



LA CRESCENTA AVENUE REHABILITATION PROJECT

SPECIFICATION NO. 3829



CITY OF GLENDALE, CALIFORNIA

ISSUED TO BID
February 6, 2024

Project Manager: Rustom Tavitian, P.E.

Address: 633 E. Broadway, Room 205, Glendale, CA 91206

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PROJECT DIRECTORY

OWNER: City of Glendale
Public Works Engineering Department
633 E. Broadway, Room 205
Glendale, CA 91206

Contact: Ruston Tavitian, P.E., Project Manager
Tel: 818-548-3945
Fax: 818-242-7087
E-mail: RTavitian@GlendaleCA.gov

CONSULTANTS

NOT APPLICABLE

NOTICE INVITING BIDS

NOTICE is hereby given that the City of Glendale ("City") will receive sealed Bids, before the Bid Deadline established below for the following work of improvement:

LA CRESCENTA AVENUE REHABILITATION PROJECT SPECIFICATION NO. 3829

Bid Deadline: Submit before **2:00 p.m. on Wednesday, March 27, 2024** ("the Bid Deadline")

Original Bid to be submitted to:
Office of City Clerk
613 E. Broadway, Room 110
Glendale, CA 91206

Bid Opening: 2:00 p.m. on Wednesday, March 27, 2024
City Council Chambers
613 E. Broadway, 2nd Floor
Glendale, CA 91206

NO LATE BIDS WILL BE ACCEPTED.

Bidding Documents Available: Bidding documents are available to view and download online at:
<https://www.glendaleca.gov/government/departments/finance/purchasing/rfp-rfq-bid-page>

Optional Virtual Pre-Bid Meeting: Date: Thursday, March 14, 2024
Time: 10:00 a.m.
Location: Microsoft Teams
RSVP: Email RTavitian@GlendaleCA.gov before March 11, 2024.

Additional Bid Document	1. Bid America	(951) 677-4819
Procurement Locations:	2. Construct Connect	(877) 422-8665
	3. Dodge Construction Network	(844) 326-3826 x 9110
	4. CMD Group	(877) 794-6051
	5. BidNet Direct	(800) 835-4603 Option 2

City of Glendale Contact Person: Ruston Tavitian, P.E., Project Manager
Phone: 818-548-3945
Fax: 818-242-7087
E-mail: RTavitian@GlendaleCA.gov

A Bid may be rejected as non-responsive if the Bid fails to document that Bidder meets the essential requirements for qualification. As part of the Bidder's Statement of Qualifications, each Bid must provide satisfactory evidence that:

Bidder satisfactorily completed at least **four (4)** prevailing wage public contracts in California; each comparable in scope and scale to this Project, within **three (3)** years prior to the Bid Deadline.

General Scope of Work:

Contractor shall furnish labor, materials, equipment, services, and specialized skills to perform work involved in the Project. The Work included in the Bid is defined in accordance with Specification No. 3829 and Plan Nos. 1-3071, 3-1572, 4-649, 4-650, 18-114, 49-247, 50-638, 50-639, 50-648, 50-672, 50-673, 50-698, 50-699, and 70-113. The work generally includes: Surface grinding and placement of ARHM; surface grinding and placement of ARHM over Asphalt Rubber Aggregate Membrane (ARAM); selective removal, repair, and reconstruction of damaged curbs and gutters, sidewalks, driveways, cross gutters, alley aprons, and local depressions; modification and reconstruction of curb ramps to meet current ADA standards; adjustment of existing manholes and water meters to finished grade; removal and replacement of existing traffic striping and pavement markings; installation of new protected bicycle class (class IV) and dedicated bicycle lanes (class II); upsizing of sanitary sewer main line; removal and replacement of sanitary sewer main line; installation of bicycle friendly catch basin surface grates; construction of manhole structures; realignment of intersections; planting of new street trees; modification of existing traffic signal installation of new traffic signals, pedestrian hybrid beacons, and signalized bicycle crossing; installation of ten drywells and three bio-retention facilities; installation of reflective pavement; installation of creative crosswalks; and fiber optic improvements as shown on the project plans and specifications, Standard Plans for Public Works Construction (SPPWC 2021 Edition), and the Standard Specifications for Public Works Construction (2021 Edition), including all supplements thereto issued prior to bid opening date.

Other Bidding Information:

Number of Contract Working Days: 140 Working Days
Amount of Liquidated Damages: \$9,600 per Calendar Day
Required Construction Staging: Three Phases, See Construction Staging Plan
Intermediate Completion Milestones: Phase I must be completed by August 9, 2024

Other Bidding Information:

1. **Bidding Documents:** Bids must be made on the Bidder's Proposal form contained herein. Bidding Documents may be obtained in the Public Works Engineering Department, 633 E. Broadway, Room 205, Glendale, CA 91206 where they may be examined. Electronic copies of bidding documents can be obtained at no cost from: <https://www.glendaleca.gov/government/departments/finance/purchasing/rfp-rfq-bid-page>. Future addenda, if any, will be available for download on the same page as the bidding documents. The city will not mail/deliver the addenda to the prospective bidders. It is the bidders' sole responsibility to check the website to obtain future addenda to this bid document. Prospective bidders shall acknowledge the receipt of the addenda in the bid forms.
2. **Engineer's Estimate.** The preliminary cost of construction of this Work has been prepared. The estimate is in the range of \$17,000,000 to \$19,000,000.
3. **Completion:** This Work must be completed within **One Hundred Forty (140)** Working days from the Date of Commencement as established by the City's written Notice to Proceed.
4. **Acceptance or Rejection of Bids.** The City reserves the right to reject any and all Bids, to award all or any individual part/item of the Bid, and to waive any informalities, irregularities or technical defects in such Bids and determine the lowest responsible Bidder, whichever may be in the best interests of the City. No late Bids will be accepted, nor will any oral, facsimile or electronic Bids be accepted by the City.
5. **Contractor License.** At the time of the Bid Deadline and at all times during performance of the Work, including full completion of all corrective work during the Correction Period, the Contractor must possess a California contractor license or licenses, current and active, of the classification required for the Work, in accordance with the provisions of

Chapter 9, Division 3, Section 7000 *et seq.* of the Business and Professions Code. In compliance with Public Contract Code Section 3300, the City has determined that the Bidder must possess the following **license(s)**:

- a. Pursuant to Section 3300, of the Public Contract Code, the classification of the bidder's Contractor's License shall be "Class A" (for sewer cleaning and video, Class A, C-36, C-42, or D-38). Failure of a bidder to obtain adequate licensing at the time the contract is awarded shall constitute a failure to execute the Contract and shall result in the forfeiture of the Bidder's Bond.
- b. For federally funded projects, the Contractor shall be properly licensed at the time of award.

The successful Bidder will not receive a Contract award if the successful Bidder is unlicensed, does not have all of the required licenses, or one or more of the licenses are not current and active. If the City discovers after the Contract's award that the Contractor is unlicensed, does not have all of the required licenses, or one or more of the licenses are not current and active, the City may cancel the award, reject the Bid, declare the Bid Bond as forfeited, keep the Bid Bond's proceeds, and exercise any one or more of the remedies in the Contract Documents.

6. Subcontractors' Licenses and Listing. At the time of the Bid Deadline and at all times during performance of the Work, each listed Subcontractor must possess a current and active California contractor license or licenses appropriate for the portion of the Work listed for such Subcontractor and shall hold all specialty certifications required for such Work. When the Bidder submits its Bid to the City, the Bidder must list each Subcontractor whom the Bidder must disclose under Public Contract Code Section 4104 (Subcontractor Listing Law), and the Bidder must provide all of the Subcontractor information that Section 4104 requires (name, the location (address) of the Subcontractor's place of business, California Contractor license number, California Department of Industrial Relations contractor registration number, and portion of the Work). In addition, the City requires that the Bidder list the dollar value of each Subcontractor's labor or services. **The City's disqualification of a Subcontractor does not disqualify a Bidder. However, prior to and as a condition to award of the Contract, the successful Bidder shall substitute a properly licensed and qualified Subcontractor— without an adjustment of the Bid Amount.**

7. Permits, Inspections, Plan Checks, Governmental Approvals, Utility Fees and Similar Authorizations: The City has applied and paid for the following Governmental Approvals and Utility Fees:

NONE

All other Governmental Approvals and Utility Fees shall be obtained and paid for by Contractor and will be reimbursed based on Contractor's actual direct cost without markup. See Instructions to Bidders Paragraph 14, and General Conditions Paragraph 1.01 for definitions and Paragraph 1.03 for Contractor responsibilities.

8. Bid Forms and Bid Security: Each Bid must be made on the Bid Forms obtainable from the City's Bidding website listed in the paragraph 1 above. Each Bid shall be accompanied by a cashier's check or certified check drawn on a solvent bank, payable to "City of Glendale," for an amount equal to ten percent (10%) of the total maximum amount of the Bid. Alternatively, a satisfactory corporate surety Bid Bond for an amount equal to ten percent (10%) of the total maximum amount of the Bid may accompany the Bid. Said security shall serve as a guarantee that the successful Bidder, within fourteen (14) calendar days after the City's Notice of Award of the Contract, will enter into a valid contract with the City for said Work in accordance with the Contract Documents.

9. Bid Irrevocability. Bids shall remain open and valid for ninety (90) calendar days after the Bid Deadline.

10. Substitution of Securities. Pursuant to California Public Contract Code Section 22300, substitution of securities for withheld funds is permitted in accordance therewith.

11. Prevailing Wage Resolution. Bidders are hereby notified that in accordance with the provisions of the Labor Code of the State of California, the City Council of the City has ascertained and determined by Resolution No. 18,626 (as amended), the general prevailing rate of per diem wages of a similar character in the locality in which the Work is performed and the general prevailing rate for legal holiday and overtime Work for each craft or type of worker needed in the execution of agreements with the City. Said resolution is on file in the Office of the City Clerk and is hereby incorporated and made a part hereof by the same as though fully set forth herein. Copies of said resolution may be obtained at the Office of the City Clerk.

12. Prevailing Wages. This Project is subject to the provisions of California Labor Code Section 1720. Contractor awarded this Contract and all Subcontractors of any tier shall not pay less than the minimum prevailing rate of per diem wages for each craft, classification, or type of worker needed to perform the Work. The Director of Industrial Relations of the State of California, pursuant to the California Labor Code, and the United States Secretary of Labor, pursuant to the Davis-Bacon Act, have determined the general prevailing rates of wages in the locality in which the Work is to be performed. The rates determined by the California Director of Industrial Relations are available online at www.dir.ca.gov/DLSR/PWD/. Davis-Bacon wage rates are available online at www.wdol.gov/. To the extent that there are any differences in the federal and state prevailing wage rates for similar classifications of labor, Contractor and its Subcontractors shall pay the highest wage rate.

13. California Department of Industrial Relations — Public Works Contractor Registration.

Beginning **July 1, 2014**, under the Public Works Contractor Registration Law (California Senate Bill No. 854 - See Labor Code Section 1725.5), contractors must register and meet requirements using the online application <https://www.dir.ca.gov/public-works/contractor-registration.html> before bidding on public works contracts in California. The application also provides agencies that administer public works programs with a searchable database of qualified contractors. Application and renewal are completed online with a non-refundable fee of \$300. More information is available at the following links:

<https://www.dir.ca.gov/public-works/PublicWorksSB854.html>

<http://www.dir.ca.gov/Public-Works/PublicWorks.html>

Beginning **April 1, 2015**, the City must award public works projects only to contractors and subcontractors who comply with the Public Works Contractor Registration Law.

Notice to Bidders and Subcontractors:

- No contractor or subcontractor may be listed on a Bid proposal for a public works project (**submitted on or after March 1, 2015**) 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 (**awarded on or after April 1, 2015**) 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.
- The prime contractor must post job site notices prescribed by regulation. (See 8 Calif. Code Reg. Section 16451(d) for the notice that previously was required for projects monitored by the DIR Compliance Monitoring Unit.)

Furnishing of Electronic Certified Payroll Records to Labor Commissioner. **For all new projects awarded on or after April 1, 2015**, contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement).

Dated this ____ day of _____, 20____, City of Glendale, California.

Suzie Abajian, Ph.D., City Clerk of the City of Glendale

INSTRUCTIONS TO BIDDERS

1. CONTRACTOR LICENSE

The Bidder must possess the valid State of California Contractor License(s) in the classification(s) specified in the Notice Inviting Bids at the time of the Bid Deadline and at all times during the performance of the Work, except as otherwise provided in California Business and Professions Code Section 7028.15.

2. INTERPRETATION OF BIDDING DOCUMENTS, SPECIFICATIONS AND ADDENDA

- A. If any Bidder contemplating submitting a Bid is in doubt as to the true meaning of any part of the Bidding Documents, or who finds discrepancies, errors or omissions therein or who finds variances in any of the Bidding Documents with applicable law, such Bidder shall at once submit a written request for an interpretation or correction thereof to the City's representative identified in the Notice Inviting Bids, or other designated individual. All Bidders shall submit such written requests to City, preferably on the Bidder's Question Form provided at the end of these Instructions to Bidders, not less than ten (10) calendar days prior to the Bid Deadline. The person or entity submitting the request shall be responsible for its prompt delivery to City's Contact Person identified in the Notice Inviting Bids. Any interpretation or correction will be made only by Addendum issued by the City and will be posted to the website along with the rest of the bid document. Any Addenda so issued must be acknowledged in the Bid and the cost of performing Work described in the Addenda shall be included in the Bid. Bidder's failure to acknowledge receipt of all Addenda may result in rejection of the Bid as nonresponsive. No person is authorized to render an oral interpretation or correction of any Bidding Documents and no Bidder may rely on any such oral interpretation or correction issued by the City. The City shall not be responsible for any other explanation or interpretation of the Drawings or Specifications, or for any oral instructions. City reserves the right to extend the Bid Deadline by issuing an Addendum to Interested Bidders no later than 72 hours prior to the Bid Deadline. Bidders shall use complete sets of Bidding Documents in preparing Bids; City shall not assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- B. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose. Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued and the Bidder shall acknowledge their receipt in the Bid.

3. OBTAINING DRAWINGS AND DOCUMENTS

Bidder may secure Bidding Documents ONLY from the location specified in the Notice Inviting Bids. Future addenda, if any, will be available for download at the same place as the bidding documents. The City will not mail/deliver the addendums to the prospective bidders. It is the bidders' sole responsibility to check the website to obtain future addenda to this bid document.

4. BID FORMS – SUBMITTAL

- A. The Bids shall be made on the forms provided herein with all blank spaces properly filled in. All forms required to be submitted with the Bid are listed in the Bid Proposal at page F-1.
- B. The phraseology shall not be changed, and no additions shall be made to the items mentioned herein. Unauthorized conditions, exemptions, limitations, or provisions attached to a Bid will render it informal and may cause its rejection. All forms requiring specific information shall be completed with all applicable information for a Bid to be considered responsive. Special attention should be given to completing:

1. Bidder's Statement of Qualifications;
 2. Specialty Contractor's Statement of Qualifications; and
 3. Designation of Subcontractors
 - C. Include all Bid Forms, properly executed, and intact on forms provided. Enclose the Bid Forms in a sealed envelope; type or print on the envelope "BIDS for" followed by the title and Specification Number and the date and time of the Bid Deadline as they appear on the cover of this Specification book, and the Bidder's name and address. The envelope may be mailed, hand delivered, or delivered by courier or package delivery service.
 - D. Bids hand delivered, delivered by courier or package delivery service shall be presented to:

City Clerk
City of Glendale
613 E. Broadway, Room 110
Glendale, CA 91206
 - E. Bids received after the Bid Deadline or at any place other than the Office of the City Clerk will not be considered.
5. BID FORMS – AUTHORIZED SIGNATURES
- The Bidder shall sign the Bid Forms. If the Bid Forms are submitted by:
- A. **A Sole Proprietorship**, the signature must be the full name of the individual, whose address must be given.
 - B. **Partnership**, it must be signed by each partner or accompanied by proof that the person(s) signing is/are authorized to bind the partnership. The name and address of the partnership and the address of person signing must be provided.
 - C. **Corporation**, it must be signed by an officer. The corporate name must be attested by the corporate seal. A signature other than a corporate officer's will be accepted only if signature authority is conferred in the Incumbency Certificate submitted with the Bid.
 - D. **A Limited Liability Company**, it must be signed by the managing member(s), and the name and address of the limited liability company and the address of each person signing must be provided.
 - E. **Joint Venture**, it must be signed in accordance with A-D above, based on the applicable situation, and the names and address of the joint venture and the address of each person signing must be provided.
6. BID FORMS – SCHEDULE OF BID PRICES
- A. The Bidder shall include in his/her Bid price(s) any and all expense or costs that may be necessary to complete the project in accordance with the requirements of the Contract.
 - B. The Bidder shall state for each item on the Schedule of Bid Prices form, in clearly legible figures, the Base Bid, the alternates, and the unit price and item total or lump sum, as the case may be, for which he/she proposes to supply labor, materials, and equipment and to perform the Work. Bids must not contain any erasures, interlineations, strike-throughs or other corrections unless the same are suitably authenticated by affixing in the margin immediately opposite such erasure or correction the

initials of the person(s) signing the Bid. If any Bid, or portions thereof, is determined by the City to be illegible, ambiguous or inconsistent, City may reject such a Bid as being non-responsive.

- C. In the case of a unit price item, the amount set forth, as the item total shall be the product of the estimated quantity times the unit price Bid. In the event of a discrepancy between the unit price Bid and the item total, the unit price shall prevail; however, if the unit price is ambiguous, unintelligible, or uncertain for any cause, or is omitted, or is the same amount as the entry for the item total, then the item total shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price. Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the amount written in words shall govern.
- E. Post Bid Interviews. The **apparent low, second low, and third low Bidders** may be asked to attend a Post Bid Interview to review the completeness and accuracy of their Bids and qualifications to perform the Work. Upon City's request, such Bidders will be required to submit a detailed phasing plan, a Preliminary Schedule of Values for Payment equal to the Bid price, schedule of submittals, and confirmation of key personnel who will be dedicated to the Project for the duration of the Work. The detailed phasing plan will be reviewed and the qualifications of listed specialty contractors will be discussed. The Schedule of Values for Payment shall include separate line items for direct jobsite general conditions costs, field office overhead, and home office overhead and such other information as the City may require.

7. BID SECURITY

- A. Each Bid shall be accompanied by cash or a cashier's check or a certified check, drawn on a responsible bank doing business in the United States payable to the City, or a satisfactory Bid Bond in favor of the City executed by the Bidder as a principal and a California admitted surety company (as defined by California Code of Civil Procedure Sections 995.120 and 995.311) as surety ("Bid Security").
- B. A Bid Bond must be issued by a California admitted surety insurer with the minimum A.M Best Company Financial strength rating of "A:VII" or better. A Bid Bond issued by a California admitted surety not listed on Treasury Circular 570 will be deemed accepted unless specifically rejected by the City. A Bid Bond issued from an admitted surety insurer not listed in Treasury Circular 570 must be accompanied by all documents enumerated in California Code of Civil Procedure Section 995.660.
- C. Bid Security shall be in an amount not less than 10% of the Base Bid. Any Bid submitted without Bid Security will be rejected as non-responsive. The Bid Security shall be given as a guarantee that the successful Bidder shall execute the Construction Contract and shall provide the insurance, bonds and other required forms within fourteen (14) calendar days after the City's Notice of Award of the Contract. Bidders will be entitled to return of Bid Security provided, however, that a successful Bidder will forfeit Bid Security in the event that the successful Bidder withdraws its Bid prior to the expiration of ninety (90) calendar days after the Bid Deadline; or attempts to withdraw its Bid when the requirements of Public Contract Code Section 5101 *et seq.* are not met; or refuses or fails to execute said Contract and provide the required bonds, insurance or certificates within fourteen (14) calendar days after the City's Notice of Award of the Contract. In such event, if City awards the Contract for the Work to the next lowest responsible Bidder, the amount of the lowest responsible Bidder's Bid Security shall be applied to the Contract Price differential between the lowest Bid and the second lowest Bid and the surplus, if any, will be returned to the lowest Bidder. If the City rejects all other Bids presented and re-advertises, the lowest Bidder's Bid Security may be used to offset the City's cost of re-advertising and receiving new Bids and the surplus, if any, will be returned to the lowest Bidder.

- D. The Bid Security shall be held for ninety (90) calendar days after Bid Deadline or until posting by the successful Bidder of the payment and performance bonds, proof of insurance, return of executed copies of the Contract and necessary certification(s), whichever first occurs, at which time the Bid Security will be returned to all Bidders.
- E. If a Bid Bond will be submitted, Bidder shall use the form entitled "Bid Bond" contained in the Bidding Documents at page F-19, which Bid Bond must be properly executed and acknowledged by the Bidder and by a corporate surety authorized to transact such business in the State of California.
- F. The Bid Bond must be accompanied by a power of attorney from the surety company authorizing the person executing the bond to sign on behalf of the company. The signature of the person executing the bond on behalf of Surety must be acknowledged by a Notary Public as the signature of the person designated in the power of attorney.
- G. Any alteration of the form of Bid Bond, or imperfection in the execution thereof, as herein required, will render it informal and may, at the option of the City, result in the rejection of the Bid under which the Bid Bond is submitted.

8. BIDDER'S AND SPECIALTY CONTRACTOR'S STATEMENT OF QUALIFICATIONS

- A. Each Bidder shall be required to complete, execute and submit with its Bid, the form entitled "Bidder's Statement of Qualifications." In addition, if the Bidder intends to perform Fiber Optic and Traffic Signal Work, Bidder shall satisfy the mandatory qualifications described in the Specialty Contractor's Statement of Qualifications (starting at page F-33) applicable to such Work and submit the completed forms with the Bid. **Subcontractors** listed for the Fiber Optic and Traffic Signal Work must satisfy the mandatory qualifications described in the Specialty Contractor's Statement of Qualifications (starting at page F-33) applicable to the Work to be performed by each Subcontractor and Bidder must submit the completed forms with the Bid. Notwithstanding the provisions of Paragraph 22 herein, the Bidder's Statement of Qualifications, financial statements, and the Specialty Contractor's Statement of Qualifications shall not be public records. All information required by a Bidder's or Specialty Contractor's Statement of Qualifications shall be completely and fully provided. If no information is to be filled in a blank space, then write "none." Any Bid not accompanied by a Bidder's Statement of Qualifications and Specialty Contractor's Statement of Qualifications form completed with all information required may render the Bid non-responsive. If the City determines that any information provided by a Bidder in the Bidder's Specialty Contractor's Statement of Qualifications is false or misleading, or is incomplete so as to be false or misleading, the City may reject the Bid submitted by such Bidder as being non-responsive.
- B. A responsible Bidder is a Bidder who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity and experience to satisfactorily perform fully the requirements of the contract documents. In selecting the lowest responsible Bidder, consideration will be given not only to the financial standing but also to the general competency of the Bidder for the performance of the work covered by the Bid including, but not limited to, the experience of the Bidder in construction of public buildings for public agencies. By submitting a Bid, each Bidder agrees that the City, in determining the successful Bidder and its eligibility for the award, may consider the Bidder's experience with similar types of construction projects and facilities, conduct and performance under other contracts, financial condition, reputation in the industry, and other factors which could affect the Bidder's performance of the work.
- C. Glendale Ordinance No. 5544 adds Chapter 4.14 to the Glendale Municipal Code, 1995, establishing standards of responsibility and grounds for debarment for contractors who bid on public works contracts. Chapter 4.14 applies to all contracts awarded by, executed by or entered into by the City. Each Bidder is advised that the standards of Chapter 4.14 will be strictly enforced by the City.

9. DESIGNATION OF SUBCONTRACTORS

- A. Subcontractor Listing. On the Designation of Subcontractors form (page F-43), the Bidder shall list each Subcontractor whom the Bidder must disclose under the Subletting and Subcontracting Fair Practice Act, Public Contract Code Section 4104. The Bidder shall provide each Subcontractor's name, identify the trade and type of work that the Subcontractor will perform, state the location (address) of the Subcontractor's place of business, list the Subcontractor's California Contractor license number, and list the Subcontractor's Department of Industrial Relations contractor registration number. **In addition, on the form the Bidder shall list the dollar value of each Subcontractor's labor or services.** If additive Alternate Bid Items are included in the Bidding Documents, the Bidder shall identify each Subcontractor performing additive Alternate Bid Items, when such Work — or the combination of base Contract Work and Alternate Work — exceeds one-half of one percent of the total Bid Amount.
- B. Subcontractors' Licenses. At the time of the Bid Deadline and at all times during performance of the Work, each listed Subcontractor must possess a current and active California Contractor license appropriate for the portion of the Work listed for such Subcontractor and shall hold all specialty certifications required for such Work. An inadvertent error in listing the California contractor license number of a listed Subcontractor shall not be grounds for filing a bid protest or grounds for considering the Bid nonresponsive if the corrected contractor license number is submitted to the City by the Bidder within 24 hours after bid opening and provided the corrected contractor license number corresponds to the submitted name and location for that listed Subcontractor.
- C. Disqualification of a Subcontractor. The City has the right to review the suitability and qualifications of any Subcontractor proposed by the Bidder. As part of this review, the City may request a Bidder to submit additional information about one or more of the listed Subcontractors—including, but not limited to—an experience statement with pertinent information as to similar projects and other evidence of qualification for the Subcontractor. If requested, the Bidder shall provide the information to the City within the time specified in the City's written request. After due investigation, if the City has reasonable objection to any proposed Subcontractor, the City may, before giving the notice of award, require the apparent successful Bidder to submit an acceptable substitute. **The City's disqualification of a Subcontractor does not disqualify a Bidder. However, prior to and as a condition to award of the Contract, the successful Bidder shall substitute a properly licensed and qualified Subcontractor— without an adjustment of the Bid Price.**
- D. Work of Subcontractors. The organization or arrangement of the Specifications and Drawings do not limit the extent of the Work for the Contract Documents. Accordingly, all Bidders are encouraged to disseminate all of the Specifications, Drawings and other Contract Documents to all persons or entities submitting sub-bids to the Bidder. The omission of any portion or item of Work from the Bid or from sub-bids, which is reasonably inferable from the Contract Documents, will not be a basis for adjustment of the Contract Price or the Contract Time.
- E. Ineligible Subcontractors. The successful Bidder is prohibited from performing Work on the Project with any Subcontractor who is ineligible to perform work on a public works project pursuant to California Labor Code Sections 1777.1 or 1777.7. In submitting its Bid, the Bidder certifies that it has investigated the eligibility of each and every listed Subcontractor and has determined that none is ineligible to perform work pursuant to the above code provisions.

10. CONTRACTOR'S NONCOLLUSION DECLARATION

Using the form provided by the City, the Bidder shall sign, under penalty of perjury, the Contractor's Declaration of Noncollusion, certifying that the Bid is not the result of and has not been influenced by collusion.

Bidder shall submit this form with its Bid. Any Bid made without such declaration, or believed to be made in violation of the requirements set forth in the declaration form, may be rejected.

11. INSURANCE REQUIREMENTS AFFIDAVIT

The Bidder shall submit to its insurance company or insurance agent the Insurance Requirements in this Specification and the Contract Documents. The insurance company's underwriter or agent must complete the Insurance Requirements Affidavit which states that the insurer's underwriter or agent will furnish the City with the required insurance documents within fourteen (14) calendar days after the City's Notice of Award of the Contract. The Bidder shall submit this form with its Bid. Any Bid made without this affidavit, or made with an incomplete affidavit form, may be rejected.

12. EXAMINATION OF DRAWINGS, SPECIFICATIONS, AND SITE OF WORK

- A. The Bidder shall examine carefully the site of the Work contemplated and the Drawings and Specifications. The submission of a Bid will be conclusive evidence 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, the difficulties to be encountered, and to the requirements of the Drawings, Specifications, and other Contract Documents. The Bidder shall ascertain the locations of the existing utility services, and other underground facilities, and to provide for carrying out his/her operations so as to cause the minimum possible inconvenience to the occupants of property along any streets affected. All Work and costs involved in the safeguarding of the property of others shall be at the expense of the Bidder to whom the Contract may be awarded.
- B. The Bidder hereby certifies that he has examined the local conditions, has read each and every clause of the Contract Documents, and that he/she has included all costs necessary to complete the specified Work in his/her Bid prices, and the Bidder agrees that if he/she is awarded the Contract he/she will make no claim against the City based upon ignorance of local conditions or misunderstanding of any of the provisions of the Contract. Should the conditions turn out otherwise than anticipated by him/her, the Bidder agrees to assume all risks incident thereto.

13. PRICES AND PAYMENTS

Approximate quantities listed in the Notice to Contractors and quantities if listed for unit price items on the Bid Forms, are estimates given for comparing Bids, will be used to determine the lowest bid and for pricing changes to the Work. No claim shall be made against the City for excess or deficiency therein, actual or relative. Payment at the prices agreed upon will be in full for the completed Work and will cover materials, supplies, labor, tools, equipment, and all other expenditures incident to a satisfactory compliance with the Contract, unless otherwise specifically provided.

14. PERMIT FEES

Contractor shall be reimbursed for the actual direct cost of all Permit Fees, as defined in Paragraph 1.01 and addressed in 1.03 of the General Conditions. Bidder shall exclude the cost of Permit Fees from Bidder's Base Bid sum and from Bid Alternate prices. The Base Bid sum and Bid Alternate prices shall include the cost of administration and coordination for all Governmental Approvals and Utility Fees.

15. SUBSTITUTIONS

No requests for substitution of any material, device, product, equipment, fixture, form, or type of construction shall be considered by City prior to award of the Contract. Bidders shall submit all requests for substitution and substantiating data, on "Substitution Form" (Appendix 5), within forty-five (45) calendar days from the date of the Notice to Proceed. Bidder shall refer to the appropriate provisions of the General Conditions for

additional information regarding substitutions. Authorization of a substitution is solely within the discretion of the City.

16. RETURN OF IMPROPER BIDS

Bids submitted after the Bid Deadline are non-responsive and shall be returned to the Bidder unopened. Oral, telephonic, telegraphic, facsimile or electronically transmitted Bids shall not be considered unless the Notice Inviting Bids expressly permits such means of transmittal.

17. WITHDRAWAL OF BIDS

Bidder may withdraw its Bid either personally or by written request any time prior to the scheduled Bid Deadline by notice to the City's Contact Person designated in the Notice Inviting Bids. If such notice is written, it shall be signed by the Bidder and shall be date-stamped and time-stamped by the City upon receipt. Withdrawn Bids may be resubmitted before the Bid Deadline provided that they are in full conformance with these Instructions to Bidders. Once submitted, all Bids are irrevocable, except as otherwise provided by law. Requests for withdrawal of Bids after the Bid Deadline shall be made only in accordance with California Public Contract Code Sections 5100, *et seq.* Bidder agrees by submitting a Bid that such Bid shall remain open, is irrevocable, and may not be modified, withdrawn, or cancelled for a period of ninety (90) days after Bid Deadline.

18. OPENING AND EVALUATION OF BIDS

A. Bid Opening and Tabulation. The Bids shall be opened and read in public after the Bid Deadline has expired at the time and location listed in the Notice Inviting Bids. A tabulation of all Bids received will be available for public inspection at 633 E. Broadway, Room 205, Glendale, CA in the Public Works Engineering Department during regular business hours for a period of not less than thirty (30) calendar days following the Bid Deadline. The City reserves the right to accept or reject any or all Bids and be the sole judge regarding the suitability of the products, services or supplies offered; and/or to waive any irregularities or informalities in any Bids or in the bidding process. The City further reserves the right to purchase all or fewer than all items or quantities of each item listed in the Bidding Documents. The award of the Contract, if made by the City, shall be to the lowest responsive and responsible Bidder. If Bid Alternate Items are called for, the lowest Bid shall be determined according to Paragraph 20 below.

B. Evaluation of Bids

1. **Mandatory Qualifications.** A Bid may be rejected as non-responsive if the **Bidder** fails to document in the Bid that Bidder meets the essential requirements for qualification described in the Notice Inviting Bids. As part of the Bidder's Statement of Qualifications (in Section 3 EXPERIENCE, item 3.2), each Bidder must establish that Bidder has the required experience as set forth in the Mandatory Qualifications paragraph of the Notice Inviting Bids for this Project. The City's disqualification of a **Subcontractor** listed for the **Traffic Signal and Fiber Optic Work** does not disqualify a Bidder. However, prior to and as a condition to award of the Contract, the successful Bidder shall substitute a properly licensed and qualified Subcontractor — without an adjustment of the Bid Price.
2. **Responsive Bid.** A responsive Bid is a Bid which conforms, in all material respects, to the Bidding Documents.
3. **Responsible Bidder.** A responsible Bidder is a Bidder who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity and experience to satisfactorily perform fully the requirements of the Contract Documents.

4. Competency of Bidders. In selecting the lowest responsible Bidder, consideration will be given not only to the financial standing but also to the general competency of the Bidder for the performance of the Work covered by the Bid including, but not limited to, the experience of the Bidder in construction of public works for public agencies. By submitting a Bid, each Bidder agrees that the City, in determining the successful Bidder and its eligibility for the award, may consider the Bidder's experience with similar types of construction projects and facilities, conduct and performance under other contracts, financial condition, reputation in the industry, safety record and protocols and other factors which could affect the Bidder's performance of the Work.

19. AWARD OF CONTRACT

The City reserves the right to reject any or all Bids and to waive any or all information or technical defects, as the interest of the City may require. Award of Contract or rejection of Bids will be made by the City within ninety (90) calendar days following the Bid Deadline. City Council meetings are regularly scheduled on Tuesday evenings.

20. BASIS OF AWARD

- A. A Contract will be awarded to the lowest responsive and responsible Bidder meeting all requirements set forth in these Bidding Documents.

City will determine the lowest Bid price based on the total of lowest Base Bid price and all Bid Alternate prices.

After the lowest responsive and responsible Bidder is determined, City reserves the right in its sole discretion to select any, all, or none of the Bid Alternates at the time of award of the Contract, regardless of whether such Bid Alternates were used in the analysis to determine the lowest Bid price.

- B. In making the determination as to lowest responsive and responsible Bidder, the following criteria will apply:
 1. Qualifications of Bidder: The Bidder shall be a qualified Bidder as required in this Paragraph 18(B) and as otherwise required in the Contract Documents.
 2. Responsive Bid: The Bidder's Bid shall be responsive to the requirements of the Contract Documents. As stated elsewhere, the City reserves the right to waive any informalities or technical defects of the Bid as the best interests of the City may require.

21. EXECUTION OF CONTRACT

Within fourteen (14) calendar days after the City's Notice of Award of the Contract, Contractor shall deliver to the City the following documents:

- A. Three (3) copies of the Contract in the form included herein, properly executed by Contractor and, if the Contractor is a corporation, evidence of its corporate existence and that the persons signing the Contract are authorized to do so. All signatures must be notarized.
- B. Properly executed copies of the (a) Performance Bond and (b) Labor and Material (Payment) Bond in accordance with the requirements set forth in Article 13 of the General Conditions and in the form shown on Appendix 1 and 2 attached thereto. All signatures must be notarized.

- C. Properly executed policies of (a) the Commercial General Liability Insurance, (b) the Automotive Liability Insurance, (c) the Excess or Liability Insurance, (d) the Waiver of Subrogation Clause, (e) Professional Liability, if required, and (f) the corresponding endorsements for each policy in accordance with the requirements set forth in Article 12 of the General Conditions.

In the event that the fourteenth calendar day falls on Saturday, Sunday, a legal holiday for the State of California, or on days when City Hall is closed, the aforesaid documents shall be delivered by the following Working Day.

After receipt of said documents within said time period or any extension thereof granted by the City, the City shall execute the Contract and return one (1) of said three (3) copies to Contractor for his/her files.

22. PUBLIC RECORDS

City seeks to conduct its business openly. Upon opening, all Bids shall become a matter of public record and shall be regarded as public, with the exception of those elements of each Bid that are identified by the Bidder and plainly marked as "trade secret," "confidential," or "proprietary," including any Statement of Qualifications and financial statements to be submitted by Bidders. Each element of a Bid which a Bidder desires not to be considered a public record must be clearly marked as set forth above, and any blanket statement (i.e. regarding entire pages, documents, or other, non-specific designations) shall not be sufficient and shall not bind the City in any way whatsoever. If City receives a request from a third party to make a Bid available for inspection and copying, the City will notify the Bidder of the request. If a Bidder instructs the City that the information is not to be released, City will withhold the information, provided, the Bidder expeditiously seeks a protective order from a court of competent jurisdiction to prevent such release. If disclosure is required under the California Public Records Act or otherwise by law (despite the Bidder's request for confidentiality), the City shall not in any way be liable or responsible for the disclosure of any such records or part thereof. Bidder shall indemnify, defend (including Bidder's providing and paying for legal counsel for City), and hold harmless City, its officers, agents, employees, and representatives from and against all liability, claims, suits, demands, damages, fines, penalties, costs, or expenses arising out of or alleging City's refusal to publicly disclose one or more records that Bidder identifies as protectable, or asserts is protectable.

23. PREVAILING WAGE RATES AND EMPLOYMENT OF APPRENTICES

- A. Prevailing Wage Rates. The Bidder and all Subcontractors shall utilize the relevant prevailing wage rate determinations in effect on the first advertisement date of the Notice Calling for Bids in preparing the Bid Proposal and all component price quotations, provided, however, that when Davis Bacon wage rates apply, such rates are subject to increase by written notice, issued by Addendum not less than 10 calendar days before the Bid Deadline. Pursuant to California Labor Code Section 1770 *et seq.*, the Director of the Department of Industrial Relations of the State of California and the United States Secretary of Labor have determined the general prevailing wage rates in the locality in which the Work is to be performed. Said rate schedules are available the Internet at www.dir.ca.gov/DLSR/PWD/ and www.wdol.gov/. If there is a difference in the Federal and State prevailing wage rates for similar classifications of labor, the Contractor and its Subcontractors shall pay the highest wage rate. The wage rate for any classification not listed, but which may be required to execute the Work, shall be commensurate and in accord with specified rates for similar or comparable classifications for those performing similar or comparable duties. To comply with California Labor Code Section 1773.2 the Contractor shall post, at appropriate and conspicuous locations on the job site, a schedule showing all applicable prevailing wage rates and shall also comply with the requirements of California Labor Code Section 1773 *et seq.*
- B. Apprenticeship Committee Contract Award Information. Pursuant to California Labor Code Section 1777.5 and Title 8 of the California Code of Regulations Section 230, the Contractor and Subcontractors of any tier who are not already approved to train by an apprenticeship program

sponsor shall, within ten (10) calendar days of signing the Contract or subcontract, as applicable, but in any event prior to the first day in which the Contractor or Subcontractor has workers employed on the Project, submit the Public Works Contract Award Information form (DAS Form 140) to the appropriate local apprenticeship committees whose geographic area of operation include the area of the Project and who can supply apprentices to the Project. City reserves the right to require Contractors and Subcontractors to submit a copy of said form to the City.

- C. Statement of Employer Fringe Benefit Payments. Within five (5) calendar days of signing the Contract or subcontract, as applicable, the Statement of Employer Payments (DLSE Form PW 26) shall be completed for each Contractor and Subcontractor of any tier who pays benefits to a third party trust, plan or fund for health and welfare benefits, vacation funds or makes pension contributions. The form must contain, for each worker classification, the fund, plan or trust name, address, administrator, the amount per hour contributed and the frequency of contributions. Training fund contributions shall also be reported in this form. City reserves the right to require Contractors and Subcontractors to submit a copy of said form to the City.
- D. Notice to Subcontractors. Bidders shall notify all potential Subcontractors submitting price quotations for portions of the Work of the requirements concerning payment of prevailing wage rates, payroll records, hours of Work, and employment of apprentices.

24. ANTI-DISCRIMINATION

It is policy of the City that in connection with all Work performed under contracts, there shall be no discrimination against any prospective or active employee engaged in the Work because of race, color, religion, religious belief, national origin, ancestry, citizenship, age, sex, sexual orientation, marital status, pregnancy, parenthood, medical condition, or physical or mental disability. The Contractor shall comply with all applicable Federal and California laws including, but not limited to, the California Fair Employment and Housing Act (California Government Code Section 12900, *et seq.*), California Labor Code Section 1735, and The Americans with Disabilities Act of 1990 (42 U.S.C. 12101 *et seq.*). The Contractor shall require like compliance by all Subcontractors employed on the Work by such Contractor.

BID PROTEST PROCEDURES

- A. Any Bidder submitting a Bid directly to the City and eligible for award of the Contract may file a protest if the Bidder complies with all of the following requirements and conditions:
 - 1. The Bid protest is in writing;
 - 2. A protest based upon alleged defects or improprieties in the Contract Documents is filed with the City prior to the Bid Deadline;
 - 3. All other protests are filed and received by the City no more than five (5) calendar days following the Notice of Intent to Award the Contract; and
 - 4. The written Bid protest sets forth, in detail, all grounds for the Bid protest, including without limitation: all facts, supporting documentation, legal authorities, and argument in support of the grounds for the Bid protest. All factual contentions must be supported by competent, admissible, and credible evidence.
- B. Any matters not set forth in the written Bid protest will be deemed waived. Any Bid protest not conforming to the foregoing requirements and conditions will be rejected by the City as invalid. The City's decision on the protest will be made by the Director of Public Works.

- C. If a dispute arises out of the City's acceptance of a Bid, the Bidder receiving award of the contract shall indemnify, defend (with counsel acceptable to City), and hold harmless the City, its City Council members, employees, and agents from liability, claims, demands, damages and costs arising therefrom.

BIDDER'S QUESTION FORM

(Please Print or Type)

Fax Bidder's Questions to Public Works Engineering Department

Attention: Rustom Tavitian, P.E., Project Manager

E-mail: RTavitian@glendaleca.gov

Fax: 818-242-7087

Project: La Crescenta Avenue Rehabilitation Project
Specification No.: 3829

Date: _____

Name: _____ Phone: (____) _____

Position: _____ Fax: (____) _____

Firm Name: _____

Address: _____

Drawings Reference (Sheet/Detail): _____

Specifications Reference: (Section/Article): _____

Question: _____

IF CITY DETERMINES A RESPONSE IS NECESSARY, IT WILL BE ISSUED TO ALL INTERESTED BIDDERS
BY ADDENDUM.

Note: Please use additional sheets if you need more space for question(s).

BIDDING FORMS

BID FORMS

SCHEDULE OF BID PRICES

The undersigned Bidder submits this Bid in response to the Notice Inviting Bids issued by the City to construct the Work of the following Project in accordance with the Contract Documents:

PROJECT: La Crescenta Avenue Rehabilitation Project, Specification No. 3829

BIDDER'S NAME: _____

Deliver or mail to: Office of City Clerk
City of Glendale
613 E. Broadway, Room 110
Glendale, California 91206

A. **Enclosed herewith this letter** and by this reference incorporated herein and made a part of this Bidder's Bid are the following completed forms:

1. Bidder's Proposal
2. Schedule of Bid Prices
3. Incumbency Certificate
4. Bid Security in the following form (*check one*):

☐ Cashier's Check ☐ Certified Check ☐ Bid Bond ☐ Cash

5. Bidder's Statement of Qualifications
6. Experience Form
7. Specialty Contractor's Statement of Qualifications (ETA)
8. Specialty Contractor's Statement of Qualifications (IMSA)
9. Contractor's References – All Projects
10. Contractor Safety Questionnaire
11. Questionnaire Regarding Subcontractors
12. Designation of Subcontractors
13. Contractor's Declaration of Noncollusion
14. Insurance Requirements Affidavit

B. **Acknowledgment of Addenda.** The Bidder shall acknowledge the receipt of Addenda by placing an "X" by each Addendum received:

Addendum No. 1 ☐
Addendum No. 2 ☐
Addendum No. 3 ☐

BID FORMS

SCHEDULE OF BID PRICES

Addendum No. 4 ☐

Addendum No. 5 ☐

If an Addendum or Addenda have been issued by the City and not noted above as being received by the Bidder, the Bid may be rejected.

C. Inspection of the Work and Contract Documents. Bidder certifies that it has carefully examined and is fully familiar with all of the provisions of the Bidding Documents and said Bidding Documents contain sufficient detail regarding the Work to be performed; that it has notified City of any errors or omissions in the Bidding Documents and/or any unusual site conditions; and that it has carefully checked all words, prices, and statements in this Bidding Document.

D. Bidder hereby certifies that he/she and his/her Subcontractors have inspected the site and related Drawings and Specifications of Work and fully acquainted themselves with all conditions and matters which may in any way affect the Work, time of completion or the costs thereof. Bidder also certifies he/she has observed the designated Contractor Work areas and access routes, if disclosed or shown, as part of the Work in this Contract.

SITE INSPECTION – CERTIFICATION:

Person(s) who inspected site of the proposed Work for your firm:

Name: _____

Date of Inspection: _____

Title: _____

Name: _____

Date of Inspection: _____

Title: _____

E. Optional Virtual Pre-Bid Meeting. Bidder hereby certifies that he/she and/or his/her Representative from Bidder's firm attended the Optional Virtual Pre-Bid Meeting on the date and time established in the Notice Inviting Bids.

OPTIONAL VIRTUAL PRE-BID MEETING – CERTIFICATION:

Person(s) from your firm who attended the Optional Virtual Pre-Bid Meeting for your firm:

Name: _____

Title: _____

Name: _____

Title: _____

F. Bidder agrees that all costs of Work shown in the Bidding Documents, including work reasonably inferable therefrom and necessary thereto, are included in his/her Bid. All Work shown in the Contract Documents for which a specific line item is not provided in the Bidding Form is included in the Bidder's Base Bid sum. Contractor shall be reimbursed for the actual direct cost of all Permit Fees, as defined in Paragraph 1.01 and addressed in Paragraph 1.03 of the General Conditions. Bidder shall **exclude** the cost of Permit Fees from Bidder's Base Bid sum. Base Bid sum shall **include** the cost of administration and coordination of Governmental Approvals and Utility Fees. Bidder agrees that City will not be responsible for any errors or omissions on the part of the undersigned in making this Bid.

BID FORMS

SCHEDULE OF BID PRICES

G. Forfeiture of Bid Security. Bidder further agrees that, in case of his/her default in executing the required Contract and the required bonds, or furnishing the required insurance, the money payable under the Bid Security accompanying this Bid shall be applied by the City towards payment of the damage to the City on account of such default, as provided in the Bidding Documents.

H. Period of Irrevocability. Bidder agrees that this Bid shall remain open and shall not be withdrawn for a period of not less than ninety (90) calendar days after bid deadline, or until rejected by the City, whichever period is shorter.

I. Bid Dispute Indemnification. In the event of a Bid dispute or protest based upon the Bidder's submission of this Bid and the City acceptance of same, the Bidder receiving award of the Contract will be required to indemnify, defend (with counsel acceptable to City), and hold harmless at Bidder's expense, the City, its City Council members, its agents, employees, and officers from liability, claims, demands, damages, and costs arising therefrom.

J. The California contractor license number listed below has been issued to the undersigned Bidder. This license has not been revoked or suspended and is in full force and effect and authorizes the undersigned Bidder to perform the Work under these Contract Documents. If Bidder is a joint venture and has not yet been issued a license, indicate the license number to be used for the joint venture and attach documentation providing assurances that the license will be issued on or before the award of the Contract.

K. Bidder certifies that before submitting this Bid, Bidder and Bidder's listed subcontractors have met the requirements of the Public Works Contractor Registration Law (California Senate Bill No. 854 - Labor Code Section 1725.5) and have registered with the California Department of Industrial Relations (DIR).

I hereby certify under penalty of perjury under the laws of the State of California that the representations made herein are true and correct.

Executed this _____ day of _____ at _____, _____
City State

COMPANY NAME: _____

ADDRESS: _____

CONTACT PERSON: _____

TELEPHONE NUMBER: _____ FAX NUMBER: _____

E-MAIL: _____

CONTRACTOR LICENSE NO.: _____

LICENSE CLASS: _____ EXPIRATION DATE: _____

DEPARTMENT OF INDUSTRIAL RELATIONS

CONTRACTOR REGISTRATION NO.: _____ EXPIRATION DATE: _____

TAX IDENTIFICATION NO.: _____

SURETY COMPANY: _____

BID FORMS

SCHEDULE OF BID PRICES

All Bid forms must be signed where so indicated by the person or persons duly authorized to sign on behalf of the Bidder [see page IB-2, Paragraph 5 A-E]. By signing the Bid, the person signing is deemed to represent that he or she has authority to bind the Bidder. Failure to sign the Bidder's Proposal may invalidate the Bid.

BIDDER'S PROPOSAL – SIGNATURE(S):

Form of Entity of Bidder:

Please check the appropriate signature block below and fill in all related information.

☐

Sole Proprietorship:

By: _____ Title: _____
Printed name of person signing

Signature

☐

Partnership: ☐ General Partner ☐ Limited Partner

By: _____ Title: _____
Printed Name of person signing

Signature

☐

Corporation:

By: _____ Corporate Officer Title: _____
Printed Name of person signing

Signature

Corporate Seal

☐

Joint Venture: ☐ Corporation ☐ Partnership
☐ Individual ☐ Other _____

By: _____ Title: _____
Printed Name of person signing

Signature

BID FORMS

SCHEDULE OF BID PRICES

☐

Limited Liability Company:

By: _____
Printed Name of person signing

Title: _____

Signature

BID FORMS

SCHEDULE OF BID PRICES

PROJECT: La Crescenta Avenue Rehabilitation Project, Specification No. 3829

BIDDER'S NAME: _____

BASE BID

Pursuant to and in compliance with your Notice Inviting Bids and Contract Documents relating to the Project including all Addenda, Bidder, having become thoroughly familiar with the terms and conditions of the Contract Documents and with local conditions affecting the performance and the costs of the Work at the place where the Work is to be done, hereby proposes and agrees to furnish and install everything necessary for and incidental to fully perform the base Contract Work within the time stated in strict accordance with the Contract Documents for the **Base Bid** price of:

Dollars (\$ _____)

(written dollar amount)

(dollar amount)

La Crescenta Avenue Street Improvements Plan No. 1-3071					
Item No.	Article	Estimated Quantity	Units	Unit Price	Total Price
1	PAVEMENT REMOVAL AND GRADING	528	CY		
2	PAVEMENT REMOVAL, SURFACE PLANE (2-INCHES)	14,223	SY		
3	PAVEMENT REMOVAL, SURFACE PLANE (3-INCHES)	39,292	SY		
4	OVER-EXCAVATION OF SUB-GRADE (2-INCH TO 6-INCH DEEP) *	541	CY		
5	CRUSHED AGGREGATE BASE	219	TONS		
6	CRUSHED MISCELLANEOUS BASE	1,529	TONS		
7	ASPHALT CONCRETE PAVEMENT (SURFACE AND BASE COURSE)	1,194	TONS		
8	ASPHALT CONCRETE (LEVELING COURSE)	2,739	TONS		
9	ASPHALT RUBBER HOT MIX (ARHM)	6,698	TONS		

BID FORMS

SCHEDULE OF BID PRICES

10	ASPHALT RUBBER AGGREGATE MEMBRANE (ARAM)	12,174	SY		
11	CONSTRUCT P.C.C. CURB	2,376	LF		
12	CONSTRUCT INTEGRAL P.C.C. CURB AND GUTTER	2,940	LF		
13	CONSTRUCT 4-INCH P.C.C. PAVEMENT (SIDEWALK, WALKWAY, CURB RAMPS)	31,727	SF		
14	CONSTRUCT 5-INCH P.C.C. PAVEMENT (RESIDENTIAL DRIVEWAY AND APPROACH)	2,479	SF		
15	CONSTRUCT 6-INCH P.C.C. PAVEMENT (ALLEY APRON, COMMERCIAL DRIVEWAY AND APPROACH)	1,587	SF		
16	CONSTRUCT 8-INCH P.C.C. PAVEMENT (LOCAL DEPRESSION, CROSS GUTTER)	10,588	SF		
17	CONCRETE GRINDING	12	LF		
18	MODIFY/EXTEND EXISTING CATCH BASIN OPENING	1	LS		
19	RECONSTRUCT/REMODEL CURB DRAIN	8	EA		
20	REMOVE EXISTING PAVEMENT (AC/PCC/BRICK PAVEMENT OR LANDSCAPING)	3,205	SF		
21	REGRADE AND INSTALL GROUND COVER/GRASS LAWN TO MATCH EXISTING	2,361	SF		
22	ADJUST/REPLACE TRAFFIC SIGNAL PULL BOX AND COVER	8	EA		
23	PLANT 24-INCH BOX TREE (VARIOUS TYPES IN TREE WELL/PARKWAY)	20	EA		
24	SAWCUT AND REMOVE EXISTING P.C.C. SIDEWALK AND EXPAND TREE WELL	324	SF		
25	RELOCATE EXISTING BUS BENCH AND SIGN TO PROPOSED LOCATION	1	LS		
26	INSTALL CAST-IN-PLACE DETECTABLE WARNING SURFACE ON ADA CURB RAMPS	642	SF		
27	RELOCATE EXISTING TRASH RECEPTABLE TO NEW LOCATION	1	EA		

BID FORMS

SCHEDULE OF BID PRICES

28	ADJUST MANHOLE FRAME AND COVER SET	59	EA		
29	REPAIR EXISTING RETAINING/SLOUGH WALL	20	LF		
30	RELOCATE EXISTING SIGN AND POST	24	EA		
31	CONSTRUCT PARKWAY DRAIN (INLET/OUTLET)*	6	EA		
32	REMOVE STREET LIGHT FOUNDATION	2	EA		
33	FURNISH AND INSTALL 6-FOOT DIAMETER INDUCTIVE TRAFFIC LOOP DETECTOR	4	EA		
34	FURNISH AND INSTALL 1.5-INCH PVC SCHEDULE 80 LOOP STUB-OUT CONDUIT	2	EA		
35	ADJUST/REPLACE CENTERLINE TIE *	25	EA		
36	ADJUST/REPLACE PROPERTY CORNER *	20	EA		
37	ADJUST/REPLACE BENCH MARK *	15	EA		
38	ADJUST/REPLACE SURVEY WELL MONUMENT *	5	EA		
39	ADJUST GWP WATER VALVE TO NEW FINISHED GRADE	51	EA		
40	ADJUST GWP RECYCLED WATER VALVE TO NEW FINISHED GRADE	3	EA		
41	ABANDON FIRE HYDRANT LATERAL AND VALVE.	1	EA		
42	INSTALL NEW FIRE HYDRANT AND ASSEMBLY	1	EA		
43	ADJUST/REPLACE GWP WATER METER BOX & COVER SET TO NEW FINISHED GRADE	16	EA		
44	RELOCATE EXISTING WATER METER AND SERVICE TO PROPOSED LOCATION	1	EA		
45	REPLACE EXISTING GWP WATER VALVE BOX AND COVER SET WITH 2-PIECE CAST IRON SLIP TYPE WATER VALVE BOX AND COVER SET	5	EA		

BID FORMS

SCHEDULE OF BID PRICES

46	ADJUST CVWD WATER VALVE TO NEW FINISHED GRADE	19	EA		
47	ADJUST/REPLACE CVWD WATER METER BOX & COVER SET TO NEW FINISHED GRADE	13	EA		
48	REPLACE EXISTING CVWD WATER VALVE BOX AND COVER SET WITH 2-PIECE CAST IRON SLIP TYPE WATER VALVE BOX AND COVER SET	4	EA		
49	ABANDON EXISTING GWP WATER VALVE AND FILL VOID WITH CRUSHED BASE	1	EA		
50	INSTALL NEW WATER VALVE ON EXISTING FIRE LINE	1	EA		
La Crescenta Avenue Sewer Improvements Plan No. 3-1572					
S1	REMOVE EXISTING MANHOLE AND CONSTRUCT 4-FOOT DIAMETER PRECAST CONCRETE SEWER MANHOLE	6	EA		
S2	CONSTRUCT 4-FOOT DIAMETER PRECAST CONCRETE SEWER MANHOLE	6	EA		
S3	CONSTRUCT 4-FOOT DIAMETER PRECAST CONCRETE DROP SEWER MANHOLE	2	EA		
S4	REMOVE EXISTING MANHOLE AND CONSTRUCT 4-FOOT DIAMETER PRECAST CONCRETE DROP SEWER MANHOLE	3	EA		
S5	REMOVE EXISTING 8-INCH VCP AND CONSTRUCT 12-INCH PVC SANITARY SEWER LINE	1,244	LF		
S6	CONSTRUCT 12-INCH PVC SANITARY SEWER LINE	1,415	LF		
S7	RECONNECT HOUSE CONNECTION LATERAL FOR 12-INCH PVC MAINLINE SEWER	49	EA		
S8	ABANDON EXISTING 8-INCH INLET TO SEWER MANHOLE	5	EA		

BID FORMS

SCHEDULE OF BID PRICES

S9	REMOVE, SALVAGE, AND REINSTALL SECTION OF EXISTING GUARDRAIL SYSTEM *	1	LS		
S10	REMOVE, SALVAGE, AND REINSTALL SECTION OF EXISTING 54-INCH RCP STORM DRAIN MAIN LINE *	15	LF		
S11	RECONSTRUCT SEWER MANHOLE SHELF (8"-12" CHANNEL)	8	EA		
S12	RECONSTRUCT SEWER MANHOLE SHAFT, SHELF. AND CHANNEL (8"-CHANNEL)	3	EA		
S13	CCTV INSPECTION OF EXISTING STORM DRAIN AND/OR SANITARY SEWER LINE BEFORE AND AFTER SEWER CONSTRUCTION *	497	LF		
S14	SUPPORT EXISTING UTILITY	11	EA		
S15	SUPPORT EXISTING UTILITY (LARGER THAN 24-INCHES)	2	EA		
S16	INSTALL SANITARY SEWER ENCASEMENT *	128	LF		
S17	FURNISH AND INSTALL EPOXY LINER TO MANHOLE SHAFT, SHELF, AND CHANNELS	6	EA		
S18	SUPPORT EXISTING WATER LINE PER GWP PLAN NO. 1668-A *	1	EA		
S19	RECONSTRUCT 8-INCH VCP SANITARY SEWER MAIN LINE (POINT REPAIR)	61	LF		
S20	INSTALL FULL CIPP LINING FOR 8-INCH SANITARY SEWER MAIN LINE	198	LF		
S21	INSTALL PARTIAL CIPP LINING FOR 8-INCH SANITARY SEWER MAIN LINE	18	LF		
S22	REMODEL SEWER HOUSE CONNECTION *	30	EA		
La Crescenta Avenue Catch Basin Bicycle Friendly Surface Grate Installation Plan No. 4-650					
G1	REMOVE AND RECYCLE EXISTING CATCH BASIN GRATES	80	EA		
G2	FURNISH AND INSTALL BICYCLE PROOF CATCH BASIN GRATE	80	EA		

BID FORMS

SCHEDULE OF BID PRICES

G3	LOS ANGELES COUNTY FLOOD CONTROL PERMIT FEE ALLOWANCE	1	PERMIT FEE ALLOWANCE	\$2,000	\$2,000
Traffic Striping, Pavement Markings, and Signs Plan No. 49-247					
T1	INSTALL THERMOPLASTIC WHITE TYPE IV (L) PAVEMENT MARKING ARROW PER CALTRANS STANDARD PLAN NO. A24A.	14	EA		
T2	INSTALL THERMOPLASTIC WHITE TYPE IV (R) PAVEMENT MARKING ARROW PER CALTRANS STANDARD PLAN NO. A24A.	3	EA		
T3	INSTALL THERMOPLASTIC 8-INCH WIDE SOLID YELLOW DIAGONALS (ANGLED 30 TO 45 DEGREES) WITH 40' O.C. SPACING WITH TYPE D TWO-WAY YELLOW R.P.M. PER CALTRANS STANDARD PLAN NO. A20D.	144	LF		
T4	INSTALL CALTRANS APPROVED PREFORMED THERMOPLASTIC WHITE "SHARROW" WITH GREEN BACKGROUND PAVEMENT SHARE LANE SYMBOL PER CITY OF GLENDALE PLACEMENT STANDARDS	5	EA		
T5	INSTALL THERMOPLASTIC 8-FOOT HIGH "STOP" PAVEMENT MARKINGS PER CALTRANS STANDARD PLAN NO. A24D.	27	EA		
T6	INSTALL THERMOPLASTIC 6-INCH-WIDE SOLID WHITE BIKE LANE LINE PER CALTRANS STANDARD PLAN NO. A20D, DETAIL 39	20,097	LF		
T7	INSTALL THERMOPLASTIC 6-INCH-WIDE SKIP WHITE BIKE INTERSECTION LINE PER CALTRANS STANDARD PLAN NO. A20D, DETAIL 39A.	5,234	LF		
T8	INSTALL THERMOPLASTIC 6-INCH-WIDE YELLOW TWO-WAY LEFT-TURN LANE WITH TYPE D TWO-WAY YELLOW R.P.M. PER CALTRANS STANDARD PLAN NO. A20B, DETAIL 32.	5,673	LF		
T9	INSTALL THERMOPLASTIC 6-INCH-WIDE SOLID DOUBLE YELLOW	2,667	LF		

BID FORMS

SCHEDULE OF BID PRICES

	CENTERLINE SEPARATED BY A 3-INCH SOLID BLACK STRIPE WITH TYPE D TWO-WAY YELLOW R.P.M. PER CALTRANS STANDARD PLAN NO. A20A, DETAIL 22.				
T10	INSTALL THERMOPLASTIC 8-INCH-WIDE SOLID WHITE CHANNELIZING LINE WITH TYPE G ONE-WAY CLEAR R.P.M. PER CALTRANS STANDARD PLAN NO. A20D, DETAIL 38.	1,381	LF		
T11	INSTALL THERMOPLASTIC 12-INCH-WIDE WHITE LIMIT LINE PER CALTRANS STANDARD PLAN NO. A24E.	1,490	LF		
T12	INSTALL THERMOPLASTIC CONTINENTAL CROSSWALK WITH 24-INCH-WIDE SOLID WHITE LONGITUDINAL LINES SPACED 24 INCHES APART. LONGITUDINAL LINES SHALL BE PARALLEL WITH THE TRAVEL LANES. CROSSWALKS SHALL HAVE TWELVE (12) FOOT OUTSIDE DIMENSIONS.	672	SF		
T13	REMOVE CONFLICTING STRIPING AND PAVEMENT MARKINGS BY WET SANDBLASTING PER SQUARE FOOT	272	SF		
T14	INSTALL THERMOPLASTIC 4-INCH-WIDE SOLID WHITE DIAGONAL LINES (ANGLED 30 TO 45 DEGREES) AS SHOWN ON PLANS, 20' O.C.	3,118	LF		
T15	INSTALL THERMOPLASTIC 4-INCH WIDE SOLID WHITE LINE	7,114	LF		
T16	INSTALL RIDE-A-WAY GREEN COATING BIKE LANE PAINT	26,113	SF		
T17	INSTALL K-71 BOLLARDS WHITE, 29-INCH IN HEIGHT AND 7.5-INCH IN DIAMETER WITH TWO (2) 4-INCH REFLECTIVE COLLARS FOR 360 DEGREE REFLECTIVITY	464	EA		
T18	INSTALL CALTRANS APPROVED PREFORMED THERMOPLASTIC GREEN BICYCLE BOX	2,204	SF		
T19	INSTALL CALTRANS APPROVED PREFORMED THERMOPLASTIC BICYCLE LOOP DETECTOR SYMBOL	14	EA		
T20	INSTALL THERMOPLASTIC 8-INCH-WIDE SOLID YELLOW DIAGONAL LINES (ANGLED 30 TO 45 DEGREES) AS SHOWN ON PLANS, 20' O.C.	170	LF		

BID FORMS

SCHEDULE OF BID PRICES

T21	INSTALL THERMOPLASTIC 6-INCH-WIDE YELLOW LEFT EDGE LINE PER CALTRANS STANDARD PLAN NO. A20B, DETAIL 25.	47	LF		
T22	INSTALL THERMOPLASTIC 6-INCH-WIDE WHITE LANE LINE EXTENSIONS THROUGH INTERSECTION PER CALTRANS STANDARD PLAN NO. A20D, DETAIL 40.	108	LF		
T23	INSTALL THERMOPLASTIC 6-INCH-WIDE YELLOW CENTER LINE EXTENSIONS THROUGH INTERSECTION PER CALTRANS STANDARD PLAN NO. A20D, DETAIL 41.	111	LF		
T24	REMOVE CONFLICTING STRIPING AND PAVEMENT MARKINGS BY WET SANDBLASTING PER LINEAR FOOT	4,111	LF		
T25	FURNISH AND INSTALL 2" GALVANIZED SQUARE TUBING SIGN POLE	25	EA		
T26	FURNISH AND INSTALL SIGN TO NEW POST PER PLAN	30	EA		
T27	RELOCATE EXISTING POLE AND SIGN AS SHOWN ON THE PLAN	3	EA		
T28	INSTALL, EXTEND AND/OR REFURBISH PAINTED RED/BLUE/GREEN/YELLOW/WHITE CURB MARKING	4,390	LF		
T29	INSTALL THERMOPLASTIC 6-INCH-WIDE WHITE RIGHT EDGE LINE PER CALTRANS STANDARD PLAN NO. A20B, DETAIL 27B	61	LF		
T30	REMOVE AND SALVAGE EXISTING STREET SIGN AND POST	15	EA		
T31	INSTALL CALTRANS APPROVED PREFORMED THERMOPLASTIC WHITE BIKE LANE SYMBOL WITH PERSON PAVEMENT MARKING WITH GREEN BACKGROUND	9	EA		
T32	INSTALL THERMOPLASTIC 6-INCH-WIDE SOLID WHITE LANE LINE WITH TYPE G ONE WAY CLEAR R.P.M.	150	LF		
T33	INSTALL THERMOPLASTIC 6-INCH-WIDE SKIP WHITE LINE PER CALTRANS STANDARD PLAN NO. A20A, DETAIL 8.	540	LF		

BID FORMS

SCHEDULE OF BID PRICES

T34	INSTALL PREFORMED THERMOPLASTIC WHITE BIKE LANE SYMBOL WITHOUT PERSON PAVEMENT MARKINGS WITH GREEN BACKGROUND	62	EA		
T35	INSTALL PREFORMED THERMOPLASTIC WHITE BIKE LANE ARROW PAVEMENT MARKING WITH GREEN BACKGROUND	62	EA		
T36	REMOVE EXISTING SIGN AND REPLACE WITH NEW SIGN AS INDICATED ON PLAN, PROTECT IN PLACE THE EXISTING SQUARE TUBING SIGN POLE	4	EA		
T37	REMOVE AND SALVAGE EXISTING POST. RELOCATE EXISTING STREET NAME SIGN ONTO NEW POLE AS INDICATED ON PLANS.	8	EA		
T38	INSTALL THERMOPLASTIC 8-INCH WIDE WHITE LANE DROP AT INTERSECTION LINE WITH TYPE G ONE-WAY CLEAR RETROREFLECTIVE PAVEMENT MARKERS PER CALTRANS STANDARD PLAN NO. A20C, DETAIL 37B.	356	LF		
T39	INSTALL THERMOPLASTIC 8-FOOT HIGH "HERE" PAVEMENT MARKINGS PER CALTRANS STANDARD PLAN NO. A24D.	2	EA		
T40	INSTALL THERMOPLASTIC 8-FOOT HIGH "WAIT" PAVEMENT MARKINGS PER CALTRANS STANDARD PLAN NO. A24D.	2	EA		
T41	INSTALL THERMOPLASTIC 8-FOOT HIGH "KEEP" PAVEMENT MARKINGS PER CALTRANS STANDARD PLAN NO. A24E.	2	EA		
T42	INSTALL THERMOPLASTIC 8-FOOT HIGH "CLEAR" PAVEMENT MARKINGS PER CALTRANS STANDARD PLAN NO. A24E.	2	EA		

BID FORMS

SCHEDULE OF BID PRICES

Traffic Signal Modification Plan Nos. 50-672, and 50-673					
MRT1	FURNISH AND INSTALL TRAFFIC SIGNAL MODIFICATION ON LA CRESCENTA AVENUE AT ROSELAWN AVENUE	1	LS		
MRT2	FURNISH AND INSTALL TRAFFIC SIGNAL MODIFICATION ON LA CRESCENTA AVENUE AT SHIRLYJEAN STREET	1	LS		
Traffic Signal Modification, Traffic Signal Installation, Mid-Block Signalized Bicycle Crossing, and Pedestrian Hybrid Beacon Installation Plan Nos. 50-638, 50-639, 50-648, 50-698, and 50-699					
MM1	FURNISH AND INSTALL MID-BLOCK BICYCLE CROSSING SIGNAL ON LA CRESCENTA AVENUE BETWEEN ARLINGTON AVENUE AND LAS PALMAS AVENUE	1	LS		
MM2	FURNISH AND INSTALL TRAFFIC SIGNAL ON LA CRESCENTA AVENUE AT OAKMONT VIEW DRIVE	1	LS		
MM3	FURNISH AND INSTALL PEDESTRIAN HYBRID BEACON ON LA CRESCENTA AVENUE AT PIEDMONT AVENUE	1	LS		
MM4	FURNISH AND INSTALL TRAFFIC SIGNAL MODIFICATION ON LA CRESCENTA AVENUE AT MONTROSE AVENUE	1	LS		
MM5	FURNISH AND INSTALL TRAFFIC SIGNAL MODIFICATION ON LA CRESCENTA AVENUE AT HONOLULU AVENUE	1	LS		

BID TOTAL \$ _____

If there is a difference between the amount shown in words for a bid and the amount shown in numbers, the amount in words shall have precedence.

