet unless otherwise indicated.
2. Extend joint fillers full width and depth of joint.
3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
6. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.

B. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

C. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

D. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

E. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

F. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement joint devices.

G. Screed paving surface with a straightedge and strike off.

H. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

I. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.

J. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.

1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.

3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 DETECTABLE WARNING INSTALLATION

A. Blockouts: Form blockouts in concrete for installation of detectable paving units specified in Section 321726 "Tactile Warning Surfacing."

1. Tolerance for Opening Size: Plus 1/4 inch, no minus.

B. Cast-in-Place Detectable Warning Tiles: Form blockouts in concrete for installation of tiles specified in Section 321726 "Tactile Warning Surfacing." Screed surface of concrete where tiles are to be installed to elevation, so that edges of installed tiles will be flush with surrounding concrete paving. Embed tiles in fresh concrete to comply with Section 321726 "Tactile Warning Surfacing" immediately after screeding concrete surface.

3.9 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by curing compound as follows:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

    a. Water.
    b. Continuous water-fog spray.
    c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.10 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 3/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-feet long; unleveled straightedge not to exceed 1/2 inch.
4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
5. Lateral Alignment and Spacing of Dowels: 1 inch.
6. Vertical Alignment of Dowels: 1/4 inch.
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.11 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.

    a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231/C 231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.

    a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

G. Concrete paving will be considered defective if it does not pass tests and inspections.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

I. Prepare test and inspection reports.

3.12 REPAIR AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 32 13 73
CONCRETE PAVEMENT JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Cold-applied joint sealants.
2. Hot-applied joint sealants.
3. Cold-applied, fuel-resistant joint sealants.
4. Hot-applied, fuel-resistant joint sealants.
5. Joint-sealant backer materials.
6. Primers.

B. Related Requirements:

1. Section 079200 "Joint Sealants" for sealing nontraffic and traffic joints in locations not specified in this Section.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Paving-Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of joint sealant and accessory.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Product Testing: Test joint sealants using a qualified testing agency.

1.7 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 COLD-APPLIED JOINT SEALANTS

A. Multicomponent, Pourable, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type M, Grade P, Class 25, for Use T.

2.3 JOINT-SEALANT BACKER MATERIALS

A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

D. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.4 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions.

C. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of joint-sealant backings.

2. Do not stretch, twist, puncture, or tear joint-sealant backings.
3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:

1. Place joint sealants so they fully contact joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:

1. Remove excess joint sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.

B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

3.5 PAVING-JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Joints within concrete paving.

1. Joint Location:

a. Expansion and isolation joints in concrete paving.
b. Contraction joints in concrete paving.
c. Other joints as indicated.

2. Joint Sealant: Single component, pourable, urethane, elastomeric joint sealant.

END OF SECTION 321373

SECTION 32 84 00
PLANTING IRRIGATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Piping.
2. Encasement for piping.
3. Manual valves.
4. Pressure-reducing valves.
5. Automatic control valves.
6. Automatic drain valves.
7. Transition fittings.
8. Dielectric fittings.
9. Miscellaneous piping specialties.
10. Sprinklers.
11. Quick couplers.
12. Drip irrigation specialties.
13. Controllers.
14. Boxes for automatic control valves.

1.3 DEFINITIONS

A. Circuit Piping: Downstream from control valves to sprinklers, specialties, and drain valves. Piping is under pressure during flow.

B. Drain Piping: Downstream from circuit-piping drain valves. Piping is not under pressure.

C. ET Controllers: EvapoTranspiration Controllers. Irrigation controllers which use some method of weather based adjustment of irrigation. These adjusting methods include use of historical monthly averages of ET; broadcasting of ET measurements; or use of on-site sensors to track ET.

D. Main Piping: Downstream from point of connection to water distribution piping to, and including, control valves. Piping is under water-distribution-system pressure.

E. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.

1.4 PERFORMANCE REQUIREMENTS

A. Irrigation zone control shall be automatic operation with controller and automatic control valves.

B. Location of Sprinklers and Specialties: Design location to maintain 100 percent irrigation coverage of areas indicated.

C. Delegated Design: Design 100 percent coverage irrigation system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Irrigation systems, drawn to scale, on which components are shown and coordinated with each other, using input from Installers of the items involved. Also include adjustments necessary to avoid plantings and obstructions such as signs and light standards.

B. Qualification Data: For qualified Installer.

C. Zoning Chart: Show each irrigation zone and its control valve.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For sprinklers controllers and automatic control valves to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A licensed contractor with 5 years satisfactory history installing irrigation systems in Sonoma County, CA.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.9 PROJECT CONDITIONS

A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:

1. Notify Owner no fewer than 7 days in advance of proposed interruption of water service.
2. Do not proceed with interruption of water service without Owner's written permission.