Bidder shall exclude the cost of Permit Fees from Bidder's Base Bid price. Base Bid price shall include the cost of administration and coordination of Governmental Approvals and Utility Fees.

BID FORMS

SCHEDULE OF BID PRICES (continued)

Items marked with a (*) indicates that quantities shown are for bidding purposes only. These items and quantities may or may not be used, at the discretion of the engineer. The Engineer shall determine the exact locations and quantities, if any, where the above quantities will be needed.

Bidder acknowledges that determination of the lowest Bid will be based on the combined total of the prices entered above for the Base Bid plus all of the listed Bid Alternate items, and that once the low Bid is determined on this basis, the City will be free to select Bid Alternates for inclusion in the Work in any order or combination, or to reject any or all Bid Alternates.

ADDITIVE BID ALTERNATE ITEMS:

Creative Crosswalks, Reflective Pavement, Drywell, Bio-Retention, and Fiber Optic Installation Plan Nos. 4-649, 18-114, 49-247, and 70-113					
Item No.	Article	Estimated Quantity	Units	Unit Price	Total Price
ABA1	CONSTRUCT DRYWELL SYSTEM	7	EA		
ABA2	INSTALL BIO-RETENTION AREA	3,146	SF		
ABA3	INSTALL NEW 1-INCH WATER SERVICE LATERAL AND WATER METER BOX	2	EA		
ABA4	FURNISH AND INSTALL METAL GUARD RAILING AND ACCESS GATE AROUND BIO-RETENTION AREA (HT=2'-6")	395	LF		
ABA5	INSTALL CLASS "A" TOPSOIL	117	CY		
ABA6	INSTALL SOIL AMENDMENTS	117	CY		
ABA7	5 GALLON SHRUBS	16	EA		
ABA8	1 GALLON SHRUBS	42	EA		
ABA9	GROUNDCOVER FLATS/PLUGS	3,146	SF		
ABA10	BIO-RETENTION IRRIGATION SYSTEM	1	LS		
ABA11	FURNISH AND INSTALL CREATIVE CROSSWALK	3,876	SF		
ABA12	FURNISH AND INSTALL REFLECTIVE PAVEMENT	18,500	SF		

BID FORMS

SCHEDULE OF BID PRICES (continued)

ABA13	FURNISH AND INSTALL FIBER READY 3" RIGID PVC SCHEDULE 80 CONDUIT WITH #10 AWG GREEN TRACER WIRE AND PULL ROPE	3,556	LF		
ABA14	FURNISH AND INSTALL OPTICAL FIBER CABLE (48 SMFO) IN FIBER READY CONDUIT	3,446	LF		
ABA15	FURNISH AND INSTALL OPTICAL FIBER CABLE (12 SMFO) IN FIBER READY CONDUIT	110	LF		
ABA16	FURNISH AND INSTALL 48-STRAND CAPACITY AIR TIGHT SEAL FIBER SPLICE ENCLOSURE	4	EA		
ABA17	FURNISH AND INSTALL 19-INCH RACK-MOUNT 12-STRAND CAPACITY FIBER PATCH PANEL WITH RAILS	2	EA		
ABA18	FURNISH AND INSTALL 19-INCH RACK-MOUNT SURGE PROTECTION POWER UNIT	2	EA		
ABA19	FURNISH AND INSTALL NO. 6E FIBER OPTIC PULL BOX	13	EA		
ABA20	FURNISH AND INSTALL LAYER 2 GIGABIT ETHERNET SWITCH	2	EA		
ABA21	FURNISH AND INSTALL PULL BOX LID WITH "FIBER OPTIC" INSCRIPTION	3	EA		
ABA22	TERMINATE OR SPLICE FIBER STRANDS	7	EA		
ABA23	FURNISH AND INSTALL ALL NECESSARY CONNECTORS, CABLES, WIRES, AND EQUIPMENT TO PROVIDE ETHERNET COMMUNICATION	2	EA		
ABA24	CORE DRILL EXISTING FOUNDATION TO INSTALL 3" PVC SCHEDULE 80 CONDUIT FROM CONTROLLER CABINET TO FIBER OPTIC PULL BOX	2	EA		
ABA25	COIL 50-FEET OF 48-STRAND SMFO CABLE IN PULL BOX	15	EA		

TOTAL BID AMOUNT (Base Bid Price plus Additive Alternate Bid Nos. ABA1-25)

Dollars \$
<div style="display: flex; justify-content: space-between;"> (written dollar amount) (dollar amount) </div>

BID FORMS

SCHEDULE OF BID PRICES (continued)

Respectfully submitted:

Signature

Address

Title

Date

License Number

Date of Expiration

Public Works Registration Number (PWCR)

(SEAL - if BID is by a corporation)

Attest _____

Amount of Certified or Cashier's Check or Bid Bond

Name of Bonding Company

BID FORMS

INCUMBENCY CERTIFICATE

Print legibly the names and title of the president and all officers of the Company who are authorized to sign the Bid Forms:

PRESIDENT'S & OFFICERS' NAME:

TITLE:

The undersigned hereby certifies to the City of Glendale that he/she is the duly elected and acting Secretary of _____ (the "Company"), and that, as such, he/she is authorized to execute this Incumbency Certificate on behalf of the Company, and further certifies that the persons named above are the duly elected, qualified and acting officers of the Company, holding on the date hereof, the titles and positions set forth opposite their names and are authorized to sign the Bid Forms.

IN WITNESS WHEREOF, the undersigned has executed this Incumbency Certificate this _____ day of _____, 20__.

Secretary's Name-Printed

Secretary's Signature

BID FORMS

BID BOND

Bond No.: _____

Premium Amount: \$ _____

Bond's Effective Date: _____

RECITALS:

1. The City of Glendale, California ("City"), has issued a Notice Inviting Bids for the Work described as follows:

Specification No. _____: _____ in Glendale, CA. ("Project")

2. In response to the Notice Inviting Bids, _____
(Name, address, and telephone of Contractor) ("Principal"),

has submitted the accompanying Bid for the Project.

3. Principal is required under the terms of the Specification— and all Bidding Documents referenced in it— to furnish a bond with the Bid.
4. The Specification, including all its amendments and supplements, and Principal's Bid are incorporated into this Bond and made a part of it by this reference.

OBLIGATION:

THEREFORE, for value received, We, Principal and

(Name, address, and telephone of Surety)

("Surety"),

a duly admitted surety insurer under California's laws, agree as follows:

By this Bond, We jointly and severally obligate and bind ourselves, and our respective heirs, executors, administrators, successors, and assigns to pay City the penal sum of _____ Dollars (\$ _____) ("the Bonded Sum"), this amount comprising not less than **TEN PERCENT (10%)** of Principal's Base Bid, in lawful money of the United States of America.

The California Licensed Resident Agent for Surety is:

(Name, address, and telephone)

_____. Registered Agent's California Department of Insurance License No. _____.

THE CONDITION OF THIS BOND'S OBLIGATION IS THAT, if:

- (1) Principal does not (a) withdraw its Bid for the period specified in the Bidding Documents, or— if no period is specified— for ninety (90) calendar days after the Bid Deadline, or within the time period as agreed to by City and Principal, or (b) attempt to withdraw its Bid when the requirements of California Public Contract Code Section 5101 *et seq.*, or any successor legislation, are not met, then this obligation becomes null and void; **or**
- (2) City awards Principal the Construction Contract ("Contract") in response to Principal's Bid, and within the time and manner specified by the Specification or Contract Documents, or— if no period is specified— within fourteen (14) calendar days after the City's Notice of Award of the Contract, Principal (a) signs and delivers to City the Contract, in accordance with the Bid as accepted, (b) furnishes the required bonds for not only Principal's faithful performance and proper fulfillment of the Contract, but also Principal's payment for labor and materials used in the Project, and (c) furnishes the required insurance, then this obligation becomes null and void.

Otherwise, this Bond remains in full force and effect, and the following terms and conditions apply to this Bond:

1. Surety's obligations under this Bond are separate, independent from, and not contingent upon any other surety's guaranteeing that upon City's awarding the Contract to Principal, the Principal will enter into the Contract with City.
2. No right of action accrues on this Bond to any entity other than City or its successors and assigns.
3. If an action at law or in equity is necessary to enforce or interpret this Bond's terms, Surety must pay— in addition to the Bonded Sum— City's reasonable attorneys' fees and litigation costs, in an amount the court fixes.

BID FORMS

4. Surety shall mail City written notice at least 30 days before: (a) the effective date on which the Surety will cancel, terminate, or withdraw from this Bond; or (b) this Bond becomes void or unenforceable for any reason.

On the date set forth below, Principal and Surety duly executed this Bond, with the name of each party appearing below and signed by its representative(s) under the authority of its governing body.

Date: _____

PRINCIPAL:

SURETY:

(Company Name)

(Company Name)

(Signature)

(Signature)

By: _____
(Name)

By: _____
(Name)

Its: _____
(Title)

Its: _____
(Title)

Address for Serving Notices or Other Documents:

Address for Serving Notices or Other Documents:

CORPORATE SEAL

CORPORATE SEAL

- EVIDENCE MUST BE ATTACHED OF THE AUTHORITY OF ANY PERSON SIGNING AS ATTORNEY-IN-FACT.
- THE PRINCIPAL'S AND ATTORNEY-IN-FACT'S SIGNATURE MUST BE NOTARIZED.
- A CORPORATE SEAL MUST BE IMPRESSED ON THIS FORM WHEN THE PRINCIPAL, OR THE SURETY, OR BOTH, ARE A CORPORATION.

BID FORMS

BOND ACKNOWLEDGMENT FOR SURETY'S ATTORNEY-IN-FACT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____,
before me, _____(name), a Notary Public for said County, personally appeared
(name), who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument
as the attorney in fact of _____, and acknowledged to me that he/she subscribed the name
of _____ thereto as principal, and his/her own name as attorney in fact.

Notary Public

SEAL



BIDDER'S STATEMENT OF QUALIFICATIONS

1. ORGANIZATION

1.1 How many years has your organization been in business as a Contractor? _____

1.2 How many years has your organization been in business under its present name and California contractor license number used for this Bid? _____

1.2.1 Under what other names has your organization operated?

1.3 If your organization is a corporation, answer the following:

1.3.1 Date of incorporation/organization: _____

1.3.2 State of incorporation/organization: _____

1.3.3 Corporate ID number: _____

1.3.4 Name of President: _____

1.3.5 Agent for Service of Process: _____

1.4 If your organization is a partnership, answer the following:

1.4.1 Date of organization/formation: _____

1.4.2 Type of partnership (if applicable): _____

1.4.3 Name(s) of general partner(s): _____

1.4.4 List all states in which you are registered and state ID numbers for each:

1.5 If your organization is individually owned, answer the following:

1.5.1 Date of organization: _____

1.5.2 Name of owner: _____

1.6 If the form of your organization is other than those listed above, describe it and name the principals:

2. LICENSING

2.1 List jurisdictions in which your organization is legally qualified to do business, indicate registration or license numbers, and category of license, if applicable.

2.2 List jurisdictions in which your organization's partnership or trade name is filed.

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

- 2.3 List any licensing suspensions and/or violations assessed against your organization within the past five years.

3. **EXPERIENCE**

- 3.1 List the categories of Work that your organization normally performs with its own personnel.

- 3.2 On the Experience Form (page F-32), list the project information that establishes that Bidder meets the essential requirements for qualification set forth in the Mandatory Qualifications paragraph of the Notice Inviting Bids for this Project.

- 3.3 Have Subcontractors for Traffic Signal and Fiber Optic Work (starting on page F-33) completed the Specialty Contractor's Statement of Qualifications (or Bidder to complete if self-performing).

- 3.4 List projects to which your firm or business has been awarded a government contract since your firm or business has been in existence (giving the name and address of the project, the government agency, contact name and phone number, the contract amount, and contract's starting date and ending date). Attach additional sheets as necessary. Failure to provide all information requested may render bid non-responsive.

- 3.5 List the experience and present commitments of the key individuals of your organization. Attach additional sheets as necessary. Failure to provide all information requested may render bid non-responsive.

4. **CLAIMS; LAWSUITS; CRIMINAL ACTS**

For the following questions, the term "owner" does not include owners of stock in your firm if your firm is a publicly traded corporation.

- 4.1 In the past five years, has your firm or any of its owners, partners, officers, or employees been a defendant in court, or participated in an arbitration or mediation, or administrative hearing on a matter related to:

- 4.1.1 The performance, non-performance, default, violation, or breach of a contract or agreement?

☐ YES ☐ NO

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

4.1.2 A vehicle collision or accident involving your firm's employees?

☐ YES ☐ NO

4.1.3 Damage to real property arising out of your services or operations?

☐ YES ☐ NO

4.1.4 Employment-related litigation brought by an employee of your firm?

☐ YES ☐ NO

4.1.5 Payment to a subcontractor or supplier?

☐ YES ☐ NO

4.1.6 Federal Davis Bacon or California Labor Code requirements relating to underpayment of wages, failure to maintain or produce payroll records, failure to use apprentices in appropriate ratios, or failure to maintain workers compensation insurance?

☐ YES ☐ NO

4.1.7 Defective, deficient, or substandard work?

☐ YES ☐ NO

If the answer to any question in 4.1.1 to 4.1.7 is **YES**, identify the name of the person or entity that sued (i.e., "the plaintiff") or was involved in the mediation or arbitration; list the date, court, court address, and case number; describe the facts and circumstances giving rise to the lawsuit, mediation, or arbitration; and set forth the outcome or disposition. Attach additional sheets as necessary.

4.2 Has your firm ever filed a claim for damages or a lawsuit, or requested arbitration or mediation, against a government entity or a Client?

☐ YES ☐ NO

If **YES**, identify the government entity or client; list the date, court and case number; describe the facts and circumstances about the claim for damages, or the lawsuit, or both; and set forth the outcome or disposition. Attach additional sheets as necessary.

4.3 Are there any pending or outstanding judgments or liens against your firm or any of its owners, partners, officers, or employees?

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

☐ YES ☐ NO

If **YES**, identify the name of the person or entity entitled to payment; list the date court and case number; describe the facts and circumstances giving rise to the judgment or lien; and set forth the amount of the judgment or lien. Attach additional sheets if necessary.

- 4.4 In the past five years, has any government entity ever: (a) investigated, cited, disciplined, or assessed any penalties against your firm or any of its owners, partners, officers, or employees, or (b) determined or concluded that your firm or any of its owners, partners, officers, or employees violated any laws, rules, or regulations?

☐ YES ☐ NO

If **YES**, identify the government entity; list the date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

- 4.5 In the past five years, has your firm or any of its owners, partners, officers or employees been convicted of a crime related to the bidding of a government contract, the awarding of a government contract, or the performance of a government contract? ("Convicted" includes a verdict of guilty by a judge or jury, a plea of guilty, a plea of nolo contendere, or a forfeiture of bail.)

☐ YES ☐ NO

If **YES**, identify the government entity; list the date, court and case number; describe the facts and circumstances about each instance; and set forth the penalty or punishment imposed. Attach additional sheets as necessary.

- 4.6 In the past five years, has your firm or any of its owners, partners, officers or employees been convicted of a crime involving embezzlement, theft, fraud, forgery, bribery, deceptive or unlawful business practices, perjury, falsifying or destroying records or evidence, or receiving stolen property, or making or submitting a false claim?

☐ YES ☐ NO

If **YES**, identify the crime or offense; list the date, court and case number; describe the facts and circumstances about each instance; and set forth the penalty or punishment imposed. Attach additional sheets as necessary.

BID FORMS

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

- 4.7 Have you or, if Bidder is a corporation, any principal of the corporation ever been convicted of a felony?

☐ YES ☐ NO

If YES, explain the details of that conviction and, if so, whether you or said officer have served his or her sentence. Attach additional sheets as necessary.

- 4.8 In the past five years, has a government entity determined or concluded that your firm or any of its owners, partners, officers or employees made or submitted a false claim (including a false claim for payment), or made a material misrepresentation?

☐ YES ☐ NO

If YES, identify the government entity, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

- 4.9 Have you or your company ever been charged by any governmental agency for failure to follow safety procedures?

☐ YES ☐ NO

If YES, explain. Attach additional sheets as necessary.

- 4.10 Has any governmental agency ever submitted a complaint against you to the California State Labor Commission for failure to submit certified payrolls or use apprentices in proper ratios?

☐ YES ☐ NO

If YES, provide the details of such complaint. Attach additional sheets as necessary.

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

- 4.11 List all Civil Wage and Penalty Assessments date and dollar amount issued against you or one of your subcontractor by any of the following entities: the California Department of Industrial Relations, a California public entity, or federal public entity, in the last five years and explain how the assessment was resolved. Attach additional sheets as necessary.

5. **FIRM'S OPERATIONAL STATUS**

- 5.1. In the past seven years, has your firm, or anyone else acting on behalf of your firm, filed for bankruptcy, insolvency, receivership, or reorganization?

☐ YES ☐ NO

If **YES**, list the filing date, identify the court and case number; describe the facts and circumstances giving rise to each instance; and set forth the disposition or current status. Attach additional sheets as necessary.

- 5.2. In the past five years, has your firm had any consolidations, mergers, acquisitions, closings, layoffs or staff reductions?

☐ YES ☐ NO

If **YES**, list the filing date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

- 5.3. Is your firm in the process of, or in negotiations toward: (a) consolidating, merging, selling, or closing its business, or (b) laying off employees or reducing staff?

☐ YES ☐ NO

If **YES**, describe the transaction; list the anticipated date for completing the transaction, laying off employees, or reducing staff; and describe the facts, circumstances, and reason for taking the action. Attach additional sheets as necessary.

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

6. BIDDING; DEBARMENT; CONTRACT PERFORMANCE

- 6.1. Has a government entity ever debarred, disqualified, removed, suspended, or otherwise prevented your firm from bidding on, contracting, or completing a construction project?

☐ YES ☐ NO

If YES, identify the name of the government entity, list the date, and describe the facts and circumstances about each instance, and state the reason for the government entity's action against your firm. Attach additional sheets as necessary.

- 6.2. Has a government entity ever rejected your firm's Bid or Proposal on the ground that your firm is a "non-responsible" bidder or proposer?

☐ YES ☐ NO

If YES, identify the name of the government entity, list the date, describe the facts and circumstances about each instance, and state the reason or basis for the government entity's determining that your firm was a "non-responsible" bidder. Attach additional sheets as necessary.

- 6.3. Has your firm ever failed to fulfill or perform – either partially or completely – a contract or an agreement with a government entity or a client?

☐ YES ☐ NO

If YES, identify the name of the government entity or client, list the date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

- 6.4. In the past five years, has any officer or principal of your firm been an officer of another firm which failed to perform a contract or agreement?

☐ YES ☐ NO

If YES, list the date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

- 6.5. Has your firm ever advised a government entity or a client, while your firm was under contract with the government entity or client, that your firm could not (or would not) fulfill or perform – either partially or completely – the contract or the agreement based on the prices that your firm had originally submitted in a Bid or a Proposal?

☐ YES ☐ NO

If **YES**, list the date, identify the name of the government entity or client, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

- 6.6. Has your firm ever requested a government entity or a client, while your firm was under contract with the government entity or client, to renegotiate one or more terms of the existing contract or agreement?

☐ YES ☐ NO

If **YES**, identify the name of the government entity or client, list the date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

- 6.7. Has your firm ever requested a government entity or a client, while your firm was under contract with the government entity or client, to: (a) cancel the contract or agreement, or (b) release or discharge your firm from the contract or agreement?

☐ YES ☐ NO

If **YES**, identify the name of the government entity or client, list the date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

- 6.8. Has a government entity or a client ever terminated, suspended, or non-renewed your firm's contract or agreement before its completion?

☐ YES ☐ NO

If **YES**, identify the name of the government entity, list the date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

- 6.9. Has a government entity or a client ever notified or advised your firm that your firm's performance under a contract or agreement was poor, sub-standard, deficient, or non-compliant?

☐ YES ☐ NO

If **YES**, identify the name of the government entity or client, list the date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

- 6.10. In the past five years, has your firm paid, or has your firm been assessed, liquidated damages on a contract or agreement?

☐ YES ☐ NO

If **YES**, identify all such contracts/projects by owner, owner's address, the date of completion of the project, amount of liquidated damages assessed, and all other information necessary to fully explain the assessment or payment of liquidated damages. Attach additional sheets as necessary.

7. INSURANCE AND BONDS

- 7.1. In the past ten years, has an insurance company or a surety company:

7.1.1. Refused to insure your firm for liability coverage?

☐ YES ☐ NO

7.1.2. Canceled or non-renewed your firm's insurance coverage?

☐ YES ☐ NO

7.1.3. Refused to issue your firm a bond?

☐ YES ☐ NO

7.1.4. Canceled or revoked a bond obtained by your firm?

☐ YES ☐ NO

If the answer to any question in 7.1.1 to 7.1.4 is **YES**, identify the name of the insurance company or surety company, list the date, and describe the facts and circumstances about each instance. Attach additional sheets as necessary.

BID FORMS

BIDDER'S STATEMENT OF QUALIFICATIONS (continued)

- 7.2 In the past ten (10) years, has an insurance company or surety company made any payments on your firm's behalf as a result of a default, to satisfy any claims against a performance bond, payment bond, or maintenance bond issued on your firm's behalf?

☐ YES ☐ NO

If YES, identify each contract completed or amount of each claim, the name and telephone number of the claimant, the date, grounds and current status of the claim, and if resolved, the method, nature, and amount of the resolution. Attach addition sheets as necessary.

8. SURETY

- 8.1 If a performance and/or payment bond is required by this bid, identify the bonding company if arrangements for the bond have been made; if not, identify the bonding company for the Contractor's most recent project:

- 8.2 Name and address of agent:

I, the undersigned, certify and declare that I have read all the foregoing answers to the questionnaire and know the contents. The matters stated in the questionnaire answers are true of my own knowledge and belief, except as to those matters stated on information and belief, and as to those matters I believe them to be true. I declare under penalty of perjury under the laws of the State of California, that the foregoing is correct and that this declaration is executed on _____, at _____, _____.

Date

City

State

By: _____
Signature

Name: _____
Printed

Title: _____
Printed

[END OF DOCUMENT]

BID FORMS

EXPERIENCE FORM

PROJECT NAME: La Crescenta Avenue Rehabilitation Project

SPECIFICATION NO. 3829

COMPANY NAME: _____

*****Please use additional sheets if necessary**

List below the project information that establishes that Bidder meets the essential requirements for qualification set forth in the Mandatory Qualifications paragraph of the Notice Inviting Bids for this Project.

	CONTRACT START DATE	CONTRACT END DATE	CONTRACT \$ AMOUNT	PROJECT NAME	ADDRESS	CONTACT NAME	CONTACT PHONE NUMBER
1							
2							
3							

BID FORMS

SPECIALTY CONTRACTOR'S STATEMENT OF QUALIFICATIONS - ETA FIBER OPTIC CONDUIT AND CABLE INSTALLATION REQUIREMENT

As part of its Bid, Bidder shall submit this Statement of Qualifications for the Subcontractor that will perform FIBER OPTIC CONDUIT AND CABLE INSTALLATION work, or for the Bidder itself, if Bidder will self-perform the FIBER OPTIC CONDUIT AND CABLE INSTALLATION work. This information shall provide evidence to indicate successful experience in providing FIBER OPTIC CONDUIT AND CABLE INSTALLATION work comparable to that specified in the Project Drawings and Specifications. Referenced qualifications shall demonstrate experience as a successful installer of FIBER OPTIC CONDUIT AND CABLE INSTALLATION work.

A Bid may be rejected as non-responsive if Bidder fails to provide this completed form with the Bid or submits this form with inaccurate information.

Mandatory qualifications: Specialty Contractor (or Bidder, if self-performing) shall possess a valid **Electronics Technicians Association (ETA), Inc. certification** at the time of the Bid Deadline and at all times during performance of the Work and shall establish that it satisfactorily completed at least **four (4)** projects as the installer of Intelligent Transportation System (ITS) communications related outdoor fiber optic installation projects with at least 5,000 fiber optic terminations and at least 5,000 field splices (fusion and mechanical); each comparable in scope and complexity to this Project, within **five (5) years** prior to the Bid Deadline. **Note:** The CONTRACTOR's employee(s) performing fiber optic termination and testing services shall be trained and certified as either Certified Fiber Optic Installer (CFOI) or Certified Fiber Optic Technician (CFOT) by the ETA at the time of BID submittal. For an employee to be considered experienced and qualified, the employee shall provide evidence for performing at least 5,000 connections, performing at least 5,000 fiber connection tests with an Optical Time Domain Reflectometer (OTDR), and performing at least 5,000 end-to-end attenuation tests. The CONTRACTOR shall provide names of employees meeting these requirements as part of their BID.

Specialty Contractor Name: _____

Contractor License No: _____

ETA Certification No. and Date: _____

Employee Performing Termination and Testing Services: _____

Certification Name & Number: _____ Certification Date: _____

Employee Performing Termination and Testing Services: _____

Certification Name & Number: _____ Certification Date: _____

Employee Performing Termination and Testing Services: _____

Certification Name & Number: _____ Certification Date: _____

COMPARABLE PROJECTS (Provide at least four (4))

1. Project Name: _____

Address: _____

Date Completed: _____

Reference / Contact Name: _____

BID FORMS

SPECIALTY CONTRACTOR'S STATEMENT OF QUALIFICATIONS - ETA

Reference / Contact Phone No: _____

Description of work performed: _____

2. Project Name: _____

Address: _____

Date Completed: _____

Reference / Contact Name: _____

Reference / Contact Phone No: _____

Description of work performed: _____

3. Project Name: _____

Address: _____

Date Completed: _____

Reference / Contact Name: _____

Reference / Contact Phone No: _____

Description of work performed: _____

4. Project Name: _____

Address: _____

Date Completed: _____

Reference / Contact Name: _____

Reference / Contact Phone No: _____

Description of work performed: _____

BID FORMS

SPECIALTY CONTRACTOR'S STATEMENT OF QUALIFICATIONS - IMSA TRAFFIC SIGNAL CABINET/EQUIPMENT & VIDEO DETECTION SYSTEM REQUIREMENT

As part of its Bid, Bidder shall submit this Statement of Qualifications for the Subcontractor that will perform TRAFFIC SIGNAL CABINET/EQUIPMENT AND VIDEO DETECTION SYSTEM work, or for the Bidder itself, if Bidder will self-perform the TRAFFIC SIGNAL CABINET/EQUIPMENT AND VIDEO DETECTION SYSTEM work. This information shall provide evidence to indicate successful experience in providing TRAFFIC SIGNAL CABINET/EQUIPMENT AND VIDEO DETECTION SYSTEM work comparable to that specified in the Project Drawings and Specifications. Referenced qualifications shall demonstrate experience as a successful installer of TRAFFIC SIGNAL CABINET/EQUIPMENT AND VIDEO DETECTION SYSTEM work.

A Bid may be rejected as non-responsive if Bidder fails to provide this completed form with the Bid or submits this form with inaccurate information.

Mandatory qualifications: Specialty Contractor (or Bidder, if self-performing) shall possess at least one valid **International Municipal Signal Association (IMSA) Traffic Signal Field Technician Level II or Senior Field Technician Level III certification** at the time of the Bid Deadline and at all times during performance of the Work within traffic signal cabinets, video detection systems, and related traffic signal equipment.

The CONTRACTOR shall provide names of employees meeting these requirements as part of their BID.

Specialty Contractor Name: _____
Contractor License No: _____

Employee Performing Services: _____
IMSA Certification No.: _____ Certification Date: _____

Employee Performing Services: _____
IMSA Certification No.: _____ Certification Date: _____

Employee Performing Services: _____
IMSA Certification No.: _____ Certification Date: _____

Specialty Contractor Name: _____
Contractor License No: _____

Employee Performing Services: _____
IMSA Certification No.: _____ Certification Date: _____

Employee Performing Services: _____
IMSA Certification No.: _____ Certification Date: _____

Employee Performing Services: _____
IMSA Certification No.: _____ Certification Date: _____

BID FORMS

CONTRACTOR'S REFERENCES – ALL PROJECTS

Please provide a list of at least three (3) different agencies or companies for whom you have completed projects in the past five (5) years as a prime contractor. Each project must have all of the following: 1) a minimum of three (3) traffic signals; 2) a minimum total contract amount of \$5,000,000; 3) work related to new or upgrade of sewer; and 4) work related to traffic signals (conduits, cabinets, foundations, signal heads, and electrical wiring), and street improvements (curb ramps and sidewalk).

Contact Person	
Name of Agency or Company	
Name and Year of Project	
Scope of Work	
Address	
Telephone No.	
Total Contract Amount	
Traffic Signal Contract Amount	
Curb ramp/sidewalk Contract Amount	
Contact Person	
Name of Agency or Company	
Name and Year of Project	
Scope of Work	
Address	
Telephone No.	
Total Contract Amount	
Traffic Signal Contract Amount	
Curb ramp/sidewalk Contract Amount	
Contact Person	
Name of Agency or Company	
Name and Year of Project	
Scope of Work	
Address	
Telephone No.	
Total Contract Amount	
Traffic Signal Contract Amount	
Curb ramp/sidewalk Contract Amount	

BID FORMS

CONTRACTOR SAFETY QUESTIONNAIRE

Company Name: _____

Primary Type of Work: _____

Person Completing Form: _____

Title: _____ Phone Number: _____

Date: _____

SAFETY PERFORMANCE

1. List your company's Interstate Experience Modification Rating (EMR) for the three most recent years.

20_____
20_____
20_____

2. List your company's number of injuries/illnesses from your OSHA 300 logs for the three most recent years.

	20____	20____	20____
a. Fatalities	_____	_____	_____
b. OSHA recordable incidents	_____	_____	_____
c. Lost work day incidents	_____	_____	_____
d. Total lost work days	_____	_____	_____
e. Total hours worked	_____	_____	_____

3. For the **apparent low Bidder**, not later than **3:00 p.m.** on the third Working Day following the Bid Deadline and for all other Bidders, not later than **3:00 p.m.** on the third Working Day following the City's request, a Bidder must furnish the City with copies of the following items (a-c):

- a. OSHA 300 logs for the most recent three years and current year-to-date ☐
- b. Verification of ERM from your insurance carrier ☐
- c. Injury/Illness Report ☐

4. Company Safety Contact:

a. Name _____

b. Phone _____

BID FORMS

SAFETY PROGRAM

1. SAFETY PROGRAM DOCUMENTATION

- a. Do you have a written safety program manual? ☐ YES ☐ NO
Last revision date: _____
- b. Do you have a written safety field manual? ☐ YES ☐ NO
- c. Are all workers given a booklet that contains work rules, responsibilities, and other appropriate information? ☐ YES ☐ NO

2. POLICY AND MANAGEMENT SUPPORT

- a. Do you have a safety policy statement from an officer of the company? ☐ YES ☐ NO
- b. Do you have a disciplinary process for enforcement of your safety program? ☐ YES ☐ NO
- c. Does management set corporate safety goals? ☐ YES ☐ NO
- d. Does executive management review:
- Accident reports? ☐ YES ☐ NO
 - Safety statistics? ☐ YES ☐ NO
 - Inspection reports? ☐ YES ☐ NO
- e. Do you safety pre-qualify subcontractors? ☐ YES ☐ NO
- f. Do you have a written policy on accident reporting and investigation? ☐ YES ☐ NO
- g. Do you have a light-duty, return-to-work policy? ☐ YES ☐ NO
- h. Is safety part of your supervisor's performance evaluation? ☐ YES ☐ NO
- i. Do you have a personal protective equipment (PPE) policy? ☐ YES ☐ NO
- j. Do you have a written substance abuse program? ☐ YES ☐ NO
If YES, does it include (check all applicable boxes):
- | | |
|---|---|
| <input type="checkbox"/> Pre-employment testing | <input type="checkbox"/> Return-to-duty testing |
| <input type="checkbox"/> Random testing | <input type="checkbox"/> Disciplinary process |
| <input type="checkbox"/> Reasonable cause testing | <input type="checkbox"/> Alcohol testing |
| <input type="checkbox"/> Post-accident testing | <input type="checkbox"/> National Institute on Drug Abuse |
| <input type="checkbox"/> Panel Screen | |
- k. Does each level of management have assigned safety ☐ YES ☐ NO

BID FORMS

duties and responsibilities?

3. TRAINING AND ORIENTATION

- a. Do you conduct safety orientation training for each employee? ☐ YES ☐ NO
- b. Do you conduct site safety orientation for every person new to the job site? ☐ YES ☐ NO
- c. Does your safety program require safety training meetings for each supervisor (foreman and above)? ☐ YES ☐ NO
How often?
☐ Weekly ☐ Monthly ☐ Quarterly ☐ Annually ☐ Other _____
- d. Do you hold tool box/tailgate safety meetings focused on your specific work operations/exposures? ☐ YES ☐ NO
How often?
☐ Weekly ☐ Daily ☐ Other _____
- e. Do you require equipment operation/certification training? ☐ YES ☐ NO

4. ADMINISTRATION AND PROCEDURES

- a. Does your written safety program address administrative procedures? ☐ YES ☐ NO

If YES, check which apply:

- | | |
|---|--|
| <input type="checkbox"/> Pre project/task planning | <input type="checkbox"/> Emergency procedures |
| <input type="checkbox"/> Record keeping | <input type="checkbox"/> Audits/inspections |
| <input type="checkbox"/> Safety committees | <input type="checkbox"/> Accident investigations/reporting |
| <input type="checkbox"/> HAZCOM | <input type="checkbox"/> Training documentation |
| <input type="checkbox"/> Substance abuse prevention | <input type="checkbox"/> Hazardous work permits |
| <input type="checkbox"/> Return-to-work | <input type="checkbox"/> Subcontractor prequalification |

- b. Do you have project safety committees? ☐ YES ☐ NO
- c. Do you conduct job site safety inspections? ☐ YES ☐ NO
How often?
☐ Daily ☐ Weekly ☐ Monthly ☐ Other _____
If YES, do these inspections includes a routine safety inspection of equipment (e.g., scaffold, ladders, fire extinguishers, etc.)? ☐ YES ☐ NO
- d. Do you investigate accidents? ☐ YES ☐ NO
How are they reported?
☐ Total company ☐ By superintendent
☐ By project ☐ By project manager

BID FORMS

☐ By foreman

☐ In accordance with OSHA

e. Do you discuss safety at all preconstruction and progress meetings? ☐ YES ☐ NO

f. Do you perform rigging and lifting checks prior to lifting? ☐ YES ☐ NO

If YES, are these checks for?

☐ Personnel ☐ Equipment ☐ Heavy lifts (more than 10,000 lbs.)

5. WORK RULES

a. Do you periodically update work rules? ☐ YES ☐ NO

When was the last update? _____

b. What work practices are addressed by your work rules?

- | | |
|---|--|
| <input type="checkbox"/> CPR/first aid | <input type="checkbox"/> Access—entrances/stairs |
| <input type="checkbox"/> Barricades, signs, and signals | <input type="checkbox"/> Respiratory protection |
| <input type="checkbox"/> Blasting | <input type="checkbox"/> Material handling/storage |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Temporary heat |
| <input type="checkbox"/> Compressed air and gases | <input type="checkbox"/> Vehicle safety |
| <input type="checkbox"/> Concrete work | <input type="checkbox"/> Traffic control |
| <input type="checkbox"/> Confined-space entry | <input type="checkbox"/> Site visitor escorting |
| <input type="checkbox"/> Cranes/rigging and hoisting | <input type="checkbox"/> Public protection |
| <input type="checkbox"/> Electrical grounding | <input type="checkbox"/> Equipment guards and grounding |
| <input type="checkbox"/> Environmental controls and Occupational health | <input type="checkbox"/> Monitoring equipment |
| <input type="checkbox"/> Emergency procedures | <input type="checkbox"/> Flammable material handling/storage |
| <input type="checkbox"/> Fire protection and prevention | <input type="checkbox"/> Site sanitation |
| <input type="checkbox"/> Floor and wall openings | <input type="checkbox"/> Trenching and excavating |
| <input type="checkbox"/> Fall protection | <input type="checkbox"/> Lockout/Tagout |
| <input type="checkbox"/> Housekeeping | <input type="checkbox"/> Energized/pressurized equipment |
| <input type="checkbox"/> Ladders and scaffolds | <input type="checkbox"/> Personal protective equipment |
| <input type="checkbox"/> Mechanical equipment/maintenance/pre-op checks/operation | <input type="checkbox"/> Tools, power and hand |
| <input type="checkbox"/> Welding and cutting (hot work) | <input type="checkbox"/> Electrical power lines |
| | <input type="checkbox"/> Other _____ |

BID FORMS

6. OSHA INSPECTIONS

- a. Have you been inspected by OSHA in the last three years? ☐ YES ☐ NO
- b. Were these inspections in response to complaints? ☐ YES ☐ NO
- c. Have you been cited as a result of these inspections? ☐ YES ☐ NO

If YES, describe the citations (add additional sheets if necessary):

BID FORMS

QUESTIONNAIRE REGARDING SUBCONTRACTORS (Submit with Bid Proposal)

Bidder shall answer the following questions and submit with his/her Contract proposal.

1. Were bid depository or registry services used in obtaining subcontractors bid figures in order to compute your bid?
Yes ☐ No ☐
2. If the answer to No. 1 is "Yes", please forward a copy of the rules of each bid depository you used with this questionnaire.
3. Did you have any source of subcontractors' bids other than bid depositories?
4. Has any person or group threatened you with subcontractor boycotts, union boycotts, or other sanctions to attempt to convince you to use the services or abide by the rules of one or more bid depositories?
Yes ☐ No ☐
5. If the answer to No. 4 is "Yes", please explain the following details:
 - (a) Date:
 - (b) Name of person or group:
 - (c) Job involved (if applicable):
 - (d) Nature of the threats:
 - (e) Additional comments:
(Use additional paper if necessary)
6. We declare under penalty of perjury that the foregoing is true and correct.
Dated this _____ day of _____, 20____.

Name of Company

By: _____

Title _____

All of the above statements as to experience, financial qualifications, and available plant and equipment are submitted in conjunction with the proposal, as a part thereof, and the truthfulness and accuracy of the information is guaranteed by the bidder.

Signature of Bidder _____

DESIGNATION OF SUBCONTRACTORS

NAME OF BIDDER: _____

Each Bidder must list, on the form provided on the next page, each Subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the Work or improvement, or a Subcontractor licensed in the State of California who, under subcontract to the Contractor, specially fabricates and installs a portion of the Work or improvement according to detailed drawings contained in the Drawings and Specifications, in an amount in excess of one-half of one percent of the Contractor's Base Bid Amount. Each Subcontractor must have an active and current license, and all requisite specialty certifications, when listed.

Bidder must provide the following information for **EACH** Subcontractor.

1. The name of the Subcontractor;
2. The trade and type of work that the Subcontractor will perform;
3. Location (address) of Subcontractor's place of business;
4. Subcontractor's California Contractor license number; and any specialty licenses;
5. Subcontractor's Department of Industrial Relations contractor registration number; and
6. Dollar value of the Work that the Subcontractor will perform.

If the Contractor fails to specify a Subcontractor, or if the Contractor specifies more than one Subcontractor for the same trade or type of Work to be performed under the Contract in excess of one-half of one percent of the Contractor's Base Bid Amount, then the Contractor agrees that he/she is fully qualified to perform that Work himself/herself, and that he/she shall perform that Work himself/herself. If after award of Contract, the Contractor subcontracts any such Work, the Contractor will be subject to the statutory penalties.

**DESIGNATION OF SUBCONTRACTORS FORM
IS ON THE FOLLOWING PAGE**

BID FORMS

DESIGNATION OF SUBCONTRACTORS (continued)

Please type or legibly print (attach additional sheets as necessary).

Name of Subcontractor	Trade and Type of Work to be Performed	Business Location

License Number	DIR Contractor Registration Number	Dollar (\$) Value

DESIGNATION OF SUBCONTRACTORS (continued)

The Contractor shall not:

- A. Substitute any person as Subcontractor in place of the Subcontractor listed in the original Bid, except that the City may consent to the substitution of another person as Subcontractor in any of the following situations:
 - 1. When the Subcontractor listed in the Bid, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract for the scope of Work specified in the Subcontractor's bid and at the price specified in the Subcontractor's bid, when that written contract, based upon the general terms, conditions, Drawings and Specifications for the Project or the terms of Contractor's written Bid, is presented to the Subcontractor by the Contractor;
 - 2. When the listed Subcontractor becomes insolvent or the subject of an order for relief in bankruptcy;
 - 3. When the listed Subcontractor fails or refuses to perform his/her subcontract;
 - 4. When the listed Subcontractor fails or refuses to meet the bond requirements of the Contractor as set forth in Public Contract Code Section 4108;
 - 5. When the Contractor demonstrates to the City that the name of the Subcontractor was listed as the result of an inadvertent clerical error;
 - 6. When the listed Subcontractor is not licensed pursuant to the Contractor License Law;
 - 7. When the City determines that the Work performed by the listed Subcontractor is substantially unsatisfactory and not in substantial accordance with the Drawings and Specifications, or that the Subcontractor is substantially delaying or disrupting the progress of the Work;
 - 8. When the listed Subcontractor is ineligible to work on a public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code; or
 - 9. When the City determines that the listed Subcontractor is not a responsible contractor.
- B. Permit any subcontract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original Subcontractor listed in the original Bid, without the consent of the City.
- C. Other than in the performance of "change orders" causing changes or deviations from the original Contract, sublet or subcontract any portion of the Work in excess of one-half of one percent of the Contractor's Base Bid Amount as to which his/her original Bid did not designate a Subcontractor.

Prior to approval of the Contractor's request for a Subcontractor substitution, the City shall give notice in writing to the listed Subcontractor of the Contractor's request to substitute and of the reason for the request. The notice will be served by certified or registered mail to the last known address of the Subcontractor. The listed Subcontractor who has been so notified shall have five (5) Working Days within which to transmit to the City written objections to the substitution. Failure to file these written objections shall constitute the listed Subcontractor's consent to the substitution. If written objections are filed, the City shall give notice in

DESIGNATION OF SUBCONTRACTORS (continued)

writing of at least five (5) Working Days to the listed Subcontractor of a hearing by the City on the Contractor's request for substitution.

The Contractor, as a condition to asserting a claim of inadvertent clerical error in the listing of a Subcontractor, shall within two (2) Working Days after the time of the Bid Deadline, give written notice to the City and copies of such notice to both the Subcontractor he/she claims to have listed in error and the intended Subcontractor who had bid to the Contractor prior to the Bid Deadline.

Subletting or subcontracting of any portion of the Work in excess of one-half of one percent of the Contractor's Base Bid to which no Subcontractor was designated in the original Bid shall only be permitted in cases of public emergency or necessity, and then only after a finding reduced to writing as a public record of the City setting forth the facts constituting the emergency or necessity.

If the Contractor violates any of the above provisions the Contractor may be in breach of this Contract and the City may exercise the option, in its own discretion, to (1) cancel this Contract, or (2) assess the Contractor a penalty in an amount not more than ten percent (10%) of the amount of the subcontract involved, and this penalty shall be deposited in the fund out of which the prime Contract is awarded.

State

BID FORMS

INSURANCE REQUIREMENTS AFFIDAVIT

THIS FORM IS TO BE COMPLETED THOROUGHLY BY BIDDER'S INSURANCE BROKER/AGENT AND BIDDER. If Bidder has multiple Brokers/Agents, make copy of form and have each Broker/Agent supply information accordingly.

I, the undersigned (Please check one box) ☐ underwriter ☐ agent, certify that Broker/Agent and Bidder listed below have jointly reviewed the "Insurance Requirements" (EXHIBIT 2) in the Specification Package. If City of Glendale ("City") awards Bidder the Contract for the named project, I, Broker/Agent, will be able—within fourteen (14) calendar days after the City's Notice of Award of the Contract to furnish the City with valid insurance and all required Insurance Certificate(s) and Endorsement(s) as listed in the "Insurance Requirements" or Specification Package, Request for Proposal/Request for Qualifications, and/or Professional Services Agreement.

Project Name: _____

Specification Number: _____

**NAME OF INSURANCE
COMPANY:**

Broker/Agent Name (Printed): _____

Broker/Agent (Signature): _____

Business
Address: _____

City, State, Zip _____

Phone Number: _____ Fax
Number: _____

E-Mail Address: _____

Date: _____

**BIDDER'S COMPANY
NAME:**

Bidder's Name (Printed): _____

Bidder's Name (Signature): _____

Business
Address: _____

City, State, Zip _____

Phone Number: _____ Fax
Number: _____

E-Mail Address: _____

Date: _____

[CONTINUED ON NEXT PAGE]

BID FORMS

INSURANCE REQUIREMENTS AFFIDAVIT (Continued)

DO NOT write "Will Provide," "To Be Determined," "When Required," or similar phrases.

Place a check mark (✓) next to each line of coverage Broker/Agent will provide, and furnish the name of the Carrier next to each coverage:

- | | |
|--|---|
| <input type="checkbox"/> Commercial General Liability | _____ |
| <input type="checkbox"/> Automobile Liability | _____ |
| <input type="checkbox"/> Workers' Compensation Liability | _____ |
| <input type="checkbox"/> Professional Liability | <u>Not required</u> |
| <input type="checkbox"/> Pollution Liability | _____ |
| <input type="checkbox"/> Builder's Risk | <u>City Will Purchase Policy, if required</u> |
-

NOTE: (1) If this Affidavit is not completed accurately, and/or failure to submit the form, City may declare Bid non-responsive. (2) Awarded Bidder's failure to submit the required insurance forms within the 14-day time limit, and/or forms submitted does not fully comply with the Insurance Requirements, City may declare Bidder non-responsive and elect to award the Contract to the next lowest responsible Bidder.

If you have any questions about this form or Insurance Requirements, please contact Ms. Veronika Padron, Risk Management Section, at (818) 550-4354.

STANDARD FORM OF CONTRACT

**STANDARD FORM OF
CONSTRUCTION CONTRACT BETWEEN
CITY OF GLENDALE AND CONTRACTOR**

This Construction Contract, effective _____, 20____ ("Effective Date"), is made and entered into at Glendale, California, by and between the CITY OF GLENDALE, a chartered municipal corporation "City" and _____, a [Insert State of Incorporation] ("Contractor"), for construction of **La Crescenta Avenue Rehabilitation Project**.

THE PARTIES AGREE AS FOLLOWS:

1. **CONTRACT DOCUMENTS**

The "Contract Documents," except for modifications issued after execution of this Agreement, consist of the following documents which are either attached to this Construction Contract as exhibits or are incorporated into it by this reference, with the same force and effect as if set forth at length in this Construction Contract:

- A. This Construction Contract;
- B. Governmental Approvals including, but not limited to, permits required for the Work;
- C. Exhibit 1 – Index of Drawings, Specifications, [and Reference Documents];
- D. Exhibit 2 – Insurance Requirements;
- E. Exhibit 3 – Baseline Project Schedule (NOT APPLICABLE);
- F. Exhibit 4 – Preliminary Schedule of Values or Bid Forms;
- G. Exhibit 5 – Campaign Finance Ordinance Disclosure Form (NOT APPLICABLE)
- H. Exhibit 6 - Forms Required for Federally-Funded Projects; (NOT APPLICABLE)
- I. Exhibit 7 – Contractor's Certification under Labor Code § 1861 of Labor Code § 3700 Compliance;
- J. Project Drawings;
- K. Project Specifications;
- L. General Conditions;
- M. Special Conditions, if any;
- N. Supplementary Conditions, if any;
- O. Bidding Requirements; and

P. Bidding Addenda Nos. ____.

2. REFERENCE DOCUMENTS

The following Reference Documents are not considered Contract Documents and were provided to the Contractor for informational purposes. Contractor may rely upon the technical data contained in such documents but not upon non-technical data, interpretations, opinions or provisional statements contained therein:

A. Geotechnical Reports dated January 4th, 2024;

B. Sewer Utility Plans (NOT APPLICABLE)

3. SCOPE OF WORK

Within the Contract Time and for the stated Contract Sum, subject to adjustments thereto, and pursuant to the Contract Documents, the Contractor shall perform and provide all necessary: labor; services; supervision; materials; tools; equipment; apparatus; facilities; supplies; tools; permits, inspections, plan checks, and similar Governmental Approvals; temporary utilities; utility connections; and transportation necessary to complete the Work in strict conformity with the Contract Documents for:

La Crescenta Avenue Rehabilitation Project
Specification No. 3829

4. TIME FOR PERFORMANCE

Contract Time. Contractor shall achieve Substantial Completion of the Work within ____ calendar days from the Date of Commencement established in City's written Notice to Proceed ("Contract Time"), subject to adjustment in accordance with the Contract Documents. Contractor shall achieve Final Completion of the Work, within the time established by the Certificate of Substantial Completion issued by the City. The Contract Time may only be adjusted as permitted by this Construction Contract and the General Conditions.

Time is of the essence of this Construction Contract. Except when the Contract Documents state otherwise, time is of the essence in the performance of the Work. Contractor acknowledges that the time limits and deadlines set forth in the Contract Documents are reasonable for Contractor to perform and complete the Work.

Liquidated Damages. If Contractor fails to achieve Substantial Completion of the entire Work within the Contract Time for Substantial Completion, Contractor shall pay City as liquidated damages the amount of

_____ (\$_____) per day for each calendar day occurring after the expiration of the Contract Time for Substantial Completion until Contractor achieves Substantial Completion of the entire Work, as required by Article 3 of the General Conditions.

Contractor Initial here: _____.

5. CONTRACT SUM

In consideration of the Contractor's full, complete, timely, and faithful performance of the Work required by the Contract Documents, City shall pay Contractor the sum of _____ dollars/no cents (\$_____), payable as set forth in the General Conditions ("Contract Sum").

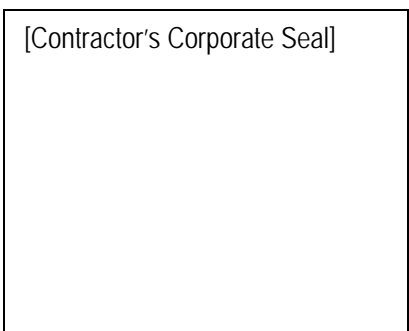
The actual direct cost of all Permit Fees is excluded from the Contract Sum, however Contractor's cost of administration and coordination of all Governmental Approvals and Utility Fees is included in the Contract Sum.

6. PERMIT FEE REIMBURSEMENT

In accordance with Paragraph 1.03 of the General Conditions, the City shall reimburse Contractor for the documented actual direct cost of Permit Fees, without Allowable Mark-up, in addition to payment of the Contract Sum.

IN WITNESS WHEREOF, the parties have caused this Contract to be executed the date and year first above written.

Executed at Glendale, California.



[Contractor]:

By: _____
An Authorized Signatory (Print Name)

By: _____
An Authorized Signatory (Sign Name)

Date: _____

CONTRACTOR'S SIGNATURE MUST BE NOTARIZED
CITY OF GLENDALE:

By: _____
Roubik R. Golanian, P.E., City Manager

Date: _____

REVIEWED BY:

APPROVED AS TO FORM:
MICHAEL J GARCIA, CITY ATTORNEY

Daniel Hernandez,
Interim Director of Public Works

Date

By: _____
Signature Date

Printed Name: _____

Title: _____

SAMPLE

EXHIBIT 1

INDEX OF DRAWINGS, SPECIFICATIONS, AND REFERENCE DOCUMENTS

Plan Nos.:

1-3071	Street Improvement Plans for La Crescenta Avenue
3-1572	Sewer Capacity Improvement Plans for La Crescenta Avenue
4-649	Drywell Installation Plans for La Crescenta Avenue
4-650	Bicycle Friendly Catch Basin Surface Grates Installation Plans for La Crescenta Avenue
18-114	Bio-Retention Installation Plans for La Crescenta Avenue
49-247	Signing and Striping Plans
50-638	Traffic Signal Modification Plans for La Crescenta Avenue and Montrose Avenue
50-639	Traffic Signal Modification Plans for La Crescenta Avenue and Honolulu Avenue
50-648	Pedestrian Hybrid Beacon Installation Plans for La Crescenta Avenue and Piedmont Avenue
50-672	Traffic Signal Modification Plans for La Crescenta Avenue and Roselawn Avenue
50-673	Traffic Signal Modification Plans for La Crescenta Avenue and Shirleyjean Street
50-698	Traffic Signal Installation Plans for La Crescenta Avenue and Oakmont View Drive
50-699	Bicycle Crossing Signal Installation Plans for La Crescenta Avenue between Arlington Avenue and Las Palmas Avenue
70-113	Fiber Optic Installation Plans for Montrose Avenue and La Crescenta Avenue

Specifications No. 3829

EXHIBIT 2

INSURANCE REQUIREMENTS

1.0 REQUIRED INSURANCE POLICIES

At its own expense, Contractor shall obtain, pay for, and maintain – and shall require each of its Subcontractors to obtain and maintain – for the duration of the Construction Contract, policies of insurance meeting the following requirements:

A. Workers' Compensation/Employer's Liability Insurance must provide workers' compensation statutory benefits as required by law.

1. Employer's Liability insurance must be in an amount not less than:

- (a) ONE MILLION DOLLARS (\$1,000,000) per accident for bodily injury or disease;
- (b) ONE MILLION DOLLARS (\$1,000,000) per employee for bodily injury or disease; and
- (c) ONE MILLION DOLLARS (\$1,000,000) policy limit.

B. Commercial General Liability ("CGL") (primary). City and its officers, agents, employees and representatives must be added as additional insureds, not limiting coverage for the additional insured to "ongoing operations" or in any way excluding coverage for completed operations. Coverage must apply on a primary, non-contributing basis in relation to any other insurance or self-insurance, primary or excess, available to City or any officer, agent, employee, or representative of City (collectively, "City and its representatives"). Coverage must not be limited to the vicarious liability or supervisory role of any additional insured. Coverage afforded to "City and its representatives" must be at least as broad as that afforded to Contractor. If Contractor has higher limits than the limits specified in these insurance requirements, or has additional broader coverage, or has both, the insurer shall make available the higher limits and broader coverage to "City and its representatives." Coverage must not contain a contractors' limitation or other endorsement limiting the scope of coverage for liability arising from explosion, collapse, or underground property damage.

1. CGL insurance must not be written for less than the limits of liability specified as follows:

- (a) FIVE MILLION DOLLARS (\$5,000,000) per occurrence, or the full per occurrence limits of the policy, whichever limit is greater, for bodily injury (including accidental death) to any one person;
- (b) FIVE MILLION DOLLARS (\$5,000,000) per occurrence, or the full per occurrence limits of the policy, whichever limit is greater, for personal and advertising injury to any one person;
- (c) FIVE MILLION DOLLARS (\$5,000,000) per occurrence, or the full per occurrence limits of the policy, whichever limit is greater, for property damage; and
- (d) TEN MILLION DOLLARS (\$10,000,000) general aggregate limit, or the full aggregate limits of the policy, whichever limit is greater.

2. CGL insurance must include all major divisions of coverage and must cover:
 - (a) Premises Operations (including Explosion, Collapse, and Underground ["X,C,U"] coverages as applicable);
 - (b) Independent Contractor's Protective;
 - (c) Independent Contractors;
 - (d) Products and Completed Operations (maintain same limits as above until **five (5)** years after recordation of Notice of Completion);
 - (e) Personal and Advertising Injury (with Employer's Liability Exclusion deleted);
 - (f) Contractual Liability (including specified provision for Contractor's obligation under Article 11 of the General Conditions); and
 - (g) Broad Form Property Damage.
3. Umbrella or Excess Liability Insurance (over primary), if provided, must be at least as broad as any underlying coverage. Umbrella or excess liability coverage must apply on a primary, non-contributory basis for the benefit of "City and its representatives," before the umbrella or excess liability insurer calls upon "City's and its representatives" primary insurance policy, or self-insurance program, or umbrella or excess liability insurance, or any combination of these insurance policies or programs. Coverage must be provided on a "pay on behalf" basis, with defense costs payable in addition to policy limits. There must be no cross liability exclusion and no contractor's limitation endorsement. The policy must have starting and ending dates concurrent with the underlying coverages. The Named Insured may determine the layering of primary and excess liability insurance provided that if such layering differs from that described here, the actual coverage program meets the minimum total required limits and complies with all other requirements listed here.

C. Business Automobile Liability Insurance

1. Business Automobile Liability Insurance must cover all vehicles, whether rented, leased, hired, scheduled, owned or non-owned. If Contractor does not own any vehicles, this requirement may be satisfied by a non-owned vehicle endorsement to the general and umbrella liability policies. Business Automobile Liability Insurance coverage amounts must not be less than the following:
 - (a) THREE MILLION DOLLARS (\$3,000,000) per occurrence for bodily injury (including accidental death) to any one person; and
 - (b) THREE MILLION DOLLARS (\$3,000,000) per occurrence for property damage; or
 - (c) THREE MILLION DOLLARS (\$3,000,000) combined single limit.

D. Contractors Pollution Liability Insurance (CPL) –

1. Contractor or Subcontractor shall obtain, pay for, and maintain for the duration of the Contract Contractors Pollution Liability insurance that provides coverage for liability caused by pollution conditions arising out of the operations of the Contractor. Coverage must be included on behalf of the insured for covered claims arising out of the actions of independent contractors. If the insured is using Subcontractors, the policy must include work performed "by or on behalf" of the insured.
2. The policy limit must provide coverage of no less than **Three million dollars (\$3,000,000)** per claim and in the aggregate. Coverage must apply to bodily injury; property damage, including loss of use of damaged property or of property that has not been physically injured; cleanup costs; and costs of defense, including costs and expenses incurred in the investigation, defense, or settlement of claims.
3. All activities contemplated in the Contract must be specifically scheduled on the CPL policy as "covered operations." In addition, the policy must provide coverage for the hauling of waste from the Project site to the final disposal location, including non-owned disposal sites.
4. The policy must specifically provide for a duty to defend on the part of the insurer. City, its officers, agents, employees, and representatives must be added to the policy as additional insureds by endorsement. Coverage afforded to "City and its representatives" must be at least as broad as that afforded to Contractor. If Contractor has higher limits than the limits specified in these insurance requirements, or has additional broader coverage, or has both, the insurer shall make available the higher limits and broader coverage to "City and its representatives."

E. Builder's Risk Insurance

1. Builder's Risk Insurance covering all real and personal property for "all risks" of loss or "comprehensive perils" coverage, including, but not limited to, the perils of earth movement including earthquake and flood for all buildings, structures, fixtures, materials, supplies, machinery and equipment to be used in or incidental to the construction at the site, off site, or in transit, for the full replacement value of such properties. Coverage must be included for property of others in the care, custody or control of the insured for which any insured may be liable. The City will purchase a builder's risk policy for the Project instead of a contractor purchased policy. **Bidder should not include cost for this coverage in his/her bid.**

2.0 GENERAL REQUIREMENTS—ALL POLICIES

A. Qualifications of Insurer. At all times during the term of this Contract, Contractor's insurance company must meet all of the following requirements:

1. "Admitted" insurer by the State of California Department of Insurance or be listed on the California Department of Insurance's "List of Approved Surplus Line Insurers" ("LASLI");
2. Domiciled within, and organized under the laws of, a State of the United States; and
3. Carry an A.M. Best & Company minimum rating of "A-: VII".

B. Continuation Coverage. For insurance coverages that are required to remain in force after the Final Payment, and if reasonably available, Contractor shall submit to City, with the final Application for Payment, all certificates and additional insured endorsements evidencing the continuation of such coverage.

C. Deductibles or Self-Insured Retentions. All deductibles or self-insured retentions are subject to City's review and approval, in its sole discretion. Any "self-insured retention" must be declared. City reserves the right to require the self-insured retention to be eliminated or replaced by a deductible. Self-funding, policy fronting or other mechanisms to avoid risk transfer are not acceptable. If Contractor has such a program, Contractor shall fully disclose such program to City.

D. Commercial General Liability and Business Automobile insurance policies must be written on an "occurrence" basis and must add the City of Glendale and its officers, agents, employees and representatives as additional insureds.

E. Contractor's Insurance Primary. Other insurance (whether primary, excess, contingent or self-insurance, or any other basis) available to "City and its representatives" is excess over Contractor's insurance (whether primary, excess, contingent or self-insurance, or any other basis). "City's and its representatives" insurance (whether primary, excess, contingent or self-insurance, or any other basis) will not contribute with Contractor's insurance policy or policies.

F. Waiver of Subrogation. Contractor and Contractor's insurance company waive— and shall not exercise— any right of recovery or subrogation that Contractor or the insurer may have against "City and its representatives."

G. Separation of Insureds. Contractor's insurance policy applies separately to each insured or additional insured who is seeking coverage, or against whom a claim is made or suit is brought, except that the naming of multiple insureds will not increase an insurance company's limits of liability.

H. Claims by Other Insureds. Contractor's insurance policy applies to a claim or suit brought by an additional insured against a Named Insured or other insured, arising out of bodily injury, personal injury, advertising injury, or property damage.

I. A liability policy must not contain any provision or definition that would serve to eliminate so-called "third party action over" claims, including any exclusion for bodily injury to an employee of the insured or of any contractor or subcontractor.

J. Premiums. City is not liable for a premium payment or another expense under Contractor's policy

K. At any time during the duration of this Contract, City may do any one or more of the following:

1. Review the insurance coverage requirements;
2. Require that Contractor obtain, pay for, and maintain more insurance depending on City's assessment of any one or more of the following factors:
 - (a) City's risk of liability or exposure arising out of, or in any way connected with, the services of Contractor under the Contract;
 - (b) The nature or number of accidents, claims, or lawsuits arising out of, or in any way connected with, the services of Contractor under the Contract; or
 - (c) The availability, or affordability, or both, of increased liability insurance coverage.

3. Obtain, pay for, or maintain a bond (as a replacement for an insurance coverage) from a California corporate surety, guaranteeing payment to City for liability, or costs, or both, that City incurs during City's investigation, administration, or defense of a claim or a suit arising out of the Contract; or

L. Contractor shall maintain the insurance policy without interruption, from the Project's commencement date to the Final Payment date, or until a date that City specifies for any coverage that Contractor must maintain after the Final Payment.

M. Contractor shall not allow any insurance to expire, cancel, terminate, lapse, or non-renew. Contractor's insurance company shall mail City written notice at least thirty (30) days in advance of the policy's cancellation, termination, non-renewal, or reduction in coverage and ten (10) days before its insurance policy's expiration, cancellation, termination, or non-renewal, Contractor shall deliver to City evidence of the required coverage as proof that Contractor's insurance policy has been renewed or replaced with another insurance policy which, during the duration of the Contract, meets all of these insurance requirements.

N. At any time, upon City's request, Contractor shall furnish satisfactory proof of each type of insurance coverage required— including a certified copy of the insurance policy or policies; certificates, endorsements, renewals, or replacements; and documents comprising Contractor's self-insurance program— all in a form and content acceptable to the City Attorney or City's Risk Manager.

O. If Contractor hires, employs, or uses one or more Subcontractor(s) to perform work, services, operations, or activities on Contractor's behalf, Contractor shall:

1. Ensure and verify that the Subcontractor meets, and fully complies with, these insurance requirements. Contractor shall monitor and review all such coverage and assumes all responsibility for ensuring that all required coverage is provided; and
2. Furnish City at any time upon its request, with a complete copy of the Subcontractor's insurance policy or policies for City's review, or approval, or both. Failure of City to request copies of the documents does not impose any liability on City, or its employees.

P. Contractor shall provide immediate notice to City of any claim or loss against Contractor that includes City or any other indemnitee as a defendant. City assumes no obligation or liability by such notice, but has the right (but not the duty) to monitor the handling of any such claim or claims if they are likely to involve City.

Q. Contractor's failure to comply with an insurance provision constitutes a material breach upon which City may immediately terminate or suspend Contractor's performance of the Contract, or invoke another remedy that the Contract or the law allows. At its discretion and without waiving any other rights it may have pursuant to law, City has the right but not a duty to obtain or renew the insurance and pay all or part of the premiums. Upon demand, Contractor shall repay City for all sums or monies that City paid to obtain, renew, or reinstate the insurance, or City may offset the cost of the premium against any sums or monies that City may owe Contractor.

3.0 CONTRACTOR'S SUBMITTAL OF CERTIFICATES AND ENDORSEMENTS

A. Contractor shall have its insurance carrier(s) or self-insurance administrator(s) complete and execute the following insurance documents and shall deliver the documents at the same time Contractor delivers the Contract to City. City will neither sign the Contract nor issue a "Notice to Proceed" until the City Attorney or City's Risk Manager has reviewed and approved all insurance documents. City's decision as to the acceptability of all insurance documents is final. Sample insurance documents in the City's approved format are set forth in this Exhibit 2.

B. Required Submittals for Commercial General Liability and Business Automobile Insurance and Contractor's Pollution Liability Insurance. The following submittals must be on forms satisfactory to the City Attorney or City's Risk Manager, and signed by the insurance carrier or its authorized representative – which fully meet the requirements of, and contain provisions entirely consistent with, all of the insurance requirements set forth in this document:

1. "Certificate of Insurance";
2. "Additional Insured Endorsement"; and
3. Subrogation Endorsement: "Waiver of Transfer to Rights of Recover Against Others."

C. Both Certificates of Insurance and Additional Insured Endorsements must read as follows: "The City of Glendale, and its officers, agents, employees and representatives are included as additional insureds under the policy(s). This insurance is primary to all other insurance of the City. The City's insurance and self-insurance will apply in excess of, and will not contribute with this insurance. This insurance applies separately to each insured or additional insured who is seeking coverage, or against whom a claim is made or a suit is brought. The issuing company shall mail thirty (30) days advance notice to the City for any policy cancellation, termination, non-renewal, or reduction in coverage."

D. Required Submittals for Workers' Compensation Insurance. Contractor shall provide City with a certificate of insurance and a subrogation endorsement on forms satisfactory to the City Attorney or City's Risk Manager, and signed by the insurance carrier or its authorized representative – which fully meet the requirements of, and contain provisions entirely consistent with, the workers compensation insurance requirements. If Contractor is self-insured for workers' compensation, a copy of the "Certificate of Consent to Self-insure" from the State of California is required; or if Contractor is lawfully exempt from workers' compensation laws, an "Affirmation of Exemption from Labor Code § 3700" form is required.

E. Required Evidence of Builder's Risk Coverage. City will provide a certificate of insurance and a declarations page on a form satisfactory to the City Attorney or City's Risk Manager, and signed by the insurance carrier or its authorized representative. The policy terms must fully meet the requirements of, and contain provisions entirely consistent with, all of the insurance requirements set forth herein. The City shall be named as a loss payee on the insurance policy for the full replacement value of all buildings, structures, fixtures and materials to be constructed, maintained, repaired or supplied pursuant to this Contract.

F. Please comply with the following Sample Insurance Documents.

SAMPLE INSURANCE CERTIFICATE



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
INSURED	INSURERS AFFORDING COVERAGE	NAIC #
	INSURER A:	
	INSURER B:	
	INSURER C:	
	INSURER D:	
INSURER E:		

COVERAGES

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

INSR LTR	ADD'L INSR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
		GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR <input type="checkbox"/> _____ GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ LIQUOR LIABILITY \$
		AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> _____				COMBINED SINGLE LIMIT (Each Occurrence) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
		GARAGE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> _____				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AGG \$
		EXCESS/UMBRELLA LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below OTHER				<input type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
		OTHER				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

By the attached Endorsement(s): The City of Glendale, and its officers, agents, employees, and representatives are included as additional insureds under the policy(s). This insurance is primary to all other insurance of the City. The City's insurance, or self-insurance, or both, will apply in excess of- and will not contribute with- this insurance. This insurance applies separately to each insured or additional insured who is seeking coverage, or against whom a claim is made or a suit is brought. The issuing company shall mail thirty (30) days advance notice to the City for any policy cancellation, termination, non-renewal, or reduction in coverage.

CERTIFICATE HOLDER

City of Glendale
 Public Works Department / Engineering Division
 633 East Broadway, Room 205
 Glendale, California 91206-4388

RE: CITY SPECIFICATION NO.: _____
 CITY PROJECT NAME: _____
 CITY PROJECT MANAGER: _____

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

ACORD 25 (2001/08)

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EXHIBIT 3

BASELINE PROJECT SCHEDULE

(NOT APPLICABLE TO THIS PROJECT)

EXHIBIT 4

PRELIMINARY SCHEDULE OF VALUES

ATTACH BID FORMS HERE

EXHIBIT 5
City of Glendale
DISCLOSURE - CAMPAIGN FINANCE ORDINANCE – CONTRACTORS AND SUBCONTRACTORS
(NOT APPLICABLE TO THIS PROJECT)

EXHIBIT 6

FORMS REQUIRED FOR FEDERALLY-FUNDED PROJECTS

(NOT APPLICABLE TO THIS PROJECT)

EXHIBIT 7

**CONTRACTOR'S CERTIFICATION UNDER LABOR CODE § 1861 OF
LABOR CODE § 3700 COMPLIANCE**

(WORKERS' COMPENSATION INSURANCE)

Contractor shall execute the following form as required by California Labor Code Section 1861:

1. I certify that:

- I have read, and I am familiar with, California Labor Code Section 3700 which states in part:

"Every employer except the state shall secure the payment of [workers'] compensation in one or more of the following ways:

(a) By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state.

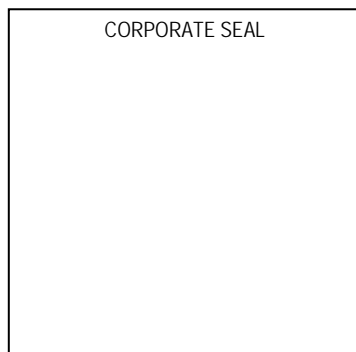
(b) By securing from the Director of Industrial Relations a certificate of consent to self-insure either as an individual employer, or as one employer in a group of employers, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees."

- I am aware of the provisions of Labor Code Section 3700 which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code.

2. I affirm that before starting the Work of this Contract, and at all times while performing the Work, I will comply with the Labor Code provisions. I have a certificate of consent to self-insure, or a certificate of workers' compensation insurance, and I will give it to the City of Glendale before I begin the Work.

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

Executed on _____, 20____, at _____, California.



CONTRACTOR:

Signature

By: _____
Name

Title of Authorized Signatory

GENERAL CONDITIONS

GENERAL CONDITIONS

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ARTICLE 1 PRELIMINARY PROVISIONS

1.01 DEFINITIONS

The following words shall have the following meanings:

- A. **Addenda.** The Addenda or Addendum consist of the written clarifications of the Proposal Requirements, Preliminary Design Documents, or the Contract Documents issued by the City prior to the execution of the Construction Contract.
- B. **Admitted Surety Insurer.** A Surety authorized to transact surety insurance in the State of California, as evidenced by a valid Certificate of Authority issued by the California Department of Insurance in accordance with California Insurance Code Section 12070 et seq.
- C. **Allowance.** A line item cost estimate established by the City to be carried in the Base Bid sum, Contract Sum, and Schedule of Values for Payment for a particular item of Work, which cannot be sufficiently defined so as to allow the Contractor to adequately determine fair value before the Bid Deadline. Allowances include estimated amounts established by the City for certain construction elements that have not yet been fully designed or authorized for inclusion in the Work or to permit deferred approval or selection of actual materials and equipment to a later date when additional information is available for evaluation.
- D. **As-Builts.** The documents prepared by Contractor showing the condition of the Work as actually built, including, without limitation, all changes and the exact locations of all mechanical, electrical, plumbing, HVAC or other portions of the Work that are shown diagrammatically in the Contract Documents.
- E. **Base Bid.** The price stated in the Schedule of Bid Prices for which the Bidder offers to perform Work described in the Contract Documents as the base Contract Work (e.g. not designated as part of a Bid Alternate).
- F. **Bid.** A complete and properly executed offer by the Bidder on City-prescribed forms to perform the Work for the prices stated in response to the Notice Inviting Bids.
- G. **Bid Alternate.** An item of Work described in the Contract Documents as a Bid Alternate and the price the Bidder indicates in the Schedule of Bid Prices form that will be added to or deducted from the scope of Work of the Base Bid which will be the Contractor's responsibility to perform only if the City accepts the Bid Alternate.
- H. **Bid Deadline.** The date and time when Bids are due for submission to the City, as established in the Notice Inviting Bids and as may be modified by Addenda.
- I. **Bid Forms.** The City-prescribed forms which the Bidder shall complete and use to submit a Bid. The Bid Forms include: (1) Bidder's Proposal; (2) Schedule of Bid Prices; (3) Incumbency Certificate; (4) Bid Bond; (5) Bidder's Statement of Qualifications; (6) Experience Form; (7) Specialty Contractor's Statement of Qualifications (8) Contractor Safety Questionnaire; (9) Designation of Subcontractors; (10) Declaration of Non-Collusion; (11) Insurance Requirements Affidavit; and (12) forms included in the Specification required by the type of project funding (e.g. federal, ARRA, HUD, etc.).

- J. **Bidder.** The individual, partnership, firm, corporation, joint venture or other legal entity submitting a bid on these Contract Documents or any part thereof.
- K. **Bidding Documents.** Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of: (1) Notice Inviting Bids; (2) Instructions to Bidders; and (3) Bid Forms. The proposed Contract Documents consist of: (1) the Bidding Requirements; (2) the Construction Contract Between City and Contractor; (3) the Conditions of the Contract (General, Supplementary, and Special, if applicable); (4) all Exhibits to the Contract; (5) the Drawings; (6) the Specifications; (7) all Addenda issued prior to the execution of the Construction Contract; (8) all Modifications issued after the execution of the Construction Contract; and (9) Governmental Approvals, including, but not limited to, permits.
- L. **Change Order.** A Change Order is a written document prepared by the City reflecting the agreement between the City and Contractor for: a change in the terms or conditions of the Contract, if any; a specific Scope Change in the Work; the amount of the adjustment, if any, in the Contract Sum; and the extent of the adjustment, if any, in the Contract Time.
- M. **Change Order Request (COR).** A Change Order Request is a written document originated by the Contractor, which describes an instruction issued by the City after the effective date of the Contract, which Contractor believes to be a scope change that may result in changes to the Contract Sum or Contract Time or, which describes the need for or desirability of a change in the Work proposed by Contractor.
- N. **City or Owner.** The City of Glendale, California, acting through its City Council or other City officials authorized to act for the City, acting in its proprietary rather than regulatory capacity in connection with the Project.
- O. **City Manager.** The City official who is the executive head of the department of management services and of the various departments of the City, or his/her duly appointed representative whom the City Manager has designated in writing.
- P. **Compensable Delay.** An Excusable Delay for which Contractor is also entitled to an equitable adjustment of the Contract Sum.
- Q. **Concurrent Delay.** To the extent the Contractor is entitled to an extension of time due to an Excusable Delay, but the performance of the Work is independently suspended, delayed, or interrupted by an Inexcusable Delay, the delay shall be deemed to be a "Concurrent Delay." OR When an act or event that would otherwise be a Compensable Delay overlaps or runs concurrently with an independent Excusable (but not compensable) Delay or with an Inexcusable Delay, the delay shall be deemed to be a "Concurrent Delay."
- R. **Contract Documents.** The Contract Documents are enumerated in the Construction Contract between City and Contractor and consist of: (i) the Bidding Requirements; (ii) the Construction Contract; (iii) the Conditions of the Contract (General, Supplementary, and Special, if applicable); (iv) all Exhibits to the Contract; (v) the Drawings; (vi) the Specifications; (vii) all Addenda issued prior to the execution of the Contract; (viii) all Modifications issued after the execution of the Contract; and (ix) Governmental Approvals, including, but not limited to, permits. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent

with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

- S. **Contract.** The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified on by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than the City and the Contractor. There shall be no third-party beneficiaries of the Contract Documents.
- T. **Contract Sum.** The total amount of compensation stated in the Construction Contract that is payable to Contractor for the complete performance of the Work in accordance with the Contract Documents.
- U. **Contract Time.** The total number of days set forth in the Construction Contract within which Substantial Completion of the Work must be achieved beginning with the Date of Commencement established in the Notice to Proceed, subject to adjustments in accordance with the terms of the Contract Documents. The Contract Time for Contractor's performance of the Work is measured in Working days (not Calendar Days).
- V. **Contractor.** The individual, partnership, firm, corporation, joint venture or other legal entity with whom the Contract is made by said City, or the agent or legal representative who may be appointed to represent such individual, partnership, firm, corporation, joint venture or other legal entity in the execution of the Contract as general contractor for construction of the Work.
- W. **Correction Period.** Correction Period is synonymous with the terms of the correction guarantee period used in the Contract Documents.
- X. **Critical Path.** The "Critical Path" or "Critical Path Management" ("CPM") is a method of scheduling the Work in which the Critical Path represents the sequence of activities yielding the longest chain of interrelated activities in terms of time from the beginning of the Project to the end that has a Float value of zero indicating that any delay in any one activity along this path will delay the completion of the overall Work.
- Y. **Date of Commencement.** The date for commencement of the Work fixed by City in a Notice to Proceed to Contractor.
- Z. **Day.** The terms "day" or "days" mean calendar days unless otherwise specifically designated in the Contract Documents.
- AA. **Director.** The Director of the Public Works Department of the City of Glendale or his/her duly appointed representative whom the Director has designated in writing.
- BB. **Drawings.** The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.
- CC. **Excusable Delay.** A delay that satisfies the conditions and requirements set forth in Section 3.04.C for an increase in the Contract Time.
- DD. **Extra Work.** New or unforeseen work will be classified as Extra Work when determined by the City that the work is not described in, or reasonably inferable from, the Contract Documents, the work is

not covered by any Bid line item or Allowance, and the work causes Contractor to incur additional and unforeseen costs.

- EE. **Final Completion.** Final Completion is the stage of performance of the Work when (1) all Work required by the Contract Documents has been fully completed in compliance with the Contract Documents and all applicable laws including, but not limited to, correction or completion of all punch list items noted by City upon Substantial Completion; (2) Contractor has delivered to City an Application for Final Payment and all closeout documentation required by the Contract Documents; and (3) documentation of all final Governmental Approvals has been submitted to City including, but not limited to a final Certificate of Occupancy or equivalent Building Department sign-off has been issued covering the entire Project site without exception or conditions.
- FF. **Float.** The amount of time that any activity or path of activities may be delayed without impacting the date for Substantial Completion of the Work.
- GG. **Force Majeure.** "Force Majeure" includes but is not limited to declared or undeclared war, sabotage, insurrection, riot, or other acts of civil disobedience, labor disputes, fires, explosions, floods, earthquakes or other acts of God, the impacts of which could not have been avoided by the due diligence and reasonable efforts of Contractor.
- HH. **Fragmet.** A contemporaneous, fragmentary schedule network, which graphically identifies the sequencing of all critical and non-critical new activities and/or activity revisions affected by a compensable delay or excusable delay with logic ties to all affected existing activities noted on the construction schedule.
- II. **Governmental Approval.** Any approval, authorization, inspection, certification, consent, exemption, filing, permit, registration, plan check, ruling or similar authorization required by any federal, state or local law, regulation or procedures in order for Contractor to perform the Work.
- JJ. **Guarantee.** Assurance to City by Contractor or product manufacturer or other specified party, as guarantor, that the specified warranty will be fulfilled by the guarantor in the event of default by the warrantor.
- KK. **Inexcusable Delay.** Any delay that does not meet the requirements for an Excusable Delay and thus does not serve as the basis for an increase in the Contract Time, or to an equitable adjustment of the Contract Sum, or any additional compensation whatsoever.
- LL. **Modification.** A Modification is: (1) a written amendment to Contract signed by both parties; (2) a Change Order; or (3) a Construction Change Directive.
- MM. **Notice to Proceed.** The Notice to Proceed is a document issued by the City fixing the date for Commencement for the Work.
- NN. **Parties.** The City and Contractor may be referred to in the Contract Documents from time to time as the Parties.
- OO. **Permit Fees.** The actual direct costs paid by Contractor for Governmental Approvals and Utility Fees.
- PP. **Permit Fees Reimbursement.** A payment made to the Contractor by the City in addition to the Contract Sum to compensate Contractor for the actual direct cost of all Permit Fees.

- QQ. **Project.** The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the City or by separate contractors.
- RR. **Project Manual/Contract Package.** The volumes of Contract Documents and reference documents assembled for the Work made available to Bidders.
- SS. **Record Documents.** The Drawings, Specifications, Addenda, requests for information, bulletins, Change Orders and other modifications to the Contract Documents, approved shop drawings, product data, samples, mock-ups, permits, inspection reports, test results, daily logs, schedules, subcontracts, and purchase orders. Records Documents shall include a set of "As-Built" Drawings and Specifications, which shall be continuously updated during the prosecution of the Work.
- TT. **Site.** The physical area designated in the Contract Documents for Contractor's performance of the Work.
- UU. **Specialty Contractor.** A contractor whose operations as such are the performance of construction work requiring special skill and whose principal contracting business involves the use of specialized building trades or crafts and as otherwise defined in California Business and Professions Code Section 7058.
- VV. **Specification.** The Specification is a volume(s) assembled for the Work that includes, without limitation, the Bidding Documents, the Construction Contract and Exhibits, the General Conditions, the Supplementary and/or Special Conditions, if any, and the Specifications.
- WW. **Specifications.** The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards, and workmanship for the Work and performance of related services, including, but not limited to, the Project Technical Specifications, Standard Specifications, if any, and any applicable Trade Association Specifications.
- XX. **Substantial Completion.** Substantial Completion is defined to mean the stage in the progress of the Work when the Work is sufficiently complete in accordance with the Contract Documents as determined by the City so that the City can occupy and utilize the Work for its intended use (for which a Temporary Certificate of Occupancy ("TCO") has been issued by the City unless a TCO is not required to operate that type of facility) and as further defined in the Contract Documents.
- YY. **Unilateral Change Order.** A "Unilateral Change Order" is a written order signed solely by the City to adjust the Contract Sum, or Contract Time, or both: 1) to recover costs to City for Contractor defaults; 2) for deductions allowed under the Contract Documents; 3) for final quantity adjustments to the Contract Sum for Unit Price Work, Allowances, and other final accounting adjustments; and 4) a final increase or decrease in the Contract Time consistent with the Contract Documents. If Contractor disputes a Unilateral Change Order, Contractor may proceed with a Claim as provided in **Article 15** herein.
- ZZ. **Unit Price.** A "Unit Price" is a price entered by Bidder in a Bid Form as a price per unit of measurement for payment for installation of for credit for deletion of materials, equipment or services including supervision, overhead and profit for a portion of the Work described in the Bid Form.
- AAA. **Utility Fees.** The fees charged by any public, private, cooperative, municipal and/or government line, facility or system used for the carriage, transmission and/or distribution of cable television, electric

power, telephone, water, gas, oil, petroleum, steam, chemicals, sewage, storm water or similar commodity including, but not limited to fees for temporary utilities and refuse hauling.

- BBB. **Warranty.** Assurance to City by contractor, installer, supplier, manufacturer or other party responsible as warrantor, for the quantity, quality, performance and other representations of a product, system service of the Work.
- CCC. **Work.** The term "Work" means the construction and other services required by, and reasonably inferable from the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.
- DDD. **Work Directive.** A Work Directive is a unilateral written order issued by the City directing Contractor to continue performance of the Work or a disputed item of Work pending resolution of a claim or dispute concerning the scope of Work.
- EEE. **Working Day or Work Day.** The term "Working Day" or "Work Day" means any calendar day except Saturdays, Sundays, and City-recognized legal holidays as described in Paragraph 14.01 below.

1.02 REPRESENTATIVES

- A. The Director shall be the representative of the City and, except as otherwise expressly provided herein, shall make all decisions and interpretations to be made by the City under the provisions of the Contract Documents, subject to the following limitations:
1. The Director is authorized to execute Change Orders, Construction Change Directives and Modifications to increase the Contract Sum up to the contingency amount, if any, established by the City Council at the time of award of the Contract. City Council approval is required for any change that results in the total amount of Change Orders, Construction Change Directives, or Modifications exceeding the approved contingency and changes to the design approved by the City Council.
 2. Whenever the Contract Documents require or permit the City to take or request an action or approve or disapprove of an action or request made by another party, the reference shall mean the Director unless the Contract Documents or context make it clear that another person is authorized or required to act on behalf of the City.
 3. The Director is authorized to approve Contractor Applications for Payment; sign the Notice of Completion; make determinations regarding partial deletion or suspension of Work; and make determinations regarding partial or complete termination of Contractor's performance of the Work.
 4. All legal notices and communications by Contractor to City after Final Completion of the Project shall be made to the Director.
- B. The City Manager is authorized to execute the Contract on behalf of the City. The City Manager may approve Change Orders, Construction Change Directives and Modifications to increase the Contract Sum exceeding contingency amount, if any, established by the City Council at the time of award of the Contract on an emergency basis, which will require later ratification by the City Council.

- C. The City's Project Manager designated in the Project Directory of the Specification is the single point of communications by Contractor to City during the course of construction. The City's Project Manager shall: serve as the primary contact for the City; coordinate site access; coordinate the Work with City's separate consultants and contractors; attend pre-bid conferences(s) for construction of the Work; issue Addenda; coordinate RFIs; prepare, recommend approval of, and circulate Change Orders and Construction Change Directives to Contractor; attend construction meetings; review and recommend approval of Contractor Applications for Payment; issue the Certificate of Substantial Completion and collect all Contractor close out documents after City's consultants have reviewed for completeness. Authority to sign Change Orders, Construction Change Directives, and Modifications rests solely with the Director and, as provided in Paragraph 1.02, the City Manager.
- D. The Contractor shall at all times be represented on the Work in person or by a duly designated agent. Instructions and information given by the Director to the Contractor's agent on the Work shall be considered as having been given to the Contractor.

1.03 PERMITS, INSPECTIONS, PLAN CHECKS, AND SIMILAR GOVERNMENTAL APPROVALS AND UTILITIES

- A. Except as otherwise provided in the Notice Inviting Bids, the Contractor shall apply for, obtain, and pay for all permits including, but not limited to, building or structure permits, plumbing system permits, mechanical system permits, electrical system permits, structural system permits, demolition permits, excavation permits, street use permits, driveway permits, sidewalk, curb, sewer, gutter, crosswalk, paving or other street work grading permits, street/utility use permits, OSHA permits, fire sprinkler permits, fence permits, blasting permits, landscaping/irrigation permits, and permits to demolish, remove, or make major alterations to any designated historic resource; inspections; and plan checks obtained after the Date of Commencement of the Work. The Notice Inviting Bids contains a list of permits and other Governmental Approvals and Utility Fees obtained and paid for by the City prior to the Date of Commencement; Contractor is responsible for obtaining all Governmental Approvals and Utility Fees not listed in the Notice Inviting Bids.
- B. The City will reimburse Contractor monthly for the documented actual direct cost paid to governmental agencies or utilities for all Permit Fees according to the payment provisions of the Contract Documents after submission to the City of the Contractor's and/or Subcontractors' original receipts from the governmental entities or utilities ("Permit Fee Reimbursement"). Contractor shall deliver the original receipt to the City's Project Manager with each permit. All Permit Fees shall be separately itemized in each Application for Payment and copies of the receipt(s) and permit(s) must be attached. The Base Bid sum / Contract Sum shall include the cost of administration and coordination for all Governmental Approvals and Utility Fees.
- C. All documents evidencing Contractor's satisfaction with all Governmental Approvals and Utility Fees must be submitted to the City prior to submission of the Application for Final Payment.
- D. Where requirements of the Governmental Approvals differ from those of the Drawings and Specifications, the more stringent requirements shall apply.
- E. Unless otherwise specified in the Contract Documents, Contractor shall be responsible for payments of all Utility Fees from the Date of Commencement until City's Final Acceptance of the Work.

1.04 LICENSES

The Contractor shall apply for, obtain, and pay for all licenses required by governing authorities for the Work.

1.05 ALLOWANCES

- A. Contractor shall include in the Contract Sum and Schedule of Values for Payment, the City's estimated cost established for each Work item covered by an Allowance stated in the Contract Documents. See Paragraph 1.01 for definition of Allowance.
- B. The line item cost estimate established by the City for Work covered by an Allowance includes the cost to Contractor of: all materials and equipment, preparation of submittals; labor; transportation; delivery; handling; installation; supervision; overhead; profit; licenses; bonds; insurance; all sales, use and other taxes legally chargeable; and all other costs and expenses incidental to such Work.
- C. Work items covered by Allowances shall be supplied with such materials and equipment and for such prices approved in advance by City. Contractor shall notify and request City's approval of material equipment, and pricing information for Work covered by an Allowance before ordering the material or equipment and in sufficient time to avoid delay to the Work. City shall provide approval of materials, equipment, and prices with reasonable promptness. The material, equipment, and pricing information submitted by the Contractor to the City's Project Manager shall, at a minimum, include product data and detailed costs of material, equipment, and labor to complete such Work, itemized by costs incurred by Contractor and each subcontractor associated with the performance of such Work. Contractor shall not order materials or equipment or proceed with Work covered by an Allowance until the material, equipment, and pricing information for such Work items have been submitted to the City's Project Representative for review and the Contractor has received City's approval to proceed with a Work item covered by an Allowance.
- D. All expenditures for Allowance Work shall be separately itemized in each Application for Payment.
- E. To the extent that the cost of Work items covered by an Allowance is less than the Allowance cost estimate established by the City, the Contract Sum shall be reduced by Change Order or Construction Change Directive to reflect the actual cost of the Allowance item. Similarly, to the extent the cost of Work items covered by an Allowance is greater than the Allowance cost estimate, the Contract Sum shall be increased by Change Order or Construction Change Directive to reflect the actual cost of the Allowance item. If Work items covered by an Allowance are not performed or the City deletes such items from the Scope of Work, the Contract Sum shall be reduced by Change Order or Construction Change Directive to deduct the Cost of the unused Allowance item.

1.06 WAIVER

A waiver by City of any breach of any term, covenant, or condition contained in the Contract Documents shall not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant, or condition contained therein, whether of the same or a different character.

1.07 DATA TO BE FURNISHED BY THE CONTRACTOR

The Contractor shall furnish the Director reasonable facilities for obtaining such information as he/she may desire respecting the character of the materials and the progress and manner of the Work, including all information

necessary to determine its costs, such as the number of persons employed, their pay, the time during which they worked on the various classes of construction, and other pertinent data.

1.08 CONTRACT DRAWINGS

The City will accept no responsibility for errors resulting from misinterpretation or scaling of the Drawings.

1.09 SPECIFICATIONS AND DRAWINGS

- A. The Contractor shall keep on the Work Site a copy of all Specifications, Drawings, and Change Orders pertaining to the Work and shall at all times give the Director access thereto. Anything mentioned in the Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Specifications shall be of like effect as though shown or mentioned in both.
- B. In general, the Drawings will show dimensions, positions, and kind of construction; and the Specifications will define materials, quality, and standards. Any Work not particularly detailed, marked or specified, shall be the same as similar parts that are detailed, marked or specified.
- C. The Drawings shall not be scaled to determine dimensions, and in all cases shall be calculated from figures shown on the Drawings. Any discrepancies between scale and figured dimensions, not marked "not to scale," must be brought to the Director's attention before proceeding with the Work affected by the discrepancy.
- D. Omissions from the Drawings and/or Specifications shall not relieve the Contractor from the responsibility of furnishing, making, or installing all items required by law or code, or usually furnished, made or installed in a project of the scope and general character indicated by the Drawings and Specifications.
- E. For convenience, the Drawings and Specifications are arranged in various trade subparagraphs, but such segregation shall not be considered as limiting the Work of any subcontract or trade. The Contractor shall be solely responsible for all subcontract arrangements of the Work regardless of the location or provision in the Drawings and Specifications.
- F. The City will furnish free of charge to the Contractor, a maximum of six (6) sets of Contract Drawings and Specifications. The Contractor shall pay for the costs of any additional sets or portions thereof. The Contractor shall be responsible to see that all sets are the same as the up to date approved set.

1.10 PRECEDENCE OF CONTRACT DOCUMENTS.

- A. In the event of conflict between any of the Contract Documents, the provisions placing a more stringent requirement on the Contractor shall prevail. The Contractor shall provide the better quality or greater quantity of Work and/or materials unless otherwise directed by City in writing. In the event none of the Contract Documents place a more stringent requirement or greater burden on the Contractor, the controlling provision shall be that which is found in the document with higher precedence in accordance with the following order of precedence:
 - 1. Governmental Approvals including, but not limited to, permits required for the Work.
 - 2. Modifications issued after execution of the Contract (including modifications to Drawings and Specifications).

3. The Contract, including all exhibits, attachments, appendices and Addenda, with later Addenda having precedence over earlier Addenda.
4. Special Conditions, if any.
5. General Conditions.
6. Specifications.
7. Drawings.
8. Bidding Requirements.

B. With reference to the Drawings, the order of precedence is as follows:

1. Change Order Drawings.
2. Addenda Drawings.
3. Contract Drawings.
4. Project Drawings.
5. Standard Drawings.
6. Detail Drawings.
7. General Drawings.
8. Figures.
9. Scaled dimensions.

C. Within the Specifications, the order of precedence is as follows:

1. Change Orders.
2. Special Conditions.
3. Project Technical Specifications.
4. Standard Specifications, if any.
5. Applicable Trade Association Specifications.

1.11 NOTICE OF CONFLICTS

If the Contractor, in the course of the Work, becomes aware of any claimed conflicts, errors or omissions in the Contract Documents or in the City's fieldwork or work of City's separate contractors, the Contractor shall immediately notify the Director in writing. The Director shall promptly review the matter, and if the Director

finds a conflict, error or omission, the Director shall determine the corrective actions and advise the Contractor accordingly. If the correction associated with a conflict, error or omission increases or decreases the amount of Work called for in the Contract, the City shall issue an appropriate Change Order in accordance with the Contract Documents. After discovery of an error or omission by the Contractor, any related additional work performed by the Contractor shall be done at the Contractor's risk unless authorized by the Director.

1.12 REPORTS

A. Daily Construction Reports: The Contractor shall prepare a daily construction report recording the following information concerning events at Project site:

1. List of Subcontractors at Project site.
2. List of other contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events.
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

Immediately upon discovery of a difference between field conditions and the Contract Documents, the Contractor shall prepare and submit a detailed report through a Request for Information (RFI). Include a detailed description of the differing conditions, together with recommendations for a remedy.

The Daily Construction Report must be: signed by Contractor's Superintendent, submitted within 24 hours (next Working Day) to the Director, and shall be made available to others as directed by City.

1.13 LINES, GRADES, AND MEASUREMENTS

- A. All lines and grades will be established by the Contractor. The Contractors shall carefully preserve all survey stakes and reference points as far as possible. Should any stakes or points be removed or destroyed unnecessarily by any act of the Contractor or his/her employees, they must be reset to the satisfaction of the Director, at the Contractor's expense.
- B. The Contractor shall inform the Director 48 hours (two Work Days) in advance of the times and places at which he/she intends to Work in order that inspection may be provided, and that necessary measurements for records and payments may be made with minimum inconvenience.
- C. No direct payment will be made for the cost to the Contractor of any of the Work or delay occasioned by giving lines and grades, by making other necessary measurements, or by inspection.

1.14 RIGHT OF WAY

- A. The site for the installation of equipment or the right of way for the Work to be constructed under this Contract will be provided by the City.
- B. The City will provide the appropriate rights of way and property for pipelines and structures. Upon approval by the Director, the Contractor may, without cost, use portions of any of the City's rights of way or property which may be suitable for working space and for storage of equipment and materials. The Contractor will be held responsible for any damage to structures, streets, and roads, trees and landscaping, and for any damage that may result from his/her use of City property.
- C. In case areas additional to those available on the City's rights of way or property are required by the Contractor for his/her operations, he/she shall make arrangements with the property owners for the use of such additional areas at his/her own expense.

1.15 CONTRACTOR'S OPERATIONS/STORAGE YARD

In the event the Contractor requires space for the storage and/or staging of construction materials, supplies, equipment, stockpiling of debris, or any other needs required for construction operations, he/she shall acquire at his/her own expense such areas as he/she may desire. For properties within the City of Glendale, the staging area must be enclosed at Contractor's expense with construction fencing covered with a mesh screen to limit visibility to the site. Approval of the Neighborhood Services Department is required to ensure that private properties with code enforcement problems are not used. Private property used for storage of construction material or debris shall be restored to a legal condition with regard to appearance and maintenance upon conclusion of the project. Property should be graded and free of weeds and debris when project is completed.

[END OF ARTICLE]

ARTICLE 2 PERFORMANCE OF THE WORK

2.01 PERFORMANCE OF WORK - GENERAL

Contractor shall, at its own cost and expense, furnish all necessary materials, labor, transportation, and equipment for doing and performing said Work and the materials used shall comply with the requirements of the Contract Documents. All Work shall be performed and completed as required in the Contract Documents, and subject to the approval of the Director, or his/her designated assistant.

2.02 NO ASSIGNMENT OR DELEGATION

Contractor shall not assign or delegate the duties or obligation under this Contract or his/her interest therein in whole or in part without the prior written consent of the City which may be withheld at the City's sole discretion.

2.03 STANDARD OF PERFORMANCE

Contractor agrees that all services performed hereunder shall be provided in a manner commensurate with the highest professional standards and shall be performed by qualified and experienced personnel; that any Work performed by Contractor under the Contract will be performed in the best manner; that any material furnished shall be subject to the approval of the Director; and that both Work and materials will meet fully the requirements of the Contract Documents.

2.04 DEFECTIVE WORK

Within the time periods that the City specifies, the Contractor shall correct all deficient, improperly executed, or unsatisfactory Work determined by the City.

The Contractor shall remove and shall repair or replace, at his/her own expense any part of the Work that is deficient, improperly executed, or unsatisfactorily executed, even though it has been included in the monthly estimates. If he/she refuses or neglects to remove, repair, or replace such defective Work, prior to the City's acceptance of the Work, it may be replaced by the City at the expense of the Contractor, plus 15% for overhead expenses, and his/her sureties shall be liable therefor. (See Paragraph 2.15 for curing defects after acceptance of the Work.)

2.05 CITY'S RIGHT TO CARRY OUT THE WORK

A. Notwithstanding other remedies available to the City, if the Contractor defaults, fails to perform Work required by the Contract Documents, or otherwise neglects to carry out the Work in accordance with the Contract Documents and fails within a **48 hour** period after receipt of written notice from the City to commence and correct such default, failure to perform, or neglect with diligence and promptness, the City, at its sole discretion and without obligation, may, with its own or outside forces, perform the Work Contractor has failed to perform and/or replace or correct deficiencies in the Work. In such case, a Change Order or Construction Change Directive shall be issued deducting from payments then or thereafter due the Contractor the cost of completion, replacement or correction of such deficiencies, including compensation for additional services by the City's project management staff, the Architect, and their respective consultants made necessary by such default, failure to perform, or neglect, plus 15% for City's overhead expenses. If payments then or thereafter due the Contractor are not sufficient

to cover such amounts, the Contractor shall pay the difference to the City immediately. This remedy is cumulative.

- B. The City also has the right, but not the obligation, to self-perform or have outside forces perform portions of the Work previously assigned to Contractor. In such case a Change Order or Construction Change Directive shall be issued, reducing the Contract Sum by the Unit Price(s) applicable to such deleted Work or, in the absence of Unit Prices, an amount that reflects the reasonable cost of performing such deleted Work and the Allowable Mark-Up applicable to such deleted Work.

2.06 COMMUNICATIONS AND NOTICES REGARDING THE WORK

- A. Notices under the Contract Documents shall be in writing and (i) delivered personal; (ii) sent by certified mail, return receipt requested; (iii) sent by a recognized overnight mail or courier service, with delivery receipt requested; or (iv) sent by facsimile communication followed by a hard copy and with receipt confirmed by telephone, to the following addresses (or to such other address as may from time to time be specified in writing by such Person):

All correspondence with Contractor shall be sent to the following address:

City of Glendale
Public Works Engineering Department
633 E. Broadway, Room 205
Glendale, CA 91206
Attention: _____
Phone: _____
Facsimile: _____
E-mail: RTavitian@glendaleca.gov

All communications shall be copied to City and shall be delivered to City's Director at the address set forth below, with copies to such additional persons as may be directed by City's Director.

City of Glendale
Public Works Engineering Department
633 E. Broadway, Room 205
Glendale, CA 91206
Attention: Rustom Tavitian
Phone: 818-937-8326
Facsimile: 818-242-7807
E-mail: RTavitian@glendaleca.gov

- B. Notices shall be deemed received when actually received in the office of the addressee (or by the addressee if personally delivered) or when delivery is refused, as shown on the receipt of the U. S. Postal Service, private carrier or other Person making the delivery. Notwithstanding the foregoing, notices sent by facsimile after 4:00 p.m. Pacific Standard or Daylight Time (as applicable) and all other notices received after 5:00 p.m. shall be deemed received on the first business day following delivery (that is, in order for a fax to be deemed received on the same day, at least the first page of the fax must have been received before 4:00 p.m.). Any technical or other communications pertaining to the Work shall be conducted by Contractor's project manager and technical

representatives designated by City. Contractor's representatives shall be available at all reasonable times for consultation, and shall be authorized to act on behalf of Contractor in matters concerning the Work.

- C. Contractor shall copy City on all written correspondence pertaining to the Contract between Contractor and any Person other than Contractor's Subcontractors, consultants and attorneys.

2.07 INDEPENDENT CONTRACTOR

The Contractor in the performance of the Work hereunder will be acting in an independent capacity and not as an agent, employee, partner, or joint venture of the City.

2.08 EMERGENCY WORK

- A. During Working Hours:

In case of an emergency which threatens loss or injury of property, and/or safety of life during working hours, the Contractor shall act, without previous instructions from the City, as the situation may warrant. He/she shall notify the Director of the emergency and the action taken immediately thereafter. Any compensation claimed by the Contractor, together with substantiating documents in regard to expense, shall be submitted to the Director within 15 calendar days after the emergency. Compensation, if allowed, will be paid for as Extra Work.

- B. Outside of Working Hours:

Whenever, in the opinion of the City, there shall arise outside of the regular Working hours on the Contract Work of an emergency nature which threatens loss or injury of property, or danger to public safety, the Contractor shall act, without previous instructions from the City as the situation may warrant. He/she shall notify the Director of the emergency and the action taken immediately thereafter. Any compensation claimed by the Contractor, together with substantiating documents in regard to expense, shall be submitted to the Director within 15 calendar days after the emergency. Compensation, if allowed, will be paid for as Extra Work. In the event the Contractor is not able to respond to an emergency outside of regular working hours, the City's forces will handle such emergency Work. If such emergency arises out of or is the result of operations by the Contractor, the cost of the corrective measures will be billed to the Contractor and deducted from his/her payment as provided in the Contract Documents. The performance of emergency Work by City forces will not relieve the Contractor of any of his/her responsibilities, obligations, or liabilities under the Contract.

2.09 SUBCONTRACTORS

- A. Each subcontract shall contain a reference to the Contract between the City and the principal Contractor, and the terms of the Contract and all parts thereof shall be made part of each subcontract insofar as applicable to the Work covered thereby. Each Subcontractor shall provide for its annulment at the order of the Director, if, in his/her opinion, the Subcontractor fails to comply with the requirements of the principal Contract insofar as the same may be applicable to his/her Work.
- B. Nothing contained in these Contract Documents shall be construed as creating any contractual relationship between any Subcontractor and the City.

- C. The Contractor shall be considered the employer of and as fully responsible to the City for the acts and omissions of Subcontractors and of persons employed by them as he/she is for the acts and omissions of persons directly employed by him/her.
- D. The Contractor shall be responsible for the coordination of the trades, Subcontractors, and material suppliers engaged upon his/her Work. It shall be his/her duty to see that all of his/her Subcontractors commence their Work at the proper time and carry it on with due diligence so that they do not delay or injure either the Work or materials; and that all damage caused by them or their workers is made good at his/her expense.
- E. The City will not undertake to settle differences between the Contractor and his/her Subcontractors or between subcontractors.
- F. The Contractor shall utilize the services of specialty Subcontractors, without additional expense to the City, on those parts of the Work which are specified to be performed by specialty contractors.
- G. The City's consent to or approval of any Subcontractor under this Contract shall not in any way relieve the Contractor of obligations under this Contract and no such consent or approval shall be deemed to waive any provision of this Contract. The Contractor shall not substitute a Subcontractor, person or entity previously selected if the City makes reasonable objection to such substitution. Contractor shall submit copies of the complete subcontracts of City upon request of City.
- H. Contractor shall not use a debarred Subcontractor; a current list of debarred contractors is available at the Department of Industrial Relations' website.

I. Payments to Subcontractors:

The Contractor shall pay all Subcontractors for an on account of Work of the Contract performed by such Subcontractors within the (10) days after receipt of progress payments from City and within seven (7) days after receipt of retention from City.

Joint Payments. City hereby reserves the right, upon written notice to Contractor, to make, at any time, and from time-to-time, payments directly to each Subcontractor, and, if such rights shall be exercised by City, then such amount shall be credited against the Contract Sum due to Contractor hereunder and City shall be relieved and released from the obligation to make such payment to Contractor and Contractor shall be relieved and released as to City from the obligation to make such payments to each Subcontractor paid by City, but not from any of the other obligations and responsibilities of Contractor to City under the Contract Documents.

J. Arm's Length Transactions and Commercially Useful Function of Subcontractors and Suppliers.

To assure competitive bids and to assure that no bid rigging, unfair practices, collusion or conflicts of interest occur in connection with the Work, Contractor agrees that all agreements between Contractor and Subcontractors and suppliers for performance of the Work shall be pursuant to arm's length transactions, with unrelated and unaffiliated firms (a "related" or "affiliated" firm is one which is subject to the control of the same persons through joint ownership or otherwise). In all such agreements, each firm shall act in its own best interest, for compensation that reflects the fair market values of the materials or services that are the subject of the transaction.

Contractor further agrees that each Subcontractor and supplier for the Work will perform a commercially useful function (i.e. is responsible for the performance, management and supervision of

a distinct element of the Work). A Subcontractor or supplier does not perform a commercially useful function when, for example: the Work is outside the firm's experience or qualifications; the firm provides little or no supervision of the Work; more than fifty percent (50%) of the Work designated to be performed by a Subcontractor is performed by a Sub-subcontractor or supplier; the Subcontractor only purchases materials while performing little or no Work; the firm works for only one prime contractor; or the same employees work for the firm and the Contractor.

If, upon City's request, Contractor fails to provide adequate assurances of arm's length transactions or that all Subcontractors and Suppliers will perform a commercially useful function, Contractor shall remove such Subcontractor or supplier from the Project, exclude the cost associated with such firm from all Applications for Payment and change order requests and, if necessary, propose another Subcontractor or supplier to whom the City has no objection, without increase to the Contract Sum or Contract Time.

2.10 USE OF FACILITIES PRIOR TO COMPLETION OF CONTRACT

- A. Whenever in the opinion of the Director any Work under the Contract, or any portion(s) thereof, is in a condition suitable for use by the City, the City may, after written notice and designation from the Director to the Contractor, use (which includes, but is not limited to, taking over or placing into service) any portion(s) designated by the Director.
- B. The use of any portion(s) by the City shall not be construed as, and will not constitute acceptance in any sense, of any portion(s) of the Work of the Contractor nor will such use trigger the running of any warranty and/or guarantee periods.
- C. All necessary repairs, renewals, changes, or modifications in the Work or any portion thereof so used, not due to ordinary wear and tear, but due to defective materials or workmanship, the operations of the Contractor, or any other cause, shall be made at the expense of the Contractor.
- D. The use of any portion(s) by the City shall not relieve the Contractor of any of his/her responsibilities or liabilities under the Contract nor constitute a waiver by the City of any of the conditions thereof. Said use shall not cancel liquidated damages as of the first date of use, or any continuance thereof, nor impair, reduce, or change the amount of liquidated damages.

2.11 COOPERATION WITH OTHER WORK FORCES

- A. The City reserves the right to perform other Work at or near the site at any time by the use of its own forces or other contractors.
- B. Other contractors, other utilities and public agencies or their contractors, other City contractors, and City personnel may be working in the vicinity during the project construction period. There may be some interference between these activities and the Work under the Contract Documents. The Contractor shall cooperate and coordinate his/her Work with that of other Work forces to assure timely Contract completion.

2.12 AGREEMENTS WITH PROPERTY OWNERS

Agreements with property owners for spoiling excavated material, storing materials, or other purpose related to the Work shall be made in writing and a copy submitted to the Director for his/her information. All storage charges shall be at the Contractor's sole expense.

2.13 PROTECTION OF PROPERTY

All public and private property, pavement or improvement, shall be safely guarded from damage or loss in connection with this Contract by the Contractor at all times. Should any facility, structure, or property be damaged during operations of the Contractor, he/she shall immediately notify the property owners or authorities. All damages and losses incurred shall be paid by the Contractor.

2.14 CONTRACTOR'S RESPONSIBILITIES FOR LOSSES OR LIABILITIES

A. Risk of Loss:

Except as otherwise provided in the Contract Documents and except as to the cost of repair or restoration of damage to the Work caused by Force Majeure, the Contractor shall bear all losses resulting to him/her on account of the amount or character of the Work, or from any unforeseen obstructions or difficulties which may be encountered, or from any encumbrances on the line of the Work, or because the nature of the ground in or on which the Work is done is different from what is assumed. The Contractor shall bear the risk for any City equipment, material, or supplies with which he/she has been entrusted.

B. Materials and Facilities:

The Contractor shall be responsible for materials and facilities as hereinafter provided and in the event of his/her failure to carry out said responsibilities, the same may be carried out by the City at the expense of the Contractor:

1. The Contractor shall be responsible for any materials so furnished and for the care of all Work until its completion and final acceptance, and he/she shall at his/her own expense replace damaged or lost materials and repair damaged parts of the Work.
2. The Contractor shall protect City facilities from damage resulting from his/her Work. City facilities damaged by, or as a result of, the Contractor's Work under this Contract shall be repaired or replaced, as directed by the Director, at the Contractor's expense.
3. The Contractor shall remove from the vicinity of the completed Work all buildings, rubbish, unused material, concrete forms, and other materials belonging or used under his/her direction during construction. If Contractor fails to completely remove such items within a reasonable time the City may do so at the Contractor's expense.

C. Laws and Regulations:

1. The Contractor shall obey all laws, ordinances, and regulations in any manner affecting those engaged or employed on the Work, or the materials used in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency should be discovered in this Contract, or in the Drawings or Specifications herein referred to, in relation to any such law, ordinance, regulation, order, or decree, he/she shall forthwith report the same in writing to the Director.
2. Contractor shall, at all times, cause all his/her agents and employees to observe and comply with all such applicable laws, ordinances, regulations, orders, and decrees in effect or which may become effective before Final Completion of this Contract.

3. Nothing in the Contract Documents shall be construed to permit Work not conforming to such laws, ordinances, and regulations. If the Contractor ascertains at any time that any requirement of this Contract is at variance with such applicable law requirement, he/she shall promptly notify the Director.
4. If such applicable law requirement was not in effect on the date of submission of bids, any necessary adjustment of the Contract price shall be made as provided in Article 6 (changes clause) of the General Conditions. If such applicable law requirement was in effect on said date of bid submission, no adjustment of Contract price will be considered.
5. The Contractor, at his/her own expense, shall pay all taxes properly assessed against his/her equipment, materials, or property used or required in connection with the Work.

2.15 WARRANTY AND CORRECTIONS

A. Warranty

1. Warranty. The Contractor warrants to the City that: (i) materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents; (ii) the Work will be of good quality and free from defects; (iii) the Work will conform to the requirements of the Contract Documents; and (iv) Contractor will deliver the Project free of stop payment notice claims. Work not conforming to these requirements, including substitutions not properly accepted by the City, will be deemed defective. The Contractor's warranty excludes improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the City, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the correction obligation of Paragraph 2.04 herein.
2. Overlap. Where any warranties provided under the Contract Documents overlap, conflict, or are duplicative, Contractor will be bound by the more stringent requirements.
3. Procurement and Assignment of Warranties: Contractor shall obtain in the name of City, or transfer or assign to City or City's designee prior to the time of Final Completion of the Work, any and all warranties or guarantees which Contractor is required to obtain pursuant to the contract Documents and which Contractor obtained from any other person or entity other than Contractor including, but not limited to, Subcontractors and manufacturers, and further agrees to perform the Work in such a manner so as to preserve any and all such warranties. Contractor shall secure written warranties from all Subcontractors in the form approved by City. Contractor and its Subcontractors shall offer any warranty upgrades or extensions that are offered by manufacturers of any equipment or system installed in the Work to the City. Contractor shall deliver to City all warranty and guarantee documents and policies.
4. Survival of Warranties: The provisions of Paragraph 2.15 will survive Contractor's completion of the Work or termination of Contractor's performance of the Work.

B. Correction of Work

1. Before or After Final Completion. The Contractor shall promptly correct Work rejected by the City or City's designee, as failing to conform to the requirements of the Contract Documents, whether discovered before or after Final Completion and whether or not fabricated, installed, or completed. Costs of correcting such rejected Work, including

additional testing, inspections, and compensation for the City's services and expenses made necessary thereby, will be at the Contractor's expense within the Contract Price.

2. After Final Completion.

- a. In addition to the Contractor's warranty obligations under Paragraph 2.15-A, if, within one (1) year after the date of Final Completion of the Work or within the time period established by any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall commence correction or replacement of such Work within forty-eight (48) hours after receipt of written notice from the City to do so. The Contractor shall perform such corrective work without charge or cost to the City after Final Completion of the Work. The City shall give such notice promptly after discovery of the condition.
- b. If the Contractor fails to commence correction or replacement of non-conforming Work within forty-eight (48) hours after receipt of written notice, the City will proceed to have defects repaired or replaced at the expense of the Contractor and its Performance Bond surety, plus fifteen percent (15%) for the City's overhead and administrative expense. The City may charge such costs against any payment due Contractor. If, in the opinion of the City, defective work creates a dangerous or hazardous condition or requires immediate correction or attention to prevent further loss to the City or to prevent interruption of operations of the City, the City may take immediate action, give notice, make such correction, or provide such attention and the cost of such correction or attention will be charged against the Contractor. Such action by the City will not relieve the Contractor of the warranties provided in this Article or elsewhere in the Contract Documents.

3. Replacement or Removal of Defective or Unauthorized Work. The Contractor shall remove from the Site and replace those portions of the Work which are not in accordance with the requirements of the Contract Documents in a manner acceptable to and as ordered by the Director. No compensation shall be allowed for such removal or replacement. Director shall have authority to cause defective work to be remedied, removed or replaced and to deduct the costs from monies due or to become due to the Contractor.
4. Destruction or Damage. The Contractor shall bear the cost within the Contract Price of correcting destroyed or damaged construction, whether completed or partially completed, of the City or Separate Contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.
5. No Limitation. Nothing contained in Paragraph 2.15-B will be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the one-year period for correction of Work as described in Paragraph 2.15-B relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

2.16 CLEANING AND ENVIRONMENTAL CONTROLS

The Contractor, Subcontractors and employees shall comply with all litter and pollution laws and it shall be the responsibility of the Contractor to insure compliance. The Contractor shall do all of the following:

- A. Maintain the Site free of waste materials, debris, and rubbish. Maintain Site in a clean and orderly condition and Remove waste materials, debris and rubbish from site and dispose off-site legally.
- B. Contractor shall maintain at their disposal any and all equipment necessary to prevent and remediate any sanitary sewer overflow arising out of the Work. In addition, the Contractor shall furnish and operate a self-loading motor sweeper with spray nozzles as directed by the Director to maintain the affected areas in a condition of cleanliness acceptable to the City at all locations affected by the Contractor's operation. For purposes of this Paragraph, the affected areas includes the Site as well as all haul routes to and from the project Site and all areas of construction and restoration which have not been completed. The Contractor shall not proceed with Work until affected areas are clean to the satisfaction of the Director.
- C. The Contractor shall take appropriate action to insure that no dust originates from the project site.
- D. Any equipment or vehicles driven and/or operated within or adjacent to a street gutter, storm drain, runoff conveyance or ocean shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.
- E. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction, or associated activity or whatever nature shall be allowed to enter into or placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed, any excess materials or debris shall be removed from the Work area. The Contractor shall comply with Glendale Municipal Code Section 13.42.030 (c).

2.17 WATER POLLUTION CONTROL

This project is a maintenance project and is exempt from the Construction Activities Storm Water General Permit from the State Water Resources Control Board. Contractor shall comply with subsection A below (subsection B is not applicable). Contractor shall submit a Best Management Practices Plan to the City for review and approval. No submittal or reporting to the State will be required. Contractor may still be liable for fines should they disregard the BMP Plan or not remedy any hazardous conditions as directed.