PART 2 - PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

A. As determined by contractor's irrigation designer in accordance with all applicable regulations.

2.2 PIPING JOINING MATERIALS

A. As determined by contractor's irrigation designer in accordance with all applicable regulations.

2.3 AUTOMATIC CONTROL VALVES

2.4 Irritrol 700 Series 2" Electric Control valve

2.5 TRANSITION FITTINGS

A. As determined by contractor's irrigation designer in accordance with all applicable regulations.

2.6 SPRINKLERS

A. As determined by contractor's irrigation designer in accordance with all applicable regulations.

B. Designed for uniform coverage over entire spray area indicated at available water pressure.

C. Hunter I Series to match existing heads

2.7 BOXES FOR AUTOMATIC CONTROL VALVES

A. Polymer-Concrete Boxes:
   1. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.

      a. Size: As required for valves and service.
      b. Purple to represent recycled water

B. Drainage Backfill: Cleaned gravel or crushed stone, graded from 3/4 inch minimum to 3 inches maximum.

2.8 PIPING INSTALLATION

A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.

B. Install piping free of sags and bends.

C. Install groups of pipes parallel to each other, spaced to permit valve servicing.

D. Install fittings for changes in direction and branch connections.

E. Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.

F. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F402 for safe-handling practice of cleaners, primers, and solvent cements.
2. PVC Pressure Piping: Join schedule number, ASTM D1785, PVC pipe and PVC socket fittings according to ASTM D2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D2855.
3. PVC Nonpressure Piping: Join according to ASTM D2855.

G.

2.9 SPRINKLER INSTALLATION

A. Install sprinklers after hydrostatic test is completed.

B. Install sprinklers at manufacturer's recommended heights.

C. Locate part-circle sprinklers to maintain a minimum distance of 4 inches from walls and 2 inches from other boundaries unless otherwise indicated.

2.10 CONNECTIONS

A. Comply with requirements for piping specified in Section 221113 "Facility Water Distribution Piping" for water supply from exterior water service piping, water meters, protective enclosures, and backflow preventers. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment, valves, and devices to allow service and maintenance.

C. Connect wiring between controllers and automatic control valves.

2.11 IDENTIFICATION

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplates and signs on each automatic controller.

1. Text: In addition to identifying unit, distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

B. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tapes over underground piping during backfilling of trenches. See Section 312000 "Earth Moving" for warning tapes.

2.12 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.

2.13

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplates and signs on each automatic controller.

1. Text: In addition to identifying unit, distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

B. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tapes over underground piping during backfilling of trenches. See Section 312000 "Earth Moving" for warning tapes.

2.14 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.

2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Any irrigation product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

2.15 ADJUSTING

A. Adjust settings of controllers.

B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.

C. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be flush with, or not more than 1/2 inch above, finish grade.

D.

E. Prepare test and inspection reports.

2.16 STARTUP SERVICE

A. Verify that controllers are installed and connected according to the Contract Documents.

B. Verify that electrical wiring installation complies with manufacturer's submittal.

ADJUSTING

C. Adjust settings of controllers.

D. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.

E. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be flush with, or not more than 1/2 inch above, finish grade.

2.17 CLEANING

A. Flush dirt and debris from piping before installing sprinklers and other devices.

2.18 PIPING SCHEDULE

A. As determined by contractor's irrigation designer in accordance with all applicable regulations.

2.19 VALVE SCHEDULE

A. As determined by contractor’s irrigation designer in accordance with all applicable regulations.

END OF SECTION 328400

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SECTION 33 05 00
COMMON WORK RESULTS FOR UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Piping joining materials.
2. Transition fittings.
3. Dielectric fittings.
4. Sleeves.
5. Identification devices.
6. Grout.
7. Flowable fill.
8. Piped utility demolition.
9. Piping system common requirements.
10. Equipment installation common requirements.
11. Painting.
12. Concrete bases.
13. Metal supports and anchorages.

1.3 DEFINITIONS

A. Exposed Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions.

B. Concealed Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

C. ABS: Acrylonitrile-butadiene-styrene plastic.

D. CPVC: Chlorinated polyvinyl chloride plastic.

E. PE: Polyethylene plastic.

F. PVC: Polyvinyl chloride plastic.

1.4 ACTION SUBMITTALS

A. Product Data: For the following:

1. Dielectric fittings.
2. Identification devices.

1.5 INFORMATIONAL SUBMITTALS

A. Welding certificates.

1.6 QUALITY ASSURANCE

A. Steel Support Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Steel Piping Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Comply with ASME A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.8 COORDINATION

A. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

B. Coordinate installation of identifying devices after completing covering and painting if devices are applied to surfaces.

PART 2 - PRODUCTS

2.1 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch maximum thickness, unless otherwise indicated.

a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

E. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.

F. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

G. Solvent Cements for Joining Plastic Piping:

1. ABS Piping: ASTM D 2235.
2. CPVC Piping: ASTM F 493.
3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
4. PVC to ABS Piping Transition: ASTM D 3138.

H. Fiberglass Pipe Adhesive: As furnished or recommended by pipe manufacturer.

2.2 TRANSITION FITTINGS

A. Transition Fittings, General: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.

B. Transition Couplings NPS 1-1/2 and Smaller:

1. Underground Piping: Manufactured piping coupling or specified piping system fitting.
2. Aboveground Piping: Specified piping system fitting.

C. AWWA Transition Couplings NPS 2 and Larger:
   1. Description: AWWA C219, metal sleeve-type coupling for underground pressure piping.

D. Plastic-to-Metal Transition Fittings:
   1. Description: CPVC and PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint or threaded end.

E. Plastic-to-Metal Transition Unions:
   1. Description: MSS SP-107, CPVC and PVC four-part union. Include brass or stainless-steel threaded end, solvent-cement-joint or threaded plastic end, rubber O-ring, and union nut.

F. Flexible Transition Couplings for Underground Nonpressure Drainage Piping:
   1. Description: ASTM C 1173 with elastomeric sleeve, ends same size as piping to be joined, and corrosion-resistant metal band on each end.

2.3 DIELECTRIC FITTINGS

A. Dielectric Fittings, General: Assembly of copper alloy and ferrous materials or ferrous material body with separating nonconductive insulating material suitable for system fluid, pressure, and temperature.

B. Dielectric Unions:
   1. Description: Factory fabricated, union, NPS 2 and smaller.
      a. Pressure Rating: 150 psig minimum at 180 deg F.
      b. End Connections: Solder-joint copper alloy and threaded ferrous; threaded ferrous.

C. Dielectric Flanges:
   1. Description: Factory-fabricated, bolted, companion-flange assembly, NPS 2-1/2 to NPS 4 and larger.
      a. Pressure Rating: 150 psig minimum.
      b. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Kits:
   1. Description: Nonconducting materials for field assembly of companion flanges, NPS 2-1/2 and larger.
      a. Pressure Rating: 150 psig minimum.
      b. Gasket: Neoprene or phenolic.
      c. Bolt Sleeves: Phenolic or polyethylene.
      d. Washers: Phenolic with steel backing washers.

E. Dielectric Couplings:
   1. Description: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining, NPS 3 and smaller.

a. Pressure Rating: 300 psig at 225 deg F.
b. End Connections: Threaded.

F. Dielectric Nipples:
1. Description: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining.

a. Pressure Rating: 300 psig at 225 deg F.
b. End Connections: Threaded or grooved.

2.4 SLEEVES

A. Mechanical sleeve seals for pipe penetrations are specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."

B. Galvanized-Steel Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

C. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized, plain ends.

D. Cast-Iron Sleeves: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

E. Molded PVC Sleeves: Permanent, with nailing flange for attaching to wooden forms.

F. PVC Pipe Sleeves: ASTM D 1785, Schedule 40.

G. Molded PE Sleeves: Reusable, PE, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

2.5 IDENTIFICATION DEVICES

A. General: Products specified are for applications referenced in other utilities Sections. If more than single type is specified for listed applications, selection is Installer's option.

B. Equipment Nameplates: Metal permanently fastened to equipment with data engraved or stamped.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and essential data.
2. Location: Accessible and visible.

C. Stencils: Standard stencils prepared with letter sizes complying with recommendations in ASME A13.1. Minimum letter height is 1-1/4 inches for ducts, and 3/4 inch for access door signs and similar operational instructions.

1. Material: Fiberboard.
2. Stencil Paint: Exterior, oil-based, alkyd-gloss black enamel, unless otherwise indicated. Paint may be in pressurized spray-can form.
3. Identification Paint: Exterior, oil-based, alkyd enamel in colors according to ASME A13.1, unless otherwise indicated.

D. Snap-on Plastic Pipe Markers: Manufacturer's standard preprinted, semirigid, snap-on type. Include color-coding according to ASME A13.1, unless otherwise indicated.