Contractor shall implement and maintain activity specific Best Management Practices (BMPs) to prevent pollutant loading from stormwater and non-stormwater discharges to receiving waters as required in Municipal NPDES Permit No. CAS004004. Contractor staff whose primary job duties are related to implementation of BMPs shall be adequately trained to effectively implement, operate, and maintain such BMPs and must be versed in factors affecting BMP effectiveness. Contractor shall certify they have received all applicable training to implement the requirements in Municipal NPDES Permit No. CAS004004 and shall provide documentation to that effect.

- A. Water Quality Protection Requirements for Construction Projects with Less than One (1) Acre of Disturbed Soil.

All construction projects, regardless of size, will be required to implement best management practices (BMPs) necessary to reduce pollutants to the Maximum Extent Practicable (MEP) to meet the minimum water quality protection requirements as defined in Table 2-1.

Table 2-1 Minimum Water Quality Protection Requirements for Construction Projects		
Category	Minimum Requirements	BMPs
1. Sediment Control	Sediments generated on the project site shall be retained using adequate Treatment Control or Structural BMPs.	Sediment Control
2. Construction Materials Control	Construction-related materials, wastes, spills or residues shall be retained at the project site to avoid discharge to streets, drainage facilities, receiving waters, or adjacent properties by wind or runoff. Non-storm water runoff from equipment and vehicle washing and any other activity shall be contained at the project sites.	Site Management; Material and Waste Management
3. Erosion Control	Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs, such as the limiting of grading scheduled during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.	Erosion Control

Please refer to the California Stormwater Quality Association's Construction Handbook (available on their website www.cabmphandbooks.com) for further information regarding the BMPs listed in Table 2-1.

B. Water Quality Protection Requirements for Construction Projects with One (1) Acre (or greater) of Disturbed Soil

In addition to the minimum BMPs required in Paragraph A, all construction projects where at least one (1) acre of soil will be disturbed, construction activity that results in land surface disturbances of less than one acre if the activity is part of a larger common plan of development, or the sale of one or more acres of disturbed land surface requires a Construction Activities Storm Water General Permit (2009-0009-DWQ Permit).

Prior to commencement of construction activities, the Permit Registration Documents (PRDs) must be submitted electronically in the Storm Water Multi-Application Report Tracking System (SMARTS) (<http://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>). PRDs consist of the Notice of Intent, Risk Assessment, Post-Construction Calculations, a Site Map, the Storm Water Pollution Prevention Plan (SWPPP), a signed certification statement by the Legally Responsible Person (LRP), and the first annual fee (see http://www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml for more information). A Waste Discharger Identification (WDID) will be emailed to the LRP after the PRDs have been submitted and are deemed complete. Construction activities cannot begin until a WDID is issued by the State Water Resources Control Board. Contractor shall bear the costs of any delays to the Project caused by a delay in obtaining its WDID.

The SWPPP shall include:

1. The name, location, period of construction, and a brief description of the Project;
2. Contact information for the City and Contractor;

3. The building permit number for the Project;
4. The grading permit number for the Project (where applicable);
5. A list of major construction materials, wastes, and activities at the Project site;
6. A list of best management practices to be used to control pollutant discharges from major construction materials, wastes, and activities;
7. A site plan (construction plans may be used) indicating the selection of BMPs and their location where appropriate;
8. Non-storm water discharges, their locations, and the BMPs necessary to prevent the discharge;
9. A maintenance and self-inspection schedule of the BMPs to determine the effectiveness and necessary repairs of the BMPs; and
10. A certification statement that all required and selected BMPs will be effectively implemented.

Within 7 days after the City awards the Contract, the Contractor shall submit seven (7) copies of the proposed SWPPP to the City. The City shall review the SWPPP within 14 days of receipt of the plan. If revisions are required, the Contractor shall revise and re-submit the document within 7 days of its receipt of the City's comments. The City shall then have 7 days to consider the revisions made by the Contractor and approve the SWPPP.

The Contractor shall maintain a minimum of two readily accessible copies of the SWPPP at the Project site. The SWPPP shall be made available upon request of a representative of the Los Angeles Regional Water Quality Control Board (LARWQCB) or the U.S. Environmental Protection Agency (U.S. EPA). Requests by environmental groups and the public shall be directed to the City.

C. Best Management Practices

The objective of the SWPPP is to identify potential sources of pollution that may reasonably affect the quality of storm water discharge associated with construction activities. The plan will describe and ensure the implementation of Best Management Practices (BMPs) which will be used to reduce pollutants in the storm water discharges from the construction site. A Best Management Practice is defined as any program, technology, process, operating method, measure, or device that controls, prevents, removes, or reduces pollution. The Contractor shall select appropriate BMPs from the California Stormwater BMP Handbook, Municipal, Industrial, New Development, and Construction Volumes (www.cabmphandbooks.com) in conjunction with all activities and construction operations:

1. Construction Practices (NS2, NS3, NS4, and NS6)
2. Material and Waste Management (WM01, WM02, and WM04)
3. Vehicle and Equipment Management (NS8, NS9, and NS10)
4. Physical Stabilization (EC7, EC12, NS4, TC1, and TC2)
5. Sediment Control Practices (SE1, SE9, SE8, SE10, SE3, and SE2)

Copies of the California Stormwater BMP Handbooks may be obtained from:

California Stormwater Quality Association
P.O. Box 2313
Livermore, CA 94551
www.cabmphandbooks.com

Cashier
Los Angeles County DPW
900 South Fremont Avenue
Alhambra, CA 91803
Tel. No. (626) 458-6959

D. Implementation

The Contractor will be responsible throughout the duration of the Project for the installation, monitoring, inspection and maintenance of the BMPs included in the SWPPP and for removing and disposing of temporary BMPs. The Contractor may be required to implement additional BMPs as a result of changes in actual field conditions, contractor's activities, or construction operations.

The Contractor shall demonstrate the ability and preparedness to fully deploy these SWPPP control measures to protect soil-disturbed areas of the project site before the onset of precipitation and shall maintain a detailed plan for the mobilization of sufficient labor and equipment to fully deploy these control measures.

Throughout the winter season, active soil-disturbed areas of the project site shall be fully protected at the end of each day with these control measures unless fair weather is predicted through the following day. The Contractor shall monitor daily weather forecasts. If precipitation is predicted prior to the end of the following workday, construction scheduling shall be modified, as required, and the Contractor shall deploy functioning control measures prior to the onset of the precipitation.

The City may order the suspension of construction operations which are creating water pollution if the Contractor fails to conform to the requirements of Paragraph 2.17, "Water Pollution Control." Unless otherwise directed by the City, the Contractor's responsibility for SWPPP implementation shall continue throughout any temporary suspension of Work.

E. Sewage Spill Prevention

The Contractor's attention is directed to the sewer bypass operation required during any sewer construction (Standard Specification for Public Works Construction Section 500.1.2.4).

The Contractor shall exercise extraordinary care to prevent the cause of events that may lead to a sewage spill. In the event of a sewage spill, the Contractor shall make arrangements for an emergency response unit comprised of emergency response equipment and trained personnel to be immediately dispatched to the project site.

The Contractor shall be fully responsible for preventing and containing sewage spills as well as recovering and properly disposing of raw sewage. In addition, the Contractor is responsible for any fines, penalties and liabilities arising from negligently causing a sewage spill. Any utility that is damaged by the contractor shall be immediately repaired at the Contractor's expense. The Contractor shall take all measures necessary to prevent further damage or service interruption and to contain and clean up the sewage spills.

F. Sewage Spill Telephone Notification

Should a sewage spill occur, the Contractor shall immediately report the incident to either one of these two City Departments:

Sewer Maintenance Services (818) 548-3950

Fire Department Dispatch Center 911

The Contractor is encouraged to obtain telephone numbers, pager numbers and cellular telephone numbers of City representatives such as Project Managers and Inspectors. However, if these City representatives are not available, then the Contractor shall immediately call:

Wastewater Maintenance Superintendent (818) 550-3413

Safety Administrator (818) 548-2169

The City will notify the following:

Los Angeles County Department of Health Services (213) 974-1234

Los Angeles County Department of Public Works (800) 303-0003

Regional Water Quality Control Board (213) 576-6749 or 6600

State Office of Emergency Services (800) 852-7550

(For any significant volume of material that entered the storm drain or receiving water)

G. Sewage Spill Written Notification

The Contractor shall prepare and submit a written report within three (3) Working Days from the occurrence of a spill to the City, (Attention: Project Manager). This report shall describe the following information related to the spill:

1. The exact location on the Thomas Guide map;
2. The nature and volume;
3. The date, time and duration;
4. The cause;
5. The type of remedial and/or cleanup measures taken and date and time implemented;
6. The corrective and preventive action taken; and
7. The water body impacted and results of necessary monitoring.

H. Enforcement

The City is subject to enforcement actions by the LARWQCB, U.S. EPA, environmental groups and private citizens. The Contractor shall indemnify, defend and hold City, its officers, agents and employees harmless from Contractor's failure to comply and/or fulfill the requirements set forth in this Paragraph 2.17. Contractor shall be responsible for all costs and liabilities imposed by law as result of Contractor's failure to comply and/or fulfill the requirements set forth in this Paragraph 2.17. The costs and liabilities include, but are not limited to fines, penalties and damages whether assessed against the City or the Contractor.

In addition to any remedy authorized by law, any money due to the Contractor under this contract shall be retained by the City until all costs and liabilities imposed by law against the City or Contractor have been satisfied.

I. Maintenance

The Contractor shall ensure the proper implementation and functioning of BMP control measures and shall regularly inspect and maintain the construction site for the BMPs identified in the SWPPP. The Contractor shall identify corrective actions and time frames in order to properly address any damaged measure, or reinstate any BMPs that have been discontinued.

If the City identifies a deficiency in the deployment or functioning of identified control measures, the deficiency shall be corrected by the Contractor immediately or by a later date and time if agreed to by Director and if requested in writing, but not later than the onset of the subsequent precipitation events. The correction of deficiencies shall be at no additional cost to the City.

J. Payment

All costs involved in the implementation of the SWPPP, including furnishing all labor, materials, tools, equipment and all incidentals; and for doing all the work involved in installing, constructing, maintaining, removing, and disposing of control measures, except those that were installed as a part of another structure, shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefor.

2.18 SOLID WASTE DISPOSAL AND DIVERSION

The Contractor shall submit to the Director the following summary of solid waste generated by the Work, disposed in Class III landfills, or diverted from disposal through recycling. Report disposal in inert fill separately. This form must be accompanied by legible copies of weight tickets, receipts, or invoices that specifically identify the project generating the material. Said documents must be from recyclers and/or disposal site operators that are acceptable to the Director. Further, the documents must be submitted to the Director with each application for progress payment. Failure to submit the form and its supporting documentation will render the application for progress payment incomplete and delay progress payments.

SUMMARY OF SOLID WASTE DISPOSAL AND DIVERSION

Project Title: _____, Specification No. _____

Type of Material	(a) Disposed in Class III Landfills	(b) Diverted from Class III Landfills by Recycling	(c) [Leave This Column Blank]	(d) Disposed in Inert Fills
	Tons/CY	Tons/CY	Tons/CY	Tons/CY
Asphalt				
Concrete				
Metal				
Other Segregated Materials (Describe):				
Miscellaneous Construction Waste				
Total				

SIGNATURE: _____

TITLE: _____

DATE: _____

2.19 RECYCLED, REUSABLE AND RECYCLABLE PRODUCTS

The Contractor is encouraged to support the City in recycling efforts. It is City policy that all City Departments and Sections shall utilize recycled, reusable, and recyclable products to the maximum extent practicable. Preference will be given to recycled, reusable and recyclable products, over non-recycled, non-reusable and non-recyclable products, fitness and quality being equal, whenever available at no more than the total cost of non-recycled, non-reusable and non-recyclable products.

Contractors are encouraged to propose recycled, reusable and recyclable products for use by the City. Those items should be clearly identified. The City may require further information or documentation to ascertain the suitability/appropriateness of a proposed product.

All Contractors that provide goods, supplies, or equipment to the City that contain recycled material shall provide in writing to the Director the following information:

- A. The minimum, if not the exact, percentage of recycled material, both post-consumer waste and/or secondary waste, in the goods, supplies, or equipment; and
- B. The quantity and total dollar amount of the goods, supplies or equipment provided to the City with recycled material content.

2.20 SOLID WASTE DISPOSAL PENALTIES (NOT APPLICABLE)

[END OF ARTICLE]

ARTICLE 3 TIME OF COMMENCEMENT AND COMPLETION

3.01 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK

A. Notice to Proceed

The Contractor is not authorized to perform any Work the Contract Documents until he/she has received from the City an official notification to commence Work. The date on which the notification is received by the Contractor is herein referred to as the Notice to Proceed. The Contractor shall commence Work on the Date of Commencement established in the Notice to Proceed is issued. The Notice to Proceed shall be issued after the Contract is properly executed, bonds are furnished and approved, and insurance has been submitted and approved.

B. Prosecution of the Work

Work shall be continued at all times with such force and equipment as will be sufficient to complete it within the specified time. The Contractor expressly proposes that he/she has taken into consideration and made allowances for all ordinary delays and hindrances to the Work to be performed and that he/she will complete the Work within the specified time.

C. Required Contract Completion

Time is of the essence in the completion of this Contract. By executing the Contract, Contractor confirms that the Contract Time established in Article 4 of the Contract is a reasonable period for performing the Work.

3.02 CITY'S DISCRETION TO EXTEND CONTRACT TIME

In the event the Work required hereunder is not satisfactorily completed in all parts and in compliance with the Contract Documents, City shall have the right, in its sole discretion, to increase the number of Working Days or not, as may seem best to serve the interest of City. A change order extending the Contract Time only will be issued by the City should the City decide to increase the number of Working Days.

3.03 SUBSTANTIAL COMPLETION

A. Contractor Request for Inspection and Punch List

When the Contractor considers that it has achieved Substantial Completion of the Work, or designated portion thereof, Contractor shall prepare and submit to the Director a request for inspection and a comprehensive punch list of items to be completed or corrected prior to Final Payment. Failure to include an item on such punch list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

B. City Inspection

Upon receipt of the Contractor's punch list, the Director will make an inspection to determine whether the Work or designated portion thereof is Substantially Complete. If the inspection discloses any item, whether or not included on the Contractor's punch list, which is not sufficiently complete in

accordance with the Contract Documents so that the City can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before City's issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by City. The Contractor shall then submit a request for another inspection by City to determine Substantial Completion.

C. Certificate of Substantial Completion

When the Work or designated portion thereof is substantially complete, the Director will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the City and Contractor for security, maintenance, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall finish all items on the Contractor's punch list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work. Contractor shall deliver to City all warranty and guarantee documents and policies.

3.04 DELAYS AND EXTENSIONS OF TIME FOR CONTRACTOR

- A. The Contractor shall take reasonable precautions to foresee and prevent delays to the Work. In the event of any delay to the Work, the Contractor shall revise his/her sequence of operations, to the extent possible under the terms of the Contract, to offset the delay.
- B. If any delay to the Work is caused by circumstances within the Contractor's control, it is an Inexcusable Delay and not compensable, and the Contractor will not be entitled to any extension of time or to any other compensation for damages resulting directly or indirectly therefrom.
- C. If any delay having a direct effect on the Work is caused by circumstances beyond the control of the Contractor, such delay may be an Excusable Delay and may entitle the Contractor to an equivalent extension of time, but not to any other compensation, except for causes of delay specified in Section 3.04-D. Excusable Delay causes include but are not limited to labor disputes, weather conditions unfavorable for prosecution of the Work, and Force Majeure.
- D. Pursuant to Public Contract Code section 7102, the Contractor will be compensated for any delays for which the City is responsible and which delay is unreasonable under the circumstances involved, and not within the contemplation of the parties.
- E. The Contractor shall notify the Director in writing of any delay having a direct effect on the Work and the causes thereof within seven (7) calendar days from the beginning of such delay.
- F. Any claim for an extension of time or for compensation for damages resulting from delay shall be made in writing to the Director not more than thirty (30) calendar days after the ending of such delay. The Contractor may request additional compensation and/or time arising from a delay but not for instances that occurred more than seven (7) calendar days prior to the initial notice to the Director. In addition to the content of claim requirements in Paragraph 7.10 below, the Contractor shall provide a written report evaluating the impact of the delay which shall include, at a minimum, all of the following:
 - 1. A narrative description of the delay and its impact on the critical path to Substantial Completion of the Work or a portion of the Work designated by City;
 - 2. A CPM schedule Fragnet;

3. A detailed breakdown of the Allowable Costs, if any, sought by Contractor due to the delay;
4. The number of days of extension sought by Contractor as an adjustment to the Contract time;
5. A statement that Contractor has complied with the requirements of the General Conditions for written notice of delays, along with the dates and copies of such notices;
6. The measures taken by Contractor and Subcontractors to prevent or minimize the delay; and
7. The Contractor's recommendations for reordering or re-sequencing the Work to avoid or minimize further delay.

No extension of time or compensation for damages resulting from delay will be granted unless the delay affects the timely completion of the overall Work under the Contract or the timely completion of a portion of the Work for which a time of completion is specified.

- G. The Director will investigate the facts and ascertain the extent of the delay, and his/her findings thereon shall be final and conclusive.
- H. Failure of the Contractor to give written notice of a delay, or to submit or document a claim for an extension of time or for damages resulting from delay in the manner and within the times stated above shall constitute a waiver of all claims thereto.
- I. In the case of a Concurrent Delay, Contractor shall be entitled to an extension of the Contract Time, however Contractor shall not be entitled to an equitable adjustment of the Contract for the period of Concurrent Delay.
- J. An extension of time must be approved by the Director to be effective, but an extension of time whether with or without consent of the sureties, shall not release the sureties from their obligations, which shall remain in full force until the discharge of the Contract.

3.05 CLIMATIC CONDITIONS

- A. Rain Days/Severe Inclement Weather. The Contractor shall account for **five (5) Work Days** for which the effects of rainfall/inclement weather are expected to prevent Work in the Construction Schedule as set forth in **Article 4** herein and shall obtain City's approval of Contractor's use of each Rain Day before suspending Work on any Work Day. The Director may suspend the Work whenever weather conditions or conditions resulting from inclement weather are unfavorable for the prosecution of the Work. The delay caused by such suspension may entitle the Contractor to an extension of time but not to any other compensation.
- B. If the Contractor believes that Work should be suspended under this Paragraph 3.05, he/she may request such suspension. The delay caused by such suspension may entitle the Contractor to an extension of time but not to any other compensation.
- C. No extension of time will be granted for suspension of Work unless the suspension affects the timely completion of all Work under the Contract or the timely completion of a portion of the Work for which a time of completion is specified. Determination that the suspension for inclement weather conditions or conditions resulting from inclement weather affects timely completion and entitles the Contractor to an extension of time shall be made and agreed to in writing by the Director and the Contractor on

each day that Work is suspended. In the event of failure to agree, the Contractor may protest under the provisions of Paragraph 7.07.

- D. If Work is suspended and an extension of time is granted under this Paragraph 3.05 the Contractor will be entitled to a one day extension of time for each day that he/she is unable to Work at least one-half of his/her current normal Work Day; and if the Work is suspended at the regular starting time on any Work Day and the Contractor's Workforce is dismissed as a result thereof, then he/she will be entitled to a one day extension of time whether or not conditions change thereafter and the major portion of the day is suitable for Work.

3.06 COMPLETION AND ACCEPTANCE

Upon request by the Contractor, the Director shall conduct a final inspection of the Work. If, in the Director's opinion, Final Completion has been achieved, the Director will accept the Work by issuing a "Notice of Completion" of the Work to the Contractor. Upon the issuance of the Notice of Completion the Contractor will be relieved from responsibility to protect the Work. Within fifteen (15) calendar days after issuing the Notice of Completion, the Director will record the Notice of Completion with the County Recorder.

3.07 LIQUIDATED DAMAGES

- A. Contractor and City agree to liquidate damages in the amount of **nine thousand and six hundred dollars (\$9,600)** per Calendar day, with respect to Contractor's failure to achieve Substantial Completion of the Work within the Contract Time. The Parties intend for the liquidated damages set forth herein to apply to this Contract as set forth in Government Code Section 53069.85 and in Public Contract Code Section 7203. Contractor acknowledges and agrees that the liquidated damages are intended to compensate City solely for Contractor's failure to meet the deadline for Substantial Completion and shall not excuse Contractor from liability from any other breach, including any failure of the Work to conform to the requirements of the Contract Documents.
- B. In the event that Contractor fails to achieve Substantial Completion of the Work within the Contract Time, Contractor agrees to pay City the amount specified in the Contract form for each calendar day that Substantial Completion is delayed.
- C. Contractor and City acknowledge and agree that the foregoing liquidated damages have been set based on an evaluation of damages that the City will incur in the event of late completion of the Work. Contractor and City acknowledge and agree that the amount of such damages are impossible to ascertain as of the effective date hereof and have agreed to such liquidated damages to fix City's damages and to avoid later disputes. It is understood and agreed by Contractor that liquidated damages payable pursuant to this Construction Contract are not a penalty and that such amount are not manifestly unreasonable under the circumstances existing as of the effective date of this Construction Contract.
- D. It is further mutually agreed that City shall have the right to deduct liquidated damages against progress payments or retainage and that the City will issue a Unilateral Change Order and reduce the Contract Sum accordingly. In the event the remaining unpaid Contract Sum is insufficient to cover the full amount of liquidated damages. Contractor shall pay the difference to City.

[END OF ARTICLE]

ARTICLE 4 CONSTRUCTION SCHEDULES

4.01 BASELINE PROJECT SCHEDULE

Within fourteen (14) calendar days after the City's Notice of Award of the Contract, Contractor shall submit a Baseline Project Schedule, in electronic format, showing in detail how the Contractor plans to execute and coordinate the Work.

A. Format

1. At a minimum, the Baseline Project Schedule activities shall be coded on a work discipline basis (in accordance with CSI format) and by geographic area or location on the Project. The Baseline Project Schedule shall include a detailed description of each activity code. The Baseline Project Schedule shall be based on and incorporate contract milestone and completion dates specified in the Contract Documents. It shall depict events, jobs, and their interrelationships and shall recognize the progress that must be made on one task before subsequent tasks can begin. The schedule shall be comprehensive and shall include all logical interdependencies and interactions required to perform the Work of the Project.
2. Overall time of completion and time of completion for each milestone shown on the Schedule shall adhere to the specified Contract Time, unless an earlier (advanced) time of completion is requested by Contractor, agreed to by the City and formalized by Change Order.
3. Contractor shall use the latest version of Microsoft Project or equivalent software agreed to by the parties.
4. The City will review the submitted Baseline Project Schedule for conformance with these scheduling requirements. Within fourteen (14) calendar days after receipt, the City will accept the proposed Baseline Project Schedule or will return it with comments. If the proposed Baseline Project Schedule is accepted by the City, it shall be deemed part of the Contract Documents. If the Baseline Project Schedule is not accepted by City, Contractor shall revise the Baseline Project Schedule, in accordance with the recommendations of the City, and re-submit same for acceptance, no later than seven (7) calendar days after receipt of said recommendation.
5. Acceptance of Baseline Project Schedule by City, failure to include an element of work, or inaccuracy in Baseline Project Schedule shall not relieve Contractor from the responsibility for accomplishing the Work in accordance with the Contract Documents.

B. Float

1. Critical Work activities are defined as Work activities which, if delayed or extended, will delay the scheduled completion of the milestones and/or time of completion. All other Work activities are defined as non-critical Work activities and are considered to have float. Float is defined as the time that a non-critical Work activity can be delayed or extended without delaying the scheduled completion of the milestones and/or time of completion. Float is considered a Project resource available to either party or both parties as needed. Once identified, Contractor shall monitor, account for, and maintain float in accordance with Critical Path Methodology.

2. Delays of any non-critical Work shall not be the basis for an extension of Contract Time until the delays consume all float associated with that non-critical Work activity and cause the Work activity to become critical.
3. It is acknowledged that City-caused time savings (i.e., critical path submittal reviews returned in less time than allowed by the Contract Documents, approval of substitution requests which result in a savings of time for Contractor, etc.) create shared float. Accordingly, City-caused delays may be offset by City-caused time savings.

C. Early Completion

While the Contractor may schedule completion of the Project earlier than the date established by the Contract Documents, no additional compensation shall become due the Contractor for the use of float time between the Contractor's projected early completion date and the date for Substantial Completion established by the Contract Documents, unless an earlier (advanced) time of completion is requested by Contractor, agreed to by the City, and formalized by Change Order.

4.02 SCHEDULE UPDATES

- A. With each Application for Payment submitted by Contractor (other than the final Application for Payment), the Contractor shall submit to the City an updated Project Schedule (an electronic copy in a P3 backup file format) revised to indicate the Work completed, status of Work in progress, all progress slippages, corrective actions taken, or slippage carry-over, for all anticipated delays or difficulties, and all other information required to accurately present the actual status of the progress of the Work as of the date of the Application for Payment. If the Contractor does not submit an updated Project Schedule with an Application for Payment, City may withhold payment, in whole or in part, until the updated Project Schedule is submitted. In the event that an update to the Project Schedule indicates a delay to the Contract Time the Contractor shall propose an affirmative plan to correct each such delay, including overtime and/or additional labor, if necessary. In no event shall any Project Schedule update constitute an adjustment in the Contract Time, any deadline, or the Contract Sum unless any such adjustment is agreed to by the City and authorized pursuant to Change Order or Construction Change Directive.
- B. At no time shall historical data contained within the updated Project Schedule (i.e. completed activities) be removed and/or altered in any way. This historical data is to be preserved within each of the updated Project Schedules and submitted with the final schedule update to reflect the actual start and finish dates for each activity within the Schedule.
- C. Any work stoppages within individual work activities that exceed seven (7) calendar days in duration shall be clearly indicated within the updated Project Schedule. In cases where unplanned activity work stoppages exceed seven (7) calendar days activities shall be added to the Project Schedule to clearly indicate the work stoppage period and identify forecasted resumption and completion of the activity where work has stopped. Contractor shall clearly note all schedule revisions when Project Schedule updates are submitted, as required in Paragraph 4.02A above.

4.03 NONCOMPENSABLE EXTRAORDINARY MEASURES

- A. Should the City determine, in its sole judgment, that the performance of the Work has not progressed to the level of completion required by the Contract Documents, City shall have the right to order the Contractor to take corrective measures to expedite the progress of construction, at no additional cost to the City, including, without limitation, the following:

1. Working additional shifts of overtime.
 2. Supplying additional manpower, equipment, and/or facilities.
 3. Reschedule activities to maximize practical concurrence of accomplishment of activities.
 4. Submitting a Recovery Schedule discussed above, for resequencing performance of the Work or other similar measures.
 5. Any other actions that may be necessary to mitigate delays.
- B. Such Extraordinary Measures shall continue until the progress of the Work is no longer behind schedule and/or reaches the stage of completion required by the Contract Documents. Contractor shall not be entitled to an adjustment in the Contract Sum in connection with the performance of any such Extraordinary Measures required by the City under this Paragraph. The City may exercise the rights furnished the City pursuant to this Paragraph as frequently as the City deems necessary to ensure that the Contractor's performance of the Work will comply with the Contract Time or interim completion dates set forth in the Contract Documents. If Contractor or its Subcontractors fail to implement or commence Extraordinary Measures within forty-eight hours (48 hours) of City's written demand, City may, without prejudice to other remedies, take corrective action at the expense of the Contractor which shall reduce the Contract Sum accordingly.

4.04 CONDITION OF PAYMENT

Compliance by Contractor with the requirements of the Contract Documents pertaining to preparation, submission, revising and updating of the Schedule is a condition precedent to City's obligation to make payment to Contractor of any or all sums that might otherwise be due to Contractor in the absence of such noncompliance. Payment by City under circumstances in which City, for any reason, fails or elects not to assert its right to withhold payment for noncompliance with this Paragraph shall not be construed as a waiver of the right to withhold future payments on account of such noncompliance or any other noncompliance.

[END OF ARTICLE]

ARTICLE 5 SUSPENSION OR TERMINATION OF CONTRACT

5.01 TERMINATION BY THE CONTRACTOR

- A. Contractor shall have the right to terminate its performance of the Contract only upon the occurrence of one of the following:
1. The Work is stopped for a period of ninety (90) consecutive days through no act or fault of the Contractor, any Subcontractor, Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, due to:
 - a. the issuance of an order of a court or other public authority having jurisdiction; or
 - b. an act of government, such as a declaration of national emergency making material unavailable; and
 - c. Contractor has given City written notice within ten (10) calendar days of the occurrence of such ground for termination, then the Contractor may, upon thirty (30) additional calendar days written notice to City, unless the reason has theretofore been cured, terminate its performance of the Work.
 2. The Work is stopped for a period of 120 consecutive calendar days through no act or fault of Contractor, any Subcontractor, Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, because the City has persistently failed to perform any material obligation under the Contract Documents and fails to cure such default within ninety (90) calendar days after the receipt of notice from Contractor stating the nature of such default.
- B. If Contractor terminates its performance of the Contract in accordance with this Paragraph 5.01, the City shall pay Contractor for the Work executed through the date of termination as set forth in Paragraph 5.04-C below.

5.02 TERMINATION BY THE CITY FOR CAUSE

A. Grounds

The City shall have the right to terminate the Contractor's performance of the Contract, in whole or in part, without liability to City if:

1. Contractor fails promptly to begin the Work under the Contract Documents; or
2. Contractor refuses or fails to supply enough properly skilled workers or proper materials; or
3. Contractor fails to perform the Work in accordance with the Contract Documents, including conforming to applicable standards set forth therein in constructing the Project, or refuses to remove and replace rejected materials or unacceptable Work; or

4. Contractor discontinues the prosecution of the Work (exclusive of work stoppage: (a) due to termination by City; or (b) due to and during the continuance of a Force Majeure event or suspension by City); or
5. Contractor fails to resume performance of Work which has been suspended or stopped, within a reasonable time after receipt of notice from City to do so or (if applicable) after cessation of the event preventing performance; or
6. Any representation or warranty made by Contractor in the Contract Documents or any certificate, schedule, instrument, or other document delivered by Contractor pursuant to the Contract Documents shall have been false or materially misleading when made; or
7. Contractor fails to make payment to Subcontractors or Material Suppliers for materials or labor in accordance with the respective Contract Documents and applicable law; or
8. Contractor disregards laws, ordinances, or rules, regulations, or orders of a public authority having jurisdiction; or
9. Contractor is guilty of breach of a provision of the Contract Documents; or
10. Contractor becomes insolvent, is adjudicated bankrupt, or makes a general assignment for the benefit of creditors and fails to provide City with adequate assurances of Contractor's ability to satisfy its contractual obligations.

A receiver, trustee, or other judicial officer shall not have any right, title, or interest in or to the Contract. Upon that person's appointment, City has, at its option and sole discretion, the right to immediately cancel the Contract and declare it null and void.

B. City's Rights.

When any of the reasons specified in Paragraph 5.02-A exist, the City may, in addition to and without prejudice to any other rights or remedies of the City, and after giving the Contractor five (5) calendar days written notice, terminate Contractor's performance of the Work, in whole or in part, and may:

1. Take possession of the site and all materials, equipment, tools, construction equipment, and machinery thereon owned by the Contractor;
2. Withhold from Contractor amounts unpaid hereunder and to offset such amounts against damages or losses incurred by City;
3. Accept assignment of subcontracts from Contractor, at the sole discretion of City, and
4. Finish the Work by whatever reasonable method the City may deem expedient.

Upon request of the Contractor, the City shall furnish to the Contractor a detailed accounting of the costs incurred by the City in finishing the Work.

C. Costs

If City's costs to complete and damages incurred due to Contractor's default exceed the unpaid Contract balance, the Contractor shall pay the difference to the City.

D. Wrongful Termination

If it has been adjudicated or otherwise determined that City has wrongfully terminated the Contractor for cause, then said termination shall be deemed converted to a termination for convenience as set forth in Paragraph 5.04 and Contractor's remedy for wrongful termination in such event shall be limited to the recovery of the payments permitted for termination for convenience as set forth in Paragraph 5.04.

5.03 PARTIAL DELETION OR SUSPENSION OF WORK BY THE CITY

- A. Contractor agrees that the City may determine whether any or all of the Work described in the Contract Documents shall be deleted or performance suspended without electing to terminate the Contractor's performance under the Contract and without any penalty being incurred by the City.
- B. Any such partial deletion or suspension of the Work shall in no way void or invalidate the Contract nor shall it provide Contractor with any basis for seeking payment from City for Work deleted or suspended except to the extent such Work has already been performed and is otherwise compensable under the Contract.
- C. The City shall have the right to later have any such suspended or deleted Work performed by Contractor or others without any penalty to the City.
- D. In the event of any partial or complete deletion or suspension of Work, the City shall furnish Contractor with prompt written notice thereof, and the City shall be entitled to take possession of and have as its property all Record Documents, Accounting Records, and other data prepared by Contractor or its Subcontractors.
- E. Suspension for Convenience.
 - 1. The City may at any time and from time to time, without cause, order the Contractor, in writing, to suspend, delay, or interrupt the Work in whole or in part for such period of time as the City may determine. Such order shall be specifically identified as a "Work Suspension Directive" under this section.
 - 2. Upon receipt of a Work Suspension Directive, Contractor shall, at the City's expense, comply with its terms and take all reasonable steps to minimize costs allocable to the Work covered by the Work Suspension Directive during the period of Work stoppage.
 - 3. Within the period of suspension, or such extension to that period as is agreed upon by Contractor and the City, the City shall either cancel the Work Suspension Directive or delete the Work covered by such Work Suspension Directive by issuing a Change Order or Construction Change Directive.
 - 4. If a Work Suspension Directive is cancelled or expires, Contractor shall continue the Work. A Change Order or Construction Change Directive will be issued to cover any adjustments of the Contract Sum and Contract Time necessarily caused by such suspension. No adjustment shall be made to the extent:
 - (a) That performance is, was, or would have been so suspended, delayed, or interrupted by another cause for which the Contractor is responsible; or

- (b) That an equitable adjustment is made or denied under another provision of the Contract.

F. Suspensions for Cause

City has the authority by written order to suspend the Work, in whole or in part, without liability to City for Contractor's failure to:

1. Correct conditions unsafe for the Project personnel or general public, or
2. Carry out the Contract; or
3. Carry out orders of City.

G. Responsibilities of Contractor During Suspension Periods

During periods that Work is suspended, Contractor shall continue to be responsible for the Work and shall prevent damage or injury to the Project, provide for drainage, and shall erect necessary temporary structures, signs or other facilities required to maintain the Project and continue to perform according to the Contract Documents.

5.04 TERMINATION BY THE CITY FOR CONVENIENCE

A. Grounds

Without limiting any rights which City may have by reason of any default by Contractor hereunder, City may terminate Contractor's performance of the Contract, in whole or in part, at any time, for convenience upon fifteen (15) calendar days written notice to Contractor.

B. Contractor Actions

Upon receipt of such notice, Contractor shall perform the duties required by Paragraph 5.05 below. At the election of and as directed by the City, any or all of the subcontracts and purchase orders entered in to by Contractor prior to the effective date of termination shall be terminated or shall be assigned to City.

C. Compensation

1. If the Parties are unable to agree on the amount of a termination settlement, the City shall pay the Contractor the following amounts:
 - a. For Work performed before the effective date of termination, the total (without duplication of any items) of:
 - i. The cost of the Work; and
 - ii. A sum, as overhead and profit on the cost of the Work, determined by the City to be fair and reasonable. In no event shall Contractor be entitled to recover overhead or profit on Work not performed.
 - b. The reasonable costs of settlement of the Work terminated, including:

- i. Accounting, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data, if any; and
 - ii. Storage, transportation, and other costs reasonably necessary for the preservation, protection, or disposition of inventory.
 2. Such payment shall be Contractor's exclusive remedy for termination for convenience and will be due and payable on the same conditions as set forth for final payment to the extent applicable. Upon receipt of such payment, the Contractor and City shall have no further obligations to each other except for Contractor's obligations with respect to warranties, representations, indemnity, maintenance of insurance, and other obligations that survive termination or Final Completion as provided for herein.
 3. It is understood and agreed that no fee, anticipated profit, compensation for lost opportunity costs, or other compensation or payment of any kind or character shall be due or payable for unperformed Work regardless of the basis of termination and the inclusion of this provision within this subparagraph shall in no way limit its application to termination under this Paragraph.
 4. Contractor agrees that each of its subcontracts will reserve for the Contractor the same right of termination for convenience provided by this Paragraph 5.04.
- D. No Consequential Damages

Under no circumstances shall Contractor be entitled to anticipatory or unearned profits or consequential or other damages as a result of a termination or partial termination under this Article 5. The payment to Contractor determined in accordance with this Article constitutes Contractor's exclusive remedy for a termination hereunder.

5.05 CONTRACTOR'S DUTIES UPON TERMINATION FOR CAUSE OR CONVENIENCE

- A. If the City terminates Contractor's performance of Work under the Contract, for cause or convenience or if Contractor terminates a Subcontractor with the City's approval, Contractor shall:
1. Cease performance of the Work to the extent specified in the notice;
 2. Take actions necessary or that the City may direct, for the protection and preservation of the Work;
 3. Settle outstanding liabilities, as directed by City;
 4. Transfer title and deliver to City Work in progress, specialized equipment necessary to perform the Work;
 5. Submit all Record Documents, Accounting Records and other data prepared pursuant to the Contract by Contractor and/or its Subcontractors, as applicable, to the City with fifteen (15) calendar days after the City's notice of termination in an organized, usable form, in both hard copy and electronic/digital form, with all items properly labeled to the degree of detail specified by the City; and

6. Except for Work directed by City to be performed prior to the effective date of termination stated in the notice, incur no further costs or expenses and enter into no further subcontracts and purchase orders.
- B. No compensation shall be due Contractor, if any, until Contractor complies with the requirements of this Paragraph.

[END OF ARTICLE]

ARTICLE 6 CHANGES

6.01 CITY'S RIGHT TO ORDER CHANGES

The City, without invalidating the Contract, may authorize changes in the Work consisting of additions, deletions, or other revisions, with the Contract Sum and Contract Time being adjusted accordingly, if necessary. All such changes in the Work shall be authorized by Change Order or Construction Change Directive and Contractor shall perform such changes in the Work according to the applicable requirements of the Contract Documents.

6.02 NO ESTOPPEL

Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly and diligently with the change, unless otherwise provided in the Change Order or Construction Change Directive. It is of the essence to this Contract that all scope changes in the Work that form the basis of an adjustment of the Contract Sum or Contract Time must be authorized in advance in writing through either a Change Order or Construction Change Directive. A change in the Contract Sum or the Contract Time shall be accomplished only by Change Order or Construction Change Directive. Accordingly, no verbal directions, course of conduct or dealings between the Parties, express or implied acceptance of alterations or additions to the Work, or claim that the Contract has been abandoned or the City has been unjustly enriched by any alteration or addition to the Work shall be the basis of any claim for an increase in any amounts due under the Contract Documents or a change in any time period provided in the Contract Documents.

6.03 NOTICE OF SCOPE CHANGE

Contractor shall submit written notice of any change in scope to the Director if, in the Contractor's opinion, any instruction, request, Drawings, Specifications, action, condition, omission, default, or other situation occurs that the Contractor believes constitutes a scope change or other matter resulting in Extra Work, for which Contractor believes it is entitled to an adjustment of the Contract Sum or Contract Time. Such notice shall be provided prior to performance of the Work affected by such occurrence and within seven (7) calendar days after the discovery date of the circumstances of such scope change or other matters. The written notice shall state the date, circumstances, extent of adjustment to the Contract Sum or the Contract Time, if any, requested. The mere presentation of such notice shall not establish the existence of any right by Contractor to adjustment of the Contract Sum or Contract Time. Failure to provide such timely written notice described herein shall constitute a waiver by Contractor of the right to any adjustment to the Contract Sum or Contract Time on account thereof. Any Notice of Scope Change that is approved by the City pursuant to a COR shall be incorporated in a Change Order or Construction Change Directive.

6.04 CHANGE ORDERS

A. Computation

Methods used in determining adjustments to the Contract Sum by Change Order may include those listed in Paragraph 6.06 below.

B. Accord and Satisfaction

Agreement on any Change Order shall be a full compromise and settlement of all adjustments to Contract Time and Contract Sum, and compensation for any and all delay, extended or additional field and home office overhead, disruption, acceleration, inefficiencies, lost labor or equipment productivity, differing Site conditions, construction interferences and other extraordinary or consequential damages (hereinafter called "Impacts"), including any ripple or cumulative effects of said Impacts on the overall Work under the Contract arising directly or indirectly from the performance of Work described in the Change Order. By execution of any Change Order, Contractor agrees that the Change Order constitutes a complete accord and satisfaction with respect to all claims for schedule extension, Impacts, or any costs of whatever nature, character or kind arising out of or incidental to the Change Order. No action, conduct, omission, product failure or course of dealing by the City shall act to waive, modify, change, or alter the requirement that (i) Change Order's must be in writing, signed by the City and Contractor and; (ii) that such written Change Orders are the exclusive method for effectuating any change to the Contract Sum and/or Contract Time.

6.05 CONSTRUCTION CHANGE DIRECTIVE

- A. A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order. The City may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletion, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.
- B. If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be calculated in accordance with Paragraph 6.06 herein (Pricing Changes in the Work).
- C. Upon receipt of the Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the City of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive, for determining the proposed adjustment in the Contract Sum or Contract Time.
- D. If Contractor believes a Construction Change Directive constitutes a basis for adjustment to the Contract Sum or Contract Time, then Contractor shall give a Notice of Scope Change provided in Paragraph 6.03, followed by a submission of a Change Order Request as required by Paragraph 6.08. Contractor shall, if requested by City in such Construction Change Directive or in a subsequent Construction Change Directive, proceed with the performance of the Work as described in the Construction Change Directive. Failure of Contractor to proceed with the performance of Work, as described in the Construction Change Directive shall give the City the right to carry out the Work, as set forth in Paragraph 2.05.
- E. A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.
- F. If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the City on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in the case of an increase in the Contract Sum, Allowable Mark-Ups in accordance with Paragraph 6.06(E) herein.

6.06 PRICING CHANGES IN THE WORK

A. Alternative Methods of Pricing

The amount of any adjustment by Change Order or Construction Change Directive increasing or decreasing the Contract Sum shall be determined using one or a combination of the following methods:

1. Lump Sum. By mutual acceptance of a lump sum proposal from Contractor properly itemized and supported by sufficient substantiating data to permit evaluation. Such proposal shall be based solely on Allowable Costs, as defined in Subparagraph 6.06-C, and Allowable Mark-Ups, as defined in Subparagraph 6.06-E, and shall not include any costs or expense that is not permitted by the terms of any provision of the Contract Documents.
2. Unit Prices. By unit prices contained in Contractor's original Bid and incorporated in the Contract Documents or fixed by subsequent agreement between City and Contractor. Unless otherwise stated in the Bidding Documents, unit prices stated in the Contract Documents or agreed upon by the City and Contractor shall be deemed to include and encompass all Allowable Markups.
3. Time and Materials. By calculating the actual Allowable Costs directly incurred, plus a sum for Allowable Mark-Ups on such Allowable Costs.
4. Schedule of Values. For work not covered by a Unit Price, the Schedule of Values may be used to determine the value of the increase or decrease in the Contract Sum, less the value of any Work performed, plus a reasonable percentage of the decrease for the Contractor's saved overhead unless the Schedule of Values allocates general conditions costs to individual line items, in which case no percentage of the decrease shall be added. When a change consists of both addition and deletion of Work, the added costs and deleted costs shall be calculated separately, and then added together, resulting in the net cost for the change. The Allowable Mark-Up shall be applied to this net cost.

B. Contractor Maintenance of Daily Records for Changes

1. In the event that Contractor is directed to perform any Extra Work, or should Contractor encounter conditions which the Contractor believes would obligate the City to adjust the Contract Sum and/or the Contract Time, Contractor shall maintain detailed records of the cost of such changes on a daily basis summarized in a daily report supplemented by back-up records. Such records shall include without limitation:
 - a. Labor. At the close of each day on which such Extra Work is performed, Contractor shall submit an Extra Work labor report, on forms provided by Director, to Director that sets forth a list of the actual hours spent in performing the Extra Work, that clearly differentiates between the labor expended on the Extra Work and other Work, and the Allowable Costs for such Extra Work performed that day showing the names of workers, their classifications, hours worked and hourly rates.

- b. **Materials, Equipment.** A list of Allowable Costs of materials and equipment consumed in the performance of the Extra Work on the day on which such Extra Work is performed, together with copies of applicable delivery tickets and unit prices for all materials and for all equipment used the type of equipment, identification number, hours of operation (including loading and transportation) and hourly/daily rates involved for that day.
 - c. **Other Services or Expenditures.** A list of other services and expenditures constituting Allowable Costs incurred in performance of the Extra Work on the day on which such Extra Work is performed, along with documentation verifying the amounts thereof in such detail as Director may require.
- 2. In the event that more than one change to the Work is performed by the Contractor in a calendar day, Contractor shall maintain separate records of labor, construction equipment, materials, and equipment for each such change. In the event that any Subcontractor of any tier shall provide or perform any portion of any change to the Work, Contractor shall require that each such Subcontractor maintain records in accordance with this section.
- 3. Each daily record maintained hereunder shall be signed by Contractor; such signature shall be deemed Contractor's representation and warranty that all information contained therein is true, accurate, complete, and relates only to the change referenced therein. All records maintained by Subcontractors of any tier, relating to the costs of a change in the Work shall be signed by such Subcontractor's authorized project manager or superintendent.

All such records shall be forwarded to the Director on the day the Work is performed (same day) for independent verification. The Director shall attempt to review and reconcile costs for changes on a daily basis. Records not available on the day on which the Extra Work is performed, such as, but not limited to, material invoices, shall be submitted as soon as they are available but not later than five (5) calendar days after the earlier of the day of delivery or incorporation of the particular item of Extra Work at the Site.
- 4. The Director may additionally require authentication of all time and material tickets and invoices by persons designated by the Director for such purpose. In the event that Contractor shall fail or refuse, for any reason, to maintain or make available for inspection, review, and/or reproduction such records, adjustments to the Contract Sum or Contract Time, if any, on account of any change to the Work may be deemed waived for that day. Contractor's obligation to maintain back-up records hereunder is in addition to, and not in lieu of, any other Contractor obligation under the Contract Documents with respect to changes to the Work.
- 5. **Waiver by Contractor.** Failure to submit such records as are required by this Paragraph daily shall waive any rights for recovery of Allowable Costs incurred for Extra Work performed that day. The failure of the Contractor to secure any required authentication shall, if the City elects in its sole discretion to treat it as such, constitute a waiver by the Contractor of any right to adjustment of the Contract Sum for the Allowable Cost of all or that portion of the Extra Work covered by such non-authenticated ticket or invoice.

C. Allowable Costs

The term "Allowable Costs" means, in the case of Extra Work, actual costs incurred by Contractor and/or any Subcontractor, regardless of tier, and necessarily involved in direct performance of the

Extra Work, or in the case of deleted Work, the actual costs that would have been incurred in performing deleted Work by Contractor and/or any Subcontractor, regardless of tier, and shall be limited to the following costs:

1. Labor. Straight-time wages or salaries, and overtime wages and salaries specifically authorized by City in writing, for employees employed at the site, or at fabrication sites off the site, in the direct performance of the Extra Work or that would have been incurred in the direct performance of the deleted Work, based on the actual cost for wages prevailing locally for each craft or type of workers at the time the Extra Work is done or the deleted Work is ordered eliminated. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental. The use of labor classification which would increase the Allowable Cost for Extra Work will not be permitted unless Contractor establishes the necessity for such additional costs.
2. Benefits. Payroll taxes, insurance, health and welfare, pension, vacation, apprenticeship funds and benefits required by lawful collective bargaining agreements for employees on straight-time wages or salaries, and on overtime wages and salaries specifically authorized by City in writing, for employees employed at the site, or at fabrication sites off the site, in the direct performance of the Extra Work or that would have been incurred in the direct performance of the deleted Work.
3. Materials, Consumables. Costs of materials and consumable items which are furnished and incorporated into the Work, as approved by City, or that would have been incorporated into the Work in the case of deleted Work shall be at the lowest price available to Contractor but in no event shall such costs exceed competitive wholesale prices obtainable from other Subcontractors, suppliers, manufacturers and distributors in the general vicinity of the site. If City determines, in its discretion, that the cost of materials is excessive, or if Contractor fails to furnish satisfactory evidence of the cost from the actual supplier thereof, then in either case the cost of the materials shall be deemed to be the lowest wholesale price at which similar materials are available in the quantities required at the time they were needed. The City reserves the right to furnish such materials as it deems advisable, and Contractor shall have no claim for costs or profits on materials so furnished.
4. Taxes. Sales taxes on the costs of materials and consumable items described in Paragraph 5.04-C.3 above.
5. Tool, Equipment Rental. Rental charges for necessary machinery and equipment, whether owned or hired, as authorized in writing by City, exclusive of hand tools, used directly in the performance of the Extra Work or that would have been used in the direct performance of the deleted Work. Regardless of ownership, such rental charges shall not exceed the hourly rate derived from the most recently published State of California, Department of Transportation, Equipment Rental Rates , which are in effect at the time of commencement of the changed work. The Labor surcharges and equipment markups will be applied per Paragraph E hereon. Contractor shall attach a copy of the rate schedule to the daily reports required by Paragraph 6.06-B, above. The charges for any machinery and equipment shall cease when the use thereof is no longer necessary for the Extra Work or deleted Work. No charge shall be allowed for use of equipment or tools which have a replacement value of \$500 or less. The allowable rental rates shall include the cost of fuel, power oil, lubrication, supplies, small tools, necessary attachments, loading, transportation, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals. Notwithstanding the provisions of Paragraph 6.06-E below, no markup shall be allowed for

overhead, profit or bond premiums for use of equipment if the equipment is supplied by an equipment rental firm. If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to City than holding it at the Site, it shall be returned, unless Contractor elects to keep it at the Site at no expense to City. Costs incurred while equipment is inoperative due to breakdowns, regular maintenance, or for non-Working Days shall not be allowed. The rental time shall include the time required to move the equipment to the Work from the nearest available source for rental of such equipment and to return it to the source. If such equipment is not moved by its own power, then loading and transportation will be allowed. Neither moving time nor loading and transportation costs will be paid if the equipment is for use on the Project unrelated to the Extra Work. All equipment shall be acceptable to City, in good working condition, and suitable for the purpose for which it is to be used. Royalties. Additional or saved costs of royalties due to the performance of the Extra Work or deleted Work.

6. Insurance, Bonds. Additional or saved costs of insurance required by Exhibit 2 to the Agreement and payment and performance bonds required by the Contract Documents, provided, however, that for Extra Work such insurance costs shall not exceed one percent (1%) of Items 1 through 6 above and such bond costs shall not exceed one percent (1%) of Items 1 through 6 above.

D. Costs Not Allowed

Allowable Costs shall not include any of the following:

1. Wages, salaries, fringe benefits and payroll taxes of Contractor's and all Subcontractor's non-craft labor (above a Foreman level);
2. Overhead, administrative or general expenses of any kind including engineering, estimating, scheduling, drafting, detailing, etc., incurred in connection with Extra Work;
3. Vehicles not dedicated solely for the performance of the extra or deleted Work;
4. Small tools (replacement value not exceeding \$500);
5. Office expenses, including secretarial and administrative staff, materials and supplies;
6. On-site and off-site trailer and storage rental and expenses;
7. Site fencing;
8. Utilities, including gas, electric, sewer, water, telephone, telefax, copier equipment;
9. Computer and data processing personnel, equipment and software;
10. Federal, state or local business income and franchise taxes;
11. Losses of efficiency or productivity; and
12. Costs and expenses of any kind or item not specifically and expressly included in Paragraph 6.06-C.

E. Allowable Mark-Up

1. If the Net Cost of Extra Work is less than or equal to \$25,000, the Allowable Mark-Up shall be computed as follows:
 - a. For Extra Work performed directly by the Contractor's forces, the added cost for all expenses of overhead and profit ("Allowable Mark-Up") shall not exceed fifteen percent (15%) of the net cost of the Extra Work.
 - b. For Extra Work performed by a Subcontractor's forces, the Allowable Mark-Up for Contractor and all Subcontractor(s) shall not exceed twenty percent (20%) of the net cost of all Subcontractor(s)'s Extra Work.
2. If the net cost of Extra Work is greater than \$25,000 and less than or equal to \$100,000, the Allowable Mark-up shall be computed as follows:
 - a. For Extra Work performed directly by the Contractor's forces the Allowable Mark-Up shall not exceed twelve percent (12%) of the net cost of the Extra Work.
 - b. For Extra Work performed by a Subcontractor's forces, the Allowable Mark-Up for Contractor and all Subcontractor(s) shall not exceed seventeen percent (17%) of the net cost of all Subcontractor(s)'s Extra Work.
3. If the net cost of Extra Work is greater than \$100,000, the Allowable Mark-up shall be computed as follows:
 - a. For Extra Work performed directly by the Contractor's forces the Allowable Mark-Up shall not exceed ten percent (10%) of the net cost of the Extra Work.
 - b. For Extra Work performed by a Subcontractor's forces, the Allowable Mark-Up for Contractor and all Subcontractor(s) shall not exceed fifteen percent (15%) of the net cost of all Subcontractor(s)'s Extra Work.

F. Net Allowable Costs

If any one scope change involves both Extra Work and deleted Work in the same portion of the Work and the additive allowable costs exceed the deductive allowable costs, the Allowable Markups on the Extra Work will be only the difference between the two amounts.

6.07 CITY ORIGINATED REQUEST FOR ITEMIZED CHANGE ORDER PROPOSAL REQUEST

City may issue a Construction Change Directive or other written request to Contractor describing a proposed change to the Work and requesting the Contractor submit an itemized change order proposal in a format acceptable to City within ten (10) calendar days after City issues the request. The Contractor's change order proposal shall include an analysis of impacts to cost and time, if any, to perform additional work, change Work or delete Work, as applicable, including the effects and impacts, if any, on unchanged Work, estimates of costs (broken down by the cost categories listed in this Paragraph), and Contractor's proposed methods to minimize costs, delay, and disruption to the performance of the Work. If Contractor fails to submit a written change order proposal within such period of time, it shall be presumed that the change described in the City's original proposal request will not result in an increase to the Contract Sum or Contract Time and the change shall be performed by Contractor without additional compensation to Contractor. City's request for itemized change order proposal request does not authorize the Contractor to commence performance of the change.

If City desires that the proposed change be performed, the Work shall be authorized according to the Change Order or Construction Change Directive procedures set forth herein.

6.08 CONTRACTOR ORIGINATED CHANGE ORDER REQUEST (COR)

If the Contractor believes that instructions issued by the City after the effective date of the Contract will result in changes to the Contract Sum or Contract Time or if the Contractor otherwise becomes aware of the need for or desirability of a change in the Work, Contractor may submit a written Change Order Request ("COR") to the City in writing, in a format acceptable to City and in accordance with the notice provisions and other requirements of Article 7 below for Claims. The COR must specify the reasons for the proposed change, cost impacts and relevant circumstances and impacts on the Construction Schedule. The document shall be complete in its description of the Work, its material and labor quantities and detail, and must support and justify the costs and credits claimed by the Contractor. A CPM schedule Fragnet is required to support and justify any additional time of performance requested by the Contractor. The City will not review any COR which is incomplete. The Contractor may request additional compensation and/or time through a COR but not for instances that occurred more than seven (7) calendar days prior to the notice date. Contractor's failure to initiate a COR within this seven-day period or to provide detailed back-up documentation to substantiate the COR within thirty (30) calendar days of the initial written notice shall be deemed a waiver of the right to adjustment of the Contract Sum or the Contract Time for the alleged change. Any COR that is approved by the City shall be incorporated in a Change Order or Construction Change Directive as a condition to payment for the change. If the COR is denied but the Contractor believes that it does have merit, the Contractor shall proceed with the disputed Work and may submit a Claim in accordance with the procedures set forth herein.

- 6.09 In the event of a dispute as to whether or not Extra Work is required, City shall have the right to unilaterally issue a Work Directive; Contractor shall continue performance of disputed Work pending resolution and shall maintain and submit to City all accounting and cost data necessary to substantiate Contractor's cost of such disputed Work.

6.10 AUTHORITY TO APPROVE CHANGES

- A. The City's Project Manager has **no authority** to authorize changes in the Work or Modifications to the Contract Documents.
- B. The Architect/Engineer has **no authority** to authorize any change or Modification to the Work or the Contract Documents that affects the Contract Sum, Contract Time, or design of the Project approved by the City Council.
- C. The Director and the City Manager have **sole authority** to approve changes that affect the Contract Sum, Contract Time, or design of the Project, subject to the limits set forth in Paragraph 1.02. The total aggregate value of all Change Orders and Construction Change Directives approved by the Director shall not exceed the contingency amount established at the time of the award of the Contract. Any changes that will individually or in the aggregate exceed the contingency amount must be approved by the City Council. Contractor must give the Director written notice if any individual changes or the aggregate of all approved and proposed changes in the Work will exceed the contingency amount, in order for the City to obtain additional funding for the Project.
- D. All changes to the Contract— whether resulting in an increase, decrease or no change in the Contract Sum or Contract Time— must be in writing and signed by an authorized representative of the City as provided in Paragraph 1.02. Any verbal direction, instruction, interpretation, or determination from the Architect/Engineer or the City's Project Manager which, in the opinion of the Contractor, causes a change or additional work, or otherwise requires an adjustment to the Contract Sum or the Contract

Time, shall be treated as a Change Order Request only if the Contractor gives the City written notice within **ten (10) calendar days** of the verbal direction and prior to acting in accordance therewith. Time is of the essence in Contractor's written notice pursuant to the preceding sentence, so that the Director can promptly investigate and consider alternative measures to address the verbal direction giving rise to Contractor's notice.

- E. Contractor shall undertake, at its own risk, work included in any oral request, written order, Change Order or Construction Change Directive issued by a person in excess of that person's authority as provided herein or by law. Unauthorized work will not be measured or paid for, and no extension of Contract Time will be granted, on account thereof. Any unauthorized work may be ordered removed at the Contractor's sole cost and expense. The City's failure to direct or order removal of unauthorized work shall not constitute acceptance or approval of such work nor relieve Contractor from any liability on account thereof.

[END OF ARTICLE]

ARTICLE 7 CONTRACT PAYMENTS AND CLAIMS

7.01 GENERAL

- A. Payment will be made at the price for each item listed on the bidding form or as Extra Work as provided in the General Conditions.
- B. Initial progress payment will not be made prior to approval by the Director of the Schedule of Values, the Construction Progress Schedule, and the Schedule of Submittals.
- C. No subsequent progress payment will be made prior to receipt by the Director of the monthly revision of the Construction Progress Schedule.

7.02 SCHEDULE OF VALUES FOR PAYMENTS

A. Submission

Upon City's request, the three (3) lowest bidders shall complete and submit a Preliminary Schedule of Values, attached as Exhibit 4, within seven (7) calendar days.

In addition, Contractor shall complete and furnish, within seven (7) calendar days after the City's Notice of Award of the Contract, a Final Schedule of Values giving a complete breakdown of the Contract Sum for each component of the Work.

B. Content

The Schedule of Values shall be in sufficient detail as the Director may, in its discretion, deem necessary to evaluate progress at any point in the performance of the Work. Unless otherwise specified in the Contract Documents, the Schedule of Values shall include, without limitation, a breakdown of the general categories of Subcontractor work, direct overhead, profit and contingency, and a further breakdown of the general categories of Subcontractor work into separate trade line items of costs for Subcontractor services, labor and material, which is based on actual Subcontractor contract, subcontract, purchase order or vendor prices. If requested by Director, Contractor shall revise the Schedule of Values to allocate sums for Contractor overhead, profit and/or contingency among the individual line items for trade portions of the Work. No amounts shall be reflected in the Schedule of Values or Application for Payment for Extra Work or Deleted Work for which a Change Order has not been executed by Contractor and City or for which a Construction Change Directive has not been issued by City. Amounts that have been mutually agreed to by Change Order or unilaterally determined by City pursuant to a Construction Change Directive shall be segregated from the cost of the base Contract Work and separately listed by line item in the Schedule of Values. The Schedule of Values must be prepared in sufficient detail and supported by sufficient data to substantiate its accuracy as the Director may require.

C. Applications for Payment

The Schedule of Values, when approved by the Director, shall be used as a basis for Contractor's Applications for Payment and may be considered as fixing a basis for adjustments to the Contract Sum.

D. Revisions

If, at any time, it is determined that the Schedule of Values does not allocate the Contract Sum in a manner that reasonably and fairly reflects the actual costs anticipated to be progressively incurred by Contractor, it shall be revised and resubmitted for approval by the Director.

7.03 APPLICATIONS FOR PAYMENT

A. Marked Schedule of Values

Five (5) Days prior to the date set forth in Paragraph 7.03-B below for the monthly progress payment meeting, Contractor shall submit to Director a copy of the proposed Schedule of Values, marked to show the percentage of completion certified by Contractor for each line item in the Schedule of Values, including any stored materials approved for payment by City pursuant to Paragraph 7.03-D, below and any withholdings from Contractor proposed by Director.

B. Monthly Review

For the purpose of expediting the progress payment procedure, Contractor shall meet with the Director on or before the twentieth (20th) day of each month to review the Contractor's marked Schedule of Values prepared in accordance with Paragraph 7.03-A, above. The Director shall revise as appropriate and sign the marked Schedule of Values to verify such review. If any item in the marked Schedule of Values submitted for payment is disputed during this review, Contractor agrees to use its best efforts to resolve the disputed items with the Director before submitting its Application for Payment. If the Director and Contractor cannot agree, then the percentage completion shall be established at such percentage as the Director, in good faith, determines is appropriate to the actual progress of the Work. No inaccuracy or error in the Director's good faith estimate shall operate to release Contractor or Surety from any responsibility or liability arising from or related to performance of the Work. The Director shall have the right subsequently to correct any error and dispute any item submitted in Contractor's Application for Payment, regardless of whether an item was identified as disputed in the review process provided for herein.

C. Certification

Each Application for Payment shall be signed by Contractor with a certification by Contractor to City that:

1. The data comprising the Application for Payment is accurate and the Work has progressed to the point indicated;
2. To the best of Contractor's knowledge, information and belief, the Work is in accordance with the Contract Documents;
3. Contractor is entitled to payment in the amount certified; and
4. All sums previously applied for by Contractor on account of Work performed by Subcontractors and that have been paid by City have been paid to the Subcontractors performing such Work, without any retention, withholding or back charge by Contractor.

D. Stored Materials

Payments may be made by City, at its discretion, on account of materials or equipment not incorporated into the Work but delivered on the ground at the Site and suitably stored by Contractor or stored off-Site under the control of City. Such payments shall only be considered upon submission by Contractor of satisfactory evidence that it has acquired title to same, that the material or equipment will be utilized in the Work and that the material is satisfactorily stored, protected and insured, and that such other procedures are in place satisfactory to City to protect City's interests. To be considered for payment, materials or equipment stored off-Site shall, in addition to the above requirements and unless otherwise specifically approved by City in writing, be stored in a bonded warehouse, fully insured, and available to City for inspection. City shall have sole discretion to determine the amount of material and equipment that may be stored on the Site at any given time.

7.04 PROGRESS PAYMENTS

A. Conditions to Progress Payments

Contractor shall submit its Application for Payment to the Director, using such forms as required by City, once a month on or before the first (1st) Day of the month following the month in which the Work that is the subject of such Application for Payment was performed. Without limitation to any other provisions of the Contract Documents, the following shall be conditions precedent to a proper submission and to the Director approval of each Application for Payment:

1. Submission of a Schedule of Values that reflects the percentages of completion either agreed to or determined by Director in accordance with Paragraph 7.03-B, above;
2. Submission of the Contractor's certification required by Paragraph 7.03-C, above;
3. Submission of conditional releases of stop payment notice, if any, and bond rights upon progress payment, complying with California Civil Code Section 8132, for all Work performed during the time period covered by the current Application for Payment, signed by Contractor, its Subcontractors of every tier, and all material suppliers to each, and (2) forms of unconditional release of stop payment notice and bond rights upon progress payment, complying with California Civil Code Section 8134, for all Work performed during the time period covered by the previous Application for Payment, signed by Contractor, its Subcontractors of every tier and all material suppliers to each;
4. Compliance by Contractor with its obligation for submittal of As-Builts as required by the Contract Documents;
5. Compliance by Contractor with its obligation for submission of monthly and daily reports as required by the Contract Documents;
6. Compliance by Contractor with its obligations for submission of scheduling information and updating of the Construction Schedule as required by Article 4, above and other provisions of the Contract Documents pertaining to preparation or updating of schedule information;
7. Submission of certified payroll records as required by the Contract Documents;
8. Submission of certifications by Contractor and each Subcontractor as required by applicable collective bargaining agreements certifying that all employee benefit

contributions due and owing pursuant to any applicable collective bargaining agreement have been paid in full; and

9. Compliance by Contractor with all of its other obligations for submission of documentation or performance of conditions which, by the terms of the Contract Documents, constitute conditions to Contractor's right to receive payment for Work performed.

B. Payments by City

Pursuant to California Public Contract Code Section 20104.50, City shall make progress payment of undisputed sums due within thirty (30) Days after receipt by Director of an undisputed and properly submitted Application for Payment, calculated on the basis of ninety percent (90%) of value determined pursuant to Paragraph 7.03-B above of the following:

1. The portion of the Work permanently installed and in place;
2. Plus, the value of materials delivered on the ground or in storage as approved by City pursuant to Paragraph 7.03-D, above,
3. Less, the aggregate of previous payments, and
4. Less, any other withholdings authorized by the Contract Documents.

C. Rejection by City

Any Application for Payment determined not to be undisputed, proper and suitable for payment shall be returned to Contractor as soon as practicable, but not later than seven (7) Days, after receipt by City accompanied by an written explanation of the reasons why the payment request was rejected. Failure by City or Director to either timely reject an Application for Payment or specify any grounds for rejection shall not constitute a waiver of any rights by City. Applications for Payment that are rejected shall be corrected and resubmitted within seven (7) Days after receipt by Contractor.

D. Interest

If City fails to make a progress payment to Contractor as required by Paragraph 7.04-B, above, City shall pay interest to Contractor equivalent to the legal rate set forth in subdivision (a) of California Code of Civil Procedure Section 685.010. The number of Days available to City to make payment pursuant to Paragraph 7.04-B, above without incurring interest pursuant to this Paragraph shall be reduced by the number of Days by which City exceeds the seven (7) Day return requirement applicable to City as set forth in Paragraph 7.04-C, above,

7.05 FINAL PAYMENT

A. Retention

In addition to withholdings permitted by Paragraph 7.09 below, a sum equal to five percent (5%) of all sums otherwise due to Contractor as progress payments shall be withheld by City pursuant to Paragraph 7.04-B from each progress payment ("Retention") and retained until such time as it is due as described below.

B. Conditions to Final Payment

Contractor shall submit its Application for Final Payment, using such forms as required by Director, prior to requesting a final inspection of the Work in accordance with Paragraph 3.06 above. Such Application for Final Payment shall be accompanied by all the following:

1. An affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Project for which City or City's property or funds might be liable have been paid or otherwise satisfied;
2. Contractor's certification as required by Paragraph 7.03-C, above;
3. Consent of surety to Final Payment;
4. A certificate evidencing that the insurance required by the Contract Documents is in force;
5. Conditional Waiver and Release Upon Final Payment in the form required by California Civil Code Section 8136 executed by Contractor, all Subcontractors of every tier and by all material suppliers of each, covering the final payment period;
6. Unconditional Waiver and Release Upon Progress Payment in the form required by California Civil Code Section 8134 executed by Contractor, all Subcontractors of every tier and by all material suppliers of each, covering the previous payment period;
7. All Record Documents (including, without limitation, complete and accurate As-Built drawings which shall be kept up to date during the performance of the Work);
8. Documentation that Contractor has inspected, tested, and adjusted performance of every system or facility of the Work to ensure that overall performance is in compliance with the terms of the Contract Documents;
9. Four (4) copies of all warranties from vendors and Subcontractors, operation and maintenance manuals, instructions and related agreements, and equipment certifications and similar documents;
10. Certifications by Contractor and each Subcontractor as required by applicable collective bargaining agreements that all employee benefit contributions due and owing pursuant to any applicable collective bargaining agreement have been paid in full;
11. Releases of rights and claims relating to patents and trademarks, as required by the Contract Documents; and
12. Any other documents or information required by the Contract Documents as a condition of Final Payment or Final Completion.

C. Final Payment

Pursuant to the Public Contract Code Section 7107, within sixty (60) Days after City issues the Notice of Completion to Contractor, the Final Payment, including Retention withheld, shall be released to Contractor, subject to the City's right to withhold 150% of any disputed amounts.

D. Disputed Amounts

Pursuant to California Public Contract Code 7107, City may deduct and withhold from the Final Payment due under Paragraph 7.05-C, above, an amount up to 150% of any disputed amounts, including, without limitation, amounts to protect City against any loss caused or threatened as a result of Contractor's failing to fully perform all of those obligations that are required to be fulfilled by Contractor as a condition to Final Completion and Final Payment. Alternatively, City may elect, in its sole discretion, to accept the Work without correction or completion and adjust the Contract Sum pursuant to the Contract Documents.

E. Acceptance of Final Payment

Acceptance of Final Payment by Contractor shall constitute a waiver of all rights by Contractor against City for recovery of any loss, excepting only those Claims that have been submitted by Contractor in the manner required by the Contract Documents prior to or at the time of the Final Payment.

7.06 MISCELLANEOUS

A. Joint Payment

City shall have the right, if deemed necessary in its sole discretion, to issue joint checks made payable to Contractor and any Subcontractor(s) of any Tier. The joint check payees shall be solely responsible for the allocation and disbursement of funds included as part of any such joint payment. Endorsement on such check by a payee shall be conclusively presumed to constitute receipt of payment by such payee. In no event shall any joint check payment be construed to create any contract between City and a Subcontractor of any Tier, any obligation from City to such Subcontractor or any third party rights against City or Director.

B. Withholding/Duty to Proceed

The payment, withholding or retention of all or any portion of any payment claimed to be due and owing to Contractor shall not operate in any way to relieve Contractor from its obligations under the Contract Documents. Contractor shall continue diligently to prosecute the Work without reference to the payment, withholding or retention of any payment. The partial payment, withholding or retention by City in good faith of any disputed portion of a payment, whether ultimately determined to be correctly or incorrectly asserted, shall not constitute a breach by City of the Construction Contract and shall not be grounds for an adjustment of the Contract Sum or Contract Time.

C. No Acceptance

No payment by City or partial or entire use of the Work by City shall be construed as approval or acceptance of the Work, or any portion thereof.

D. Contractor Payment Warranty

Submission of an Application for Payment shall constitute a representation and warranty by Contractor that:

1. Title to Work covered by an Application for Payment will pass to City either by incorporation into the construction or upon receipt of payment by Contractor, whichever occurs first; and

2. Work covered by previous Applications for Payment are free and clear of liens, stop payment notices, claims, security interests or encumbrances imposed by the Contractor or any other person.

E. Corrections

No inaccuracy or error in any Application for Payment provided by Contractor shall operate to release Contractor from the error, or from losses arising from the Work, or from any obligation imposed by the Contract Documents. City retains the right to subsequently correct any error made in any previously approved Application for Payment, or progress payment issued, by adjustments to subsequent payments.

7.07 PAYMENTS BY CONTRACTOR

Contractor shall not include in its Applications for Payment sums on account of any Subcontractor's portion of the Work that it does not intend to pay to such Subcontractor. Upon receipt of payment from City, Contractor shall pay the Subcontractor performing Work on the Project, out of the amount paid to Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled in accordance with the terms of its contract with Contractor and applicable laws, including, without limitation, California Public Contract Code Section 7107. Contractor shall remain responsible notwithstanding a withholding by City pursuant to the terms of these Contract Documents, to promptly satisfy from its own funds sums due to all Subcontractors who have performed Work that is included in Contractor's Application for Payment. Contractor shall, by appropriate agreement, require each Subcontractor to make payments to its subcontractors and material suppliers in similar manner. City shall have no obligation to pay or be responsible in any way for payment to a Subcontractor of any tier or material supplier.

7.08 PAYMENTS WITHHELD

A. Withholding by City

In addition to any other amounts which City may have the right to retain under the Contract Documents, City may withhold a sufficient amount of any payment otherwise due to Contractor as City, in its sole discretion, may deem necessary to cover actual or threatened loss due to any of the following:

1. Third Party Claims. Third-party claims or stop payment notices filed or reasonable evidence indicating probable filing of such claims or stop payment notices;
2. Defective Work. Defective Work not remedied;
3. Nonpayment. Failure of Contractor to make proper payments to its Subcontractors for services, labor, materials or equipment;
4. Inability to Complete. Reasonable doubt that the Work can be completed for the then unpaid balance of the Contract Sum or within the Contract Time;
5. Violation of Applicable Laws. Failure of Contractor or its Subcontractors to comply with applicable laws or lawful orders of governmental authorities;

6. Penalty. Any claim or penalty asserted against City by virtue of Contractor's failure to comply with applicable laws or lawful orders of governmental authorities (including, without limitation labor laws);
7. Failure to Meet Contract Time. Any damages which may accrue as a result of Contractor failing to meet the Construction Schedule or failing to perform within the Contract Time;
8. Setoff. Any reason specified elsewhere in the Contract Documents as grounds for a withholding offset or set off or that would legally entitle City to a set-off or recoupment;
9. Consultant Services. Additional professional, consultant or inspection services required due to Contractor's failure to comply with the Contract Documents.
10. Liquidated Damages. Liquidated damages assessed against Contractor
11. Materials. Materials ordered by City pursuant to the Contract Documents.
12. Damages. Loss caused by Contractor or Subcontractor to City, Separate Contractors or any other person or entity under contract to City.
13. Clean Up. Clean up performed by City and chargeable to Contractor pursuant to the Contract Documents.
14. Employee Benefits. Failure of Contractor to pay contributions due and owing to employee benefits funds pursuant to any applicable collective bargaining agreement or trust agreement.
15. Required Documents. Failure of Contractor to submit on a timely basis, proper and sufficient documentation required by the Contract Documents, including, without limitation, Construction Schedule updates, 'look ahead' schedules, Submittals, Schedules of Values, information on Subcontractors, Change Orders, certifications and other required reports or documentation.
16. Other Breach. A breach of any obligation or provision of the Contract Documents.

B. Release of Withholding

If and when City determines, in its sole discretion, that the above grounds for withholding have been removed and that all losses incurred or threatened have been paid, credited or otherwise satisfied, then payment shall be made for amounts withheld because of them.

C. Application of Withholding

City may apply sums withheld pursuant to Paragraph 7.08-A above, in payment of any loss or threatened loss as City determines, in its sole discretion, to be appropriate. Such payments may be made without a prior judicial determination of City's actual rights with respect to such loss. Contractor agrees and hereby designates City as its agent for such purposes, and agrees that such payments shall be considered as payments made under Construction Contract by City to Contractor. City shall not be liable to Contractor for such payments made in good faith. City shall submit to Contractor an accounting of such funds disbursed on behalf of Contractor. As an alternative to such payment, city may, in its sole discretion, elect to exercise its right to adjust the Contract Sum as provided in the Contract Documents.

D. Continuous Performance

Provided City pays the undisputed portion, if any, of funds withheld in good faith, Contractor shall maintain continuous and uninterrupted performance of the Work during the pendency of any disputes or disagreements with City.

7.09 SUBSTITUTION OF SECURITIES

A. Public Contract Code

Pursuant to the requirements of California Public Contract Code Section 22300, upon Contractor's request, City will make payment to Contractor of any funds withheld from payments to ensure performance under the Contract Documents if Contractor deposits with City, or in escrow with a California or federally chartered bank in California acceptable to City ("Escrow Agent"), securities eligible for the investment of State Funds under Government Code Section 16430, or bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the City, upon the following conditions:

1. Contractor shall be the beneficial owner or any securities substituted for monies withheld for the purpose of receiving any interest thereon.
2. All expenses relating to the substitution of securities under said Section 22300 and under this Paragraph 7.04, including, but not limited to City's overhead and administrative expenses, and expenses of Escrow Agent shall be the responsibility of Contractor.
3. Securities or certificates of deposit substituted for monies withheld shall be of a value of at least equivalent to the amounts of retention to be paid to Contractor pursuant to the Contract Documents.
4. If Contractor chooses to deposit securities in lieu of monies withheld with an Escrow Agent, Contractor, City and Escrow Agent shall, as a prerequisite to such deposit, enter into an escrow agreement, using the City's form, "Escrow Agreement for Deposit of Securities in Lieu of Retention."
5. Contractor shall obtain the written consent of Surety to such agreement.
6. Securities, if any, shall be returned to Contractor only upon satisfactory Final Completion of the Work.

B. Substitute Security

To minimize the expense caused by such substitution of securities, Contractor shall, prior to or at the time Contractor requests to substitute security, deposit sufficient security to cover the entire amount to be withheld. Should the current market value of such substituted security fall below the amount for which it was substituted, or any other amounts which the City withholds pursuant to the Contract Documents, Contractor shall immediately and at Contractor's expense and at no cost to City deposit additional security qualifying under said Section 22300 until the current market value of the total security deposited is no less than the amount subject to withholding under the Contract Documents. Securities shall be valued as often as conditions of the securities market warrant, but in no case less frequently than once per month.

C. Deposit of Retentions

Alternatively, subject to the conditions set forth in Paragraph 7.04-A above, upon request of Contractor, City shall make payment of retentions directly to Escrow Agent at the expense of Contractor, provided that Contractor, City and Escrow Agent shall, as a prerequisite such payment, enter into an escrow agreement in the same form as prescribed in Part 4 of Paragraph A, above. At the expense of Contractor and at no cost to City, Contractor may direct the investment of the payments into securities and interest bearing accounts, and Contractor shall receive the interest earned on the investments. Escrow Agent shall hold such direct payments by City under the same terms provided herein for securities deposited by Contractor. Upon satisfactory Final Completion of the Work, Contractor shall receive from Escrow Agent all securities, interest and payments received by Escrow Agent from City, less escrow fees and charges of the Escrow Account, according to the terms of said Section 22300 and the Contract Documents.

D. Time for Election of Substitution of Securities

Notwithstanding the provision of 7.04 A, B, and C above and California Public Contract Code Section 22300, the failure of Contractor to request the Substitution of eligible securities for monies to be withheld by City within ten (10) days of the award of Contract to Contractor shall be deemed to be a waiver of all such rights.

7.10 CLAIM

A. Definition of Claim and 9204 Claim.

1. For purposes of accrual and triggering the initial notice, content and backup documentation requirements of the Contract Documents including, but not limited, to those set forth in Article 3 for delays and extensions of time, Article 6 for Changes in the Work and this Paragraph 7.10; a "claim" means a separate demand by the Contractor for (a) a time extension; (b) payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to this Contract and payment of which is not otherwise expressly provided or the Contractor is not otherwise entitled to, (c) an amount the payment of which is disputed by the City; or (d) or an assertion that Contractor's performance is excused because of the acts or omissions of City.
2. For purposes of the Public Contract Code Section 9204 Claims Procedures in Article 15 below, the term "9204 Claim" shall have the meaning set forth in Public Contract Code Section 9204(c)(1), which Contractor must send to the Director by registered or certified mail, return receipt requested.

B. Accrual of Claim.

1. Scope Change. When Contractor has a claim for an increase in the Contract Sum or Contract Time due to a scope change which has not yet become final, a "claim" will be deemed to arise once the Director has issued a written decision denying, in whole or in part, the Contractor's Change Order Request.
2. Other Claims. In the case of a claim by Contractor that does not involve a scope change and which has not become final, the claim may be asserted if, and only if, Contractor gives written notice to City of intent to file the claim within seven (7) calendar days of the date of discovery relative to such circumstances (even if Contractor has not yet been damaged or delayed). Such written notice of intent to file a claim shall be valid if, and only if, it identifies the event or condition giving rise to the claim, states its probable effect, if any with respect to Contractor's entitlement to an adjustment of

the Contract Sum or Contract Time and complies with the requirements of Paragraph 3.04 for delays and Paragraph 7.10-C, below. For purposes of this Paragraph 7.10, a claim for which such written notice is required and has been given by Contractor shall be deemed to arise on the date that such valid initial written notice is received by City.

C. Content of Claim.

A claim by Contractor must include all of the following:

1. A statement that it is a claim and a request for a decision on the claim;
2. A detailed description of the act, error, omission, unforeseen condition, event or other circumstance giving rise to the Claim.
3. If the claim involves an adjustment to the Contract Sum or Contract Time due to a change in scope, a statement demonstrating that all requisite notices were provided, including, without limitation, timely written notice of a Scope Change and a Change Order Request as required by Article 6 of these General Conditions and timely notice of delay and request for extension of time in accordance with Article 3. If the claim does not involve an adjustment to the Contract Sum or Contract Time due to a change in scope, a statement demonstrating that a notice of intent to file the Claim was timely submitted as required by Paragraph 7.10-B.2, above;
4. A detailed justification for any remedy or relief sought by the claim including, without limitation, a detailed cost breakdown in the form required for submittal of Change Order Requests and actual contemporaneous job cost records and job cost report summaries demonstrating that the costs have been incurred;
5. If the claim involves a request for adjustment of the Contract Time, written documentation demonstrating that Contractor has complied with the requirements of the Contract Documents and written substantiation (including, without limitation, a CPM schedule Fragnet) demonstrating that Contractor is entitled to an extension of time under the Contract Documents; and
6. A written certification signed by a managing officer of Contractor's organization, who has the authority to sign contracts and purchase orders on behalf of Contractor and who has personally investigated and confirmed the truth and accuracy of the matters set forth in such certification, in the following form:

"I hereby certify and declare under penalty of perjury under the laws of the State of California, that I am a managing officer of (Contractor's name) and that I have reviewed the claim presented herewith on Contractor's behalf and/or on behalf of (Subcontractor's name) and that, to the best of my knowledge after conducting a diligent inquiry into the facts of the Claim, the following statements are true and correct:

The facts alleged in or that form the basis for the claim are, to the best of my knowledge following diligent inquiry, true and accurate; and,

- a. I do not know of any facts or circumstances, not alleged in the claim, that by reason of their not being alleged render any fact or statement alleged in the claim materially misleading; and,

- b. I have, with respect to any request for money or damages alleged in or that forms the basis for the claim, reviewed the job cost records (including those maintained by Contractor and by any Subcontractor, of any tier, that is asserting all or any portion of the claim) and confirmed with reasonable certainty that the losses or damages suffered by Contractor and/or such Subcontractor were in fact suffered in the amounts and for the reasons alleged in the claim; and,
- c. I have, with respect to any request for extension of time or claim of delay, disruption, hindrance or interference alleged in or that forms the basis for the claim, reviewed the job schedules (including those maintained by Contractor and the Subcontractor, of any tier, that is asserting all or any portion of the claim) and confirmed on an event-by-event basis that the delays or disruption suffered by Contractor and/or such Subcontractor were in fact experienced for the durations, in the manner, and with the consequent effects on the time and/or sequence of performance of the Work, as alleged in the claim; and,
- d. I have not received payment from City for, nor has Contractor previously released City from, any portion of the claim."

Signature: _____ Date: _____
 Name: _____
 Title: _____
 Company: _____
 Location: _____

D. Noncompliance

Failure to submit any of the information, documentation or certifications required by this Paragraph 7.10 and within the deadlines established by the Contract Documents, shall render the claim invalid and shall result in the claim being returned to Contractor without any decision and shall be deemed rejected in its entirety.

E. Submission of Claims

- 1. Director. Claims must be first submitted to the City for decision by the Director.
- 2. Continuous Work. Notwithstanding the making of any Claim or the existence of any dispute regarding any Claim, unless otherwise directed by City, Contractor shall not delay, slow or stop performance of the Work, but shall diligently proceed with performance in accordance with the Contract Documents and City will continue, to make undisputed payments as by the Contract Documents.
- 3. Time for Filing. After compliance with the notice deadlines, all claims and supporting documentation and certifications must be filed within thirty (30) calendar days after the claim arises. No claims shall be filed after Final Payment.
- 4. Conditions Precedent. No Claim may be asserted unless Contractor has strictly complied with the notice and content requirements of Contract Documents including, but not limited to, this Paragraph 7.10, which shall be considered conditions precedent to Contractor's right to assert the claim and to initiate the Dispute Resolution Process set forth in Article 15 below with respect to such claim. City Response to Claims, Meet and Confer, Mediation [See Article 15 below].

G. Finality of Decision

If Contractor disputes the Director's decision under this Article, it shall commence the Dispute Resolution Process as set forth in Article 15 of these General Conditions by filing a 9204 Claim within seven (7) calendar days after receipt of the Director's response or rejection or deemed rejection of the claim.

H. Continuing Contract Performance/Duty to Proceed with Disputed Work

Contractor shall not delay or postpone any Work pending resolution of any claims, disputes or disagreements. Pending final resolution of a claim, the Contractor shall proceed diligently with performance of the Contract and the City shall continue to make payments for undisputed Work in accordance with the Contract Documents. In the event of disputed Work, City shall have the right to unilaterally issue a Work Directive and Contractor shall continue performance pending resolution of the dispute and shall maintain the accounting and cost data to substantiate the cost of such disputed Work.

[END OF ARTICLE]

ARTICLE 8 MATERIALS AND EQUIPMENT

8.01 GENERAL

- A. The Contractor shall furnish all materials and equipment needed to complete the Work and installations required under the terms of this Contract, except those materials and equipment specified to be furnished by the City.
- B. The Contractor shall submit satisfactory evidence that the materials and equipment to be furnished and used in the work are in compliance with the Specifications. Materials and equipment incorporated in the Work and not specifically covered in the Specifications shall be the best of their kind. Unless otherwise specified, all materials and equipment incorporated in the Work under the Contract shall be new.

8.02 QUALITY AND WORKMANSHIP

All material and equipment furnished by the Contractor shall be new, high grade, and free from defects and imperfections, unless otherwise hereinafter specified. Workmanship shall be in accordance with the best standard practices. All materials and equipment must be of the specified quality and equal to approved samples, if samples have been required. All Work shall be done and completed in a thorough, Workmanlike manner, notwithstanding any omission from the Specifications or Drawings, and it shall be the duty of the Contractor to call attention to apparent errors or omissions and request instructions before proceeding with the Work. The Director may, by appropriate instructions, correct errors and supply omissions, which instructions shall be binding upon the Contractor as though contained in the original Specifications or Drawings. All Work performed under the Specifications will be inspected by the Director as provided in Paragraph 8.04. All materials and equipment furnished and all Work done must be satisfactory to the Director. Work, material, or equipment not in accordance with the Specifications, in the opinion of the Director shall be made to conform thereto. Unsatisfactory materials and equipment will be rejected, and if so ordered by the Director, shall, at the Contractor's expense, be immediately removed from the vicinity of the Work.

8.03 TRADE NAMES AND "OR APPROVED EQUAL" PROVISION

Whenever in the Specifications or Drawings the name or brand of a manufactured article is used it is intended to indicate a measure of quality and utility or a standard. Except in those instances where the product is designated to match others in use on a particular improvement either completed or in the course of completion, the Contractor may substitute any other brand or manufacture of equal appearance, quality, and utility on approval of the Director, provided the use of such brand or manufacture involves no additional cost to the City.

8.04 APPROVAL OF MATERIALS

- A. The Contractor shall furnish without additional cost to the City such quantities of construction materials as may be required by the Director for test purposes. He/she shall place at the Director's disposal all available facilities for and cooperate with him in the sampling and testing of all materials and workmanship. The Contractor shall prepay all shipping charges on samples. No samples are to be submitted with the bids unless otherwise specified.
- B. Each sample submitted shall be labeled. A letter, in duplicate, submitting each shipment of samples shall be mailed to the Director by the Contractor. Both the label on the sample and the letter of

transmittal shall indicate the material represented, its place of origin, the names of the producer and the Contractor, the Specifications number and title, and a reference to the applicable Drawings and Specifications paragraphs.

- C. Materials or equipment of which samples are required shall not be used on the Work until approval has been given by the Director in writing. Approval of any sample shall be only for the characteristics of the uses named in such approval and no other. No approval of a sample shall be taken in itself to change or modify any Contract requirement.
- D. Failure of any material to pass the specified tests, including life cycle maintenance data may be sufficient cause for refusal to consider under this Contract, any further sample of the same brand or make of that material.

8.05 ORDERING MATERIALS AND EQUIPMENT

One copy of each of the Contractor's purchase orders for materials and equipment forming a portion of the Work must be furnished to the Director, if requested. Each such purchase order shall contain a statement that the materials and equipment included in the order are subject to inspection by the City. Materials and equipment purchased locally will, at the City's discretion, be inspected at the point of manufacture or supply, and materials and equipment supplied from points outside the Los Angeles area will be inspected upon arrival at the job, except when other inspection requirements are provided for specific materials in other sections of the Contract Documents.

8.06 AUTHORITY OF THE DIRECTOR

- A. On all questions concerning the acceptability of materials or machinery, the classification of materials, the execution of the Work, and conflicting interests of Contractors performing related work, the decision of the Director shall be final and binding.
- B. The Director will make periodic observations of materials and completed work to observe their compliance with Drawings, Specifications, and design and planning concepts, but he/she is not responsible for the superintendence of construction processes, site conditions, operations, equipment, personnel, or the maintenance of a safe place to work or any safety in, on, or about the site of work.

8.07 INSPECTION

All materials furnished and work done under this Contract will be subject to rigid inspection. The Contractor shall furnish, without extra charge, the necessary test pieces and samples, including facilities and labor for obtaining them, as requested by the Director. The Director, or his/her authorized agent or agents, at all times shall have access to all parts of the shop and the works where such materials under his/her inspection is being manufactured or the work performed. Work or material that does not conform to the Specifications, although accepted through oversight, may be rejected at any stage of the Work. Whenever the Contractor is permitted or directed to do night work or to vary the period during which work is carried on each day, he/she shall give the Director due notice, so that inspection may be provided. Such work shall be done under regulations to be furnished in writing by the Director.

8.08 INFRINGEMENT OF PATENTS

The Contractor shall hold and save the City, its officers, agents, servants, and employees harmless from and against all and every demand or demands, of any nature or kind, for or on account of the use of any patented invention, process, equipment, article, or appliance employed in the execution of the Work or included in the

materials or supplies agreed to be furnished under this Contract, and should the Contractor, his/her agents, servants, or employees, or any of them, be enjoined from furnishing or using any invention, process, equipment, article, materials, supplies or appliance supplied or required to be supplied or used under this Contract, the Contractor shall promptly substitute other inventions, processes, equipment, articles, materials, supplies, or appliances in lieu thereof, of equal efficiency, quality, finish, suitability, and market value, and satisfactory in all respects to the Director. Or in the event that the Director elects, in lieu of such substitution, to have, supplied, and to retain and use, any such invention, process, equipment, article, materials, supplies, or appliances, as may by this Contract be required to be supplied and used, in that event the Contractor shall at his/her expense pay such royalties and secure such valid licenses as may be requisite and necessary to enable the City, its officers, agents, servants, and employees, or any of them, to use such invention, process, equipment, article, materials, supplies, or appliances without being disturbed or in way interfered with by any proceeding in law or equity on account thereof. Should the Contractor neglect or refuse promptly to make the substitution hereinbefore required, or to pay such royalties and secure such licenses as may be necessary and requisite for the purpose aforesaid, then in that event the Director shall have the right to make such substitution, or the City may pay such royalties and secure such licenses and charge the cost thereof against any money due the Contractor from the City, or recover the amount thereof from him/her and his/her surety, notwithstanding final payment under this Contract may have been made.

[END OF ARTICLE]

ARTICLE 9 SUBMITTALS

9.01 GENERAL

- A. The Contractor shall submit samples, drawings, and data for the Director's approval which demonstrate fully that the construction, and the materials and equipment to be furnished will comply with the provisions and intent of the Drawings and Specifications.
- B. Specific items to be covered by the submittals shall include, as a minimum, the following:
 - 1. For structures, submit all shop, setting, equipment, miscellaneous iron and reinforcement drawings and schedules necessary.
 - 2. For conduits, submit a detailed layout of the conduit with details of bends and fabricated specials and furnish any other details necessary. Show location of shop and field welds.
 - 3. For equipment which requires electrical service, submit detailed information to show power supply requirements, wiring diagrams, control and protection schematics, shop test data, operation and maintenance procedures, outline drawings, and manufacturer's recommendation of the interface/interlock among the equipment.
 - 4. For mechanical equipment submit all data pertinent to the installation and maintenance of the equipment including shop drawings, manufacturer's recommended installation procedure, detailed installation drawings, test data and curves, maintenance manuals, and other details necessary.
 - 5. Samples
 - 6. Colors
 - 7. Substitutions
 - 8. Manuals
 - 9. As-built drawings
 - 10. Safety plans required by Article 10

9.02 PRODUCT HANDLING

- A. Submittals shall be accompanied by a letter of transmittal and shall be in strict accordance with the provisions of this Article.
- B. Submit priority of processing when appropriate.

9.03 SCHEDULE OF SUBMITTALS

- A. The Contractor shall prepare and submit a schedule of submittals. The schedule of submittals shall be in the form of a submittal log. Refer to Paragraph 9.12.

9.04 SHOP DRAWINGS

- A. All shop drawings shall be produced to a scale sufficiently large to show all pertinent features of the item and its method of connection to the Work.
- B. All shop drawing prints shall be made in blue or black line on white background. Reproductions of City/Contract Drawings are not acceptable.
- C. The overall dimensions of each drawing submitted to the Director shall be equal to one of the City's standard sheet sizes as listed below. The title block shall be located in the lower right hand corner of each drawing and shall be clear of all line Work, dimensions, details, and notes.

Sheet Sizes
Height X Width
11" X 8 1/2"
11" X 17"
24" X 36"
30" X 42"

9.05 COLORS

Unless the precise color and pattern are specified elsewhere, submit accurate color charts and pattern charts to the Director for his/her review and selection whenever a choice of color or pattern is available in a specified product. Label each chart naming the source, the proposed location of use on the project, and the project.

9.06 MANUFACTURERS' LITERATURE

Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly show which portions of the contents are being submitted for review.

9.07 SUBSTITUTIONS

- A. The Contract is based on the materials, equipment, and methods described in the Contract Documents. Any Contractor proposed substitutions are subject to the Director's approval.

The Director will consider proposals for substitution of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data, and all other information, including life cycle maintenance data, required by the Director to evaluate the proposed substitution.
- B. Any requests for substitutions by the Contractor must be made within forty-five (45) calendar days from the date of the Notice to Proceed. Otherwise, such requests will not be considered.
- C. Trade names and "or approved equal" provision as set forth in Paragraph 8.03.

9.08 MANUALS

- A. When manuals are required to be submitted covering items included in this Work, prepare and submit such manuals in approximately 8-1/2" X 11" format in durable plastic binders. In addition, manuals shall be submitted in electronic format. Manuals shall contain at least the following:
 - 1. Identification on, or readable through, the front cover stating general nature of the manual.

2. Neatly typewritten index near the front of the manual, furnishing immediate information as to location in the manual of all emergency data regarding the installation.
 3. Complete instructions regarding operation and maintenance of all equipment involved.
 4. Complete nomenclature of all replaceable parts, their part numbers, current cost, and name and address of nearest vendor of parts.
 5. Copy of all guarantees and warranties issued.
 6. Copy of drawings with all data concerning changes made during construction.
- B. Where contents of manuals include manufacturers' catalog pages, clearly indicate the precise items included in this installation and delete, or otherwise clearly indicate, all manufacturers' data with which this installation is not concerned.

9.09 AS-BUILT DRAWINGS

- A. When required to be submitted covering items included in this Work, the Contractor shall deliver to the City one complete set of final As-Built hard copy drawings together with a set of AutoCAD drawing files in electronic format showing completed building, "as-built" for City records before the Contract will be accepted by the City.
- B. The drawings shall be duplicates and at the same size and dimensional scale as the originals. They shall be on a polyester translucent base material with a minimum sheet thickness of .003 inch (.08mm).
- C. The legibility and contrast of each drawing submitted to the City shall be such that every line, number, letter, and character is clearly readable in a full size blow back from a 35 mm microfilm negative of the drawing.

9.10 SUBMITTALS QUANTITIES

- A. Submit seven (7) copies of all data and drawings unless specified otherwise.
- B. Submit all samples, unless specified otherwise, in the quantity to be returned, plus two, which will be retained by the Director.

9.11 IDENTIFICATION OF SUBMITTALS

Completely identify each submittal and re-submittal by showing at least the following information:

- A. Name and address of submitter, plus name and telephone number of the individual who may be contacted for further information.
- B. Name of project as it appears in the Contract Documents and Specification No.
- C. Drawing number and Specifications section number other than this section to which the submittal applies.
- D. Whether this is an original submittal or re-submittal.
- E. For samples, indicate the source of the sample.

9.12 SCHEDULE OF SUBMITTALS

- A. Submit initial schedule of submittals within five (5) Working Days after the Issuance Date on Notice to Proceed.
- B. Submit revised schedule of submittals within five (5) Working Days after date of request from the Director.
- C. The Director will review schedule of submittals and will notify Contractor that schedule is acceptable or not acceptable within five (5) Working Days after receipt.

9.13 COORDINATION OF SUBMITTALS

- A. Prior to submittal for the Director's review, use all means necessary to fully coordinate all material, including the following procedures:
 - 1. Determine and verify all field dimensions and conditions, materials, catalog numbers, and similar data.
 - 2. Coordinate as required with all trades and with all public agencies involved.
 - 3. Secure all necessary approvals from public agencies and others and signify by stamp, or other means, that they have been secured.
 - 4. Clearly indicate all deviations from the Specifications.
- B. Unless otherwise specifically permitted by the Director, make all submittals in groups containing all associated items; the Director may reject partial submittals as not complying with the provisions of the Specifications.

9.14 TIMING FOR SUBMITTALS

- A. Make all submittals far enough in advance of scheduled dates of installation to provide all required time for reviews, for securing necessary approvals, for possible revision and re-submittal, and for placing orders and securing delivery.
- B. In scheduling, allow at least 15 Working Days for the Director's review, plus the transit time to and from the City office.
- C. Manuals shall be submitted prior to performing functional tests.

9.15 APPROVAL BY CITY

- A. Up to three (3) copies of each submittal, except manuals, schedule of costs for progress payments, and as-built drawings will be returned to the Contractor marked "No Exceptions Taken," "Make Corrections Noted - Do Not Resubmit," or "Make Corrections Noted - Resubmit." Manuals, schedule of costs, and as-built drawings will be returned for re-submittal if incomplete or unacceptable.
- B. Submittals marked "Approved as Noted" need not be resubmitted, but the notes shall be followed.
- C. If submittal is returned for correction, it will be marked to indicate what is unsatisfactory.

- D. Resubmit revised drawings or data as indicated, in five (5) copies.
- E. Approval of each submittal by the Director will be general only and shall not be construed as:
 - 1. Permitting any departures from the Specifications requirements.
 - 2. Relieving the Contractor of the responsibility for any errors and omissions in details, dimensions, or of other nature that may exist.
 - 3. Approving departures from additional details or instructions previously furnished by the Director.

9.16 CHANGES TO APPROVED SUBMITTALS

- A. A re-submittal is required for any proposed change to an approved submittal. Changes which require re-submittal include, but are not necessarily limited to, drawing revisions, changes in materials and equipment, installation procedures and test data. All re-submittals shall include an explanation of the necessity for the change.
- B. Minor corrections to an approved submittal may be accomplished by submitting a "Corrected Copy".

[END OF ARTICLE]

ARTICLE 10 SAFETY

10.01 PROTECTION OF PERSONS AND PROPERTY

Contractor's Responsibility: Notwithstanding any other provision of the Contract Documents, the Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property, during performance of the Work. This requirement will apply continuously and will not be limited to normal working hours. Safety and sanitary provisions shall conform to all applicable Federal, State, County, and local laws, regulations, ordinances, standards, and codes. Where any of these are in conflict, the more stringent requirement shall be followed.

10.02 PROTECTION FROM HAZARDS

A. Trench Excavation

Excavation for any trench four (4) feet or more in depth shall not begin until the Contractor has received approval from the Director of the Contractor's detailed plan for worker protection from the hazards of caving ground during the excavation of such trench. Such plan shall show the details of the design of shoring, bracing, sloping or other provisions to be made for worker protection during such excavation. No such plan shall allow the use of shoring, sloping or protective system less effective than that required by the Construction Safety Orders of the Division of Occupational Safety and Health, and if such plan varies from the shoring system standards established by the Construction Safety Orders, the plan shall be prepared and signed by an engineer who is registered as a Civil or Structural Director in the State of California.

B. Confined Spaces

Contractor shall comply with all of the provisions of General Industry Safety Orders of the California Code of Regulations. Entry of a confined space shall not be allowed until the Contractor has received approval from the Director of the Contractor's program for confined space entry. Confined space means a space that (1) Is large enough and so configured that an employee can bodily enter and perform assigned Work; and (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and (3) Is not designed for continuous employee occupancy. Failure to submit a confined space entry program may result in actions as provided in Article 5: "Suspension or Termination of Contract".

C. Material Safety Data Sheet

Contractor shall comply with all of the provisions of General Industry Safety Orders of the California Administrative Code. The Contractor shall submit to the Director a Material Safety Data Sheet (MSDS) for each hazardous substance proposed to be used, ten (10) days prior to the delivery of such materials to the job site or use of such materials at a manufacturing plant where the Director is to perform an inspection. For materials which are to be tested in City laboratories, the MSDS shall be submitted with the sample(s). Hazardous substance is defined as any substance included in the list (Director's List) of hazardous substances prepared by the Director, California Department of Industrial Relations, pursuant to Labor Code Section 6382. Failure to submit an MSDS for any hazardous substance may result in actions as provided in Article 5, "Suspension or Termination of Contract".

10.03 DIFFERING SITE CONDITIONS

- A. Differing Site Conditions Defined. The Contractor shall promptly, and before such conditions are disturbed, notify the Director in writing of any Differing Site Conditions. Differing Site Conditions are those conditions, located at the project site or in existing improvements and not otherwise ascertainable by Contractor through the exercise of due diligence in the performance of its inspection obligations in the Contract Documents, encountered by Contractor in digging trenches or other excavations(s) that extend deeper than four feet below the surface of the ground that constitute:
1. Material that the Contractor believes may be material that is hazardous waste as defined in Section 25117 of the Health and Safety Code, which is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
 2. Subsurface or latent physical conditions at the site differing materially from those indicated in these Contract Documents.
 3. Unknown physical conditions at the site, of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in these Contract Documents.
- B. Notice by Contractor. If the Contractor encounters conditions it believes constitute Differing Site Conditions, then notice of such conditions shall, before such conditions are disturbed, be promptly reported to the Director followed within twenty-four (24) hours by a further written notice stating a detailed description of the conditions encountered.
- C. The Director will promptly investigate the conditions and If he/she finds that such conditions do materially differ, or do involve hazardous waste, and do cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work under this Contract, an equitable adjustment will be made, as determined by the Director.
- D. Change Order Request. If Contractor intends to seek an adjustment to the Contract Sum or Contract Time based upon Differing Site Conditions, it must, within seven (7) calendar days after the Discovery Date relative to such conditions, submit a Notice of Scope Change and thereafter submit a Change Order Request setting forth a detailed cost breakdown and CPM schedule Fragnet, as required by Articles 3 and 6 of these General Conditions, of the additional Allowable Costs and Excusable Delay resulting from such Differing Site Conditions.
- E. Failure to Comply. Failure by Contractor to strictly comply with the requirements of this Paragraph 10.03 concerning the timing and content of any notice of Differing Site Conditions or request for adjustment in Contract Sum or Contract Time based on Differing Site Conditions shall be deemed waiver of any right by the Contractor for an adjustment in the Contract Sum or Contract Time by reason of such conditions.
- F. Final Completion. No claim by the Contractor for additional compensation for Differing Site Conditions shall be allowed if asserted after Final Payment.
- G. In the event of disagreement between the Contractor and the Director whether the conditions do materially differ or whether a hazardous waste is involved or whether the conditions cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any completion date required by the Contract, but shall proceed with all Work to be performed under the Contract Documents.

- H. The Contractor shall retain all rights provided by, and shall be subject to all requirements of, this Contract which pertain to the resolution of disputes and protests.
- I. Contractor Responsibility. Except as otherwise provided in this Paragraph 10.03 for Differing Site Conditions, Contractor agrees to solely bear the risk of additional cost and Delay due to concealed or unknown conditions, surface or subsurface, at the Site or in Existing Improvements, without adjustment to the Contract Sum or Contract Time.

10.04 TRAFFIC REGULATION

- A. During the performance of the Work the Contractor shall erect and maintain necessary temporary fences, bridges, railings, lights, signals, barriers, or other safeguards as shall be appropriate under the circumstance in his/her judgment for the prevention of accidents; and he/she shall take other precautions as necessary for public safety including, but not limited to, traffic control. Traffic control shall be conducted in accordance with the latest edition of the California Manual on Uniform Traffic Control Devices (MUTCD) or Work Area Traffic Control ("WATCH") handbook, published by BNi Books, whichever requirements are more stringent, and as directed and approved by the Traffic and Transportation Division.
- B. Contractor shall submit at least ten (10) Working Days prior to Work a detailed traffic control plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of the Specifications.
- C. No changes or deviations from the approved detailed traffic control plan shall be made, except temporary changes in emergency situations, without prior approval of the City Traffic and Transportation Division and all agencies having jurisdiction.

Contractor shall immediately notify the Director, the City Traffic and Transportation Division and the agencies having jurisdiction of occurrences that necessitate modification of the approved traffic control plan.
- D. Contractor's failure to comply with this provision may result in actions as provided in Article 5: "Suspension or Termination of Contract" of these General Conditions.

10.05 TRAFFIC CONTROL DEVICES

- A. Traffic signs, flashing lights, barricades and other traffic safety devices used to control traffic shall conform to the requirements of the WATCH handbook or the manual of traffic control, whichever is more stringent, and as approved by the City Traffic and Transportation Division.
 - 1. Portable signals shall not be used unless permission is given in writing by the agency having jurisdiction.
 - 2. Warning signs used for nighttime conditions shall be reflectorized or illuminated. "Reflectorized signs" shall have a reflectorized background and shall conform to the current State of California Department of Transportation specification for reflective sheeting on highway signs.
- B. If the Contractor fails to provide and install any of the signs or traffic control devices required hereby or ordered by the City staff, staff may cause such signs or traffic control devices to be placed by others, charge the costs therefore against the Contractor, and deduct the same from the next progress

payment.

10.06 EXECUTION

- A. The Contractor shall provide written notification to the Police Department, Traffic Bureau (818) 548-3130, at least two (2) weeks prior to the beginning of construction at any particular location. Notification will include the specific location, project dates, what lanes of the roadway will be closed and when, the construction project manager's name and business phone number, and the construction inspector's name and business phone number.
- B. The Contractor shall notify, by telephone, the Police Department Traffic Bureau (818) 548-3130 and Patrol Operations (818) 548-4890 at the completion of the posting of temporary no parking signs. Notification will include the times, dates and locations of the posting. When vehicles must be towed for violation of temporary no parking signs, the person who actually posted the signs, or on-view supervisor of that posting, will be present to answer pertinent questions that may be asked by the parking enforcement officer or police officer towing the vehicles.
- C. The Contractor shall notify the Glendale Fire Department, on a daily basis during the entire period that construction is in progress whenever roadways are reduced in width or blocked. Notification shall be made to the Fire Dispatch (818) 956-4800 and the Contractor shall provide the information required to identify which roadways would have accessibility problems due to his/her operations. The Contractor shall submit to Fire Department schedule of Work for their use and files.
- D. Roads subject to interference from the Work covered by this Contract shall be kept open, and the fences subject to interference shall be kept up by the Contractor until the Work is finished. Except where public roads have been approved for closure, traffic shall be permitted to pass through designated traffic lanes with as little inconvenience and delay as possible.
- E. Where alternating one-way traffic has been authorized, the maximum time that traffic will be delayed shall be posted at each end of the one-way traffic section. The maximum delay time shall be approved by the agency having jurisdiction.
- F. Contractor shall install temporary traffic markings where required to direct the flow of traffic and shall maintain the traffic markings for the duration of need. Contractor shall remove the markings by abrasive blasting when no longer required.
- G. Convenient access to driveways and buildings in the vicinity of Work shall be maintained as much as possible. Temporary approaches to, and crossing of, intersecting traffic lanes shall be provided and kept in good condition.
- H. When leaving a Work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.

10.07 FLAGGING

- A. Contractor shall provide flaggers to control traffic where required by the approved traffic control plan.
 - 1. Flaggers shall perform their duties and shall be provided with the necessary equipment in accordance with the current "Instructions to Flaggers" of the California Department of Transportation.

2. Flaggers shall be employed full time on traffic control and shall have no other duties.

10.08 PEDESTRIAN CANOPIES OR BARRICADE IMPROVEMENTS

Refer to City of Glendale for requirements for building or access road safety improvements that the Contractor shall construct during construction period. These devices or improvements, as the City deems necessary or prudent, shall be at the expense of the Contractor.

[END OF ARTICLE]

ARTICLE 11 INDEMNITY

11.01 INDEMNITY

To the maximum extent permitted by law, the Contractor shall fully indemnify, hold harmless, protect, and defend the City, its officers, employees, agents, representatives and their successors and assigns ("Indemnitees") from and against any and all demands, liability, loss, suit, claim, action, cause of action, damage, cost, judgment, settlement, decree, arbitration award, stop payment notice, penalty, loss of revenue, and expense (including any fees of accountants, attorneys, experts or other professionals, and costs of investigation, mediation, arbitration, litigation and appeal), in law or in equity, of every kind and nature whatsoever, arising out of or in connection with, resulting from or related to, or claimed to be arising out of the Work performed by Contractor, or any of its officers, agents, employees, Subcontractors, Sub-Subcontractors, design consultants or any person for whose acts any of them may be liable, regardless of whether such claim, suit or demand is caused, or alleged to be caused, in part, by an Indemnitee, including but not limited to:

- A. Bodily injury, emotional injury, sickness or disease, or death to any persons;
- B. Property damage;
- C. Infringement of any patent rights, licenses, copyrights or intellectual property which may be brought against the Contractor or City arising out of Contractor's Work, for which the Contractor is responsible;
- D. Stop payment notices and claims for labor performed or materials used or furnished to be used in the Work, including all incidental or consequential damages resulting to City from such stop payment notices and claims;
- E. Failure of Contractor or its Subcontractors to comply with the provisions for insurance;
- F. Failure to comply with any Governmental Approval or similar authorization or order;
- G. Misrepresentation, misstatement, or omission with respect to any statement made in or any document furnished by the Contractor in connection therewith;
- H. Breach of any duty, obligation, or requirement under the Contract Documents;
- I. Failure to provide notice to any Party as required under the Contract Documents;
- J. Failure to protect the property of any utility provider or adjacent property owner; or
- K. Failure to make payment of all employee benefits.

This indemnity provision is effective regardless of any prior, concurrent, or subsequent passive negligence by Indemnitees, except that, to the limited extent mandated by California Civil Code Section 2782, the Contractor shall not be responsible for liabilities which arise from (1) the sole negligence or willful misconduct of Indemnitees; (2) defects in design furnished by the City; or (3) the active negligence of the City.

11.02 ENFORCEMENT

Contractor's obligations under this Article extend to claims occurring after termination of the Contractor's performance of the Contract or Final Payment to Contractor. The obligations apply regardless of any actual or alleged negligent act or omission of Indemnitees. Contractor, however, shall not be obligated under this Agreement to indemnify an Indemnatee for claims arising from the sole or active negligence or willful misconduct of the Indemnatee or independent contractors who are directly responsible to Indemnitees or from defects in design furnished by the City. Contractor's obligations under this Article are in addition to any other rights or remedies which the Indemnitees may have under the law or under the Contract Documents. In the event of any claim, suit or demand made against any Indemnitees, the City may in its sole discretion reserve, retain or apply any monies due to the Contractor under the Contract for the purpose of resolving such claims; provided, however, that the City may release such funds if the Contractor provides the City with reasonable assurance of protection of the City's interests. The City shall in its sole discretion determine whether such assurances are reasonable.

11.03 NO LIMITATIONS

Contractor's indemnification and defense obligations set forth in this Article are separate and independent from the insurance provisions set forth in Article 12 herein; and do not limit, in any way, the applicability, scope, or obligations set forth in those insurance provisions. In claims, suits, or demands against any Indemnatee by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the Contractor's indemnification and defense obligations shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefits acts, or other employee benefits acts.

[END OF ARTICLE]

ARTICLE 12 INSURANCE

12.01 CONDITION TO COMMENCEMENT

Contractor shall not commence Work under this Contract until Contractor has obtained all insurance required hereunder from a company or companies acceptable to City, nor shall the Contractor allow any Subcontractor to commence Work on a subcontract until all insurance required of said Subcontractor has been obtained. Proof of insurance, in the form required by Exhibit 2, must be submitted by the Contractor prior to the City's execution of the Contract.

12.02 MINIMUM COVERAGE AND LIMITS

Contractor shall maintain the insurance coverage as set forth in Exhibit 2 throughout the term of the Contract.

12.03 CONDITIONS REGARDING INSURANCE COVERAGE AND LIMITS

City and Contractor agree as follows:

- A. All insurance coverage and limits provided pursuant to the Contract Documents shall apply to the full extent of the policies involved, available or applicable. Nothing contained in the Contract Documents or any other agreement relating to City or its operations limits the application of such insurance coverage.
- B. None of the policies required by this Contract shall be in compliance with these requirements if they include any limiting endorsement that has not been first submitted to City and approved in writing by the City Attorney or City's Risk Manager.

12.04 INSURANCE OBLIGATION IS SEPARATE FROM INDEMNITY OBLIGATION

The Construction Contract's insurance provisions:

- A. Are separate and independent from the indemnification and defense provisions in Article 11 of the General Conditions; and
- B. Do not limit, in any way, the applicability, scope, or obligations of the indemnification and defense provisions in Article 11 of the General Conditions.

[END OF ARTICLE]

ARTICLE 13 BONDS

13.01 REQUIRED BONDS

A. Contractor shall furnish the following bonds:

1. A Performance Bond in an amount equal to one hundred percent (100%) of the total Contract price in the form shown in Appendix 1 attached hereto.
2. A Payment Bond (Labor and Material) in an amount equal to one hundred percent (100%) of the total Contract price in the form shown in Appendix 2 attached hereto.

13.02 POWER OF ATTORNEY

All bonds must be accompanied by a power of attorney from the surety company authorizing the person executing the bond to sign on behalf of the company. The signature of the person executing the bond on behalf of Surety shall be acknowledged by a Notary Public as the signature of the person designated in the power of attorney.

13.03 APPROVED SURETY

All bonds must be issued by a California admitted surety insurer with the minimum A.M. Best Company Financial strength rating of "A: VII", or better. Bonds issued by a California admitted surety not listed on Treasury Circular 570 will be deemed accepted unless specifically rejected by the City. Bonds issued from admitted surety insurers not listed in Treasury Circular 570 must be accompanied by all documents enumerated in California Code of Civil Procedure Section 995.660.

13.04 REQUIRED PROVISIONS

Every bond must display the surety's bond number and incorporate the Contract for construction of the Work by reference. The terms of the bonds shall provide that the surety agrees that no change, extension of time, alteration, or modification of the Contract Documents or the Work to be performed thereunder shall in any way affect its obligations and shall waive notice of any such change, extension of time, alteration, or modification of the Contract Documents.

13.05 NEW OR ADDITIONAL SURETIES

If, during the continuance of the Contract, any of the sureties, in the opinion of the City, are or become non-responsible or otherwise unacceptable to City, City may require other new or additional sureties, which the Contractor shall furnish to the satisfaction of City within ten (10) days after notice, and in default thereof the Contract may be suspended and the materials may be purchased or the Work completed as provided in Article 5 herein.

13.06 WAIVER OF MODIFICATIONS AND ALTERATIONS

No modifications or alterations made in the Work to be performed under the Contract or the time of performance shall operate to release any surety from liability on any bond or bonds required to be given herein. Notice of such events shall be waived by the surety.

13.07 APPROVAL OF BONDS

The Contract will not be executed by City nor the Notice to Proceed issued until the required bonds have been received and approved by City. City's decision as to the acceptability of all sureties and bonds is final. No substitution of the form of the documents will be permitted without the prior written consent of City.

[END OF ARTICLE]

ARTICLE 14 LABOR PROVISIONS

(If this Project is federally-funded, see also Article 18 regarding Federal Labor Standards Provisions)

14.01 WORKING HOURS

- A. Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 7:00 p.m. No construction noise shall be permitted between the hours of 7:00 p.m. and 7:00 a.m. of the next day as set forth in the Glendale Municipal Code.
- B. Work in excess of eight (8) hours per day, on Saturdays, Sundays, or on City holidays requires prior consent of the Director and is subject to Cost of Overtime Construction Inspection.
- C. Night, Sunday and Holiday Work:

No Work shall be performed at night, Sunday, or the eleven (11) legal holidays to wit: New Year's Day, Martin Luther King, Jr. Day, Washington's Birthday, Memorial Day, Juneteenth National Independence Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Friday following Thanksgiving Day, and Christmas Day, except Work pertaining to the public safety or with the permission of the Director, and accordance with such regulations as he/she shall furnish in writing. Before performing any Work at said times, except Work pertaining to the public safety, the Contractor shall give written notice to the Director so that proper inspection may be provided. "Night" as used in this Paragraph shall be deemed to include the hours from 7:00 P.M. to 7:00 A.M. of the next succeeding day.

14.02 COST OF OVERTIME CONSTRUCTION SERVICES AND INSPECTIONS

- A. Overtime construction Work performed at the option of, or for the convenience of, the Contractor will be inspected by the City at the expense of the Contractor. For any such overtime beyond the regular 8-hour day and for any time worked on Saturday, Sunday, or holidays the charges will be determined by the City, and submitted to the Contractor for payment.
- B. Equipment, materials, or services provided by the City, in connection with Contractor-initiated overtime construction Work described in Paragraph 14.02(A), will also be at the expense of the Contractor. The charges will be determined by the City, and submitted to the Contractor for payment.
- C. There will be no charges to the Contractor for the inspection of overtime Work ordered by the Director or required by the Contract Documents.

14.03 COMPLIANCE WITH STATE LABOR CODE

- A. Contractor shall comply with the provisions of the Labor Code of the State of California and any amendments thereof.
 - 1. The time of service of any worker employed upon the Work shall be limited and restricted to eight (8) hours during any one-calendar day, and 40 hours during any one-calendar week.
 - 2. Work performed by employees of the Contractor in excess of eight (8) hours per day, and 40 hours during any one calendar week, shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic

rate of pay.

3. The Contractor and every Subcontractor shall keep an accurate record showing the name of and the actual hours worked each calendar day and each calendar week by each worker employed by him/her in connection with the Work; the record shall be kept open at all reasonable hours to the inspection of the City and to the Division of Labor Standards Enforcement of the State of California.

14.04 WAGE RATES

A. Prevailing Wages

1. Contractor shall comply with the general prevailing rates of per diem wages and the general prevailing rates for holiday and overtime Work in the locality in which the Work is to be performed, for each craft, classification, or type of worker needed to execute the Contract. The Director of the Department of Industrial Relations of the State of California (pursuant to California Labor Code) and the United States Secretary of Labor (pursuant to the Davis-Bacon Act) have determined the general prevailing rates of wages in the locality in which the Work is to be performed. The rates are available online at www.dir.ca.gov/DLSR/PWD/ and www.wdol.gov/. To the extent that there are any differences in the federal and state prevailing wage rates for similar classifications of labor, the Contractor and its Subcontractors shall pay the highest wage rate.
2. The Contractor shall post a copy of the general prevailing rate of per diem wages at the job site.
3. The Contractor and any Subcontractor under him/her shall pay not less than the specified prevailing rate of wages to all workers employed in the execution of the Contract.
4. The holidays upon which such rates shall be paid shall be all holidays recognized in the collective bargaining Contract applicable to the particular craft, classification, or type of worker employed on the project.
5. The Contractor shall, as a penalty to the State or the City, forfeit not less than Forty Dollars (\$40.00) and not more than Two Hundred Dollars (\$200) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates for the Work or craft in which the worker is employed under the Contract by the Contractor or by any Subcontractor under him. The difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which such worker was paid less than the stipulated prevailing wage rate shall be paid to such worker by the Contractor.
6. The specified wage rates are minimum rates only and the City will not consider and shall not be liable for any claims for additional compensation made by the Contractor because of payment by him/her of any wage rate in excess of the general prevailing rates. All disputes in regard to the payment of wages in excess of those specified herein shall be adjusted by the Contractor at his/her own expense.

B. Payroll Records

1. The Contractor and each Subcontractor shall 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 in connection with the Work. The payroll records shall be certified and shall be available for inspection.

2. The Contractor shall inform the City of the location of the payroll records, including the street address, city and county, and shall, within five (5) Working Days, provide a notice of change in location and address.
3. Upon request by the Director, the Contractor shall provide a copy of the certified payroll records along with a statement of compliance. The Social Security Numbers on the Certified Payrolls submitted to the City shall be redacted.

14.05 APPRENTICESHIP STANDARDS

A. Compliance with California Labor Code Section 1777.5 requires all public works contractors and subcontractors to:

1. Prior to commencing work on a public works contract, submit Contract Award information to the applicable joint apprenticeship committee, including an estimate of the journeyman hours to be performed under the Contract, the number of apprentices to be employed, and the approximate dates the apprentices will be employed. Use Form DAS-140 (Appendix 7). The City reserves the right to require Contractor and Subcontractors to submit a copy of said form to the City.
2. Employ apprentices for the public work at a ratio of no less than one (1) hour of apprentice work for every five (5) hours or labor performed by a journeyman. To request dispatch of apprentices, use Form DAS-142 (Appendix 8). The City reserves the right to require Contractor and Subcontractors to submit a copy of said form to the City.
3. Pay the apprentice rate on public works projects only to those apprentices who are registered, as defined in Labor Code Section 3077.
4. Contribute to the training fund in the amount identified in the Prevailing Wage Rate publication for journeyman and apprentices. Contractors who choose not to contribute to the local training trust fund must make their contributions to the California Apprenticeship Council, P.O. Box 420603, San Francisco, CA 94142.

B. Pursuant to Labor Code Section 1777.1, failing to comply with the provisions of California Labor Code Section 1777.5 may result in the loss of the right to bid on all public works projects for a period of one to three years and the imposition of a civil penalty of Five Thousand Dollars (\$5,000) for each calendar day of noncompliance. Contractor should make a separate copy of this material for each of his/her Subcontractors.

C. Payroll Records

The Contractor and each Subcontractor shall 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 in connection with the work. The payroll records shall be certified and shall be submitted to the City's Project Manager every two weeks. The Social Security Numbers on the Certified Payrolls submitted to the City's Project Manager shall be redacted.

D. Statement of Employer Fringe Benefit Payments

Within five (5) calendar days of signing the Contract or Subcontract, as applicable, the Statement of Employer Payments (DLSE Form PW 26, Appendix 9) shall be completed for each Contractor and Subcontractor of any tier who pays benefits to a third party trust, plan or fund for health and welfare benefits, vacation funds or makes pension contributions. The form must contain, for each worker classification, the fund, plan or trust name, address, administrator, the amount per hour contributed and the frequency of contributions. Training fund contributions shall also be reported in this form. City reserves the right to require Contractors and Subcontractors to submit a copy of said form to the City.

14.06 EMPLOYMENT OF APPRENTICES

- A. In the performance of this Contract, the Contractor and any Subcontractor shall comply with the provisions concerning the employment of apprentices in the Labor Code of the State of California and any amendments thereof.

In the event the Contractor or any Subcontractor willfully fails to comply with the aforesaid provisions of the Labor Code, such Contractor or Subcontractor shall be subject to the penalties for noncompliance in the Labor Code of the State of California and any amendments thereof.