E. Pressure-Sensitive Pipe Markers: Manufacturer's standard preprinted, color-coded, pressure-sensitive-vinyl type with permanent adhesive.

F. Pipes with OD, Including Insulation, Less Than 6 Inches: Full-band pipe markers, extending 360 degrees around pipe at each location.

G. Pipes with OD, Including Insulation, 6 Inches and Larger: Either full-band or strip-type pipe markers, at least three times letter height and of length required for label.

H. Lettering: Manufacturer's standard preprinted captions as selected by Architect.

I. Lettering: Use piping system terms indicated and abbreviate only as necessary for each application length.

1. Arrows: Either integrally with piping system service lettering to accommodate both directions of flow, or as separate unit on each pipe marker to indicate direction of flow.

J. Plastic Tape: Manufacturer's standard color-coded, pressure-sensitive, self-adhesive vinyl tape, at least 3 mils thick.

1. Width: 1-1/2 inches on pipes with OD, including insulation, less than 6 inches; 2-1/2 inches for larger pipes.
2. Color: Comply with ASME A13.1, unless otherwise indicated.

K. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch sequenced numbers. Include 5/32-inch hole for fastener.

1. Material: 0.032-inch-thick, polished brass or aluminum.
2. Material: 0.0375-inch-thick stainless steel.
3. Material: 3/32-inch-thick plastic laminate with 2 black surfaces and a white inner layer.
4. Material: Valve manufacturer's standard solid plastic.
5. Size: 1-1/2 inches in diameter, unless otherwise indicated.
6. Shape: As indicated for each piping system.

L. Valve Tag Fasteners: Brass, wire-link or beaded chain; or brass S-hooks.

M. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white melamine subcore, unless otherwise indicated. Fabricate in sizes required for message. Provide holes for mechanical fastening.

1. Engraving: Engraver's standard letter style, of sizes and with terms to match equipment identification.
2. Thickness: 1/16 inch, unless otherwise indicated.
3. Thickness: 1/16 inch, for units up to 20 sq. in. or 8 inches in length, and 1/8 inch for larger units.
4. Fasteners: Self-tapping, stainless-steel screws or contact-type permanent adhesive.

N. Plastic Equipment Markers: Manufacturer's standard laminated plastic, in the following color codes:

1. Green: Cooling equipment and components.
2. Yellow: Heating equipment and components.
3. Brown: Energy reclamation equipment and components.
4. Blue: Equipment and components that do not meet criteria above.
5. Hazardous Equipment: Use colors and designs recommended by ASME A13.1.
6. Terminology: Match schedules as closely as possible. Include the following:

    a. Name and plan number.
    b. Equipment service.
    c. Design capacity.
    d. Other design parameters such as pressure drop, entering and leaving conditions, and speed.

7. Size: 2-1/2 by 4 inches for control devices, dampers, and valves; 4-1/2 by 6 inches for equipment.

O. Plasticized Tags: Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with mat finish suitable for writing.

1. Size: 3-1/4 by 5-5/8 inches.
2. Fasteners: Brass grommets and wire.
3. Nomenclature: Large-size primary caption such as DANGER, CAUTION, or DO NOT OPERATE.

P. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in piped utility identification with corresponding designations indicated. Use numbers, letters, and terms indicated for proper identification, operation, and maintenance of piped utility systems and equipment.

1. Multiple Systems: Identify individual system number and service if multiple systems of same name are indicated.

2.6 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post hardening, volume adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

2.7 FLOWABLE FILL

A. Description: Low-strength-concrete, flowable-slurry mix.

1. Cement: ASTM C 150, Type I, portland.

2. Density: 115- to 145-lb/cu. ft..
3. Aggregates: ASTM C 33, natural sand, fine and crushed gravel or stone, coarse.
4. Aggregates: ASTM C 33, natural sand, fine.
5. Admixture: ASTM C 618, fly-ash mineral.
6. Water: Comply with ASTM C 94/C 94M.
7. Strength: 100 to 200 psig at 28 days.

PART 3 - EXECUTION

3.1 PIPED UTILITY DEMOLITION

A. Refer to Section 024119 "Selective Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove piped utility systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Piping to Be Abandoned in Place: Drain piping. Fill abandoned piping with flowable fill, and cap or plug piping with same or compatible piping material.
3. Equipment to Be Removed: Disconnect and cap services and remove equipment.
4. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make operational.
5. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 DIELECTRIC FITTING APPLICATIONS

A. Dry Piping Systems: Connect piping of dissimilar metals with the following:

1. NPS 2 and Smaller: Dielectric unions.
2. NPS 2-1/2 to NPS 12: Dielectric flanges or dielectric flange kits.

B. Wet Piping Systems: Connect piping of dissimilar metals with the following:

1. NPS 2 and Smaller: Dielectric couplings couplings or dielectric nipples.
2. NPS 2-1/2 to NPS 4: Dielectric nipples.
3. NPS 2-1/2 to NPS 8: Dielectric nipples or dielectric flange kits.
4. NPS 10 and NPS 12: Dielectric flange kits.