14.07 CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS – PUBLIC WORKS CONTRACTOR REGISTRATION

- A. Beginning **July 1, 2014**, under the Public Works Contractor Registration Law (California Senate Bill No. 854 - See Labor Code Section 1725.5), contractors must register and meet requirements using the online application <https://efiling.dir.ca.gov/PWCR/ActionServlet?action=displayPWCRegistrationForm> before bidding on public works contracts in California. The application also provides agencies that administer public works programs with a searchable database of qualified contractors. Application and renewal are completed online with a non-refundable fee of \$300. More information is available at the following links:

http://www.dir.ca.gov/DLSE/PublicWorks/SB854FactSheet_6.30.14.pdf

<http://www.dir.ca.gov/Public-Works/PublicWorks.html>

- B. Beginning **April 1, 2015**, the City must award public works projects only to contractors and subcontractors who comply with the Public Works Contractor Registration Law.

- C. Notice to Bidders and Subcontractors:

1. No contractor or subcontractor may be listed on a Bid proposal for a public works project (**submitted on or after March 1, 2015**) 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)].
2. 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.
3. This Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

4. The prime contractor must post job site notices prescribed by regulation. (See 8 Calif. Code Reg. Section 16451(d) for the notice that previously was required for projects monitored by the DIR Compliance Monitoring Unit.)
- D. Furnishing of Electronic Certified Payroll Records to Labor Commissioner. **For all new projects awarded on or after April 1, 2015**, contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement).

14.08 CHARACTER OF WORKERS

The Contractor shall not allow his/her agents or employees, Subcontractors, or any agent or employee thereof, to trespass on premises or lands in the vicinity of the Work. Only skilled foremen and workers shall be employed on Work requiring special qualifications, and when required by the Director, the Contractor shall discharge any person who commits trespass, or in the opinion of the Director, acts in a disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable manner. Any employee being intoxicated or bringing or having intoxicating liquors or controlled substances on the Work shall be discharged. Such discharge shall not be the basis of any claim for compensation of damages against the City or any of its officers, agents, and employees.

14.09 NO SMOKING – STATE LABOR CODE SECTION 6404.5 AND GLENDALE MUNICIPAL CODE, 1995, SECTIONS 8.52.010 *ET SEQ.*

The Contractor and its agents, employees, Subcontractors, representatives, and any person under Contractor's control, are prohibited from smoking in— or within a 20-foot distance from— the Site, which is a "place of employment" under California Labor Code Section 6404.5 and Glendale Municipal Code, 1995, Sections 8.52.010 *et seq.*

[END OF ARTICLE]

ARTICLE 15 DISPUTE RESOLUTION

15.01 PUBLIC CONTRACT CODE SECTION 9204 CLAIMS AND DISPUTE RESOLUTION PROCEDURES

- A. See Paragraph 7.10 above for notice and accrual of claims provisions.
- B. Click the following link for the full text of Public Contract Code Section 9204:
http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PCC§ionNum=9204
- C. Summary of Key Provisions of Public Contract Code Section 9204:
 - 1. The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.
 - 2. Notwithstanding any other law, including, but not limited to, Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, Public Contract Code Section 9204 shall apply to any 9204 Claim, as hereinafter defined, by a contractor in connection with a public works project.
 - 3. Public Contract Code Section 9204 applies to contracts entered into on or after January 1, 2017.
 - 4. "9204 Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:
 - a. A time extension, including, without limitation, for relief from damages or penalties for delay assessed by City under the Contract.
 - b. Payment by the City of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the Contract and payment for which is not otherwise expressly provided or to which the Contractor is not otherwise entitled.
 - c. Payment of an amount that is disputed by the City.
 - 5. "Contractor" is defined in Paragraph 1.01 above.
 - 6. "Public Entity" means the City as defined in Paragraph 1.01 above.
 - 7. "Public work" and "public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.
 - 8. "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who is either in direct contract with Contractor or is a lower tier subcontractor.
 - 9. City's Receipt of a 9204 Claim; Governing Body Approval; Undisputed Amount Payment:

- a. Upon receipt of a 9204 Claim, the City shall conduct a reasonable review of the 9204 Claim and, within a period not to exceed forty-five (45) calendar days, shall provide the Contractor a written statement identifying what portion of the 9204 Claim is disputed and what portion is undisputed. The City and the Contractor may, by mutual agreement, extend the time period provided in Section 9204(d).
- b. The Contractor shall furnish reasonable documentation to support the 9204 Claim in accordance with GC 3.04, 6.04, 6.06, 6.08, 7.10, 10.03 and this Article 15.
- c. If the City needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the 9204 Claim, and the governing body does not meet within the 45-day period or within the mutually agreed to extension of time following receipt of a 9204 Claim sent by registered mail or certified mail, return receipt requested, the City shall have up to three (3) calendar days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.
- d. Any payment due on an undisputed portion of the 9204 Claim shall be processed and made within sixty (60) calendar days after the City issues its written statement. If the City fails to issue a written statement, Paragraph 11 below shall apply.

10. Informal Conference to Meet and Confer; Nonbinding Mediation:

- a. If the Contractor disputes the City's written response, or if the City fails to respond to a 9204 Claim within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the City shall schedule a meet and confer conference within thirty (30) calendar days for settlement of the dispute.
- b. Within ten (10) *business* days following the conclusion of the meet and confer conference, if the 9204 Claim or any portion of the 9204 Claim remains in dispute, the City shall provide the Contractor a written statement identifying the portion of the 9204 Claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the 9204 Claim shall be processed and made within sixty (60) calendar days after the City issues its written statement. Any disputed portion of the 9204 Claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the City and the Contractor sharing the associated costs equally. The City and Contractor shall mutually agree to a mediator within ten (10) *business* days after the disputed portion of the 9204 Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the 9204 Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the 9204 Claim remaining in dispute shall be subject to applicable procedures outside Public Contract Code Section 9204.
- c. For purposes of Public Contract Code Section 9204, mediation includes any

nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in Public Contract Code Section 9204.

- d. Unless otherwise agreed to by the City and the Contractor in writing, the mediation conducted pursuant to Public Contract Code Section 9204 shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.
 - e. Public Contract Code Section 9204 does not preclude the City entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under Public Contract Code Section 9204 does not resolve the parties' dispute.
- 11. Failure by the City to respond to a 9204 Claim from the Contractor within the time periods described in this subdivision or to otherwise meet the time requirements of Public Contract Code Section 9204 shall result in the 9204 Claim being deemed rejected in its entirety. A 9204 Claim that is denied by reason of the City's failure to have responded to a 9204 Claim, or its failure to otherwise meet the time requirements of Public Contract Code Section 9204, shall not constitute an adverse finding with regard to the merits of the 9204 Claim or the responsibility or qualifications of the Contractor.
 - 12. Amounts not paid in a timely manner as required by Public Contract Code Section 9204 shall bear interest at seven (7) percent per annum.
 - 13. If a subcontractor or a lower tier subcontractor lacks legal standing to assert a 9204 Claim against the City because privity of contract does not exist, the Contractor may present to the City a 9204 Claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the Contractor present a 9204 Claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the 9204 Claim be presented to the City shall furnish reasonable documentation to support the 9204 Claim in accordance with GC 3.04, 6.04, 6.06, 6.08, 7.10, 10.03 and this Article 15. Within forty-five (45) calendar days of receipt of this written request, the Contractor shall notify the subcontractor in writing as to whether the Contractor presented the 9204 Claim to the City and, if the Contractor did not present the 9204 Claim, provide the subcontractor with a statement of the reasons for not having done so.
 - 14. A waiver of the rights granted by Public Contract Code Section 9204 is void and contrary to public policy, provided, however, that (1) upon receipt of a 9204 Claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) the City may prescribe reasonable change order (See Article 6 above), claim (See Paragraphs 3.04 and 7.10 above), and dispute resolution procedures and requirements (See Paragraphs 15.03 - 15.06) in addition to the provisions of Public Contract Code Section 9204, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in Public Contract Code Section 9204.
 - 15. Nothing in Public Contract Code Section shall 9204 impose liability upon the City when it makes loans or grants available through a competitive application process, for the failure of

an awardee to meet its contractual obligations.

15.02 PUBLIC CONTRACT CODE SECTIONS 20104 – 20104.6 ("ARTICLE 1.5") RESOLUTION OF CONSTRUCTION CLAIMS PROCESS

Click the following link for the full text of Article 1.5:

http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PCC&division=2.&title=&part=3.&chapter=1.&article=1.5

15.03 MUTUAL AGREEMENT FOR CONSOLIDATED CLAIMS REVIEW AND DISPUTE RESOLUTION PROCEDURES

In order to avoid potential duplication of claims review and dispute resolution procedures, by submitting a bid and signing the Contract, Contractor agrees that all claims subject to Article 1.5 shall be governed by the definitions and timelines for review and mediation established in Public Contract Code Section 9204 set forth in 15.01 above.

15.04 SUBMISSION OF 9204 CLAIMS

A. By Contractor

Contractor's right to commence the 9204 Claim Dispute Resolution Process shall arise upon the Director's written response denying all or part of a 9204 Claim or deemed rejection should Director return an invalid claim without decision as provided in Paragraph 7.10.D. Contractor shall submit a written Statement of 9204 Claim Dispute to the Director within seven (7) calendar days after the Director rejects all or a portion of Contractor's initial claim. Contractor's Statement of 9204 Claim Dispute shall be signed under penalty of perjury under the laws of the State of California and shall state with specificity the events or circumstances giving rise to the 9204 Claim, the dates of their occurrence and the effect, if any, on the compensation due or performance obligations of Contractor under the Construction Contract. Such Statement of 9204 Claim Dispute shall include adequate supporting data to substantiate the disputed 9204 Claim in accordance with GC 3.04, 6.04, 6.06, 6.08, 7.10, 10.03 and this Article 15. Adequate supporting data for a 9204 Claim relating to the adjustment of the Contractor's obligations relative to time of performance shall include a detailed, event-by-event description of the impact of each delay on Contractor's time for performance and a CPM schedule Fragnet. Adequate supporting data to a Statement of 9204 Claim Dispute submitted by Contractor involving Contractor's compensation shall include a detailed cost breakdown and supporting cost data in such form and including such detailed information and other supporting data as required to demonstrate the grounds for, and precise amount of, the 9204 Claim.

15.05 9204 CLAIMS DISPUTE RESOLUTION PROCESS

The parties shall utilize the 9204 Claims Dispute Resolution Process as provided in Paragraphs 15.01 and 15.03 above.

A. Deferral of Claims

Following the completion of the meet and confer process, the parties may reach mutual agreement for the final resolution of the 9204 Claim to be deferred pending Final Completion of the Work. In such

event, all 9204 Claims that have been deferred until such Final Completion shall be consolidated within a reasonable time after such Final Completion and thereafter pursued to resolution pursuant to the requirements of the Contract and Public Contract Code Section 9204. Nothing contained in this Article 15 shall be interpreted as limiting the parties' rights to continue informal negotiations of 9204 Claims that have been deferred until such Final Completion; provided, however, that such informal negotiations shall not be interpreted as altering the provisions of this Article 15 deferring final determination and resolution of unresolved Claims until after Final Completion of the Work.

B. Government Code Claim

Notwithstanding Contractor's participation in dispute resolution proceedings or other claims procedures under the Contract, such proceedings are in addition to Contractor's obligation to present a written Government Code claim, in accordance with Section 900 et seq. of the California Government Code, which is a prerequisite to filing a lawsuit for money or damages against City.

C. Legal Proceedings

If the 9204 Claim is not resolved by direct negotiations or mediation, then the party wishing to further pursue resolution or determination of the 9204 Claim shall submit the 9204 Claim for determination by commencing legal proceedings in a court of competent jurisdiction.

15.06 NO WAIVER

Participation in the 9204 Claims Dispute Resolution Process shall not constitute a waiver, release or compromise of any defense of either party, including, without limitation, any defense based on the assertion that the rights of Contractor that are the basis of a 9204 Claim were previously waived by Contractor due to failure to comply with the Contract Documents, including, without limitation, Contractor's failure to comply with any time periods for providing notices or for submission or supporting documentation of 9204 Claims.

15.07 NOTICE OF THIRD PARTY CLAIMS.

The City shall provide Contractor with prompt written notice of the receipt of any third-party claim relating to the Contract by sending a copy of the third-party claim to Contractor at the address indicated in the Agreement.

[END OF ARTICLE]

ARTICLE 16 ACCOUNTING RECORDS

16.01 MAINTENANCE OF RECORDS

Contractor shall keep, and shall include in its contracts with its Subcontractors, provisions requiring its Subcontractors to keep full and detailed books and records in accordance with the requirements of the Contract Documents, including the following: all information, materials and data of every kind and character (hard copy, as well as computer readable data if it exists), that have any bearing on or pertain to any matters, rights, duties or obligations relating to the Project or the performance of the Work, including, without limitation, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, change orders, change order requests, estimates, field orders, schedules, diaries, logs, reports, shop drawings, samples, exemplars, Drawings, Specifications, invoices, delivery tickets, receipts, vouchers, cancelled checks, memoranda; accounting records; job cost reports; job cost files (including complete documentation covering negotiated settlements); back charge; general ledgers; documentation of cash and trade discounts earned; insurance rebates and dividends, and other documents relating in way to Claims or Change Orders, Construction Change Directives, Work Directives, or other claims for payment related to the Project asserted by Contractor or any Subcontractor ("Accounting Records"). Contractor shall exercise such controls as may be necessary for proper financial management of the Work. Such accounting and control systems shall comply with prevailing custom and practice for similar projects, be satisfactory to City and shall include preservation of such records for a period of five (5) years after approval of the Notice of Completion and Acceptance by City, or for such longer period as may be required by applicable laws.

16.02 ACCESS TO RECORDS

Contractor shall allow, and shall include in its contracts with its Subcontractors provisions requiring its Subcontractors to allow, City and its authorized representative(s), auditors, attorneys and accountants, upon twenty-four (24) hours' notice to Contractor, full access to inspect and copy all books and records relating to the Project that Contractor is required to maintain pursuant to Paragraph 16.01, above.

16.03 CONTRACTOR NONCOMPLIANCE, WITHHOLDING

Contractor's compliance with Paragraphs 16.01 and 16.02, above, shall be a condition precedent to maintenance of any legal action or arbitration by Contractor against City. In addition to and without limitation upon City's other rights and remedies for breach, including any other provisions for withholding set forth in the Contract Documents, City shall have the right, exercised in its sole discretion, to withhold from any payment to Contractor due under a current Application for Payment an additional sum of up to ten percent (10%) of the total amount set forth in such Application for Payment, until Contractor and its Subcontractors have complied with any outstanding and unsatisfied request by City under this Article 16. Upon such compliance with this Article 16, any additional monies withheld pursuant to this Paragraph 16.03 shall be released to Contractor.

16.04 SPECIFIC ENFORCEMENT BY CITY

Contractor agrees that any failure by Contractor or any Subcontractor to provide access to its books and records as required by this Article 16 shall be specifically enforceable, by issuance of a preliminary and/or permanent mandatory injunction by a court of competent jurisdiction based on affidavits submitted to such court and without the necessity of oral testimony, to compel Contractor to permit access, inspection, audits

and/or reproduction of such books and records or to require delivery of such books and records to City for inspection, audit and/or reproduction.

[END OF ARTICLE]

ARTICLE 17 MISCELLANEOUS PROVISIONS

17.01 COMPLIANCE WITH APPLICABLE LAWS

A. Notices, Compliance

Contractor shall give all notices required by governmental authorities and comply with all applicable laws and lawful orders of governmental authorities, including but not limited to the provisions of the California Code of Regulations applicable to contractors performing construction and all laws, ordinances, rules, regulations and lawful orders relating to safety, prevailing wage and equal employment opportunities.

B. Taxes, Employee Benefits

Contractor shall pay at its own expense, at no cost to the City and without adjustment to the Contract Sum, all local, state and federal taxes, including, without limitation all sales, consumer, business license, use and similar taxes on materials, labor or other items furnished for the Work or portions thereof provided by Contractor or Subcontractors, all taxes arising out of its operations under the Contract Documents and all benefits, insurance, taxes and contributions for social security and unemployment insurance which are measured by wages, salaries or other remuneration paid to Contractor's employees. If under federal excise tax law any transaction hereunder constitutes a sale on which a federal excise tax is imposed and the sale is exempt from such excise tax because it is a sale to meat for its exclusive use, then City, upon request, will execute documents necessary to show that is a political subdivision of the State for the purposes of such exemption and that the sale is for the exclusive use of the City, in which case no excise tax for such materials shall be included in the Bid or Contract Sum.

C. Notice of Violations

Contractor shall immediately notify the City and Director in writing of any instruction received from the City, Director, Architect or other person or entity that, if implemented, would cause a violation of any applicable law or lawful order of a governmental authority. If Contractor fails to provide such notice, then Director and Architect shall be entitled to assume that such instruction is in compliance with applicable laws and lawful orders of governmental authorities. If Contractor observes that any portion of the Drawings and Specifications or Work are at variance with applicable laws or lawful orders of governmental authorities, or should Contractor become aware of conditions not covered by the Contract Documents which will result in Work being at variance therewith, Contractor shall promptly notify Director in writing. If, without such notice to Director, Contractor or any Subcontractor performs any Work which it knew, or through the exercise of reasonable care should have known, was contrary to lawful orders of governmental authorities or applicable laws, then Contractor shall bear all resulting losses at its own expense, at no cost to City and without adjustment to the Contract Sum.

D. Campaign Contributions

1. Glendale Municipal Code Section 1.10.060 places limitations on Contractor's and its subcontractors' ability to make campaign contributions to certain elected City officials or candidates for elected City office. Specifically, Section 1.10.060 prohibits:

- a. A contractor (including a subcontractor)— who has a contract with the City of Glendale, Glendale Successor Agency or Glendale Redevelopment Agency, or the Housing Authority of the City of Glendale and that contract is subject to approval by the City Council, Successor Agency or Redevelopment Agency, or Housing Authority— from making a contribution to a City Council member, Successor Agency member or Redevelopment Agency member, Housing Authority member, City Clerk, or City Treasurer; and
 - b. A City Council member, Successor Agency member or Redevelopment Agency member, or Housing Authority member from voting on a matters concerning a contract affecting a contractor or subcontractor who has provided a campaign contribution.
- 2. Contractor acknowledges that even though Contractor was not subject to Municipal Code Section 1.10.060 when Contractor received its Contract (because the Contract was awarded through a competitive bidding process), Contractor still may be subject to the campaign contribution limitations in Municipal Code Section 1.10.060, when later amendments or modifications to the Contract require discretionary approval by the City Council, Successor Agency or Redevelopment Agency, or Housing Authority.
- 3. Contractor represents and certifies that:
 - a. Contractor has read and fully understands the provisions of Municipal Code Section 1.10.060;
 - b. Contractor and its subcontractors will fully comply with Municipal Code Section 1.10.060;
 - c. Contractor will not: (i) make a prohibited campaign contribution to an individual holding City elective office; or (ii) otherwise violate Municipal Code Section 1.10.060; and
 - d. Contractor will timely complete, return, and update one or more disclosure or reporting forms that City provides.

17.02 OWNERSHIP OF DESIGN DOCUMENTS

A. Property of City

All Design Documents, Contract Documents and Submittals (including, without limitation, all copies thereof) and all designs and building designs depicted therein are and shall remain the sole and exclusive property of the City and the City shall solely and exclusively hold all copyrights thereto. Without derogation the City's rights under this Paragraph, the Contractor and Subcontractors are granted a limited, non-exclusive license, revocable at will of City, to use and reproduce applicable portions of the Contract Documents and Submittals as appropriate to and for use in the execution of the Work and for no other purpose.

B. Documents on Site

Contractor shall keep on the Project site, at all times and for use by City, Director, Inspectors of Record and City's Consultants, a complete set of the Contract Documents that have been approved by applicable Governmental Authorities.

C. Delivery to City

All Design Documents, Contract Documents and Submittals in the possession of Contractor or Subcontractors shall be returned to the City upon the earlier of Final Completion or termination of the Construction Contract; provided, however, that Contractor and each Subcontractor shall have the right to retain one (1) copy of the Contract Documents and Submittals for its permanent records.

D. Subcontractors

Contractor shall take all necessary steps to assure that a provision is included in all subcontracts with Subcontractors, of every tier, who perform Work on the Project establishing, protecting and preserving the, City's rights set forth in this Paragraph.

17.03 AMENDMENTS

The Contract Documents may be amended only by a written instrument duly executed by the parties or their respective successors or assigns.

17.04 WAIVER

Either party's waiver of any breach or failure to enforce any of the terms, covenants, conditions or other provisions of the Contract Documents at any time shall not in any way limit or waive that party's right thereafter to enforce or compel strict compliance with every term, covenant, condition or other provision, any course of dealing or custom of the trade notwithstanding. Furthermore, if the parties make and implement any interpretation of the Contract Documents without documenting such interpretation by an instrument in writing signed by both parties, such interpretation and implementation thereof will not be binding in the event of any future disputes.

17.05 INDEPENDENT CONTRACTOR

Contractor is an independent contractor, and nothing contained in the Contract Documents shall be construed as constituting any relationship with City other than that of Project Owner and independent contractor. In no event shall the relationship between City and Contractor be construed as creating any relationship whatsoever between City and Contractor's employees. Neither Contractor nor any of its employees is or shall be deemed to be an employee of City. Except as otherwise specified in the Contract Documents, Contractor has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all Subcontractors and for all other Persons that Contractor or any Subcontractor hires to perform or assist in performing the Work.

17.06 SUCCESSORS AND ASSIGNS

The Contract Documents shall be binding upon and inure to the benefit of City and Contractor and their permitted successors, assigns and legal representatives.

- A. City may assign all or part of its right, title and interest in and to any Contract Documents, including rights with respect to the Payment and Performance Bonds, to (a) any other governmental person as permitted by governmental rules, provided that the successor or assignee has assumed all of City's obligations, duties and liabilities under the Contract Document then in effect; and (b) any other Person with the prior written approval of Contractor.
- B. Contractor may collaterally assign its rights to receive payment under the Contract Documents. Contractor may not delegate any of its duties hereunder, except to Subcontractors as expressly otherwise permitted in the Contract Documents. Contractor's assignment or delegation of any of its Work under the Contract Documents shall be ineffective to relieve Contractor of its responsibility for the Work assigned or delegated, unless City, in its sole discretion, has approved such relief from responsibility.

Any assignment of money shall be subject to all proper set-offs and withholdings in favor of City and to all deductions provided for in the Contract. All money withheld, whether assigned or not, shall be subject to being used by City for completion of the Work, should Contractor be in default.

- C. Except for the limited circumstances set forth in Paragraph 17.06-B, above, Contractor may not, without the prior written consent of City in its sole discretion, voluntarily or involuntarily assign, convey, transfer, pledge, mortgage or otherwise encumber its rights or interests under the Contract Documents. No partner, joint venturer, member or shareholder of Contractor may assign, convey, transfer, pledge, mortgage or otherwise encumber its ownership interest in Contractor without the prior written consent of City, in City's sole discretion.

17.07 SURVIVAL

Contractor's representations and warranties, the dispute resolution provisions contained in Article 15, and all other provisions which by their inherent character should survive termination of the Contract and/or Final Acceptance, shall survive the termination of the Contract and the Final Acceptance Date.

17.08 LIMITATION ON THIRD PARTY BENEFICIARIES

It is not intended by any of the provisions of the Contract Documents to create any third party beneficiary hereunder or to authorize anyone not a party hereto to maintain a suit for personal injury or property damage pursuant to the terms or provisions hereof, except to the extent that specific provisions (such as the warranty and indemnity provisions) identify third parties and state that they are entitled to benefits hereunder. The duties, obligations and responsibilities of the parties to the Contract Documents with respect to such third parties shall remain as imposed by law. The Contract Documents shall not be construed to create a contractual relationship of any kind between City and a Subcontractor or any other Person except Contractor.

17.09 PERSONAL LIABILITY OF CITY EMPLOYEES

City's authorized representatives are acting solely as agents and representatives of City when carrying out the provisions of or exercising the power or authority granted to them under the Contract. They shall not be liable either personally or as employees of City for actions in their ordinary course of employment.

No agent, consultant, Council member, officer or authorized employee of City, shall be personally responsible for any liability arising under the Contract.

17.10 NO ESTOPPEL

City shall not, nor shall any officer thereof, be precluded or estopped by any measurement, estimate or certificate made or given by the City representative or other officer, agent, or employee of City under any provisions of the Contract from at any time (either before or after the final completion and acceptance of the Work and payment therefor) pursuant to any such measurement, estimate or certificate showing the true and correct amount and character of the work done, and materials furnished by Contractor or any person under the Contract or from showing at any time that any such measurement, estimate or certificate is untrue and incorrect, or improperly made in any particular, or that the work and materials, or any part thereof, do not in fact conform to the Contract Documents. Notwithstanding any such measurement, estimate or certificate, or payment made in accordance therewith, City shall not be precluded or estopped from recovering from Contractor and its Sureties such damages as City may sustain by reason of Contractor's failure to comply or to have complied with the Contract Documents.

17.11 GOVERNING LAW AND JURISDICTION

- A. California's laws govern the Contract Documents' construction and interpretation, without regard to conflict of law principles. Unless the Contract Documents provide otherwise, any reference to laws, ordinances, rules, or regulations include their later amendment, modifications, and successor legislation.
- B. If Contractor or City brings a lawsuit to enforce or interpret one or more provisions of the Contract Documents, jurisdiction is in the Superior Court of the County of Los Angeles, California, or where otherwise appropriate, in the United States District Court, Central District of California. Contractor and City acknowledge that the Contract Documents were negotiated, entered into, and executed—and the Work was performed—in the City of Glendale, California.

17.12 FURTHER ASSURANCES

Contractor shall promptly execute and deliver to City all such instruments and other documents and assurances as are reasonably requested by City to further evidence the obligations of Contractor hereunder, including assurances regarding assignments of Subcontractors contained herein.

17.13 SEVERABILITY

If any clause, provision, section, paragraph or part of the Contract is ruled invalid by a court having proper jurisdiction, then the parties shall: (a) promptly meet and negotiate a substitute for such clause, provision, section, paragraph or part, which shall, to the greatest extent legally permissible, effect the original intent of the parties, including an equitable adjustment to the Contract Price to account for any change in the Work resulting from such invalidated portion; and (b) if necessary or desirable, apply to the court or other decision maker (as applicable) which declared such invalidity for an interpretation of the invalidated portion to guide the negotiations. The invalidity or unenforceability of any such clause, provision, section, paragraph or part shall not affect the validity or enforceability of the balance of the Contract, which shall be construed and enforced as if the Contract did not contain such invalid or unenforceable clause, provision, section, paragraph or part.

17.14 HEADINGS

The captions of the sections of the Contract are for convenience only and shall not be deemed part of the Contract or considered in construing the Contract.

17.15 ENTIRE AGREEMENT

The Contract Documents contain the entire understanding of the parties with respect to the subject matter hereof and supersede all prior agreements, understandings, statements, representations and negotiations between the parties with respect to its subject matter.

17.16 COUNTERPARTS

This instrument may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[END OF ARTICLE]

ARTICLE 18
FEDERAL LABOR STANDARDS PROVISIONS

(NOT APPLICABLE)

GENERAL CONDITIONS APPENDIX

GENERAL CONDITION APPENDICES

Appendix 1	Performance Bond
Appendix 2	Payment Bond
Appendix 3	Notice to Proceed
Appendix 4	Change Order Form
Appendix 5	Substitution Request Form
Appendix 6	Statutory Forms of Waiver and Release Upon Payment
Appendix 7	DAS Form 140
Appendix 8	DAS Form 142
Appendix 9	DLSE Form PW26
Appendix 10	Contractor Submittal Log
Appendix 11	List of Submittals Required From Contractor
Appendix 12	Notice of Completion
Appendix 13	GWP Street Light Clearance Request
Appendix 14	Requirements for Work Affecting Transit Stops and Routes
Appendix 15	Contractor's Certification for Progress Payment
Appendix 16	Contractor's Affidavit for Final Progress Payment

APPENDIX 1
PERFORMANCE BOND

Bond No.: _____
Premium Amount: \$ _____
Bond's Effective Date: _____

RECITALS:

1. The City of Glendale, California ("City"), has awarded to

(Name, address, and telephone of Contractor)

_____, ("Principal"),
a Construction Contract (the "Contract") for the Work described as follows:

Specification No. _____: _____ in Glendale, CA.

2. Principal is required under the terms of the Contract— and all contract documents referenced in it ("Contract Documents")— to furnish a bond guaranteeing Principal's faithful performance of the Work.
3. The Contract and Contract Documents, including all their amendments and supplements, are incorporated into this Bond and made a part of it by this reference.

OBLIGATION:

THEREFORE, for value received, We, Principal and

(Name, address, and telephone of Surety)

_____, ("Surety"),

a duly admitted surety insurer under California's laws, agree as follows:

By this Bond, We jointly and severally obligate and bind ourselves, and our respective heirs, executors, administrators, successors, and assigns to pay City the penal sum of _____ Dollars (\$ _____) ("the Bonded Sum"), this amount comprising not less than the total Contract Sum, in lawful money of the United States of America.

The California Licensed Resident Agent for Surety is:

(Name, address, and telephone)

_____. Registered Agent's California Department of Insurance License No. _____.

THE CONDITION OF THIS BOND'S OBLIGATION IS THAT, if Principal promptly and faithfully performs the undertakings, terms, covenants, conditions, and agreements in the Contract and Contract Documents (including all their amendments and supplements), all within the time and in the manner that those documents specify, then this obligation becomes null and void. Otherwise, this Bond remains in full force and effect, and the following terms and conditions apply to this Bond:

1. This Bond specifically guarantees Principal's performance of each obligation and all obligations under the Contract and Contract Documents, as they may be amended and supplemented— including, but not limited to, Principal's liability for liquidated damages, Warranties, Guarantees, Correction, and Maintenance obligations as specified in the Contract and Contract Documents— except that Surety's total obligation, as described here, will not exceed the Bonded Sum.
2. For those obligations of Principal that survive Final Completion of the Work described in the Contract and Contract Documents, the guarantees in this Bond also survive Final Completion of the Work.
3. When City declares that Principal is in default under the Contract, or Contract Documents, or both, Surety shall promptly: (a) remedy the default; (b) complete the Project according to the Contract Documents' terms and conditions then in effect; or (c) using a procurement methodology approved by City, select a contractor or contractors— acceptable to City— to complete all of the Work, and arrange for a contract between the contractor(s) and City. Surety shall make available, as the Work progresses, sufficient funds to pay the cost of completion less the balance of the Contract Sum, and to pay and perform all obligations of Principal under the Contract and Contract Documents— including other costs and damages for which Surety is liable under this Bond— except that Surety's total obligation, as described here, will not exceed the Bonded Sum.
4. An alteration, modification, change, addition, deletion, omission, agreement, or supplement to the Contract, Contract Documents, or the nature of the Work performed under the Contract or Contract Documents— including, without limitation, an extension of time for performance— does

not, in any way, affect Surety's obligations under this Bond. Surety waives any notice of alteration, modification, change, addition, deletion, omission, agreement, supplement, or extension of time.

5. Surety's obligations under this Bond are separate, independent from, and not contingent upon any other surety's guaranteeing Principal's faithful performance of the Work.
6. No right of action accrues on this Bond to any entity other than City or its successors and assigns.
7. If an action at law or in equity is necessary to enforce or interpret this Bond's terms, Surety must pay— in addition to the Bonded Sum— City's reasonable attorneys' fees and litigation costs, in an amount the court fixes. Principal and Surety agree that this Bond is not a part of the Contract, this Bond is a separate obligation of the Principal and its Surety, and any attorneys' fee provision contained in this Bond does not apply to the Contract. If any litigation occurs between the parties arising from the breach of the Contract, each party will bear its own attorneys' fees in the litigation.
8. Surety shall mail City written notice at least 30 days before: (a) the effective date on which the Surety will cancel, terminate, or withdraw from this Bond; or (b) this Bond becomes void or unenforceable for any reason.

On the date set forth below, Principal and Surety duly executed this Bond, with the name of each party appearing below and signed by its representative(s) under the authority of its governing body.

Date: _____

PRINCIPAL:

SURETY:

(Company Name)

(Company Name)

(Signature)

(Signature)

By: _____
(Name)

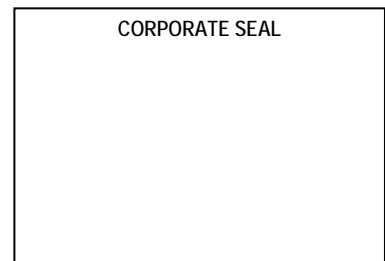
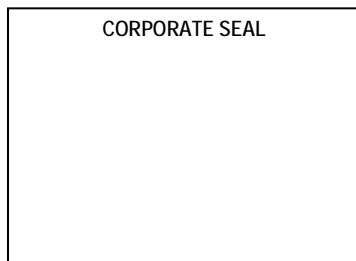
By: _____
(Name)

Its: _____
(Title)

Its: _____
(Title)

Address for Serving Notices or Other Documents:

Address for Serving Notices or Other Documents:



- **THIS BOND MUST BE EXECUTED IN TRIPLICATE.**
- **EVIDENCE MUST BE ATTACHED OF THE AUTHORITY OF ANY PERSON SIGNING AS ATTORNEY-IN-FACT.**
- **THE PRINCIPAL'S AND ATTORNEY-IN-FACT'S SIGNATURE MUST BE NOTARIZED.**
- **A CORPORATE SEAL MUST BE IMPRESSED ON THIS FORM WHEN THE PRINCIPAL, OR THE SURETY, OR BOTH, ARE A CORPORATION.**

APPROVED AS TO SURETY AND
AMOUNT OF BONDED SUM:

APPROVED AS TO FORM:

By _____
Director of Public Works

By _____
City Attorney

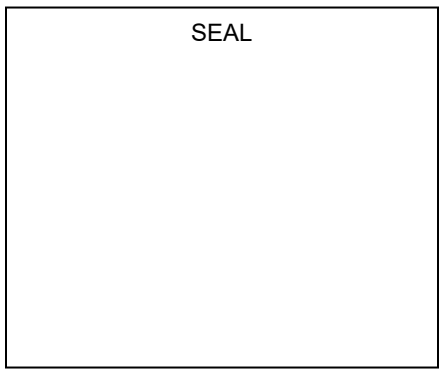
BOND ACKNOWLEDGMENT
FOR
SURETY'S ATTORNEY-IN-FACT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____,
before me, _____(name), a Notary Public for said County, personally appeared
(name), who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this
instrument as the attorney in fact of _____, and acknowledged to me that he/she subscribed
the name of _____ thereto as principal, and his/her own name as attorney
in fact.

Notary Public



APPENDIX 2
PAYMENT BOND
(LABOR AND MATERIALS)

Bond No.: _____
Premium Amount: \$ _____
Bond's Effective Date: _____

RECITALS:

1. The City of Glendale, California ("City"), has awarded to

(Name, address, and telephone of Contractor)

_____, ("Principal"),
a Construction Contract (the "Contract") for the Work described as follows:

Specification No. _____: _____ in Glendale, CA.

2. Principal is required under California Civil Code Sections 9550 and 9554, and the terms of the Contract— and all contract documents referenced in it ("Contract Documents")— to furnish a bond guaranteeing Principal's paying claims, demands, liens, or suits for any work, labor, services, materials, or equipment furnished or used in the Work.
3. The Contract and Contract Documents, including all their amendments and supplements, are incorporated into this Bond and made a part of it by this reference.

OBLIGATION:

THEREFORE, for value received, We, Principal and

(Name, address, and telephone of Surety)

_____, ("Surety"),

a duly admitted surety insurer under California's laws, agree as follows:

By this Bond, We jointly and severally obligate and bind ourselves, and our respective heirs, executors, administrators, successors, and assigns to pay City the penal sum of _____

Dollars (\$ _____) ("the Bonded Sum"), this amount comprising not less than the total Contract Sum, in lawful money of the United States of America.

The California Licensed Resident Agent for Surety is:

(Name, address, and telephone)

_____. Registered Agent's California Department of Insurance License No. _____.

THE CONDITION OF THIS BOND'S OBLIGATION IS THAT, if Principal or a subcontractor fails to pay (a) any person named in California Civil Code Section 9100, or any successor legislation; (b) any amount due under California's Unemployment Insurance Code, or any successor legislation, for work or labor performed under the Contract or Contract Documents; or (c) any amount under Unemployment Insurance Code Section 13020, or any successor legislation, that Principal or a subcontractor must deduct, withhold, and pay over to the Employment Development Department from the wages of its employees, for work or labor performed under the Contract or Contract Documents, then Surety shall pay for the same in an amount not-to-exceed the Bonded Sum. Otherwise, this obligation becomes null and void. While this Bond remains in full force and effect, the following terms and conditions apply to this Bond:

1. This Bond inures to the benefit of any of the persons named in California Civil Code Section 9100, or any successor legislation, giving those persons or their assigns a right of action in any suit brought upon this Bond, unless California Civil Code Section 9566, or any successor legislation, applies.
2. An alteration, modification, change, addition, deletion, omission, agreement, or supplement to the Contract, Contract Documents, or the nature of the Work performed under the Contract or Contract Documents— including, without limitation, an extension of time for performance— does not, in any way, affect Surety's obligations under this Bond. Surety waives any notice of alteration, modification, change, addition, deletion, omission, agreement, supplement, or extension of time.
3. Surety's obligations under this Bond are separate, independent from, and not contingent upon any other surety's paying claims, demands, liens, or suits for any work, labor, services, materials, or equipment furnished or used in the Work.

4. If an action at law or in equity is necessary to enforce or interpret this Bond's terms, Surety must pay— in addition to the Bonded Sum— City's reasonable attorneys' fees and litigation costs, in an amount the court fixes. Principal and Surety agree that this Bond is not a part of the Contract, this Bond is a separate obligation of the Principal and its Surety, and any attorneys' fee provision contained in this Bond does not apply to the Contract. If any litigation occurs between the parties arising from the breach of the Contract, each party will bear its own attorneys' fees in the litigation.
5. Surety shall mail City written notice at least 30 days before: (a) the effective date on which the Surety will cancel, terminate, or withdraw from this Bond; or (b) this Bond becomes void or unenforceable for any reason.

On the date set forth below, Principal and Surety duly executed this Bond, with the name of each party appearing below and signed by its representative(s) under the authority of its governing body.

Date: _____

PRINCIPAL:

SURETY:

(Company Name)

(Company Name)

(Signature)

(Signature)

By: _____
(Name)

By: _____
(Name)

Its: _____
(Title)

Its: _____
(Title)

Address for Serving Notices or Other Documents:

Address for Serving Notices or Other Documents:

CORPORATE SEAL

CORPORATE SEAL

- **THIS BOND MUST BE EXECUTED IN TRIPLICATE.**
- **EVIDENCE MUST BE ATTACHED OF THE AUTHORITY OF ANY PERSON SIGNING AS ATTORNEY-IN-FACT.**
- **THE PRINCIPAL'S AND ATTORNEY-IN-FACT'S SIGNATURE MUST BE NOTARIZED.**
- **A CORPORATE SEAL MUST BE IMPRESSED ON THIS FORM WHEN THE PRINCIPAL, OR THE SURETY, OR BOTH, ARE A CORPORATION.**

APPROVED AS TO SURETY AND
AMOUNT OF BONDED SUM:

APPROVED AS TO FORM:

By _____
Director of Public Works

By _____
City Attorney

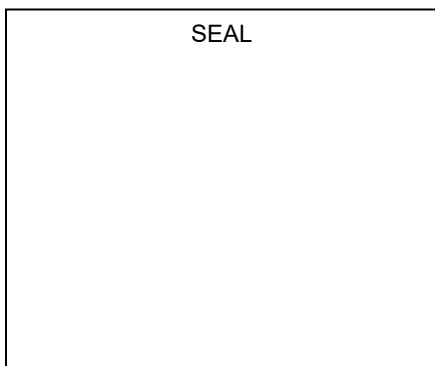
BOND ACKNOWLEDGMENT
FOR
SURETY'S ATTORNEY-IN-FACT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____,
before me, _____(name), a Notary Public for said County, personally appeared
(name), who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this
instrument as the attorney in fact of _____, and acknowledged to me that he/she subscribed
the name of _____ thereto as principal, and his/her own name as attorney
in fact.

Notary Public



**APPENDIX 3
NOTICE TO PROCEED**

Issuance Date:

_____, 20____

Subject Project: _____
Specification No. _____ Contract No. _____

Upon receipt of this letter, you are hereby authorized to proceed with the Work for the Subject Project.

You shall begin the Work on: _____, 20____ ("Date of Commencement"). You shall complete the Work within _____ calendar days from the Date of Commencement, in accordance with the provisions of Article 3 of the Contract.

Please note that you will not be allowed to start any construction activity: (1) without the prior approval of the required submittals, and (2) before the Date of Commencement.

Please reference the City contract number on all correspondence and on all monthly payment requests.

Please complete the information below and return this document to:

Public Works Engineering Department
633 E. Broadway, Room 205
Glendale, CA 91206
ATTN: Project Manager: _____

The City of Glendale's Public Works Engineering Department is excited to provide a quality upgrade to one of our facilities in the City. We are pleased to have you as a partner in this effort.

Sincerely,

Yazdan T. Emrani, P.E., Director of
Public Works

Contractor: Please complete the information below.

Contractor received this Notice to Proceed on: _____, 20____

_____, 20____
Contractor's Signature Date Signed

Contractor's Name

Contractor's Address City State Zip Code

APPENDIX 4



CITY OF GLENDALE CALIFORNIA

Public Works Engineering Department 633 East Broadway, Room 205, Glendale, California 91206 Tel (818) 548-3945 FAX (818) 242-7087

CONSTRUCTION CONTRACT CHANGE ORDER

Date: _____ Contract Number: _____
Project: _____ Change Order Number: _____
Subject: _____ Contractor Telephone: _____
To: _____ Contractor Fax: _____
Reference: _____

Attention: _____

From: _____

Description of Change (additional sheets attached) ☐

Reason for Change (additional sheets attached) ☐

Distribution

Contractor ☐ *Consultant* Division ☐ Project Manger ☐ Project Administrator ☐ Other _____

C-410 Revised 03/22/11

CITY OF GLENDALE
CONTRACT CHANGE ORDER

The change results in the following adjustment of Contract Price and/or Time:

Approved Contract Amount.....
Net Change by Previously Authorized Change Orders (.....%)
This Change Order (increase/decrease) (.....%)
Total Change Order including this Change Order (.....%)
Contract Price after Change Order

Account/Program Numbers

Contract Time prior to Change Order

Net Increase (Decrease) in Days Authorized by this Change Order

Current Contract Time including this Change Order

Contractor is hereby directed to make the herein-described changes and/or perform said herein-described work in connection with above reference project. All new work shall conform to the applicable provisions of the plans and specifications, except as specifically modified by the Contract Change Order.

This Change Order No. _____ to Specification No. _____ constitutes full and complete compensation for all costs associated with the above changes inclusive of insurance, contractors profit, direct and indirect overhead, extended office overhead, bonds, supervision, labor, materials and equipment. All other costs are noncompensable.

All other provisions, requirements, terms and conditions contained in the above referenced Construction Contract remain in full force and effect. This Change Order is not valid until signed by both City and Contractor.

Attachments: (List attached documents that support Change Order)

City of Glendale
Prepared By

Contractor
Accepted By

Project Manager/Construction Manager Date

Name of Contractor

Approved By

Division Director [when required]

Date

Contractor Representative

Date

Additional City Approvals

Date

Title

Date

Date

APPENDIX 5

SUBSTITUTION REQUEST FORM

Project: _____

Location: _____

TO: City of Glendale, Public Works Engineering Department, _____, Project Manager

FROM: _____

1. Section, Paragraph and Page Number of Specification or Drawing to which this request applies:

2. Item specified for which substitution is requested:

Name or Brand: _____

Manufacturer: _____

Catalog No.: _____

3. The proposed substitution is:

Name or Brand: _____

Manufacturer: _____

Catalog No.: _____

4. Requests for substitution must be submitted no later than forty-five (45) calendar days from the date of Notice to Proceed. No substitution request will be considered by the City without a completed Substitution Request Form and substantiating data. Contractor shall attach hereto complete technical data, including technical information, complete manufacturer's catalogs, brochures and drawings, certified laboratory test reports and samples as applicable for the proposed substitution, installation and operating instructions, manufacturing warranties and other descriptive material. No other substitution request submitted after the Notice to Proceed will be considered by the City except as provided in the General Conditions or as otherwise requested in writing by the City.

5. Reasons for substitution request:

6. Detailed comparison of significant qualities and properties (size, weight, durability, performance and similar characteristics) including the visual effect where applicable, for the proposed substitution in comparison with original requirements includes (list detailed comparison with supporting data, use separate sheets if required):

7. Installation changes and changes to Drawings and Specifications required by the proposed substitution are (list all required changes, use separate sheets if required):

8. Does this substitution affect dimensions shown on Drawings?

Yes _____ No _____

If yes, clearly indicate changes on each Drawing by Sheet No.:

9. List the effects of the proposed substitution on other parts of the Work or on separate contracts, including required changes in Drawings, dimensions, engineering and detailing costs and effect on other trades.

10. What effect does substitution have on applicable code requirements?

11. Identify differences between the proposed substitution and the specified item.

12. Attach a copy of manufacturer's warranty, manufacturer's guarantees and warranties of proposed and specified items are:

Same _____

Different _____

(Explain on attachment.)

Manufacturer shall provide a letter stating the fitness for intended use, and performance equivalence with the specified item.

13. List the name and address of three similar projects (not necessarily installed by Contractor) on which the proposed product was used and date of installation:

(i) Name of Project: _____

Address: _____

Date of Installation: _____

(ii) Name of Project: _____

Address: _____

Date of Installation: _____

(iii) Name of Project: _____

Address: _____

Date of Installation: _____

14. Use of the substitution will cause the Contract Time to be:

Same _____

Different _____
(Explain on attachment.)

15. Use of the substitution will affect the critical path of the Construction Schedule as follows (identify any proposed adjustment to the Contract Time):

16. Reduction in the Contract Sum of \$ _____ will result from use of the substituted item.

17. Estimated cost of any engineering, design or agency fees required for work of all trades directly or indirectly affected by the substitution is: \$ _____.

18. The date by which City must accept this Request in order for the time and cost estimates in Paragraphs 14 and 16 to remain valid is:

_____.

19. Contractor Affidavit. The undersigned, having thoroughly investigated the proposed substitution represents, certifies and declares, under penalty of perjury under the laws of the State of California that:

(1) Contractor has personally investigated the proposed substitution and determined that it is equal or superior in all respects to the material, product, thing or service specified except as specifically noted:

_____;

(2) Contractor will provide the same warranty and correction responsibility for the proposed substitution that the Contractor would have provided for that specified;

(3) The cost data presented is complete and includes all related costs under this Contract except any redesign costs and agency fees;

- (4) Contractor will pay redesign, engineering, detailing, special inspection costs and agency fees caused by the use of this substitution;
- (5) Contractor will coordinate the installation of the accepted substitution, making such changes as may be required for the Work to be complete in all respects.
- (6) Contractor waives all claims for additional costs relating to the substitution which may subsequently become apparent; and
- (7) Contractor assumes all responsibility for direct or indirect costs and/or time impacts as a result of the use of the substitution.

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

Signature

Type or print Name

Submitted by:

(Firm)

(Address)

For use by City:

___ Accepted ___ Accepted as noted

___ Not Accepted ___ Rejected as late

(By)

APPENDIX 6

STATUTORY FORMS OF WAIVER AND RELEASE UPON PAYMENT

CONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT
[California Civil Code § 8132]

EFFECTIVE JULY 1, 2012

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____

Amount of Check: \$ _____

Check Payable to: _____

Exceptions

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:
Date(s) of waiver and release: _____
Amount(s) of unpaid progress payment(s): _____
- (4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Signature

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

UNCONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT
[California Civil Code § 8134]

EFFECTIVE JULY 1, 2012

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN< STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Identifying Information

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment:

\$ _____

Exceptions

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Signature

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

CONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT
[California Civil Code § 8136]

EFFECTIVE JULY 1, 2012

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Identifying Information

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____

Amount of Check: \$ _____

Check Payable to: _____

Exceptions

This document does not affect any of the following:

Disputed claims for extras in the amount of: \$ _____

Signature

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

UNCONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT
[California Civil Code § 8138]

EFFECTIVE JULY 1, 2012

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Identifying Information

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Exceptions

This document does not affect any of the following:

Disputed claims for extras in the amount of: \$ _____

Signature

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

APPENDIX 7

PUBLIC WORKS CONTRACT AWARD INFORMATION

Contract award information must be sent to your Apprenticeship Committee if you are approved to train. If you are not approved to train, you must send the information (which may be this form) to ALL applicable Apprenticeship Committees in your craft or trade in the area of the site of the public work. Go to: <http://www.dir.ca.gov/das/PublicWorksForms.htm> for information about programs in your area and trade. You may also consult your local Division of Apprenticeship Standards (DAS) office whose telephone number may be found in your local directory under California, State of, Industrial Relations, Division of Apprenticeship Standards.

Do not send this form to the Division of Apprenticeship Standards.

NAME OF YOUR COMPANY	CONTRACTOR'S STATE LICENSE NO
MAILING ADDRESS- NUMBER & STREET, CITY, ZIP CODE	AREA CODE & TELEPHONE NO.
NAME & ADDRESS OF PUBLIC WORKS PROJECT	DATE YOUR CONTRACT EXECUTED
	DATE OF EXPECTED OR ACTUAL START OF PROJECT
NAME & ADDRESS OF PUBLIC AGENCY AWARDED CONTRACT	ESTIMATED NUMBER OF JOURNEYMEN HOURS
	OCCUPATION OF APPRENTICE
THIS FORM IS BEING SENT TO: (NAME & ADDRESS OF APPRENTICESHIP PROGRAM(S))	ESTIMATED NUMBER OF APPRENTICE HOURS
	APPROXIMATE DATES TO BE EMPLOYED

This is not a request for dispatch of apprentices.

Contractors must make a separate request for actual dispatch, in accordance with Section 230.1(a) California Code of Regulations

Check One Of The Boxes Below

1. ☐ We are already approved to train apprentices by the _____
Apprenticeship Committee. We will employ and train under their Standards. Enter name of the Committee
2. ☐ We will comply with the standards of _____
Apprenticeship Committee for the duration of this job only. Enter name of the Committee
3. ☐ We will employ and train apprentices in accordance with the California Apprenticeship Council regulations, including § 230.1 (c) which requires that apprentices employed on public projects can only be assigned to perform work of the craft or trade to which the apprentice is registered and that the apprentices must at all times work with or under the direct supervision of journeyman/men.

Signature _____

Date _____


Typed Name _____

Title _____

**State of California - Department of Industrial Relations DIVISION
OF APPRENTICESHIP STANDARDS**

DAS 140 (REV. 1/04)

APPENDIX 8

 REQUEST FOR DISPATCH OF AN APPRENTICE – DAS 142 FORM <u>DO NOT SEND THIS FORM TO DAS</u>	
<p>You may use this form to request dispatch of an apprentice from the Apprenticeship Committee in the craft or trade in the area of the public work. Go to: http://www.dir.ca.gov/databases/das/pwaddrstart.asp for information about programs in your area and trade. You may also consult your local Division Apprenticeship Standards (DAS) office whose telephone number may be found in your local directory under California, State of, Industrial Relations, Division of Apprenticeship Standards. <u>Except for projects with less than 40 hours of journeyman work, you must request and employ apprentices in no less than 8 hour increments.</u></p>	
Date: _____	Contractor Requesting Dispatch:
To Applicable Apprenticeship Committee: Name: _____ Address: _____ _____ Tel. No. _____ Fax No. _____	Name: _____ Address: _____ _____ License No. _____ Tel. No. _____ Fax No. _____
Project Information: Contract No. _____ Name of the Project: _____ Address: _____ _____	
Dispatch Request Information: Number of Apprentice(s) Needed: _____ Craft or Trade: _____ Date Apprentice(s) to Report: _____ (72 hrs. notice required) Time to Report: _____ Name of Person to Report to: _____ Address to Report to: _____ _____	
<p><i>You may use this form to make your written request for the dispatch of an apprentice. Requests for dispatch must be in writing and submitted at least 72 hours in advance (excluding weekends and holidays) via first class mail, fax or email. <u>Proof of submission may be required.</u> Please take note of California Code of Regulations, Title 8, § 230.1 (a) for all applicable requirements regarding apprenticeship requests and/or visit http://www.dir.ca.gov/DAS/DASApprenticesOnPublicWorksSummaryOfRequirements.htm</i></p> <p style="text-align: center;">DAS 142 (Revised 04/14)</p>	

APPENDIX 9 **Statement of Employer Payments**



Date:		In Reply, Refer to Case No:	
Prime:			
Subcontractor:			
PROJECT NAME:			
PROJECT CONTRACT NO.:		County/location:	
HEALTH AND WELFARE			

NAME OF PLAN	Address, City and Zip		
ADMINISTRATOR	Address, City and Zip		
CLASSIFICATION(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR		
CONTRIBUTIONS:	WEEKLY	MONTHLY	QUARTERLY
	_____	_____	_____

PENSION			
NAME OF PLAN	Address, City and Zip		
ADMINISTRATOR	Address, City and Zip		
CLASSIFICATION(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR		
CONTRIBUTIONS:	WEEKLY	MONTHLY	QUARTERLY
	_____	_____	_____

VACATION/HOLIDAY			
NAME OF PLAN	Address, City and Zip		
ADMINISTRATOR	Address, City and Zip		
CLASSIFICATION(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR		
CONTRIBUTIONS:	WEEKLY	MONTHLY	QUARTERLY
	_____	_____	_____

TRAINING			
NAME OF PLAN	Address, City and Zip		
ADMINISTRATOR	Address, City and Zip		
CLASSIFICATION(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR		
CONTRIBUTIONS:	WEEKLY	MONTHLY	QUARTERLY
	_____	_____	_____

IF YOU USE OTHER PLANS NOT LISTED ABOVE, YOU MAY USE THE BACK OF THIS FORM TO PROVIDE THIS ADDITIONAL INFORMATION

APPENDIX 10

CONTRACTOR SUBMITTAL LOG

City of Glendale
Public Works Department
Engineering Division

Project: _____ Project Mgr.: _____

Specifications No.: _____ Contractor: _____

Date Received	Transmittal Number	Description	Subcontractor	Contractor Trans. No.	No. of Copies Rec'd	Action				Date Returned	No. of Copies Returned	Remarks
			Rel. Spec. Section			No Exceptions Taken	Make Corrections Noted	Revise & Resubmit	Rejected			

Contractor Submittal Log provides a permanent record of all submittals by the contractor of shop drawings, samples, and other requested data received during construction

EXHIBIT 7

APPENDIX 11

LIST OF SUBMITTALS REQUIRED FROM CONTRACTOR						
No.	Description of Submittals (1)	Type of Work				
		Streets	Sewers	Storm Drains	Electrical	Earthwork
1.	Contractor's Schedule of Operations (Work Flowchart)	X	X	X	X	X
2.	Designated Contractor's Representative and Emergency Phone List	X	X	X	X	X
3.	Subcontractor Listing (Contact Information and License Numbers)	X	X	X	X	X
4.	Contractor's Notification - Letter to Residents/Businesses	X	X	X	X	X
5.	Contractor's Notification - Door Hanger Notice to Residents & Businesses	X	X	X	X	X
6.	Project Signs	X	X	X	X	X
7.	Traffic Control Plan & Channelization Plan	X	X	X	X	X
8.	Local Storm Water Pollution Prevention Plan (SWPPP)	X	X	X	X	X
9.	Waste Discharge Identification Number (WDID), GC Page 12	X	X	X	X	X
10.	Shoring Plan		Y	Y	Y	Y
11.	OSHA Trench & Excavation Permit		Y	Y	Y	Y
12.	Confined Space Entry Program		Y	Y		
13.	OSHA Confined Space Entry Permit		Y	Y		
14.	Specifications for Pipe & Couplings from Manufacturer		Y	Y	Y	
15.	Temporary Sewer By-Pass Plan (Including Pump Specifications)		Y			
16.	Sewage Spill Prevention & Response Plan		X			
17.	Certification of Sewer Lining Installer		Y			
18.	Spec's on Sewer Liner from Manufacturer		Y			
19.	Specifications for Irrigation Systems	Y				Y
20.	Specifications for Luminaires, Light Poles, Pedestals, Traffic Signals, Street Name Signs				Y	
21.	Specifications for Traffic Striping, Pavement Marking and Signing	Y	Y	Y	Y	Y
22.	Asphalt Concrete (A.C.) Mix Design	Y	Y	Y	Y	Y
23.	Asphalt Rubber Hot Mix (ARHM) Mix Design	Y	Y	Y	Y	Y
24.	Emulsion-Aggregate Slurry Mix Design/Crack Seal Material	Y	Y	Y	Y	Y
25.	Asphalt Rubber Aggregate Membrane (A.R.A.M.) Mix Design	Y	Y	Y	Y	Y
26.	Portland Cement Concrete (P.C.C.) Mix Design	Y	Y	Y	Y	Y
27.	Crushed Miscellaneous Base (CMB) Mix Design	Y	Y	Y	Y	Y
28.	Spec's for Pre-Fab Products (Manufacturer's Info and Certification of Compliance)	Y	Y	Y	Y	Y
29.	Notification to City of any Construction Staging Areas or Storage	Y	Y	Y	Y	Y
30.	Buy America Certificate of Compliance for steel/cast iron products for federally funded projects	Y	Y	Y	Y	Y
30.	Certified Payrolls, Fringe Benefit Statement, Hourly Rate Breakdown of Each Labor Classification	Z	Z	Z	Z	Z
31.	Contractor's and Subcontractor's Daily Work Report	A	A	A	A	A
32.	Final Approved As-Built/Marked-up redlined plans showing all field changes	B	B	B	B	B
33.	Submission of "Summary of Solid Waste Disposal and Diversion" form (located in the Specifications)	Z	Z	Z	Z	Z
34.	Subcontractor's and Vendor's Waiver Releases	B	B	B	B	B

35.	Equipment Operator's Listing	X	X	X	X	X
-----	------------------------------	---	---	---	---	---

Required Submittals for Monthly Progress Payments:		Type of Work				
No	Description of Submittals (1)	Streets	Sewers	Storm Drains	Electrical	Earthwork
1.	Invoice-Schedule of Values	Z	Z	Z	Z	Z
2.	Project Schedule Update	Z	Z	Z	Z	Z
3.	Certified Payroll (CPR; Both Contractor & all Sub-contractors)	Z	Z	Z	Z	Z
4.	CPR Statement of Compliance (Both Contractor & all Sub-contractors)	Z	Z	Z	Z	Z
5.	Certification of Fringe Benefits Paid (Both Contractor & all Sub-contractors)	Z	Z	Z	Z	Z
6.	Progress Payment Certification (Located in Specifications)	Z	Z	Z	Z	Z
7.	Affidavit for Final Progress Payment (Located in Specifications)	B	B	B	B	B
8.	Marked-up redlined As-Built plans showing all field changes	Z	Z	Z	Z	Z
	NOTES:					
(1)	Contractor is also responsible for supplying all required submittals for work to be done by their subcontractors.					
(2)	There may be other submittals that are required for this project that are not listed in the table.					
(3)	Some of the Submittal items that are listed might be project specific and may or may not be required for this project.					
LEGEND:						
X	Required Before Any Construction Activities May Commence					
Y	Required Before the Specific Construction Activity may be Performed					
Z	Required Monthly or recurring Submittal					
A	Required Daily Submittal					
B	Required at the end of the Project for Project Close-out					
DEFINITIONS FOR "Type Of Work": Streets - Street Resurfacings, Reconstruction, Slurry Seal, Sidewalk, Curb & Gutter, etc. Sewers - Sewer Pipe Construction, MH Construction, Lining, Laterals, Excavation, Permanent Trench Resurfacing Storm Drains - Storm Drain Construction, MH Construction, Catch Basins, Excavation, Permanent Trench Resurfacing Electrical - Conduit Installation, Vaults, Pull boxes, Street Lights, Traffic Signals, Excavation, Permanent Trench Resurfacing Earthwork - Debris Basins, Slope Repair, Grading, Retaining Walls, Excavation						

**APPENDIX 12
NOTICE OF COMLETION**

RECORDING REQUESTED BY:

City of Glendale
Public Works Department – Engineering Division
633 East Broadway Avenue, Room 205
Glendale, CA 91206

WHEN RECORDED MAIL TO:

City of Glendale
City Clerk
613 East Broadway, Room 110
Glendale, CA 91206 - 4393

-----SPACE ABOVE THIS LINE FOR RECORDERS USE-----

NOTICE OF COMPLETION

NOTICE IS HEREBY GIVEN:

1. The interest or estate stated in paragraph 2 herein in the real property and public work of improvement herein described is owned by the City of Glendale. The City's address is: 613 East Broadway Avenue, Room 120, Glendale, California 91206.
2. The nature of the title of the City of Glendale is: **a Public Street Easement.**
3. Notice is given that work was completed on the said public improvement on _____. This notice does not alter the Contractor's responsibility for failure of the work to comply with the requirements of the Contract Documents. This notice does not constitute a waiver or acceptance of any non-conforming or defective work, disputed claims, the assessment of liquidated damages, subcontractor licensing penalties, state licensing violations, or any other violations of state, federal, local laws and regulations, or contract provisions.
4. That certain real property and public work of improvement known as _____ Glendale, CA , County of Los Angeles, as improved in accordance with Specification No. _____, Contract No. _____.
5. The Contractor on said job was _____.
6. Kindly refer to Mr. Sarkis Oganessian, P.E., Deputy Director of Public Works/City Engineer, on all matters relating to said Contract.

VERIFICATION

I, the undersigned, declare: I am the City Engineer of the City of Glendale, the owner of the aforesaid interest or estate in the property described in the foregoing notice; I have read the same and know and understand the contents thereof, and that the facts stated therein are true and correct.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.
Executed on _____, 20____ at Glendale, California.

CITY OF GLENDALE, a chartered municipal corporation

By _____
SARKIS OGANESYAN, P.E.
DEPUTY DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
Public Works Department – Engineering Division

APPENDIX 13



Street Light Clearance Request

A. DATE: _____

TO: GWP Corporate Yard, Street Light Supervisor

FROM: _____

SUBJECT: O.K. to Work Near/Street Light Clearance.

We are requesting an "O.K. to Work Near" for the following date(s) and Location(s):

Requested by: _____

1. Sent by: _____

Date needed

Location

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

REQUIREMENTS FOR WORK AFFECTING TRANSIT STOPS & ROUTES

City of Glendale
Public Works Department - Transit Division

INSTRUCTIONS

1. Glendale is served by Metro regional buses and Glendale Beeline city buses. *Signs at stops will tell you which agency serves the stop.*
2. A **72 hour** notice is required for activities at bus stops or work requiring detours. *Agencies have to post stop closures 24-48 hours in advance to redirect passengers.*
3. Contractor is required to create a temporary bus stop when conditions allow – post no parking signs as appropriate and locate a Type 2 barricade as the “pole” for temporary stop signage. *Typical bus zone is 80’-90’. Transit field staff (see page 2) will assist you with an alternate location if needed.*
4. **Email the 72 hour notice** (see page 2) that contains the following (electronic file available, examples below):
 - Project name/Contractor name
 - On-site foreman name/Cell phone
 - Location of stop or street boundaries
 - Start date and time/End date and time
 - Temporary stop location
5. For long term projects, please be sure to update changes to the appropriate agency on a regular basis.

Example of 72 hour notice for stop closure

Project Name	Safe Routes Phase 2
Contractor Name	Sully Miller
On-site foreman name/Cell phone	Tom 562-555-1212
Location of stop or street boundaries	Stop: WB Glenoaks & Justin
Start date and time	6-6-13 7:00a.m.
End date and time	6-14-13 3:30 p.m.
Temporary stop location	WB Glenoaks 40’ east of Justin. (Before existing stop zone.)

Example of 72 hour notice for paving

Project Name	Central Avenue
Contractor Name	Kalban
On-site foreman name/Cell phone	Jim 562-555-1212
Location of stop or street boundaries	Street: NB lanes Central Ave from Broadway to Doran
Start date and time	8-1-13 7:00a.m.

APPENDIX 14

End date and time	8-15-13 3:30 p.m.
Temporary stop location	All NB stops closed, no temp stops.

TRANSIT CONTACTS *(Suggestion: create an email group to blast out notices)*

Metro Stops and Zones (Posting of Metro temporary stop closures, posting temporary stop relocations, sign/pole removals)

James Falcon– Metro SFV Stops and Zones
213-922-5076
Falconj@metro.net

David Daniels– Metro Stops and Zones Supervisor
213-922-5190
Danielsd@metro.net

Metro Operations (Metro bus stop closures/relocations and/or detours)

Emil Guglielmo – Operations Supervisor
213-922-4632
GUGLIELMOE@metro.net

MV Transportation (Beeline Operations) (Beeline bus stop closures/relocations and/or detours)

Frances Palma – Dispatcher
818-409-3387 (dispatch)
frances.palma@mvtransit.com

Fred Hartdige – Operations Manager
818-409-3383 (office)
fhartdige@mvtransit.com

City of Glendale – Transit (Customer Service Center) (Beeline temporary stop closures, sign/pole removals, Beeline detours and any bus stop furniture remove and replace)

Vahe Gabrielyan – Beeline Stops and Zones
818-937-8341 (office)
vgabrielyan@glendaleca.gov

Martha D’Andrea – Transit Manager
818-937-8330 (office)
kengel@glendaleca.gov

Silva Baghdanian – Transit Assistant Manager
818-937-8321 (office)
sbaghdanian@glendaleca.gov

APPENDIX 15

CONTRACTOR'S CERTIFICATION FOR PROGRESS PAYMENT No _____ (Insert Invoice Sequence No.)
Contractor's Invoice No. _____ (Insert Invoice No)

Project Title: _____
RETURN WITH PROGRESS PAYMENT REQUEST

The undersigned hereby certifies under penalty of perjury to the City of Glendale (City) that he/she is the _____ (Title) of _____, (Contractor), and that, as such, is authorized to execute this Certification for Progress Payment for the construction of _____ (Project Name) on behalf of the Company, and certifies as follows:

1. the data compromising the Application for Payment is accurate and the Work has progressed to the point indicated;
2. to the best of Contractor's knowledge, information and belief, the Work is in accordance with the Contract Documents;
3. the Contractor is entitled to payment in the amount certified; and
4. all sums previously applied for by Contractor on account of Work performed by Subcontractors and that have been paid by City have been paid to the Subcontractors performing such Work, without any retention, withholding or backcharge by Contractor.
5. the Contractor has provided the following documents:
 - A. conditional releases and waivers of stop notice and bond rights upon progress payment in the form required by California Civil Code Section 8136 executed by Contractor, all Subcontractors of every tier and by all material suppliers of each;
 - B. compliance by Contractor with its obligation for submission of monthly and daily reports as required by the Contract Documents, maintaining complete and accurate As-Built drawings which shall be kept up to date during the performance of the Work);
 - D. certifications by Contractor and each Subcontractor as required by applicable collective bargaining agreements that all employee benefit contributions due and owing pursuant to any applicable collective bargaining agreement have been paid in full;
 - E. releases of rights and claims relating to patents and trademarks, as required by the Contract Documents;
 - F. Contractor's Insurance is current and in force;
 - G. compliance by Contractor with all of its other obligations for submission of documentation or performance of conditions which, by the terms of the Contract Documents, constitute conditions to Contractor's right to receive payment for Work performed;
 - H. compliance by Contractor with its obligations for submission of scheduling information and updating of the Construction Schedule as required; and,
 - I. submission of certified payroll records upon request by Director pursuant to Section 14.04(B)(3) of the Contract Documents.

Dated this _____ day of _____ at _____, _____
Month/Year City State

Signature _____ Contractor

Name _____ Title

APPENDIX 16

CONTRACTOR'S AFFIDAVIT FOR FINAL PROGRESS PAYMENT
RETURN WITH FINAL PROGRESS PAYMENT REQUEST

Project Title: _____

The undersigned hereby certifies under penalty or perjury to the City of Glendale (City) that he/she is the _____ (Title of office if a corporation, "Sole Owner," "Partner," or other proper title) of _____, (Contractor), and that, as such, is authorized to execute this Affidavit for Final Progress Payment on behalf of the Company, and being first duly sworn, deposes and says the following:

1. the data compromising the Application for Final Payment is accurate and the Work completed;
3. to the best of Contractor's knowledge, information and belief, the Work is in accordance with the Contract Documents;
4. the Contractor is entitled to payment in the amount certified;
5. all sums previously applied for by Contractor on account of Work performed by Subcontractors and that have been paid by City have been paid to the Subcontractors performing such Work, without any retention, withholding or backcharge by Contractor.
6. the payrolls, bills for materials and equipment, and other indebtedness connected with the Project for which City or City's property or funds might be liable have been paid or otherwise satisfied;
7. the insurance required by the Contract Documents is in force (certificate attached); and,
8. the Contractor has provided the following documents:
 - A. consent of surety, if any, to Final Payment;
 - B. conditional releases and waivers of stop notice and bond rights upon final payment in the form required by California Civil Code Section 8136 executed by Contractor, all Subcontractors of every tier and by all material suppliers of each;
 - C. all Record Documents and submittals (including, without limitation, complete and accurate As-Built drawings which shall be kept up to date during the performance of the Work;
 - J. certifications by Contractor and each Subcontractor as required by applicable collective bargaining agreements that all employee benefit contributions due and owing pursuant to any applicable collective bargaining agreement have been paid in full;
 - K. releases of rights and claims relating to patents and trademarks, as required by the Contract Documents; and
 - L. any other documents or information required by the Contract Documents as a condition of Final Payment or Final Completion.

Dated this _____ day of _____ at _____, _____
Month/Year City State

Signature _____ Contractor

Name _____ Title

Subscribed and sworn to before me this _____ Day of _____, 20

Notary Public in and for said County and State (SEAL)

SPECIAL CONDITIONS

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SECTION 1 - TERMS, DEFINITIONS, ABBREVIATIONS AND SYMBOLS

(NOT USED)

SECTION 2 - SCOPE AND CONTROL OF WORK

2.01 SPECIFICATIONS AND STANDARD PLANS

The work to be done under this contract shall be performed in accordance with the following Specifications and Standard Plans:

1. Specification No. 3829.
2. Standard Specifications for Public Works Construction "Greenbook" 2021 Edition, including all supplements thereto issued prior to bid opening date, exclusive of Part I.
3. State of California, Department of Transportation Standard Specifications for Traffic Signal Modifications and Lane Markings, Painting and Signing, 2010 Edition.
4. Standard Plans for Public Works Construction (2021 Edition).
5. Glendale Municipal Code, Chapter 15.12, "Grading, Fills and Excavation".

2.02 LOCATIONS OF WORK

<u>NO.</u>	<u>STREET NAME</u>	<u>LIMITS</u>
1.	La Crescenta Avenue	North Verdugo Road to City Limit
2.	Oakside Lane	La Crescenta Avenue to Easterly Terminus

2.03 WORKING HOURS

This section modifies Article 14.01 "Working Hours" of the General Conditions. The City has obtained or will obtain permits to enter for work to be performed on private property. The Contractor shall coordinate the work with the resident/business to accommodate any special needs and keep them informed of construction activities.

2.04 PERMITS

The Contractor shall comply with all the requirements in the City of Glendale Excavation Permit Policy attached in Appendix B, except the Contractor shall not be required to pull a physical permit.

The City has obtained or will obtain permits to enter for work to be performed on private property. The Contractor shall coordinate the work with the resident/business to accommodate any special needs and keep them informed of construction activities.

The City has obtained a permit from the State Water Resource Control Board – Division of Drinking Water. The plans were based on discussions with this agency. A copy of the permit will be available prior to construction. A copy of the permit is made a part of these Specifications (attached in Exhibit C) and the Contractor shall comply with all of the requirements and provisions of said permit. Copies of the permit shall be kept in the job site at all times.

The City has obtained permits for work to be performed within the jurisdiction of the Los Angeles County Department of Public Works. A copy of the permits are made a part of these Specifications (attached in Exhibit C) and the Contractor shall comply with all of the requirements and provisions of said permits. Copies of the permits shall be kept in the job site at all times.

It is the Contractor's responsibility to obtain a separate permit from the Los Angeles County Department of Public Works for the inspection of the above work.

Costs involved in obtaining the Los Angeles County inspection permit will be paid for from allowance price set for "Permit Fee Allowance", and no additional compensation will be made therefore. All other costs involved in complying with the permits, including the payment of insurance and all other fees, shall be considered as paid for in the various related items of work and no additional compensation shall be made therefore.

All costs involved in complying with the permits and obtaining the Los Angeles County inspection permit, including the payment of insurance and all other fees, shall be considered as paid for in the various related items of work and no additional compensation shall be made therefore.

2.05 MOBILIZATION

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of the personnel, equipment, supplies and incidentals to the Project site and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the Project site.

All costs involved in doing the above work shall be included in the various related items of work, and no additional compensation will be made therefore.

2.06 TRAFFIC CONTROL

The Contractor shall order their operations, such that a minimum of one 10' lane of traffic is open during non-working hours in each direction. When possible, the Contractor shall provide for two 10' lanes during non-working hours.

Changeable Message Signs will be required on arterial streets and at the discretion of the Engineer.

Non-emergency vehicles may be delayed up to 60 minutes, if necessary.

The Contractor shall provide all necessary signage and flaggers, as determined in the field.

La Crescenta Avenue, Paloma Avenue, Las Palmas Avenue, and Arlington Avenue must remain open to vehicular traffic during construction of this project. A minimum of one traffic lane shall be made available and shall be controlled by flag men at all times during construction activities. The flag men shall be in communication with each other and with the excavation crew at all times by the use of radios, cell phones, or other suitable communication means. Vehicular traffic shall not be delayed for more than 20 minutes. A safe environment for vehicular traffic shall be maintained at all times during the construction work. This may be implemented through the installation of walls / barriers or other suitable means of protection that separate the excavation work area from the vehicular traffic. During the course of construction, the Contractor will assess the adequacy of these barriers and increase the protection as necessary.

At the end of each work day, two lanes of traffic (one lane in each direction) shall be restored for vehicular traffic. A safe environment for vehicular traffic shall be maintained at all times during non-working hours. This may be implemented through the installation of walls / barriers or other suitable means of protection that separate the excavation work area from vehicular traffic.

All costs involved in doing the above work shall be included in the various related items of work, and no additional compensation will be made therefore.

All costs involved in doing the above work shall be included in the various related items of work, and no additional compensation will be made therefore.

2.07 DAMAGE AND REPAIR TO EXISTING IMPROVEMENTS AND FACILITIES

The repair or replacement of facilities damaged or removed by the Contractor located inside or outside the construction limits that are to remain as caused by the Contractor's operations, shall be at his/her own expense to the satisfaction of the Engineer.

The repair or replacement of the damaged work with new materials as necessary to restore the damaged areas or surfaces to a condition equal to and matching such conditions existing prior to the damage or start of this Contract shall be to the full satisfaction of the Engineer.

During construction of the proposed improvements extreme care shall be exercised to protect existing public and private improvements such as existing curbs, sidewalks, driveways, walls, fences, planters, valves, lights, drainage structures, posts, signs, mailboxes, landscaping, plant life and vegetation, unless otherwise noted in the plans.

When working in private property, the Contractor shall take due care that no existing improvement is damaged. Any markings left on the existing concrete walk, brick, carport, or any other surface improvements shall be removed to the satisfaction of the Engineer and property owner.

All costs involved in restoration of existing improvements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

A. Manhole and Vault Frame and Cover Adjustment to Grade

The Contractor, within 48 hours from completion of paving, shall dig out manhole frames and covers. In addition, no more than 48 hours shall elapse between the time a manhole or vault frame and cover is dug out from the newly laid asphalt and the time the finished surface of asphalt is placed around the frame that has been adjusted to fit the new finished surface grade.

The use of cast iron raising rings to adjust manhole frames will not be permitted.

The Contractor shall notify other utility owners at least 96 hours prior to any work in the vicinity of said facilities. They will raise their own manhole or vault covers to grade after final paving.

Before paving over the covers, the Contractor shall cover them with either tarpaper or construction paper to facilitate separation of Asphalt concrete from the covers.

In those sections where final street grades are not changed, the contractor shall be responsible for paving up to and matching existing manhole and/or vault grades. This is not considered "manhole adjustment" and no additional compensation will be made therefore.

All costs involved in complying with these requirements shall be included in the unit price bid for "Adjust Manhole Frame and Cover Set" of these Specifications, and no additional compensation will be made therefore.

2.08 DEWATERING (NOT APPLICABLE)

2.09 CLEANUP AND DUST CONTROL

Throughout all phases of construction, including suspension of work, and until the final acceptance, the Contractor shall keep the site clean and free from rubbish and debris. The Contractor shall also abate dust nuisance by cleaning, sweeping and sprinkling with water, or other means necessary. The use of water resulting in mud on public street shall not be permitted as a substitute for sweeping or other methods.

At the discretion of the Engineer, the Contractor shall furnish and operate a self-loading motor sweeper with spray nozzles, to maintain streets affected by the Contractor's operation in a condition of cleanliness acceptable to the City at all locations affected by the Contractor's operations. These affected areas include all haul routes to and from the project and all areas of construction or restoration that have not been completed. The Contractor shall not proceed with any further work until the affected areas are cleaned to the satisfaction of the Engineer.

Materials and equipment shall be removed from the site as soon as they are no longer necessary. Before the final inspection, the site shall be cleared of equipment, unused materials, and rubbish, so as to present a satisfactory clean and neat appearance.

Care shall be taken to prevent spillage on haul routes. Any such spillage shall be removed immediately and the area cleaned.

Failure of the Contractor to comply with the Engineer's cleanup orders may result in an order to suspend work until the condition is corrected. No additional compensation will be allowed as a result of such suspension.

All costs for cleanup and dust control shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefore.

2.10 EARTHWORK

Earthwork shall conform to Section 300 "Earthwork" of the Greenbook, as modified herein:

A. Unclassified Excavation

Unclassified excavation shall include all native excavation within the roadway, and significant excavation in driveways and private property conforms, as shown on the project cross sections. The Contractor shall excavate and remove the earth to subgrade elevations shown on the plans. The work shall include excavation, storage of the material for use as roadway embankment where fill is needed, and/or off-haul of unsuitable or excess material.

The quantity listed in the bid forms is a final pay quantity. No adjustment will be made in the quantity unless there is a change in the scope of work.

B. Unclassified Fill

Unclassified fill shall include the placement and recompaction of native material excavated as Unclassified Excavation, as shown on the project cross sections. The Contractor shall place and compact the earth to subgrade elevations shown on the plans. The work shall include hauling, grading and recompaction of the soil as roadway embankment where fill is needed.

If the Contractor elects to off-haul the Unclassified Excavation and use Crushed Aggregate Base for fill, the equivalent tonnage of Crushed Aggregate Base will be deducted from the certified weight tags delivered to the project, and payment will be made at the unit price for Unclassified Fill.

The quantity listed in the bid forms is a final pay quantity. No adjustment will be made in the quantity unless there is a change in the scope of work.

C. Over-Excavation of Subgrade

If needed, the Contractor shall remove wet or unsuitable subgrade material and replace it with crushed aggregate base, where designated by the Engineer.

Payment for removing wet or unsuitable subgrade material shall be based upon the actual volume of earth removed and disposed of, and paid for at the unit price bid for "Over-Excavation of Subgrade" and no additional compensation will be made therefore.

Payment for the Crushed Aggregate Base used as backfill will be paid for at the unit price bid for "Crushed Aggregate Base", and no additional compensation will be made therefore.

D. Sub-Grade Preparation

Sub-grade preparation shall conform to Section 301-1 of the Greenbook. The roadbed material shall be compacted to a relative compaction of 95% to a depth of 6-inches below the surface of the roadbed, as determined by ASTM D-1557-91.

During the excavation and compaction procedures, the Contractor shall take all necessary steps to insure the protection of all improvements, whether public or private, including utilities and their services, from any damage that could occur due to his/her operations.

See Payment Items Section of these Specifications for payment of these items.

2.11 MECHANICAL SLOPE STABILIZATION (NOT APPLICABLE)

2.12 PAVEMENT REMOVAL

A. Surface Plane

Surface Plane shall consist of the removal of the existing Asphalt Concrete and/or Concrete Pavement to a length and depth as indicated on the construction plans.

The permanent resurfacing shall be installed within 72 hours of the grinding. No street shall be left unpaved over the weekend.

Payment for various Pavement Removals shall be included in the unit price bid for "Pavement Removal, Surface Plane (2-Inches)" and "Pavement Removal, Surface Plane (3-Inches)" in the Payment Items Section of these Specifications, and no additional compensation will be made therefore.

B. Pavement Removal (Reconstruction)

Pavement Removal (Reconstruction) shall consist of the complete removal of existing Asphalt and/or Concrete pavement for reconstruction. A list of pavement depths based on coring is included on the plans. Measurement for payment of Pavement Removal (Reconstruction) shall be cubic yard, based on the area of removal per the plans and the actual depth of pavement encountered.

Where complete pavement removal is required, the Contractor shall:

1. Provide adequate staging to maintain traffic flow on a paved surface;
2. Provide traffic control plans for approval prior to beginning work clearly showing construction staging and temporary detours, as required;
3. Maintain streets such that no street is left unpaved over the weekend; and,
4. Provide permanent resurfacing within 72 hours of pavement removal, where traffic must travel on an unpaved surface.

The permanent resurfacing shall be installed within 72 hours of the header cutting. No street shall be left unpaved over the weekend.

Payment for pavement removal shall be included in the unit price bid for "Pavement Removal and Grading" in the Payment Item Section of these Specifications and no additional compensation will be made therefore.

C. Macadam Street

Macadam base (rock and oil) pavement exists up to 2 inches thick in localized areas and shall be completely removed. The quantity for of macadam base has been included in the pavement removal quantity and no separate payment will be made there for.

Where macadam (rock and oil) pavement is encountered during header cutting/surface planing operations, the resurfacing procedure shall be modified as follows:

The Contractor shall adjust the depth of header cut/surface plane as directed by the Engineer to minimize loosening or disturbing the rock base. The exposed macadam base shall then be rolled with a tandem steel wheel roller and capped immediately with a variable thickness of fine Asphalt Concrete pavement to hold the base until the final resurfacing course is placed.

The cost of compaction to stabilize the macadam base shall be included in the unit price bid for "Pavement Removal, Surface Plane (2-Inches)", "Pavement Removal and Grading", and "Pavement Removal, Surface Plane (3-Inches)" in the Payment Item Section of these Specifications, and no additional compensation will be made therefore.

D. Additional Or Reduced Pavement Removal

The various existing pavement thickness shown in the plans are based on available information on file in the office of the City Engineer.

Quantities shown in the bidding form tabulations are based upon the available pavement thickness information. Actual pavement thickness encountered in the project may vary as much as one inch (1") from the thickness stated. If unusually thick pavements are encountered resulting in the average thickness varying more than one inch (1"), an adjustment in the volume of removals shall be made for extra compensation. The Contractor shall be paid for the additional pavement removal at the unit price bid for "Pavement Removal and Grading", and no additional compensation will be made therefore.

Where the existing pavement thickness is less than that shown on the plans resulting in reduced quantities for pavement removal, but additional excavation is required to make sub-grade, then the Contractor shall be paid for the additional excavation of sub-grade at the unit price bid for "Over Excavation of Sub-Grade (2-Inch to 6-Inch Deep)", and a corresponding reduction will be made to the quantity for pavement removal and

credit will be given to the City calculated at the unit price bid for "Pavement Removal and Grading", and no additional compensation will be made therefore.

2.13 CRUSHED MISCELLANEOUS BASE

Crushed Miscellaneous Base shall conform to Section 200 "Rock Materials" of the Greenbook. Crushed Miscellaneous Base shall be used for leveling and making grade in the roadway area as necessary, and for backfill of over-excavated areas.

At locations where Asphalt concrete pavements, curbs, gutters, cross-gutters, driveway aprons, and sidewalks are to be reconstructed, there may be instances where the proposed finish grades are higher than the existing. In these cases and as directed by the Engineer, the Contractor shall use crushed aggregate base to make grade.

Crushed Miscellaneous Base will be measured based on the tonnage shown on vehicle certified weight tags. Weight tags from a certified scale shall be provided to the inspector on a daily basis.

Payment for making grade in the roadway using crushed miscellaneous base shall be based on the quantity placed at the unit price bid per Ton for "Crushed Miscellaneous Base" in the Payment Items Section of these Specifications and no additional compensation will be made therefore.

2.14 ROADWAY PAVEMENT

Asphalt Concrete shall be in accordance with Section 203 "Bituminous Materials" and Section 302 "Roadway Surfacing" of the Greenbook.

Recycled Asphalt Concrete Hot Mix (RAC) or Reclaimed Asphalt Pavement (RAP) as defined in section 203-6.2.5 of the Greenbook shall not be allowed for use in Asphalt Rubber Hot Mix (ARHM), but is acceptable in non-rubberized asphalt concrete mixes.

The Contractor's attention is directed to Sections 302-5.5 "Distribution and Spreading" and 302-5.6.2 "Density and Smoothness" of the Standard Specifications. The provisions of said Section shall be strictly adhered to.

Fully automatic screeds will be required on this project. A fully automatic screed shall have a sled, 30-feet in length, on the side of the machine that will receive the next lift of asphalt concrete material. A joint maker, ski, etc., placed on the side of the machine to ride on the existing or previously constructed surface or lift of asphalt concrete material may be required as directed by the Engineer.

Asphalt concrete shall be of the type shown on the plans unless modified by the Engineer in the field.

Asphalt concrete patching needed and installed due to form work or other construction operations are not included in this quantity and the cost of such work should be included in the various related items of work requiring the patch.

All costs involved in meeting the above requirements shall be included in the unit prices bid for "Asphalt Concrete Pavement (Surface and Base Course)", "Asphalt Concrete (Leveling)", and "Asphalt Rubber Hot Mix (ARHM)" in the Payment Items Section of these Specifications and no additional compensation will be made therefore.

2.15 COLD IN-PLACE RECYCLING (CIR) OF ASPHALT CONCRETE (NOT APPLICABLE)

2.16 COLD CENTRAL PLANT RECYCLING (CCPR) (NOT APPLICABLE)

2.17 ASPHALT RUBBER HOT MIX (ARHM) PAVEMENT

Asphalt Rubber Hot Mix shall be in accordance with Section 302-9 "Asphalt Rubber Hot Mix (ARHM) of the Greenbook.

The Contractor shall submit to the Engineer for approval, the type of Asphalt Rubber and the corresponding design mix to be used for this project. The Contractor shall only use the "Wet Process" in the manufacture of rubberized asphalt in accordance with Section 203-11 of the Greenbook.

The completed asphalt rubber resurfacing shall be thoroughly compacted to be free from humps, depressions or irregularities. Any ridges, indentations or other objectionable marks left on the surface of the asphalt rubber shall be eliminated by roller or other means.

The longitudinal and transverse joints shall be constructed to have a uniform finished surface throughout. The joints shall be constructed straight, neat, smooth, tight and seamless, irregular joints will not be accepted. Any finished surface with rugged appearance will be rejected.

The Contractor shall provide the equipment for a hand held viscometer test per Section 203-11.4.1 for use by an independent testing company hired by the City.

A certificate of compliance for Asphalt Rubber binder shall be required from the materials supplier.

2.17.1 ROCK DUST BLOTTER

Where traffic will have access to rubberized asphalt concrete prior to complete cooling, a rock dust blotter shall be placed as directed by the Engineer to avoid tracking per Section 302-9.7 of the Greenbook. Rock dust blotter shall be uniformly applied using a mechanical spreader at a rate of two pounds minimum and four pounds maximum per square yard.

The cost of Rock Dust Blotter shall be included in the unit price bid for "Asphalt Rubber Hot Mix Pavement" (ARHM) of these Specifications, and no additional compensation will be made therefore.

2.18 TEMPORARY ASPHALT CONCRETE PAVEMENT

The Engineer shall determine the exact locations where temporary resurfacing will be needed. Immediately prior to permanent resurfacing, the Contractor shall remove, haul away and properly dispose of the temporary Asphalt concrete pavement separately to an approved dumping site accepting temporary asphalt concrete pavement. The Contractor shall not mix temporary asphalt concrete with permanent asphalt concrete, Portland cement concrete, earth or other materials that are to be removed from the site.

At the end of each day's paving, all vertical transverse construction joints shall be filled with cold mix asphalt concrete for a minimum horizontal distance, in direction of traffic, of 5 feet to provide a smooth transition for vehicular traffic. This transition shall be properly and continuously maintained until the final asphalt concrete course is placed.

All costs involved in complying with the above requirements shall be included in the unit price bid for various related items of work no additional compensation will be made therefore.

2.19 EMULSION-AGGREGATE SLURRY (NOT APPLICABLE)

2.20 MICROSURFACING (NOT APPLICABLE)

2.21 ASPHALT RUBBER AGGREGATE MEMBRANE (ARAM)

Asphalt Rubber Aggregate Membrane shall be in accordance with Section 203-12 "Asphalt Rubber Aggregate Membrane (ARAM) Surfacing or interlayer" and Section 302-10 "Asphalt Rubber Aggregate Membrane (ARAM), Section of the Green Book.

The Contractor shall submit to the Director for approval, the type of Asphalt Rubber Aggregate Membrane and the corresponding design mix to be used for this project. The Contractor shall substitute Emulsion Aggregate Slurry in accordance with Section 2.15 "Emulsion Aggregate Slurry" of Special Provisions for asphalt emulsion (fog seal coat) of Section 302-10.3 of the GREEN BOOK.

Prior to placement of the asphalt rubber aggregate membrane, the existing pavement surface shall be cleaned, including crack cleaning, to eliminate all dirt, debris and weeds.

The completed asphalt rubber aggregate membrane resurfacing shall be thoroughly compacted to be free from humps, depressions or irregularities. The application rate for the binder and aggregate shall be such that:

- The finished surface shall be level;
- The aggregate shall be thoroughly compacted without gaps in between; and
- Any large cracks or holes not patched with asphalt concrete prior to placement of ARAM shall be filled with ARAM aggregate.

Any ridges, indentations or other objectionable marks left on the surface of the asphalt rubber shall be eliminated by roller or other means. Additional handwork may be required to comply with these requirements.

The longitudinal and transverse joints shall be constructed to have a uniform finished surface throughout. The joints shall be constructed straight, neat, smooth, tight and seamless, irregular joints will not be accepted. Any finished surface with rugged appearance will be rejected.

A certificate of compliance for Asphalt Rubber Aggregate Membrane binder shall be required from the materials supplier.

2.22 PORTLAND CEMENT CONCRETE FLATWORK

This section shall cover all curbs, curb and gutters, sidewalks, curb ramps, driveways, driveway aprons, apronwalks, cross-gutters and other surface concrete flatwork, and shall conform to Section 303 "Concrete and Masonry Construction" of the Greenbook.

A. Curb Size

The Contractor shall construct the new curb to match the adjoining existing curb, which may vary in size and shape on the various streets throughout the project.

B. P.C.C. Pavement Joints

All new P.C.C. pavement (sidewalks, driveways, cross gutters, bus pads, etc.) shall have weakened plane joints or score lines that match existing adjacent patterns. At locations where there are no existing sidewalks, the weakened plane joints or score lines shall be constructed at regular intervals of 5 feet. For sidewalk repair installations less than 25-feet length, the longitudinal and transverse score lines shall match the adjacent walk scoring pattern.

In Historic Districts on Royal Boulevard, Ard Eevin Avenue and Cottage Grove, the scoring pattern and finish shall match the existing pavement scoring and finishes in all cases. Typically, the existing scoring is a 2.5' x 2.5' grid.

C. Epoxy

As directed by the Engineer in the field and at all locations where new Portland Cement Concrete pavement will be abutting directly against existing concrete structures, an epoxy (Sikadur 32, Hi-Mod or equal) shall be applied to the existing concrete mating surface prior to pouring of concrete. Product instructions on applying epoxy shall be followed strictly for effective application.

D. Rotary Finish

In addition to concrete specified in the Greenbook and SPPWC, a rotary finish is required for all driveway aprons, alley aprons, and alley pavement; and gutters, cross gutters and sidewalks with over 5% grade. The gutters and cross gutters shall receive a "shiner" along the flow line.

e. Terrace Drains And Down Drains

Concrete shall have a minimum compressive strength of 2,000 p.s.i. Contractor may, at their option, use p.c.c. concrete, shotcrete or gunite.

Terrace/Down Drains shall be installed with a minimum slope of 5%. Contractor shall confirm slope prior to pouring of concrete and make necessary adjustments with the assistance and approval of the Engineer. Contractor shall confirm the elevations of the connection points to the existing terrace drains prior to forming to allow minor modifications by the Engineer.

The contract unit price paid for the various types and sizes of terrace and down drains shall include full compensation for all forming, finishing, wire mesh, reinforcing, splash walls, drain anchors, extensions and retaining type walls as shown on the details, and no additional payment will be made therefor.

F. Concrete Grinding and/or Shaving and Horizontal Sawcutting

Where the existing sidewalk is uplifted by tree roots 0.5-inch and more and 1.5-inch and less, if determined to be feasible by the Engineer the edge of the sidewalk shall be grinded, shaved, or saw cut to eliminate tripping hazards.

Grinding, shaving, or sawcutting shall be Maximum of 8.33%, and have a smooth transition from edge to edge.

All costs for complying with the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

Payment for construction of the P.C.C. flatwork shall be based on the quantity placed at the related unit price bid for the specific bid items listed in the Payment Items Section of these Specifications, and no additional compensation will be made therefore.

2.23 DETECTABLE WARNING SURFACES FOR CURB RAMPS

Detectable Warning Surfaces (raised truncated domes) shall be installed at new and existing ramps as shown on the plans. Detectable Warning Surfaces (DWS) shall comply with the Standard Plans for Public Works Construction,

Caltrans Standard Plans, and Federal Americans with Disabilities Act requirements. DWS shall be black for residential streets (Federal Color No. 17038) and yellow for collector and arterial streets (Federal Color No. 33538).

Manufacturers shall have a minimum of two years of experience in the manufacture and supply of DWS, and shall provide a written 5 year warranty for the product. The warranty shall include a certification of the contractor completing the installation. The contractor shall provide a written 2 year warranty for the DWS installation.

The contractor shall submit manufacturer's product data, product samples, material test reports, installation instructions, and maintenance instructions. All materials shall be provided from the same manufacturer, or be approved in writing by the manufacturer.

The City of Glendale has approved the following DWS for use within the City. The contractor may submit other manufacturers for review and possible approval.

1. Armor-Tile (Embedded, Embedded-Replacable and Surface-Mounted)
2. Armorcast (Embedded and Surface-Mounted)
3. Traffic Works
4. Access Tile

A. Existing Curb Ramps

DWS for existing curb ramp installations shall be a flexible polyurethane mat with a maximum surface thickness of 0.12-inches (exclusive of the truncated domes). Installation shall be per manufacturer's recommendations with a combination of adhesive and concrete screws. Existing concrete shall be thoroughly cleaned prior to installation. After installation, the perimeter shall be sealed or caulked per manufacturer recommendation. All adhesive shall be cleaned and trimmed, such that no adhesive is visible more than ¼" from the DWS. The DWS shall be covered with plywood until the adhesive has fully cured.

B. New Curb Ramps (installed as part of project)

DWS for new curb ramp installations shall be an epoxy polymer composition with flanges or ribs that embed into the concrete ramp a minimum of 2 inches. After installation, the DWS shall be free of any concrete splatter or other construction markings.

C. General Requirements

The DWS shall have the following qualities:

Water Absorption	ASTM – D570	< 0.35%
Impact Resistant	ASTM – 5420	
Slip Resistant		
Stain & Chemical Resistant		
Protected Against UV Deterioration		

All costs involved in meeting the above requirements shall be included in the unit prices bid for "Install Cast-In-Place Detectable Warning Surface on ADA Curb Ramps" and "Install Surface Mounted Detectable Warning Surface on ADA Curb Ramps" in the Payment Items Section of these Specifications, and no additional compensation will be made therefore.

2.24 TEMPORARY ADA ACCESS RAMPS

Where directed by the Engineer, the Contractor shall install temporary curb ramps constructed of temporary Asphalt concrete to provide continuous sidewalk/parkway ADA access. The temporary ramps shall be constructed with a maximum slope of 8.33% on the main ramp and on the "X"s. After construction is completed in the area where the ramps have been installed, or when directed by the Engineer, the Contractor shall remove the temporary curb ramp, haul away and dispose of the temporary Asphalt concrete in a manner acceptable to the Engineer.

The costs involved in the construction, maintenance and removal of the temporary curb ramps and for the haul away and disposal of the temporary Asphalt concrete to a dump site accepting such materials shall be included in the **various related items of work** and no additional compensation will be made therefore.

2.25 TRENCHING

A. Trench Resurfacing - Permanent Asphalt and Portland Cement Concrete

Permanent trench resurfacing shall be placed upon completing two (2) blocks of pipe laying, unless otherwise approved by the Engineer.

All permanent trench resurfacing shall be in accordance with City of Glendale Standard Plan No. 25-153, "Trench Resurfacing." The permanent pavement thickness shall be the same thickness as the existing pavement, but not less than 4".

Where a section(s) of concrete pavement is removed to accommodate construction, restoration shall be to match existing conditions and shall start from a joint or score line and shall end in a joint or score line with a minimum replacement of 5-feet. All score lines shall be saw-cut prior to removal.

The completed asphalt concrete resurfacing shall be thoroughly compacted to be free from humps, depressions or irregularities. Any ridges, indentations or other objectionable marks left on the surface of the asphalt concrete shall be eliminated by roller or other means.

The longitudinal and transverse joints shall be constructed to have a uniform finished surface throughout. The joints shall be constructed straight, tight and seamless. Irregular joints will not be accepted. Any finished surface with a rugged appearance will be rejected.

All traffic striping and pavement markings obscured, damaged, or removed during construction shall be permanently replaced in kind within 48 hours after final paving.

All costs for Trench Resurfacing shall be included in the unit price bid for the various related conduits and trenching activities, and no additional compensation will be made therefore.

B. Trench Backfill

Trench backfill shall comply with Section 306 " Open Trench Conduit Construction" of the Greenbook, except as modified herein.

Trenches in arterial streets shall be backfilled with a 1-sack cement slurry mixture. Trenches on residential streets may be backfilled with native material or crushed miscellaneous base to the relative compaction specified.

All costs for trench backfill shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefore.

C. Protective Fencing for Open Trench Excavation

The Contractor shall install temporary protective fencing for open trench excavation where necessary for pedestrian and vehicular safety.

All costs for temporary protective fencing shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefore.

D. Bracing of Excavations

The manner of bracing excavations shall conform to the Construction Safety Order of the Division of Industrial Safety. The Contractor is required to obtain a permit from the Office of the Division of Industrial Safety:

417 N. Azusa Avenue
West Covina, CA 91791
Telephone: (626) 966-1166

The Contractor shall submit to the Engineer, for approval, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of trenches. If such plan varies from the shoring system standards established by the Construction Safety Orders, the plan shall be prepared by a registered Civil or Structural Engineer.

The Contractor shall submit such plans prior to the beginning of excavation requiring shoring, and the Engineer shall have one (1) week to review said plans.

No excavation requiring shoring shall begin prior to the review and acceptance of said plans by the Engineer.

Trench shoring design should comply with the latest State of California Construction Safety Orders. Shoring up to 15 feet in depth should be designed for a K_w value of 35 pcf and shoring over 15 feet and up to 25 feet in depth should utilize 43 pcf. Solid shoring or other type of shoring capable of retaining loose material will be required, if necessary.

All costs involved in meeting the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

E. Removal of Temporary Striping and Restoration Of Permanent Striping From Trenching

The Contractor shall remove all the temporary traffic striping within 48 hours of the placement of permanent trench resurfacing. The striping shall be removed by sandblasting, grinding or other methods approved by the Engineer.

All costs for removal of temporary traffic striping shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefore.

F. Reconstruction of Concrete Curb and Pavements

Where sections of curb, gutter, sidewalk or driveway are removed during the reconstruction of sewer mains or house connection laterals, restoration shall start from a joint or score line with a minimum replacement of five (5) feet. Score lines shall be sawcut prior to removal.

All costs for restoration of existing concrete improvements shall be included in the unit price bid for the construction of sewer mains requiring such removals, and no additional compensation will be made therefore.

2.26 STORM DRAIN PIPE

Construction of reinforced concrete storm drain pipe shall conform to Section 207 "Gravity Pipe" and Section 208 "Pipe Joint Types and materials" of the Greenbook.

Reinforced concrete pipe shall be provided with a minimum D-load as shown on the plans. Stronger pipe may be substituted at the Contractor's option, at no additional cost to the City.

Prior to the construction of the new storm drain pipe, all crossings with existing utilities shall be potholed to verify potential conflicts. This potholing shall not be completed as part of the trenching process for the pipe installation. Full compensation for potholing shall be included in the unit price bid for the various storm drain pipes, and no separate payment will be made therefore.

All costs involved in meeting the above requirements shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefore. See Payment Items Section of these Specifications for payment of this item.

2.27 CONCRETE STRUCTURES

Construction of storm drain catch basins, manholes, junction structures, concrete collars, headwalls, storm water separator, and utility support/protection blanket shall conform to Section 303, "Concrete and Masonry Construction" of the Greenbook.

Utility support/protection blankets shall be constructed to support and protect existing utilities in place per SPPWC Plan No. 224-3, at locations directed by the Engineer. Payment for Utility Support/Protection Blanket" will only be made if the item is constructed. The Contractor is responsible for normal support and protection of existing utilities.

All costs involved in meeting the above requirements shall be included in the unit price bid for "Construct Headwall (Inlet)" and "Construct Concrete Collar", and no additional compensation will be made therefore.

2.28 PIPELINE SYSTEM REHABILITATION (LINING)

Sanitary sewer and storm drain pipe rehabilitation shall conform to Section 500 "Pipeline" of the Greenbook as modified herein.

A. General

The Engineer shall select one of the following tight fitting liner systems listed below for the rehabilitation of existing storm drain pipes.

1. Cured-In-Place Pipe Liner (CIPP) Pipe Liner. Shall comply with Subsection 500-1.4 of the Standard Specifications for Public Works Construction.

2. Deformed/Re-formed HDPE Pipe Liner. Shall comply with Subsection 500-1.7 of the Standard Specifications for Public Works Construction.
3. Folded and Re-formed PVC Pipe Liner. Shall comply with Subsection 500-1.10 Type "A" or "B" of the Standard Specifications for Public Works Construction.

The Contractor shall field verify the pipe diameter at the maintenance holes and lengths prior to ordering liner materials. The Contractor shall notify the Engineer of any discrepancies between information obtained in the field and existing plans.

Installation of the storm drain lining shall be performed by a Contractor licensed/certified by the manufacturer/owner of the process. Bidders shall submit copies of such licenses with their bids. A bidder's failure to do so may render their bid non-responsive.

The minimum finished pipe liner wall thickness shall conform to Table A

Table A							
Host Pipe Dia. (inches)	4	6	8	10	12	15	18
Dimension Ratio (DR)	35	35	35	35	35	35	41
Liner Thickness (inches)	.114	.171	.228	.285	.342	.428	.439

If the pipe liner process requires a thicker DR for the site, or existing pipeline condition is designed with a 2 to 1 safety factor the contractor shall provide the thicker pipe required.

All costs involved with lining shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

B. Requirements

Section 500-1.1 "Requirements" of the Greenbook shall be modified as follows:

The Contractor shall assume that the pipes require normal cleaning (two (2) to three (3) passes of a jet cleaner) unless it is otherwise noted in the special provisions, TV log sheets, or video tapes made available to the contractor before the bid opening.

All original video tapes shall be submitted to and will become the property of the City.

Video tapes shall be recorded on a 4-head recorder on (SP) standard play speed.

Replace the third paragraph in Subsection 500-1.1.5 "Television Inspection" with the following:

Pre-lining CCTV inspection shall be performed utilizing a rotating lens video camera system.

The pre-lining video inspection and recording performed with this camera shall stop at each lateral and the head rotated to look up the lateral to identify if the lateral is active, plugged or has roots that could interfere with the complete lateral reinstatement.

The pre-lining and post-lining video will be performed while the upstream lines are plugged or bypassed. The line shall be dry except for flow from the laterals in the section of line being televised.

Protruding Laterals. The Contractor shall assume that there are no protruding laterals unless it is noted in the special provisions, TV log sheets, or video tapes made available to the Contractor before the bid opening. Prior to insertion of the liner, the Contractor shall cut-off interfering identified protruding laterals as close to flush with the pipe interior as practicable.

To prevent maintenance problems such as roots, infiltration, ex-filtration, or loss of backfill material into the newly lined pipe all plugged service connections identified in the pre-lining video tape shall not be opened unless specifically directed by the Engineer in the special provisions.

The lateral opening cuts shall conform to the shape and size of the inside diameter of the existing service connection.

All final lateral cuts shall be finished off with a wire brush to remove chips and provide a smooth opening.

Replace the fourth sentence in the second paragraph of Section 500-1.1.7(a) "Service Connections" with the following:

The service opening shall be reinstated from a minimum of 90 percent to a maximum of 105 percent of the original service connection.

C. Pipeline Point Repair/Replacement

Section 500-1.2 "Pipeline Point Repair/Replacement" of the Greenbook shall be modified as follows:

Additional work to repair any damage to the pipe lining system caused by failure of the bypassing system shall be the Contractor's responsibility.

The curing water used for the CIPP lining shall be discharged into the sewer manhole and mainline.

The Contractor shall perform CCTV inspection of all pipeline point repairs and submit the post-repair tapes to the Engineer for review prior to placing of permanent resurfacing. All costs for performing CCTV inspection shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefore.

D. Deformed/Re-Formed HDPE Pipe Liner

Section 500-1.7 "Deformed/Re-formed HDPE Pipe Liner" of the Greenbook shall be modified as follows:

The factory test results for each coil of pipe shall be submitted to the Engineer for approval before the installation has begun.

Before installation, the pipe coils shall be checked by the inspector using ASTM D 2122-90 to verify compliance with the minimum wall thickness.

Section 500-1.7.5 Chemical Resistance and Physical Testing. (Modify the last sentence of paragraph as follows):

The Contractor shall provide a Manufacturer's Certificate of Compliance, factory test results and other proof that the liner to be used meets the material specifications and testing requirements.

Replace the text of Section 500-1.7.7 "End Seals" of the Greenbook with the following:

After installation, the liner shall be cut off in the maintenance hole. The cut shall be smooth and parallel with the maintenance hole wall. The finished liner shall not protrude into the maintenance hole over two (2) inches.

If the maintenance hole has been lined through, the top half of the liner pipe may be cut off even with the top of the shelf leaving the channel lined. No additional compensation will be made if the contractor lines through the maintenance hole.

E. 500-1.10 Folded and Reformed PVC Pipe Liner

Section 500-1.7 "Folded and Re-formed PVC Pipe Liner" of the Greenbook shall be modified as follows:

The Contractor shall provide a Manufacturer's Certificate of Compliance, factory test results and other proof that the liner to be used meets the material specifications and testing requirements.

Before installation, the pipe coils shall be checked by the Inspector using ASTM D 2122-90 to verify compliance with the minimum wall thickness.

Replace the text of Section 500-1.10.7 "End Seals" of the Greenbook with the following:

After installation, the liner shall be cut off in the maintenance hole. The cut shall be smooth and parallel with the maintenance hole wall. The finished liner shall not protrude into the maintenance hole over 2 inches.

If the maintenance hole has been lined through, the top half of the liner pipe may be cut off even with the top of the shelf leaving the channel lined. No additional compensation will be made if the Contractor lines through the maintenance hole.

All costs involved in complying with the requirements listed above shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

2.29 SANITARY SEWER PIPE

Sanitary Sewer Pipe shall comply with Section 207-8 "Vitrified Clay Pipe" of the Green book as modified herein.
Sanitary Sewer Pipe shall comply with Section 207-17 "PVC Gravity Pipe" of the Green book as modified herein.

A. The Requirement

- i. The CONTRACTOR shall provide **High Strength Vitrified Clay Pipe, and Polyvinyl Chloride Pipe** sewers as specified and shown, complete, in accordance with the Contract Documents.
- ii. Reference Specifications, Codes, And Standards
- iii. Commercial Standards:

ASTM C 12	Practice for Installing Vitrified Clay Pipe Lines
ASTM C 301	Method of Testing Vitrified Clay Pipe
ASTM C 425	Specification for Compression Joints for Vitrified Clay Pipe and Fittings
ASTM C 700	Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
ASTM C 828	Practice for Low-Pressure Air Test of Vitrified Clay Pipe Lines
ASTM D 2321	Practice for Installing Polyvinyl Chloride Pipe Lines
ASTM D 3212	Joints for Sewer Plastic Pipe Using Elastometric Seals
ASTM D 3034	Polyvinyl Chloride Pipe

B. CONTRACTOR Submittals

- i. Shop Drawings: The CONTRACTOR shall submit shop drawings of pipe and fittings in accordance with the requirements-CONTRACTOR Submittals, and the requirements of the referenced standards.
- ii. Certifications: The CONTRACTOR shall furnish a certified affidavit of compliance for all pipe and other products or materials furnished under this Section, as specified in the referenced standards and the following supplemental requirements:
 - a. Hydrostatic test reports.
 - b. Three-edge bearing strength test reports.

C. Joints

Except where open joints are shown, joints in vitrified clay pipe shall be made up using a factory-made bell and spigot compression joint for all pipe diameters, or a synthetic rubber collar with stainless steel or plastic shear ring and stainless steel take-up clamps, bolts, and nuts, for plain-end pipe up to 12-inch size, meeting the requirements of ASTM C 425.

Joints in polyvinyl chloride pipe shall be made using gasketed push-on rubber.

D. Execution

1. General

The sewer shall be constructed to the alignment and grade shown. The grade line shown on the profile is the invert or interior bottom of the pipe. The excavation shall be made a sufficient distance below the grade line to allow for the placing of the sewer invert and the supporting foundation if such foundation is shown. Should the trench be excavated to a depth greater than required, the CONTRACTOR shall refill such excess excavation according to the requirements of Section 306 – Underground Conduit Construction of the SSPWC.

2. Installation of VCP

Installation of pipe shall be in accordance with ASTM C 12. Pipe laying shall proceed upgrade with spigot ends pointing in direction of flow. After a section of pipe has been lowered into the prepared trench and immediately before joining the pipe, the ends of the pipe to be joined shall be cleaned, and the rubber gasket lubricated, all in accordance with the pipe manufacturer's written instructions. Assembly of the pipe length shall be in accordance with the recommendations of the manufacturer of the type of joint used. All special tools and appliances required for joining the pipe shall be provided by the CONTRACTOR. When cutting or machining of the pipe is necessary, only tools and methods recommended in writing by the pipe manufacturer and approved by the ENGINEER shall be employed.

The CONTRACTOR shall take all necessary precautions to prevent excavated or other foreign material from getting into the pipe during the laying operations. At all times, when laying operations are not in progress and at the close of the day's work, the ends of the pipe in the trench shall be closed to prevent entry to animals and foreign materials.

All necessary precautions shall be taken to prevent uplift or floating of the pipe prior to the completion of the backfilling operation. The CONTRACTOR shall assume full responsibility for any damage due to this cause and shall, at its own expense, restore and replace the pipe to its specified condition and grade if it is displaced due to floating.

3. Installation of PVC

Installation of pipe shall be in accordance with ASTM D 2321. Pipe laying shall proceed upgrade with gasket push-on joints pointing in direction of flow. After a section of pipe has been lowered into the prepared trench and immediately before joining the pipe, the ends of the pipe to be joined shall be cleaned, and the rubber gasket lubricated, all in accordance with the pipe manufacturer's written instructions. Assembly of the pipe length shall be in accordance with the recommendations of the manufacturer of the type of joint used. All special tools and appliances required for joining the pipe shall be provided by the CONTRACTOR. When cutting or machining of the pipe is necessary, only tools and methods recommended in writing by the pipe manufacturer and approved by the ENGINEER shall be employed.

The CONTRACTOR shall take all necessary precautions to prevent excavated or other foreign material from getting into the pipe during the laying operations. At all times, when laying operations are not in progress and at the close of the day's work, the ends of the pipe in the trench shall be closed to prevent entry to animals and foreign materials.

All necessary precautions shall be taken to prevent uplift or floating of the pipe prior to the completion of the backfilling operation. The CONTRACTOR shall assume full responsibility for any damage due to this cause and shall, at its own expense, restore and replace the pipe to its specified condition and grade if it is displaced due to floating.

4. Measurement and Payment

Payment will be based on actual linear feet of installed pipe in the linear foot price bid including all items described in the Payment Items.

E. Sewer Pipe Joints and Connection – Point Repair

The Contractor shall use standard pipes with bell and spigot connection when the repair requires more than three (3) pipe sections.

F. Main Line Pipe with House Connections

Where the section of the main line pipe scheduled for removal includes reconstruction of a house connection, the wye portion of the house connection shall be considered as part of the main line sewer pipe. Payment for the sewer wye will be included in the payment for the reconstruction of the mainline sewer and no additional compensation will be made therefore.

G. Existing Sanitary Sewers

The Contractor shall join existing sanitary sewers in a way that no damage to the existing sewer occurs. Any pipe or structure damaged shall be replaced or repaired to the satisfaction of the Engineer at the Contractor's sole expense.

Before beginning the construction or reconstruction of any line which is to join an existing sanitary sewer (both inlet and outlet), the Contractor shall excavate such join points to uncover a portion of the existing conduits and confirm the location and elevation at the junction as shown in the drawings.

The Contractor shall provide CAL-OSHA approved ventilation and lighting necessary to enable workmen to work safely in cutting and removing portions of the existing sewer pipe. All cuts shall be done with an approved power saw or powered carborundum disc. No mechanical pipe "cutter" will be allowed to be used. All cuts shall be ground smooth and true.

Debris from the pipe removal operation and all other construction activities shall be prevented from falling into the sewer system, and shall be removed from the job site. Should any debris enter the sewer system, the Contractor shall immediately contact Wastewater Maintenance Services at (818) 548-3950, and shall remove any debris as directed.

Scaffolding, tools and materials of any description used when working in the existing sewer shall not be left unattended during periods when there is flow therein.

In the event of damage to the existing sewer facilities, or interruption of existing sewer flow, the Contractor shall promptly dispose of any free sewage by pumping or by other means.

Sewage shall not be permitted to flow in the trenches or to be covered by backfill. Continuous sanitary sewer service in closed conduits shall be maintained at all times.

All costs involved in meeting the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

H. Sewage By-Pass Operation

1. Sewer Bypass

Prior to commencement of work, the CONTRACTOR shall submit to the ENGINEER for approval a proposed method of temporary by-pass connections to insure normal flow of sewage during construction, especially at nights and weekends.

The CONTRACTOR shall provide for By-Pass Pumping as needed to safely, completely by-pass around the work area from existing manholes or an approved temporary sewer connection, including sequencing the by-pass pumping with the work schedule such that the completed pipeline work can be put into service as to carry the by-pass pumping flows as the work advances up stream.

All by-pass pipe joints shall be restrained.

The existing sewage flow rates are available upon request at the City Engineer's Office. The CONTRACTOR shall provide all pumps, equipment, piping portable power supply, lighting and a complete redundant back-up system ready and on stand-by for immediate use.

The CONTRACTOR shall designate a project foreman, approved by the City as the person in charge of all by-pass pumping. Said foreman shall be available on a 24/7 basis during the by-pass operations.

The CONTRACTOR shall provide a Sewer By-Pass for all sewer tie-ins and where needed for the construction progress. The plan shall be submitted at least 4 weeks prior to start of by-pass start date. Included in the By-Pass Plan will be the method of flow monitoring. The by-pass operation shall **include the prime pumps and 100% back-up stand-by pump system and tested, ready for use prior to start-up.**

Sewer By-Pass Plan shall show all existing sewer laterals, including locations of by-pass piping, pumps, and flow rates, traffic control.

Sewer By-Pass Plan shall locate all existing and proposed sewer manholes to be by-passed.

Sewer By-Pass Plan shall provide a sequence of construction such that the sewer by-pass flow can be safely handled during the work. The sequence of construction shall show a numbered sequence order from first step to the final step in a written format with construction notes and sketches as appropriate for review and approval prior to beginning any sewer by-pass work.

All sewage by-passed will be metered either by existing metering stations, the new metering station or a temporary one provided by the CONTRACTOR.

The CONTRACTOR shall perform weekly maintenance on all by-pass equipment or sooner as needed to keep the equipment, pumps, power generator, lights hoses, and other appearances in a good working condition.

Approval of sewer-by-pass operation does not absolve the CONTRACTOR from any liability that may arise due to a malfunction of the system, improper installation or any cause that renders the by-pass system inoperable.

2. Communication and Sewage Spill Prevention and Response Plan

The CONTRACTOR shall provide a Communication Plan and Sewage Spill Prevention and Response Plan (Plan) for all sewer tie-ins and where needed for the construction progress. The plan shall be submitted at least 4 weeks prior to start of by-pass start date. The communication part of the Plan shall identify the contact person and their back-up person. A communication protocol will be provided in the Plan to identify the persons for the CONTRACTOR and City to be notified for each operation and in the event of failure such as spills and high flows, the responses on an increasing for each type of risk basis.

The CONTRACTOR shall provide a Spill Prevention and Response Plan per General Condition Article 2.16 E.

All costs for sewage by-pass shall be included in the unit price bid for the various related items of work as described in Pay Items and no additional compensation will be made therefore.

2.30 STREET LIGHT RELOCATION

Street Light Relocations shall conform the requirements of Sections 700 and 701 "Street Lighting and Traffic Signal Systems" of the Greenbook.

The Contractor shall remove the existing base as part of the project. The contractor is responsible to coordinate with Glendale Water and Power, Electric Division to rewire and relocate street light and necessary equipment.

As part of the relocation, Glendale Water and Power Electrical is responsible for constructing all necessary underground facilities, including conduits, and pull boxes. The contractor is responsible for removing street light foundation and coordination with GWP Electric. A Street Light Pull Box shall be provided adjacent to each relocated street light. At the Contractor's option, underground conduit may be Rigid Galvanized Conduit (RGC) or Polyvinyl Chloride (PVC) pipe. PVC requires the pipe zone be backfilled with 3-sack slurry concrete. RGC requires no encasement.

Payment for removing street light foundation shall be included in the unit price bid for "Remove Street Light Foundation" in the Payment Items Section of these Specifications and no additional compensation will be made therefore. For additional requirement, refer to Special Condition Section 5.04 Existing City's Utilities/Facilities, Paragraph 3 "Street Lighting Facilities".

2.31 RESTORATION OF PLANTED AREAS

All unpaved areas graded or disturbed during construction shall be planted with sod where possible or ground cover to match the existing plant life bordering said areas. The Contractor shall cover these areas with mulch and maintain them for 90 days. The planting shall be protected from damage due to the erosion or trespass by providing proper safeguards to prevent such damage.

Planted areas adjacent to the proposed work which are disturbed by the Contractor, shall be planted with seed or ground cover to match the existing. Areas shall be covered with mulch or grass, where appropriate, watered and maintained for 15 days to the satisfaction of the Engineer.

Payment for the above work, including grading, planting, sodding, and maintenance, shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefore.

2.32 SPRINKLER SYSTEMS

The Contractor shall remove portions of sprinkler systems in conflict with the new construction and provide for the immediate or within 24 hours, installation of a temporary irrigation/sprinkler system to water the remaining planted areas during construction.

Before final acceptance of the work, the Contractor shall adjust/reconstruct the existing sprinkler systems including controllers and controller lines, if any, and where necessary, shall install additional new sprinkler heads, lines, valves and/or valve boxes to restore the sprinkler system to their original coverage less the new paved area. Any damage to existing plant life due to the Contractor's delay in restoring the sprinkler systems or due to the improper restoration of the coverage area shall be repaired at the Contractor's sole expense and to the satisfaction of the Engineer.

All costs for restoration and/or adjustment of the sprinkler system shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

2.33 EXISTING IRRIGATION AND ELECTRICAL FACILITIES IN PUBLIC LANDSCAPED AREAS (NOT APPLICABLE)

2.34 TREE ROOT REMOVAL

The Contractor's attention is directed to the fact that at various locations, the construction of concrete curb and gutter, Portland cement concrete and Asphalt concrete pavements may require prior removal of tree roots that have initially damaged the existing pavements and curbs, or will potentially damage new pavements and curbs.

A. Root Pruning

1. When pruning out selective roots, great care shall be given to retain as much root surface as possible, including sufficient buttress root dispersal around the radius of the tree.
2. No more than one-third (1/3) of the tree's total root system shall be removed.
3. No root shall be cut back any closer than 18" from the base of a trunk, or 12" from where a trunk flare breaks soil surface.
4. All root cutting must be done consistent with professional arboriculture standards, specifically the ANSI A300 Root Management Standard. When roots less than 2" in diameter must be pruned, clean cuts taken back to the nearest node shall be made with no crushing or tearing of the remaining root. No root shall be cut back closer than 18" from the base of the trunk, or 12" from where the trunk flare breaks soil surface. Soil shall be backfilled immediately following roots exposure to minimize drying of the roots.
5. Offending roots shall be cut back four (4) inches away from new hardscape to the nearest node.
6. Pruning cuts shall be made clean and smooth with no crushing or tearing of the remaining root. Should a root 2" or larger in diameter be inadvertently damaged while performing the work, surrounding soil shall be hand excavated and the root pruned back clean at the nearest undamaged portion.

B. Root Shaving

1. Root shaving is the removal of a small portion of a nonessential buttress root or general root with a diameter of four (4) inches or greater.
2. Roots will be shaved down to allow for at least two (2) inches of clearance between the root and the new hardscape.

3. No more than one-third (1/3) of a root's diameter shall be shaved off.
4. Shaving cuts shall be made clean and smooth with no crushing or tearing of the remaining root.

Soil shall be backfilled immediately following pruning or shaving activity to minimize drying of the roots.

Prior to pruning and/or shaving of tree roots, the Contractor must contact the City's Urban Forester at (818) 548-3950.

Root removal and shaving is considered a part of the sub-grade preparation and shall be included in the unit price bid for various related items of work of these Specifications and no additional compensation will be made therefore.

2.35 TREE PLANTING

The Contractor shall provide minimum 24-inch box trees of the species designated on the plans. The trees shall be planted in the parkway/sidewalk area as shown on the plans.

A. Nursery Stock Standards

The Contractor shall make every effort to insure that they plant only vigorous, healthy trees which can easily be trained into an attractive natural form, with strong roots and good crown development. The specifications for acceptable nursery stock shall be as follows:

1. All trees shall be true to type or botanical name as ordered or as shown on the planting plans.
2. All trees should be of a size equivalent to that of a twenty four-inch (24") box sized containerized tree with a trunk caliper of one and one half inches (1-½"), or greater, measured at six inches (6") above soil grade.
3. All trees shall have a single, fairly straight trunk with a good taper and good branch distribution vertically, laterally and radially.
4. All trees shall be healthy, have a form typical for the species or cultivar, be well rooted, and shall be properly trained.
5. The root ball of all trees shall be moist throughout and the crown shall show no sign of moisture stress.
6. All trees shall comply with Federal and State laws requiring inspection for plant diseases and pest infestations.
7. No tree shall be accepted that has been topped, headed back, pollarded or lion-tailed.
8. No tree shall be accepted that has co-dominant stems or excessive weak branch attachments that cannot be trained out without jeopardizing the natural form of the species.
9. No tree shall be accepted that is root bound, shows evidence of girdling or kinking of the root system, or has "knees" (roots) protruding above the soil.

The City Forestry staff shall reserve the right to refuse any nursery stock that does not meet these standards. Contractor is required to call Urban Forestry Division at (818) 548-3950 at least 48 hours in advance for inspection of tree stock delivered to site. Forestry staff may require the Contractor who has planted un-inspected sub-standard trees, on City property or within City right-of-ways, to have these trees removed and replaced at the Contractor's own expense.