3.3 PIPING INSTALLATION

A. Install piping according to the following requirements and utilities Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on the Coordination Drawings.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping to permit valve servicing.

E. Install piping at indicated slopes.

F. Install piping free of sags and bends.

G. Install fittings for changes in direction and branch connections.

H. Select system components with pressure rating equal to or greater than system operating pressure.

I. Sleeves are not required for core-drilled holes.

J. Permanent sleeves are not required for holes formed by removable PE sleeves.

K. Install sleeves for pipes passing through concrete and masonry walls and concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.

    a. Exception: Extend sleeves installed in floors of equipment areas or other wet areas 2 inches above finished floor level.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.

    a. PVC Pipe Sleeves: For pipes smaller than NPS 6.
    b. Steel Sheet Sleeves: For pipes NPS 6 and larger, penetrating gypsum-board partitions.

L. Verify final equipment locations for roughing-in.

M. Refer to equipment specifications in other Sections for roughing-in requirements.

3.4 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and utilities Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

E. Welded Joints: Construct joints according to AWS D10.12/D10.12M, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.

F. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

G. Grooved Joints: Assemble joints with grooved-end pipe coupling with coupling housing, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.

H. Soldered Joints: Apply ASTM B 813 water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy (0.20 percent maximum lead content) complying with ASTM B 32.

I. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

J. Pressure-Sealed Joints: Assemble joints for plain-end copper tube and mechanical pressure seal fitting with proprietary crimping tool to according to fitting manufacturer's written instructions.

K. Plastic Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 appendixes.
3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
5. PVC Nonpressure Piping: Join according to ASTM D 2855.
6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138 Appendix.

L. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.

M. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

N. Plastic Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.

1. Plain-End PE Pipe and Fittings: Use butt fusion.
2. Plain-End PE Pipe and Socket Fittings: Use socket fusion.

O. Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

3.5 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:

1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
3. Install dielectric fittings at connections of dissimilar metal pipes.

3.6 EQUIPMENT INSTALLATION

A. Install equipment level and plumb, unless otherwise indicated.

B. Install equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference with other installations. Extend grease fittings to an accessible location.

C. Install equipment to allow right of way to piping systems installed at required slope.

3.7 PAINTING

A. Painting of piped utility systems, equipment, and components is specified in Section 099113 "Exterior Painting," Section 099123 "Interior Painting," and Section 099600 "High-Performance Coatings."

B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.8 IDENTIFICATION

A. Piping Systems: Install pipe markers on each system. Include arrows showing normal direction of flow.

1. Stenciled Markers: According to ASME A13.1.
2. Plastic markers, with application systems. Install on insulation segment if required for hot noninsulated piping.
3. Locate pipe markers on exposed piping according to the following:

a. Near each valve and control device.
b. Near each branch, excluding short takeoffs for equipment and terminal units. Mark each pipe at branch if flow pattern is not obvious.
c. Near locations where pipes pass through walls or floors or enter inaccessible enclosures.
d. At manholes and similar access points that permit view of concealed piping.
e. Near major equipment items and other points of origination and termination.

B. Equipment: Install engraved plastic-laminate sign or equipment marker on or near each major item of equipment.

1. Lettering Size: Minimum 1/4 inch high for name of unit if viewing distance is less than 24 inches, 1/2 inch high for distances up to 72 inches, and proportionately larger lettering for greater distances. Provide secondary lettering two-thirds to three-fourths of size of principal lettering.
2. Text of Signs: Provide name of identified unit. Include text to distinguish among multiple units, inform user of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

C. Adjusting: Relocate identifying devices that become visually blocked by work of this or other Divisions.

3.9 CONCRETE BASES

A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.

1. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit.
2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of base.
3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
5. Install anchor bolts to elevations required for proper attachment to supported equipment.
6. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
7. Use 4000PSI, 28-day compressive-strength concrete and reinforcement

3.10 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Section 055000 "Metal Fabrications" for structural steel.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor piped utility materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.11 GROUTING

A. Mix and install grout for equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

END OF SECTION 330500

PART 5 – DRAWINGS
(Bound Separately)