B. Planting Material Standards

Unless otherwise approved by the City's Urban Forester, all City trees shall be planted using materials that meet the following criteria:

1. Tree Stakes – Shall be two (2) sturdy, ten foot (10') long lodge pole pine stakes. Stakes will be placed on the outer edge of the root ball on either side of the tree, parallel to the curb or walkway or perpendicular to prevailing winds.
2. Staking Ties – Shall be sixteen (16") to eighteen (18") inch rubber cinch ties to be fastened to each stake with galvanized roofing nails. Ties shall be pulled around the tree's trunk in a manner that supports the top-heaviness of the canopy, but shall be loose enough to allow for free movement of the tree in the wind.
3. Trunk Guards – An approved trunk guard shall be placed around the base of the trunk just above the soil grade. A trunk guard is a device used to deter mechanical damage, as a result of wounds inflicted on a tree's trunk by such devices as weed whips and lawnmowers.
4. Decomposed Granite – All decomposed granite shall be of a medium grade to allow ample water infiltration, while still providing a tight compacted surface. The contractor shall submit a sample of the material to be used for approval prior to ordering the material.
5. Shredded Bark/Wood Chip Mulch – All mulch shall be of a medium to fine grade, and shall be clean and free of rocks and debris.

C. Tree Planting Specifications

Most nursery tree stock in California is sold in a containerized form. The following guidelines are specific for containerized stock. If utilizing bare root or balled and burlapped trees, refer to the appropriate International Society of Arboriculture (ISA) guidelines for planting instructions:

1. All trees shall be planted immediately after the planting container has been removed. Containers shall not be cut or otherwise damaged prior to delivery of trees to the planting area.
2. The planting hole is one of the most important factors in establishing a healthy tree. Measure the width and depth of the root ball prior to digging. The diameter of the planting hole shall be dug at least two (2) times wider than that of the root ball. The depth of the planting hole shall be dug slightly shallower than the depth of the root ball to allow for the top two (2") inches of the root crown to remain above the finished grade.
3. Before placing the tree into the planting hole, tamp down the base of the hole to allow the tree to stand straight and to avoid the potential of the tree settling below the finish grade. Scarify or scrape the sides of the planting hole to break down any glazing or compaction that may have occurred as a result of digging.
4. Position the tree in the hole so that the tree stands upright and the top of the root crown is slightly exposed above the grade. Then, backfill the planting hole with clean, native soil no higher than halfway up the root ball. Slightly tamp the soil to remove air pockets, but be sure not to compact the soil too much. Complete the backfilling to the finish grade. Once again, tamp the soil slightly to remove air pockets.
5. Form a watering basin out of backfill material, approximately six inches (6") high. The basin shall be installed four inches (4") outside of and around the edge of the planting hole. Remove all nursery stakes, ties and ribbons from the tree, and install the planting materials as specified above.
6. A three (3") to four (4") inch layer of City-approved decomposed granite shall be placed within the planting basin (tree well) of the tree. The decomposed granite shall be compacted and shall slope from ¼" below the top of sidewalk to the top of the root ball at the base of the trunk. A horizontal space of three (3") inches shall be left between the tree's stem and the decomposed granite to allow airflow and to restrict moisture from remaining static around the base of the trunk.
7. A three (3") to four (4") inch layer of City-approved wood chip mulch shall be placed within the planting basin of the tree. A space of three (3") inches shall be left between the tree's stem and the mulch layer to allow airflow and to restrict moisture from remaining static around the base of

the trunk. The contractor shall submit a sample of the material to be used for approval prior to ordering the material.

D. Root Barriers (NOT APPLICABLE)

E. Maintenance and Care

After planting the trees, the Contractor shall immediately and continuously maintain the trees to promote their optimum growth. Maintenance of the trees shall include, but not be limited to any method or procedure including the application of pesticides, soils conditioners and nutrients necessary to promote the establishment of the trees and their root systems.

The Contractor shall also be responsible for the proper watering of the trees and for keeping the area around the tree free and clean from weeds and debris. All new trees shall be given an initial deep watering. The Contractor shall water all new trees every ten (10) days or less, as needed to keep the root zone moist within the construction maintenance period.

F. Acceptance and Guarantee

When all trees are planted, complete in place, the Contractor shall notify the City's Urban Forester in the Maintenance Services Division at (818) 548-3950 for the purpose of setting a date for the initial acceptance inspection. Trees not conforming to the conditions and stipulations set forth in these Special Provisions at the time of the initial acceptance inspection shall be immediately removed by the Contractor from the project site and acceptable replacements planted in their place.

With the acceptance of the trees in place by the City's Forestry staff representative, a ninety (90) day maintenance period will begin. The Contractor shall continue to be responsible and warranty the trees as to their growth, health and establishment and shall continue to ensure that the tree wells are kept free of debris and weeds, that the stakes support the tree, and that the tree remains watered of the new trees every ten (10) days or less throughout the ninety (90) day maintenance period.

Trees showing signs of failing growth, deteriorating in health or not establishing themselves, including trees incurring injury or damage so as to render them unsuitable for the purpose intended shall be immediately replaced in kind and size at the Contractor's expense and a new ninety- (90) day maintenance period will begin for the replaced trees from the date of their replacement with all the conditions and stipulations previously set forth herein in effect for each tree replaced.

At the end of the ninety (90) day period of guarantee and with each subsequent end of replacement tree period of guarantee, the Contractor shall notify and request from the City, a final acceptance of the tree planting portion of the project.

Upon receiving final acceptance of the trees by the City's Urban Forester, the Contractor shall be relieved of his responsibilities to maintain or water. The trees shall then become the responsibility of the City for maintenance and care.

Trees shall fall under the one-year project warranty. The contractor shall replace all dead, dying, or failing trees within the one year warranty to the satisfaction of the City.

G. Payment

Payment for tree planting shall be included in the unit prices bid for "Plant 24-Inch Box Tree (Various Types in Tree Well/Parkway)" of these Specifications and no additional compensation will be made therefore.

H. Tree Protection Standards – Construction Management

Construction damage associated with new development taking place around existing trees can be detrimental to those trees in a number of ways. The following policy shall establish construction specifications to preserve and protect existing or native trees located on a site that is planned for development.

General Site Evaluation. The Urban Forester will specify on the appropriate measures to take regarding existing trees on the project site. The Urban Forester will work with the Planning Division to identify which trees will need to be removed and how those removals will be mitigated, and which trees shall need to be preserved and how those trees will be protected. The Urban Forester shall also examine site access and traffic route considerations, excavation limitations, appropriate locations for the piling of soil and debris, and the storage of equipment and vehicles as each of these activities pertain to trees on the project site.

Protective Fencing. Temporary, protective fencing shall be installed around any existing tree that is to be preserved on a project site. This fencing must be made of a material that has high visibility, such as fluorescent-colored, and must be posted at regular intervals around the tree. This fencing shall be placed at a minimum distance of fifteen (15) feet from the trunk of the tree or five (5) feet outside the dripline of the tree whichever distance is greater or to the limit of the parkway area. No activity shall take place within this fenced in area.

Irrigation. Providing supplemental irrigation for trees under water stress may be the single most important treatment. Irrigation should be designed to wet the soil within the dripline to the depth of the root zone and to replace that water once it is depleted. Light, frequent irrigation should be avoided. Create a six-inch berm around trees at the edge of the dripline and fill with no more than six inches of mulch. Fill the basin with water. Irrigation should wet the top two to three feet of soil to replicate similar volumes and normal seasonal distribution.

Construction Mulching. If the Urban Forester determines that traffic encroachment within the dripline of a preserved tree is unavoidable, then a six (6) to twelve (12) inch layer of temporary mulch shall be placed over the affected area to disperse the weight of traffic and equipment. Additional weight dispersal and mobility may require the placement of large plywood sheets over the mulched area. Construction mulching and plywood must be removed carefully using hand tools, so as not to damage the tree, as soon as the required activity within the dripline of the tree has been completed.

Excavation Requirements. Whenever possible, services such as water lines and utilities shall be routed around the dripline of trees that are being preserved on a site. If the Urban Forester determines that excavation within the dripline of a preserved tree is unavoidable, then every effort shall be made to tunnel under or through the tree's root system with a minimal amount of pruning, rather than to trench across the tree's roots.

All root pruning shall be in accordance with the Maintenance Guidelines established for such activity in this management plan.

Grade Changes. A change of grade around a tree, even well outside of a tree's root zone, can have serious impact on the tree due to reduced aeration or poor drainage.

The Urban Forester shall recommend that development specifications include requirements for mitigating such impacts to trees that are to be preserved on a project site based upon the type of grade changes that are to be implemented, tree species, drainage patterns, soil conditions and future irrigation and maintenance plans.

The Urban Forester shall employ the following mitigation measures whenever feasible:

Raised Grades. If a grade around an existing tree is to be raised with a backfill less than 6 inches in depth, then the Urban Forester should consider vertical mulching as a mitigation measure. If a grade around an existing tree is to be raised more than 6 inches, then the Urban Forester should consider specifying the construction of a tree well as a mitigation measure.

Lowered Grades. If a grade around an existing tree is to be lowered along the side of its root zone, then the Urban Forester should consider specifying the construction of a terraced dry wall as a mitigation measure. If a grade around an existing tree is to be lowered along all sides of its root zone, then the Urban Forester should consider specifying the construction of a tree island as a mitigation measure.

2.36 HYDROSEEDING (NOT APPLICABLE)

2.37 CONSTRUCTION SURVEY

A. General

The Contractor shall provide construction survey for all the streets shown in Section 2.2 (LOCATIONS OF WORK) of these Special Conditions and including any street(s) which may be added to the contract, including office research of notes, plats or other necessary documents; marking removal limits; grade staking; tying and relocating utilities. All work shall be done to the satisfaction of the Engineer.

The City of Glendale will provide copies of notes for all existing survey control points within the project limits. Prior to start of construction, the Contractor Shall provide for the perpetuation of all existing monumentation within the project limits. The Contractor shall notify the City of Glendale, in advance, in the event that any monumentation or witnesses to the monumentation should fall within any removal areas. **The Contractor shall be liable for a back charge in an amount up to \$2,000.00 per point obliterated or destroyed without notice or authorization from the City of Glendale.**

The Contractor shall provide, at the time of the pre-construction meeting, a tentative schedule of operations to allow the Contractor's Surveyor sufficient time to set temporary construction control.

Any questionable grade, elevation, location or element of design shown on the plans shall be brought to the immediate attention of the Engineer in writing for clarification prior to construction.

The City reserves the right to verify all staking and monumentation for horizontal and vertical accuracy. The allowable error shall not exceed 0.01 feet vertically or horizontally. Any staking found to exceed allowable error shall be reset at the sole expense of the Contractor and no additional compensation will be made therefore. In cases where the Contractor is unable to place a monument, such as conflicts with underground utilities, the Contractor shall notify the Engineer for review, confirmation, and approval of the omission.

All work described in this Section shall be done by or under the direction of a Professional Land Surveyor or a Registered Civil Engineer authorized to practice Land Surveying in the State of California herein referred to as "Surveyor".

The Contractor shall provide for the perpetuation and reestablishment of all survey markers (Centerline ties, property corners, survey well monuments, etc.) as part of the contract including filing documents (corner records, tie sheets, etc. with the County of Los Angeles.

B. Staking

The Contractor's Surveyor shall have all the necessary tools, materials, personnel available at the job site for setting blue, yellow and red top hubs at the time that they are set, and shall adequately reference all such stakes by setting hubs three (3) inches below subsurface.

The Surveyor shall have the option of establishing line and grade either by setting stakes to finished grade, marking the cuts and fills on the pavement, or referring to stakes, spikes, drill holes, chisel cuts, etc., on a grade sheet. Normally, stakes will be set and stationed by the Surveyor for rough grade, curbs, headers, sewers, storm drains, and structures and a corresponding cut or fill to finished grade (or flow line) indicated on a grade sheet. If the Surveyor elects to set stakes to the finished grade, the top of these stakes will be colored with blue crayon or paint. All elevations will be established with a Surveyor's level or Theodolite.

For street improvements, the Surveyor will establish rough grade elevations at 50-foot intervals along the street. After completion of the rough grading, he/she will establish elevations for curb or pavement headers. An elevation for pavement will be established at all points indicated by elevations shown on the plans. Elevations will be established at 25-foot intervals on the centerline and at all grade changes. For resurfacing over existing pavement or constructing 2 or 3 course bituminous pavement, the Surveyor will paint data on the surface of the existing pavement and/or base course and each lift to indicate the fill to finished grade at such locations and intervals as to provide adequate control for laying the wearing surface course to finished grade.

Flow line elevations will be established by the Surveyor at all changes in grade and at 25-foot intervals when the grade is greater than 0.50% and at 10-foot intervals for grades of 0.50% or less. For flow lines adjacent to curbs on grades 1.0% or over, when the curb is new and has a uniform curb face, flow line elevations will not be set on existing curbs, the grade of which may be irregular, grade points will be set at all changes in grade and at 25-foot intervals. Sufficient flow line elevations will be set to facilitate the construction of warped pavement sections or for special drainage conditions.

For integral curb and gutter, blue tops for the flow line will not be set but curb elevations shall be established at all changes in grade and at 25-foot intervals when the grade is more than 0.50% and at 10-foot intervals when the grade is 0.50% or less. In the case of integral curb and gutter with a varying curb face, grade sheets will show cuts and fills to the top of the curb or to the flow line and indicate the required curb face.

For sewers and storm drains, the Surveyor will establish elevations at 25-foot intervals along the main line, at all grade change points indicated on the plans, at inlets and outlets of structures and at the upper ends of house connections and laterals. Normally, elevations for narrow trenches will be established by means of offset stakes and a grade sheet giving cuts from such stakes will be issued. When determined necessary, blue top hubs will be set in the trench for line and grade.

Distances and measurements, except elevations and structural dimensions, are given and made on horizontal planes.

Copies of all grade sheets, cut sheets and notes shall be provided to the ENGINEER the day after survey work is performed.

C. Payment

All costs involved in meeting the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

The following works are exempted and will be paid by the appropriate bid pay items:
Perpetuation and reestablishment of survey markers such as Centerline Ties, Property Corners, Survey Well Monuments, etc.

SECTION 3 - CHANGES IN WORK

3.01 ADDITION OR DELETION OF WORK

The City may change the Plans, Specifications, character of the work, or quantity of work as indicated in the contract documents, provided the total arithmetic dollar value of all such changed, both additive and deductive, does not exceed 25 percent of the Contract Price. Should it become necessary to exceed this limitation, the change shall be agreed upon to proceed with the Change Order.

In the event work is added or deleted to the Contract, basis of payment for such addition or deletion shall be per the Contract Unit Price as indicated in the Bidding Form. All amounts shall be considered as representing the total in-place costs to include but not limited to costs for construction survey, signage and barricading, notification to adjacent businesses and residents, equipment, clean-up and protection of adjacent facilities, labor, material, overhead taxes, insurance, bonds, profit and other incidental and appurtenant work necessary for the complete improvement as shown or indicated in the plans and specifications.

SECTION 4 - CONTROL OF MATERIALS

4.01 CONSTRUCTION LIMITS AND UNAUTHORIZED REMOVALS

The exact limits of removals for construction or reconstruction of Asphalt concrete pavements, Portland cement concrete gutters, driveway aprons, curbs and sidewalks will be marked in the field by the Contractor's Surveyor in accordance with the project plans and approved by the Engineer prior to the start of saw cut and/or removal operations by the Contractor. Should the Surveyor encounter any questionable removals in the field, he/she will confer with the Engineer in the field to verify the actual limits of removal.

The actual limits of paving of each street and cross street will be marked in the field by the Contractor's Surveyor and approved by the Engineer. Should the Surveyor encounter any questionable paving limits in the field, he/she will confer with the Engineer in the field to verify the actual limits of street paving.

The Contractor shall perform his/her saw cutting operations in conformity with NPDES requirements (General Condition, Section 2.16 Water Pollution Control) and Section XI, Subsection C of the City of Glendale, Public Works Division's Excavation Permit Policy, which states, "Pavement saw cuts shall not extend beyond the boundaries for that section of pavement that is to be removed. Over cutting of pavement removals will not be accepted." Should the Contractor over cut Portland Cement Concrete pavements, and curb, then he/she shall extend the removal to the next score line or expansion joints to include that portion of the cut Portland Cement Concrete pavement or curb.

The costs involved in replacing the additional concrete pavements or curb shall be at the Contractor's sole expense.

If the Contractor over cuts Asphalt Concrete pavement, then the Engineer shall determine the new limits of removal to include the areas where the Contractor has over cut. The additional costs for pavement removal, sub-grade preparation and grading shall be at the Contractor's sole expense. The Engineer shall calculate the additional Asphalt Concrete pavement tonnage that would be incurred by the additional removal area and the amount shall be deducted from the certified weight tickets submitted to him/her during the paving operations. Any unauthorized removals (improvements or other items not designated for removal) resulting from Contractor's and/or his/her Surveyor's operations shall be replaced at the Contractor's sole expense.

SECTION 5 - UTILITIES

5.01 EXISTING SUBSTRUCTURES

The Contractor is advised that the following substructures may exist at various locations within the immediate vicinity of the project limits:

<u>Structure Type</u>	<u>Owner</u>	<u>Contact No. or Person for Exact Location</u>
Sprinkler System	Adjacent Property Owner	Resident
Traffic Signal Facilities	City of Glendale Public Works Department	(818) 548-3960
Sewer and Storm Drain Facilities	City of Glendale Public Works Department	(818) 548-3950
Storm Drain Facilities	Los Angeles County Public Works Department	(626) 458-3129
Water lines, valves, meters, manholes	Glendale Water & Power Department Water Services Division	(818) 548-2062
Water lines, valves, meters, manholes	Crescenta Valley Water District	(818) 248-3925
Water lines, valves, meters, manholes	Metropolitan Water District of Southern California	(213) 217-7726 (818) 832-2110
Electric conduits, pullboxes, vents	Glendale Water & Power Department Electrical Services Division	(818) 548-3923
Street lights, conduits, pullboxes	Glendale Water & Power Department Electrical Services Division	(818) 548-3921
Gas service lines meters and valves	Southern California Gas Company	(818) 701-3316 (323) 881-3530
Telephone conduits, and manholes	AT&T	(800) 422-4133
Cable TV Conduits	Charter Communications	(818) 547-5013
City Owned Irrigation Systems	Community Services & Parks	(818) 548-3734

It shall be the responsibility of the Contractor to determine the exact location of all substructures including their service connections prior to commencing work. The Contractor shall repair at his/her sole expense, any damage to any existing substructure caused by his/her operations. At the Owner's option, said repair may be made by the Owner, and the actual cost thereof shall be paid by the Contractor.

5.02 UTILITY LOCATIONS

The Contractor shall determine the location and depth of all utilities, including service connections, which have been marked by the respective owners and which may affect or be affected by his/her operations. The Contractor shall perform this work in a timely manner to allow the respective owners sufficient time to relocate the interfering utilities.

The Contractor shall also note that field markings made by various utilities using Underground Service Alert (USA) shall be considered as identified utilities even when they are not shown on the plans, and coordinating with Glendale Public Works Maintenance Division to identify city owned storm drain mainlines, sewer mainlines, and sewer laterals.

Two (2) working days after the conclusion of the Contractor's work at each site/location all remaining field markings related to the project made by various utilities using USA shall be removed by the Contractor as directed by the Engineer.

All field markings for underground utilities or facilities on any surface (Concrete, AC pavement, paver, grass, gravel, etc...) shall be only chalk solvent base.

Full compensation for locating utilities and removal of markings shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

5.03 LOCATION AND PROTECTION OF UNDERGROUND HAZARDOUS UTILITIES

The Contractor is hereby notified that, as specified in these Special Conditions, there are underground utilities within the construction area, which may be potentially hazardous if damaged. A hazardous substance shall be defined as one having the potential for an immediate disaster, such as, but not limited to gasoline, high-voltage electricity, fuel oil, butane, propane, high-pressure natural gas, chlorine or other chemicals.

Abandoned or inoperative utilities designed to carry hazardous substances and unidentified or unknown utilities shall be considered hazardous until determined otherwise. Whenever the Contractor is directed by the Engineer to tap those lines, the Contractor shall provide personnel specialized in this work and payment thereof will be made under the Extra Work provisions of these specifications. During all excavation operations, the Contractor will be required to exercise extreme caution and protect these utilities from damage.

At least 48 hours prior to any excavation in the proximity of those lines, the Contractor shall notify the Owners of these utilities to accurately determine the horizontal locations and depths of their potentially hazardous lines as follows, , prior to Contractor completing the potholing.

1. The Contractor shall not trench or excavate within the area where a utility known to carry a hazardous substance exists until its Owner is present and its location have been determined the Owner. The intervals between pot holes or location points shall be sufficient to determine the exact location of the line and shall not exceed the distance set forth as follows:
 - a. Excavation for highway or street construction:
The utility shall be located at intervals not greater than 25 feet for lines up to 8 inches in diameter, 50 feet for lines of 8 inches to 24 inches in diameter and 100 feet for lines greater than 24 inches in diameter.
 - b. Clearance:
If it is determined that the horizontal or vertical clearance between the utility known to carry hazardous substances and the construction limit is less than 12 inches (18 inches if scarifying), the

Contractor shall confer with its Owner. Unless the Owner elects to relocate the line or take it out of service, the Contractor shall not excavate until the line has been completely exposed by its Owner within the limits of construction.

2. Once the physical location of the utility known to carry hazardous substances has been determined, the Contractor, in cooperation with and with the concurrence of the utility Owner, shall determine how to protect and/or support the utility from damage before proceeding with this work. The Owner of the utility has the right to support and/or protect its utility at the sole expense of the utility Owner.
3. The Contractor shall notify the contracting agency, the public agency maintaining records for that jurisdiction and the Owner, if known, whenever previously unidentified or unknown underground utilities are encountered so that the location can be accurately established and made a part of the permanent sub-structure records.

Full compensation for complying with any or all of the above requirements shall be considered as included in the price bid for various related items of work, and no additional compensation will be made therefore.

5.04 EXISTING CITY'S UTILITIES/FACILITIES

The Contractor shall uncover existing utilities facilities (pull boxes, conduits, fire hydrants, water meters and valves) in conflict with the proposed improvements and notify the following agencies 48 hours prior to start of construction of various items for their locations.

1.	Water facilities	Glendale Water & Power (GWP)	(818) 548-2062
2.	Electrical facility	GWP	(818) 548-3921
3.	Fiber Optic	GWP	(818) 548-3923
4.	Street Lighting	GWP	(818) 548-4877
5.	Traffic signal facilities – Traffic Section		(818) 548-3945
6.	Crescenta Valley Water District		(818) 248-3925

The Contractor will be responsible for protecting and maintaining in place the existing conduits. Care should be taken during removal operations to determine the exact location and depth of the conduit.

Any damage caused by the Contractor must be reported immediately such that repairs to water facilities can be made by their respective owner.

Repairs to traffic signal facilities shall be done only by a licensed Traffic Signal Contractor licensed to do work in the City of Glendale. All costs for the repairs shall be borne by the Contractor and at no cost to the City.

Relocation of water or traffic signal facilities interfering with the proposed work shall be done by the Glendale Water & Power Department, Engineering Division, or Crescenta Valley Water District at no cost to the Contractor unless otherwise shown on the plans.

A. Existing Electric Facilities

1. Power Poles

A minimum of five feet of undisturbed soil shall be maintained around each power pole. Excavation in the vicinity of any power pole shall be adequately and properly shored to prevent the power pole from being undermined.

All overhead facilities must maintain proper clearance as per California State GO-95 (California Public Utilities Commission-General Code 95)

2. Electrical Vaults

These are the minimum requirements to lower the vault lids to grade:

2.1 Poured-in-place Electrical Vaults:

1. Expose the vault lid
2. Remove the vault lid (Note: Presence of a GWP safety crew is required with 48-hour in advance notice from this point on)
3. Grind the necking down to the desired elevation
4. Reset the vault lid and adjust it to the finished grade using shims
5. Form the inside opening
6. Form the outside and grout with 3-sack mix concrete (using of concrete vibrator is required)
7. GWP will remove the inside forms once the concrete is cured

Note: It shall be the contractor's responsibility to furnish and replace any damaged vault lid since GWP does have them in stock.

2.2 Precast Electrical Vaults:

1. Expose the vault lid
2. Remove the vault lid (Note: Presence of a GWP safety crew is required with 48-hour in advance notice from this point on)
3. Remove one of the extension rings
4. Reset the vault lid and adjust it to the finished grade using shims
5. Form the inside opening by plywood
6. Form the outside and grout with 3-sack mix concrete (using of concrete vibrator is required)
7. GWP will remove the inside forms once the concrete is cured

These are the minimum requirements to raise the vault lids to grade:

1. Expose the vault lid
2. Raise the vault lid using shims to the finished grade from inside (Note: Presence of a GWP safety crew is required with 48-hour in advance notice)
3. Form the inside opening by plywood
4. Form the outside and grout with 3-sack mix concrete
5. GWP will remove the inside forms once the concrete is cured

Payment for adjustments of electrical vaults lids to finished grade shall be included in the unit prices bid for "Adjust Vault to New Finished Grade" of these Specifications and no additional compensation will be made therefore. Contractor is responsible to coordinate with GWP Electric Division to adjust/relocate/replace all GWP Electric infrastructure including vaults, manholes covers, pull boxes etc.

A release agent must be used to separate asphalt from existing vault lids. All existing vault lids locations must be marked. Full compensation for complying with any or all of the above requirements shall be considered as included in the price bid for various related items of work, and no additional compensation will be made therefore.

3. Street Lighting Facilities

The Contractor shall comply with the "Street Light Clearance Procedures" included in General Conditions Exhibits of these specifications.

The Contractor will be responsible for protecting and maintaining in place the existing street lighting conduits. Care should be taken during removal operations to determine the exact location and depth of the conduit.

The Contractor is cautioned that some of the street light systems are high-voltage. Please contact Glendale Water and Power, Street Light Section at (818) 548-4877 at least 48 hours prior to the start of construction.

The City of Glendale Street Light Maintenance Crew does not work every other Friday. It is the Contractor's responsibility to determine the dates and pay for the overtime costs (four hour minimum) for the crew, if the Contractor elects to work on the crew's non-working Friday.

All costs involved in complying with these requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

B. Existing Water Facilities

1. Water Valves

1. Immediately after pavement removal or pavement grinding is performed, and prior to any street paving work being done, the Contractor shall measure and record the locations of all water valve box covers, water MH covers, and water vaults located with the paving zone.
2. In addition, the Contractor shall furnish, install and affix temporary locator markers to the center of each of the water valve box covers, water MH covers, and water vaults noted in Item 1, above. This is required to help ensure that valves will not be paved over and can be located for adjustment to grade.
3. The Contractor shall notify the Glendale Water & Power Department, Water Services Division and/or Crescenta Valley Water District in writing three (3) days prior to paving operations so that water staff can visit the site and verify that all water covers have been properly marked-out by the Contractor.
4. Adjust Covers to Grade – After the paving work has been completed, the Contractor shall raise all valve box covers, manholes and vaults to the finished grade of the paved street. Payment for adjusting covers to grade shall be included in the unit prices bid for "Adjust GWP Water Valve to New Finished Grade" and "Adjust GWP Recycled Water Valve to New Finished Grade" of these Specifications and no additional compensation will be made therefore.
5. Replacing Water Valve Boxes and Covers in Concrete – Whenever concrete removal and replacement affects existing water valve boxes and covers, or whenever a new water valve box is installed in concrete pavement, water valve box and cover shall be Tyler Union 6855 Series Cast Iron Two-Piece Valve box (Box 664-A with 5 1/4" Drop Lid) or approved equal. Payment for replacing water valve boxes and covers in concrete pavement shall be included in the unit prices bid for the various P.C.C. concrete bid item prices and/or "Replace Existing GWP Water Valve Box and Cover Set with

2-Piece Cast Iron Slip Type Water Valve Box and Cover Set" of these Specifications and no additional compensation will be made therefore.

6. Painting Water Valve Box Covers – All new and existing water valve box covers shall be painted as specified here, whether or not the valve box cover is already painted.
 - A. Distribution Valves-Blue
 - B. Transmission Valves-White
 - C. Fire hydrants Valves-Yellow
 - D. Fire line Valves-Red
 - E. Recycled Water Main Valves-Purple
7. Valve Markers – The Contractor shall furnish and install round water valve markers on the curb adjacent to all valve cover locations. The markers shall be affixed with a proper adhesive manufactured for this purpose, and shall be approved by the City prior to installation. All costs involved in furnishing and installing valve markers, including painting shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.
8. Within three (3) days after the work described in Items 4, 5, and 6 above have been completed, the Contractor shall notify the Glendale Water & Power Department, Water Services Division and/or Crescent Valley Water District in writing so that water staff can verify and approve the work done by the Contractor.

2. Reflective Fire Hydrant Markers

The Contractor shall provide and install two (2) blue reflective pavement markers at each existing fire hydrant, whether an existing marker was obliterated or not. One marker shall be placed on the top of curb, and one marker shall be placed three feet (3') toward the fire hydrant from the centerline or the median curb.

Within three (3) days after the work described in Item have been completed, the Contractor shall notify the Glendale Water & Power Department, Water Services Division and/or Crescent Valley Water District in writing so that water staff can verify and approve the work done by the Contractor.

3. Pipeline Support and Protection

The Contractor shall provide temporary and permanent supports for water mains in accordance with City of Glendale Water and Power Department, Water Division Drawing No. 1668-A and SPPWC Standard Plan No. 224-3 and 225-3.

Eighteen (18) inches of earth fill over the water pipe shall be placed prior to application of tamping equipment.

Impact, free fall, or stomping equipment will not be permitted for backfill compaction within three (3) feet of the top of water mains.

Water mains outside of the contract pay lines and lying parallel to sanitary sewer construction shall not be exposed or disturbed during construction; special precautions shall be taken by the Contractor to avoid undermining or settling of water facilities.

Contractor shall support water main, horizontally and vertically, where water main and sanitary sewer main are in close proximity during excavation of new sewer line in case of soil failure and sloughing.

The new sanitary sewer pipe per Plan No. 3-1572 is to be constructed in very close proximity to the existing 12" water main. The contractor shall take adequate precautions and provide adequate support (temporary and permanent) of the existing water main at these locations.

Proposed sewer manholes shall be constructed with a minimum of 6 inches clear distance between the outer concrete wall of the proposed sewer manhole structure and the outer wall of the existing cast iron water main.

Full compensation for complying with any or all of the above requirements shall be considered as included in the unit price bid for various related items of work and no additional compensation will be made except as otherwise specified above.

SECTION 6 - PROSECUTION, PROGRESS, AND ACCEPTANCE OF WORK

6.01 CONTRACTOR'S SCHEDULE OF OPERATIONS

The Contractor shall submit to the Engineer, prior to commencement of construction, a schedule of operations, indicating the estimated time and the method of operation required for the completion of the various portions and phases of the project. The schedule is to assure completion within the time specified. The schedule must incorporate any traffic requirements and must be in a form acceptable to the Engineer.

In addition, the following construction constraints shall be observed by the Contractor and shall be taken into consideration when preparing the schedule of operations:

1. The construction shall be limited to **ONLY** one side of the street at a time. No work shall be started on the opposite side until all work on the other side is completed. Work covered under this condition includes all underground and concrete works. Planting, landscaping and paving operations are not included in this phasing of work. All Portland Cement Concrete work shall be completed on both sides of the street before any reconstruction or resurfacing of the street can commence.
2. The construction of curbs, gutters, sidewalks, and driveway aprons shall be done on **ONLY** one side of the street at a time. Local access to all residential properties and businesses shall be provided adequately at all times. All concrete work shall be completed on both sides of the street before any reconstruction or resurfacing on the street can commence.
3. The Contractor shall replace all removed Portland cement concrete improvements and asphalt concrete pavements within 48 hours and 72 hours after removal, respectively.
4. Closure of streets for resurfacing of existing asphalt concrete pavement shall be limited to street sections that can be performed and completed in one day such that local access to residents can be provided at the end of each day. The limits of street closure are to be submitted to the Engineer for approval one week prior to start of work. Street closure during paving operations shall be limited between 9:00 A.M. and 4:00 P.M. in any given day except as noted below or as approved by the Engineer in writing. All required postings and signage shall be done in accordance with these specifications.
5. Resurfacing of the streets shall be scheduled as a continuous operation within the limits of the project.
6. The working hours near Fremont Elementary School shall start after 8:30 a.m. daily when school is in session as designated by the Glendale Unified School District. The contractor shall provide 250-foot minimum clear drop-off and pick-up zone on Las Palmas and Paloma Avenue adjacent to Fremont Elementary School. The contractor shall maintain safe and accessible path for pedestrians, free of any construction materials, debris, equipment, etc. in front of the school on Las Palmas, Paloma, Arlington, Sierra Vista, and La Crescenta Avenue at all times. The contractor shall maintain access to the gates and entrances to Fremont Elementary School.
7. The contractor shall schedule the construction of the proposed drywell systems on Las Palmas Avenue and Paloma Avenue during the school summer break between June 5, 2024 and August 16, 2024, school calendar year schedule to be confirmed by Glendale Unified School District.
8. There are several schools in proximity and adjacent to this project. The Contractor shall coordinate, in advance, all construction operations with the school officials of the affected schools. Some construction operations may have to be conducted at night, during the weekend or on holidays to minimize the impact to schools.

9. To minimize the impacts of construction to the public and avoid underground improvements near Fremont Elementary School, the Contractor shall perform the construction in a three (3) phase schedule, as described below:

PHASE 1

Sewer Improvements	La Crescenta Avenue per Plan No. 3-1572
Drywell Installations	Drywell installations near Fremont Elementary School per Plan No. 4-649
Concrete Improvements	Intersection realignments near Fremont Elementary School, at the intersections of Las Palmas/Paloma Avenue, and Sierra Vista/Arlington Avenue per Plan No. 1-3071
Bio-Retention Installations	Bio-retention installation per Plan No. 18-114

PHASE 2

Concrete Improvements	All Streets excluding those in Phase I
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PHASE 3

Street Resurfacing	All Streets
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The Contractor shall not be allowed to commence the next phase of the paving schedule unless the current paving operation is completed.

10. A minimum of one traffic lane shall be made available to vehicular traffic during construction. Vehicular traffic shall not be delayed for more than 20 minutes. At the end of each work day, two lanes of traffic (one lane in each direction) shall be restored for vehicular traffic. See Section 2.20 "Traffic Control" for more information on traffic control and public safety.

In preparing his/her bid, the Contractor shall take into account all scheduling and financial impacts of phasing the work. All costs involved in complying with any or all of the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

6.02 2-WEEK DOOR HANGER NOTIFICATION

Prior to the partial or complete closure of any sidewalk, driveway, street, parking or driving lane, or alley, the Contractor must print and distribute 2-week door hangers to every residence and/or business of at least one block in all directions from the limits of the construction.

Door hangers shall be distributed to all residential, commercial and business establishments of the street(s) where work is being performed and one block each way from the immediate area of construction not less than fourteen (14) days in advance of the construction activity.

The notice shall specify the date and nature of the proposed work fronting the property and the approximate number of days required to complete the work. The Contractor shall submit to the Engineer the notices along with a list of addresses that the door hangers to be delivered to, and the date of the notification, including the proposed construction date(s), as written on the door hanger, one week prior to the distribution of the door hangers.

Door hangers shall be printed onto card stock paper. A sample door hanger is shown in Appendix A of these Specifications. A separate written notice shall be issued to the property owners affected by the tree removal in front of their property.

If after notification, a change in the schedule of the Contractor occurs resulting in changes to the dates of closures for the street, alley or driveway, the Contractor shall be required to re-notify all the properties affected in accordance with the instructions and time requirements stated in the preceding paragraph.

The Contractor's failure to comply with the above provisions will result in the immediate stoppage of work and temporary shutdown of the project without the benefit of time extension. The Contractor shall be allowed to resume his/her operations only after such notifications have been approved.

All costs involved in complying with the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

6.03 3-DAY DOOR HANGER NOTIFICATION

The Contractor must print and distribute 3-day door hangers to every residence and/or business of at least one block in all directions from the limits of construction not less than three (3) working days prior to start of any construction.

The notices shall first be approved by the Engineer and shall specify the date(s) of closure and the approximate number of days the construction work will last.

The Contractor shall submit to the Engineer the notices along with a list of addresses that the door hangers to be delivered to, and the date of the notification, including the proposed construction date(s), as written on the door hanger, one week prior to the distribution of the door hangers.

Door hangers shall be printed onto a card stock paper. A sample door hanger is shown in Appendix A of these Specifications.

If after notification, a change in the schedule of the Contractor occurs resulting in changes to the dates of closures for the street, alley, driveway, the Contractor shall be required to re-notify all the properties affected in accordance with the instructions and time requirements stated in the preceding paragraphs.

The Contractor's failure to comply with the above provisions will result in the immediate stoppage of work and temporary shutdown of the project without the benefit of extension of time. The Contractor shall be allowed to resume his operations only after such notifications have been approved.

All costs involved in meeting the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

6.04 NOTIFICATION PRIOR TO CONSTRUCTION

The Contractor must notify the following City Divisions and utility companies three (3) working days prior to start of construction, and two (2) working days prior to all inspection services.

A. Public Works Department

Engineering Division -

- | | |
|---|----------------|
| 1. Rustom Tavitian, Project Manager | (818) 937-8326 |
| 2. Tahmasb Arasteh, Construction Inspection | (818) 548-3945 |
| 3. Yvonne Guerra, Administrative Analyst | (818) 548-3945 |

<u>Traffic and Transportation Division</u> – Pastor Casanova,	(818) 548-3945
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1. Modification of existing traffic signal facilities.
2. Installation of new traffic signal facilities.
3. Installation of new traffic striping.
4. Temporary traffic control during construction.
5. Posting of Temporary "No Parking" signs.

Integrated Waste Management – Dan Hardgrove (818) 548-3950

1. Trash pick-up routes – Six (6) days written notification prior to start of construction.

Integrated Waste Management – Alejandro Guerrero (818) 548-3916

1. Trash pick-up routes – Six (6) days written notification prior to start of construction.

Integrated Waste Management – Alejandro Guerrero (818) 548-3916

1. Street Sweeping routes – Six (6) days written notification prior to start of construction.

City of Glendale "Beeline Shuttle" – Martha D'Andrea (818) 548-3960

1. Five (5) days prior to start of construction.

Maintenance Services Division – Dan Hardgrove (818) 548-3950

1. Notify five (5) days prior to start of construction.

B. Glendale Water and Power Department

Water Services Division (818) 548-2062

1. Relocation of water meters, fire hydrants, water service connections, etc.
2. Inspection of water mains exposed in trenches.
3. Adjustment of water valve covers and water vault manholes.

Electric Services Division (818) 548-3921

1. Relocation of electric and fiber optic facilities.
2. Installation of street lighting systems.
3. Inspection of existing electric duct in trenches.

C. Parks, Recreation and Community Services Department

Chris Peplow, (818) 548-3871, 72 hours (3 days) prior to start of construction within the vicinity of their facilities.

D. Glendale Police Department

Traffic Bureau - (818) 548-3130
Patrol Operations - (818) 548-4890

E. Glendale Fire Department

Communications Center - (818) 956-4800

F. A.T. & T. / SBC

Cable Locating Service – Roger Zorn, (626) 356-7327
(800) 422-4133 (USA) Cable Locating Service

G. Southern California Gas Company

Local Distribution Center - (213) 881-3531
Distribution Section (High Pressure) – Mike Reed (818) 701-4546

Valve Adjustment Dispatch – (800) 427-2200
Emergency – (800) 433-5071

- H. Southern California Gas Company
North Basin Transmission Division - (818) 701-4546
Two (2) working days before start of construction
- I. Underground Service Alert - (800) 422-4133 or Encino Office (818) 788-1552
(Gas Company personnel must be present during construction in the vicinity of their facilities)
- J. Metropolitan Transportation Authority
Fran Louis - Stops and Zones Representative (323) 922-6726
Special Event Dispatcher – (213) 922-4632
48 hours before the start of construction
- K. Charter Communication - Jim Reick (818) 847-5013
- L. Crescenta Valley Water District – Christina Kopelman (818) 248-3925
Peter Hilke (818) 521-8566 for inspection
David Rawlings (626) 319-1138 for inspection
- M. Metropolitan Water District of Southern California (MWD)
David Porter, Operations Division, (818) 360-6810, 72 hours prior to the start of construction
- N. MCI Worldcom – Local One Call System
Marco Gonzalez, (972) 656-6016
- O. Dial-A-Ride - (818) 247-0691, 48 hours prior to the start of construction
- P. Glendale Unified School District – (818) 241-3111
Hagop Kassabian – Facility and Support Operations – (818) 507-0201
John C. Fremont Elementary School – Vickie Atikian (Principal) (818) 249-3241
- Q. U. S. Postal Service – Glendale Main Office
Lisa Ball or Eileen Manus, (818) 265-9261

All costs involved in meeting the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

6.05 MISCELLANEOUS REQUIREMENTS

A. Trash Collection

The Contractor must organize and/or schedule his/her work in such manner that trash collection on scheduled pick-up days may be performed without hindrance. Information regarding refuse pick-up days may be obtained by calling (818) 548-3916. The Contractor shall provide written notification to the Glendale Sanitation Section at least six (6) days in advance of starting any work on any given street.

B. Department of Community Development and Housing Requirements

1. To minimize any temporary construction impacts on the neighborhood, the Contractor shall ensure that parking for construction workers is confined to within the project site unless other arrangements have been made and approved by the Engineer to accommodate the project - generated additional parking.
2. The Contractor is required to maintain fencing, barricades, signs, restrooms and construction equipment at the construction site free of graffiti at all times.
3. Upon completion of work in any specific street or location, the Contractor shall remove any survey, site or reference markings that have been painted or inked into any curb, street, sidewalk or any other permanent feature on site.
4. During construction, the Contractor shall maintain landscaping, sidewalks and parkways in and around the project site in a clean and proper manner. If pedestrian or vehicular access is obstructed, alternate paths of travel shall be provided, maintained and identified.

All costs involved in complying with any one or all of the above requirements shall be included in the unit prices bid for the various related items of work, and no additional compensation will be made therefore.

6.06 FIRE DEPARTMENT REQUIREMENTS

The Contractor shall provide a continuous clear access to the existing fire hydrants along the construction route with a minimum 20-foot space required for fire apparatus hook-up at hydrants.

The Glendale Fire Department shall be given priority access to any given structures at any time.

The Contractor shall notify the Glendale Fire Department Communications Center at (818) 956-4800, of his/her construction location, on a daily basis.

6.07 PROJECT SIGNAGE REQUIREMENTS

The Contractor must provide two (2) - 4' x 4' project signs per location as shown in Appendix A of these Specifications. The signs shall be installed at the beginning and end of each project location at least one (1) week prior to the start of construction. Each sign shall contain the summarized project name, the approximate month and year when construction will be in progress, other wordings required by the Engineer, and the colored Public Works logo (provided by the City). The sign shall be fastened to a 4" x 4" x 12' S4S wooden post using at least two (2) lag bolts with washers and shall be installed not be less than seven (7) feet above the ground. The lag bolts shall have a minimum diameter of 3/8". The exact location of the project sign shall be determined by the Engineer. The project signs may be installed on other types of platforms, upon approval of the Engineer.

The project sign shall be approved by the Engineer as to form, content and letter size prior to fabrication.

It shall be the Contractor's responsibility to maintain and to keep the project signs legible and free of graffiti. After the project is completed, the Contractor shall remove and dispose of all project construction signs.

Changeable Message Signs may be required on arterial streets and at the discretion of the Engineer.

Changeable Message Signs (CMS) will be required for this project. Ten (10) CMS shall be installed along the project location and side streets, at least four (4) weeks in advance of construction start.

Location of the CMS in the City of Glendale:

1. On northbound La Crescenta Avenue at North Verdugo Road
2. On northbound La Crescenta Avenue at Shirleyjean Street
3. On northbound La Crescenta Avenue at Roselawn Avenue
4. On northbound La Crescenta Avenue at Honolulu Avenue
5. On northbound La Crescenta Avenue at Montrose Avenue
6. On southbound La Crescenta Avenue at Montrose Avenue
7. On southbound La Crescenta Avenue at Honolulu Avenue
8. On southbound La Crescenta Avenue at Shirleyjean Street
9. On southbound La Crescenta Avenue at Roselawn Avenue
10. On southbound La Crescenta Avenue at Las Palmas Avenue

The CMS board shall have the 3 changeable message screens/display/phases, minimum 3 lines per screen, each line minimum 10 characters/letters to program.

All cost involved in fabrication, maintenance and meeting the above requirements shall be included in the unit prices bid for various items of work, and no additional compensation will be made therefore.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7.01 TRAFFIC CONTROL AND BARRICADING

All work relating to Traffic Control and Barricading shall conform to the latest edition of the California Manual on Uniform Traffic Control Devices (MUTCD) or Work Area Traffic Control Handbook (WATCH), whichever requirements are more stringent", including the following additional requirements:

A. Traffic Control Plans

Seven (7) copies of a construction area traffic control plan and/or seven (7) copies of a channelization plan for construction or storing of materials in the public right-of-way, prepared by, or under the supervision of a Traffic Engineer licensed in the State of California, shall be submitted by the Contractor to the Engineering Division for review and approval three (3) weeks prior to the commencement of any work. The Engineering Division shall be notified on a daily basis of the locations and times for the use of public right-of-way.

B. Installation of "Temporary No Parking" Sign Guidelines

- a. The Contractor shall be given a sample copy of the "Temporary No Parking" sign. It is the Contractor's responsibility to duplicate or reproduce the necessary amount of signs needed to complete the construction of the project. The printed signs shall be approved by the City of Glendale, Engineering Division, 633 E. Broadway, Room 205. Unauthorized duplication or use of the signs is prohibited.
- b. All "Temporary No Parking" signs must be clearly marked in Black or Blue ink or marker (1/4" min. thickness) and must match with the information received upon verification by the Police Department.
- c. Spacing for the "Temporary No Parking" signs shall be approximately thirty five (35) feet apart. In areas with parking meters, each applicable meter post shall have a separate sign. These signs shall be attached to the parking meter pole only. Posting signs on the meter heads is not permitted.
- d. The "Temporary No Parking" signs shall be affixed to poles, posts street light standards, trees delineators, or barricades. These signs shall be placed at a height that allows the driver of a standard size automobile to clearly observe the signs. **Only plastic band, string, rope or other type of fastener shall be used.** The use of nails, tape, glue, and other adhesive is prohibited on City of Glendale property. The "Temporary No Parking" signs must be posted so that the sign is flat and legible.
- e. In areas where there are no poles, light standards or trees, "Temporary No Parking" signs shall be displayed by securing the signs on barricades or delineators to be provided by the Applicant/Contractor installing the signs. Signs must be placed 3' from the curb or roadway.
- f. All posting of "Temporary No Parking" signs shall be completed **30 hours prior to the start time indicated on the "Temporary No Parking"**. Upon completion of the posting of the signs, the Applicant/Contractor MUST notify the Glendale Police Traffic Bureau at (818) 548-3130 in order to verify correct posting of the signs. Police verification shall occur Monday through Friday 8:00 am to 4:00 pm. No Police verification is available on Saturdays, Sundays or City holidays.

- g. Police enforcement of the "Temporary No Parking" signs shall occur 24 hours after the approval of the posted signs by the Glendale Police Traffic Bureau.
- h. "Temporary No Parking" signs shall only be valid for a period of seven (7) consecutive days. Additional days will require posting of new signs, verification and approval by the Glendale Police Traffic Bureau.
- i. **At no time shall the "Temporary No Parking" signs be re-used, altered, moved or changed in any manner.** Any changes made to these signs will void all enforcement for the area posted.
- j. Any "Temporary No Parking" sign used for construction purposes shall only be posted for the hours as defined in Section 8.36.080 Glendale Municipal Code. Deviation in work hours must be approved in writing by the Engineer of Public Works prior to posting.
- k. The Applicant/Contractor shall be responsible for assuring that the signs remain posted and are legible. In addition, it is the Applicant/Contractor's responsibility to remove all signs and posting materials immediately after the expiration of the posted time.
- l. "No Parking" signs may not be re-used by eliminating, adding to or altering any of the dates, times, reasons or other information originally entered on the signs.
- m. The City of Glendale reserves the right to require removal or to remove any posted "No Parking" signs without notice.
- n. The Contractor shall be responsible for covering all posted traffic signs relating to the parking restrictions within the immediate vicinity of their operations. After covering of the signs have been completed, the Contractor shall immediately notify the City's Traffic Section at (818) 548-3960 and the Glendale Police Traffic Bureau at (818) 548-3130.

C. Access

The Contractor shall maintain access to all properties/business establishments at all times throughout the duration of the contract. The Contractor is responsible for providing ramps and/or steel plates to maintain access to driveways.

Minimum travel lane width shall be ten (10) feet at all times.

Should access to any establishment have to be closed due to construction constraints, the Contractor shall first notify the Engineer one week before closing such access in order to determine whether alternate access or parking is available. When construction activity impacts street parking and/or access, Contractor's plan and limit of work must consider availability of parking nearby to accommodate parking spaces lost due to construction activity, as well as provide reasonable walking distance to residents/businesses.

D. Special Conditions

All work shall conform to CALTRANS "Manual of Traffic Controls for Construction and Maintenance Work Zones, 1990".

- 1. Where existing centerline delineations are obscured, damaged, removed or reflectivity reduced, or where detours or temporary traffic lanes have been created through the construction zone, the

contractor shall place temporary centerline delineation at the end of each working day and shall maintain such delineation until permanent striping is placed.

2. During the construction, no portion of streets within the project area shall be left without proper channelization. Temporary reflectors shall be used to identify lane geometry.
3. The Contractor shall have all proposed hauling routes approved by the Traffic Section prior to the start of construction.

E. Traffic Control Plan Requirements

Within one week of receiving Notice of Award, the contractor shall meet the Traffic Engineering staff to discuss the proposed traffic control plan and construction phasing. This meeting will allow the design engineer to become aware of unusual traffic conditions and concerns in the construction area, as well as available data (such as existing striping plans) that may expedite the design and approval process. Preparing the **construction traffic control plan (CTCP)** without the initial consultation could result in additional submittals for further plan check and delay for approval. CTCP submittal will require a minimum **three** weeks review period for the first and second submittals. The design engineer should plan accordingly.

The CTCP shall include the following items:

1. The CTCP shall be prepared under the supervision of and signed by a registered Professional Civil Engineer or Traffic Engineer licensed to practice in the State of California.
2. The CTCP shall be consistent with the principles and techniques put forth in the latest edition of the Work Area Traffic Control Handbook (WATCH), the Manual of Uniform Traffic Control Devices (MUTCD), and the MUTCD California Department of Transportation (Caltrans) MUTCD Supplement, whichever requirement is more stringent.
3. The CTCP shall be drawn on 24" x 36" size paper, unless permission is given by the Traffic Engineering staff to print on a different paper size.
4. The CTCP shall be drawn in ink. Pencil is not acceptable. Computer Aided Design (AutoCad) drawings are the preferred submittal.
5. General notes, to be provided by Traffic Engineering staff, shall be included on the CTCP. Additional notes may be added to the CTCP to handle special conditions.
6. The CTCP shall be drawn at a scale of 1"=40', unless permission is given by the Traffic Engineering staff to print at a different scale.
7. The CTCP must clearly depict the exact sequence of the basic construction operations, the anticipated duration of each phase. Multiple phases of construction shall require a separate CTCP for each construction phase.
8. The CTCP shall include all existing striping within the project.
9. All traffic signals within the project area shall be identified on the CTCP. Construction-related temporary traffic signal modifications or temporary signal re-timing shall be included in the CTCP.

10. All existing regulatory, warning, and guide signs within the project area shall be shown. Signs to be covered (bagged) shall be identified.
11. A traffic detour signing plan shall be required for all detours.

F. Temporary Changes

All temporary changes to traffic signs, curb markings, striping and pavement markings shall be completed by the Contractor, and returned to their original condition by the Contractor, whether required by the Contractor's Traffic Control Plan, general construction activities, or the City's traffic safety requirements. This shall include, but not be limited to:

1. Traffic signs which are temporarily covered or removed;
2. Curb markings which are changed, added or removed; and
3. Traffic striping and pavement markings which are changed, added or removed.

The striping shall be removed by sandblasting, grinding or other methods approved by the Engineer.

All costs for providing and maintaining traffic control and barricading and complying with all of the above requirements shall be included in the unit prices bid for the various related items of work, and no additional compensation will be made therefore.

7.02 STORAGE OF MATERIALS AND EQUIPMENT

It shall be the Contractor's responsibility to obtain adequate storage sites for his/her materials and equipment. If any of these site(s) are located within the City limits, the Contractor shall so advise the Engineer. All such site(s) shall be maintained to the satisfaction of the Engineer so as to not create a public nuisance during or after their use. The subject site(s) will be the only location for the Contractor's plant and storage of materials and equipment. The use of alternate location(s)/site(s) will require prior approval by the Engineer. The Contractor's operation and use of storage yards shall be consistent with the General Provision Article 1.13 of these Specifications.

All costs involved in complying with these requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

7.03 TEMPORARY WATER METER

The Contractor shall obtain and install a temporary water meter from the Glendale Water & Power Department, Water Services Division, (818) 548-2062, prior to drawing water from a fire hydrant. Drawing of water from a fire hydrant without a temporary water meter is prohibited and the Contractor is subject to Police citation.

All costs involved in complying with these requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

7.04 MAINTENANCE OF EXISTING DRAINAGE

The Contractor shall be responsible for maintenance of all existing street drainage. All costs involved in the maintenance of existing street drainage shall be included in the unit bid for the various related items of work and no additional compensation will be made therefore.

7.05 WORKING IN CONFINED SPACES

The Contractor will be required to follow CAL/OSHA safety work procedures when working in confined spaces in accordance with Title 8, California Administrative Code, General Industry Safety Order Article 108, Section 5156 – Confined Spaces. The Contractor shall provide special equipment such as lifeline harness system, breathing apparatus, gas detection devices, safety training of workers, and record keeping system.

Prior to start of construction, the Contractor shall submit for approval by the Engineer a written confined space safety program.

All costs involved in meeting the above requirements shall be included in the unit prices bid for the various related items of work and no additional compensation will be made therefore.

7.06 COOPERATION AND COLLATERAL WORK

The Contractor is hereby advised that other Contractors may be performing work at these same areas of work. The Contractor shall cooperate and coordinate his activities with these other Contractors.

The Contractor shall be responsible for ascertaining the nature and extent of any simultaneous, collateral, and essential work by others. The City, its workers and contractors and others, shall have the right to operate within or adjacent to the Project during the performance of work.

The Contractor shall coordinate operations and cooperate with the other forces to minimize interference.

The Contractor shall include in its Bid all costs involved as a result of coordinating its work with others. The Contractor shall not be entitled to additional compensation for damages resulting from such simultaneous, collateral and/or essential work. If necessary to avoid or minimize such damage or delay, the Contractor shall redeploy its work force to other parts of the Project.

Should the Contractor be delayed by the City, and such delay could not have been reasonably foreseen or prevented by the Contractor, the Engineer shall determine the extent of the delay, the effect on the Project, and any extension of time.

7.07 CONTRACTOR'S REPRESENTATIVE

Before starting work, the Contractor shall designate in writing, a representative who shall have complete authority to act for it. An alternative representative may also be designated. The representative or alternate shall be present at the Project whenever work is in progress, or whenever actions of the elements necessitate its presence to take measures necessary to protect the Project, persons or property. Any order of communication given to this representative shall be deemed delivered to the Contractor. A joint venture shall designate only one representative and alternate.

The absence of the Contractor's representative to perform these responsibilities is a justifiable cause to stop the work without the benefit of extension of time for the Contractor.

SECTION 8 - FACILITIES FOR AGENCY PERSONNEL

(NOT USED)

SECTION 9 - MEASUREMENT AND PAYMENT

9.01 ITEMS FOR "BIDDING PURPOSES ONLY"

The quantity of items marked with an asterisk (*) shown in the Bidding Schedule Tabulation are for bidding purposes only. The Engineer shall determine the exact locations and quantities, if any, where the above items will be needed. The Contractor shall be paid for actual quantities used, if any, at the unit prices bid if the items were required by the Engineer.

9.02 FINAL PAY ITEMS

Bid Items marked with an "(F)" in the Bid Proposal shall be considered Final Pay quantities, unless the quantity or plans are revised by the Engineer, or the item or any portion of the item is eliminated. If the plans are revised, the quantity will be increased or decreased by the amount calculated by the change. If a Final Pay item is eliminated, the quantity will be eliminated. If a portion of the Final Pay item is eliminated, the Final Pay quantity will be revised in the amount represented by the eliminated portion of the item of work.

The estimated quantity for each item of work designated as "(F)" in the Bid Proposal shall be considered an approximated quantity only, and no guarantee is made that the quantity which can be determined by computations, based on the details and dimensions shown on the plans, will equal the estimated quantity. No allowances will be made in the event that the quantity based on computations does not equal the estimated quantity in the Bid Proposal.

In case of discrepancy between the quantity shown in the Bid Proposal for a final pay item and the quantity or summation of quantities for the same item shown on the plans, payment will be based on the quantity shown in the Bid Proposal.

9.03 PAYMENT BASED ON CERTIFIED WEIGHT TAGS

For the payment purposes, the Contractor shall provide the Engineer with a copy of certified weight tickets (Weighmaster's certificate of Weight and Measure) for the following items:

1. Asphalt Concrete (AC) Pavement, including variable thickness leveling course and Asphalt Concrete (AC) base course
2. Asphalt Rubber Hot Mix (ARHM) Pavement
3. Temporary Asphalt Concrete (AC) Pavement
4. Crushed Aggregate Base (CAB)
5. Crushed Miscellaneous Base (CMB)

SECTION 10 - TRAFFIC SIGNAL, SIGNING, AND STRIPING

10-1	GENERAL
10-2	TRAFFIC SIGNAL, WATER SERVICE, AND STREET LIGHT CONDUITS
86-1	GENERAL
86-2	MATERIAL AND INSTALLATION
86-3	CONTROLLER ASSEMBLIES
86-4	TRAFFIC SIGNAL FACES AND FITTINGS
86-5	DETECTORS
86-6	LIGHTINGS
86-7	REMOVING/REINSTALLING OR SALVAGING ELECTRICAL EQUIPMENT
86-8	PAYMENT FOR LUMP SUM PRICE ITEMS
86-9	BATTERY BACKUP SYSTEM (BBS)
86-10	VIDEO DETECTION SYSTEM/VEHICLE DETECTION SENSORS
86-11	CLOSED CIRCUIT TELEVISION (CCTV) (NOT USED)
86-12	FIBER OPTIC CABLES
86-13	IP VIDEO ENCODER MPEG4 (IPVE) (NOT USED)
86-14	LAYER 2 GIGABIT ETHERNET SWITCH TYPE 2 (GigE)
86-15	REMOTE COMMUNICATIONS MODULE & SERVER
86-16	17-INCH DIAGONAL RACK MOUNT LCD MONITOR
SECTION 310	STRIPING AND PAVEMENT MARKINGS
SECTION 312	SIGNS

SECTION 10

TRAFFIC SIGNAL, SIGNING & STRIPING

10.1 GENERAL

The text of Section 307 of the Standard Specifications for Public Works Construction is hereby deleted and replaced with the following:

All equipment, materials, and components for traffic signal, and communication systems, and the installation thereof, shall conform to the Caltrans Standard Plans, dated 2015 and Caltrans Standard Specifications, Section *86, "Signals and Lighting," dated January 2010, except as noted in the Special Provisions and on the Plans. Copies of these documents are available from Caltrans, Office of Business Management Material Operation Branch, 1900 Royal Oaks Drive, Sacramento, CA 95815.

Wherein Section 86 reference is made to other sections of the Caltrans Standard Specifications, these sections are hereby included unless otherwise specified.

Wherein Section 86 reference is made to Section 4-1.03D, it shall mean Section 3-3 of the Standard Specifications for Public Works Construction and its supplement and these Special Provisions.

The following special provisions are supplementary and in addition to the provisions of the Caltrans Standard Specifications, and are only called out if elaborations, amendments, specifying of options, or additions are required.

10.2 TRAFFIC SIGNAL, WATER SERVICE, AND STREET LIGHT CONDUITS.

The Contractor shall uncover existing water, street lights and traffic signal facilities (pull boxes, conduits, fire hydrants, water meters and valves) in conflict with the proposed improvements and notify the following agencies 48 hours prior to start of construction of various items for their locations.

- a) Water facilities – Glendale Water and Power Department (818) 548-2062
- b) Traffic signal facilities – Engineering Division (818) 548-3945
- c) Street light facilities – Glendale Water and Power Department, Street Lighting (818) 548-4877

The Contractor shall be responsible for protecting and maintaining in place the existing conduits. Care should be taken during removal operations to determine the exact location and depth of the conduit. Any damage to the conduit done by the Contractor must be reported immediately so that repairs can be made.

All costs for the repairs shall be borne by the Contractor.

86-1 GENERAL

86-1.03 Cost Break-down. The Contractor is required to submit the cost break down for the traffic signal work 7 calendar days after receiving the Notice of Intent to Award.

86-1.04 Equipment List and Drawings. The street lighting and traffic signal equipment list shall be submitted to the Engineer within ten (10) working days after the date of the Notice to Proceed.

Materials lists, manufacturer's data, brochures, technical data, etc., shall be labeled and identified, and shall be submitted in bound booklet form.

The Contractor shall retain one copy of all approved material lists and samples at the job site, readily accessible for inspection by the Engineer. Said materials lists and samples shall be the basis for approval or rejection of work.

86-1.05 Warranties, Guarantees, and Instruction Sheets. The Contractor shall guarantee the entire work constructed by him under this contract and will fully meet all requirements as to quality of workmanship and materials furnished by him. The Contractor shall make, at his own expense, any repairs or replacements made necessary by defects in workmanship or materials furnished by him that becomes evident within one (1) year after filing of the Notice of Completion of the work and to restore to full compliance with the requirements of these specifications, any part of the work which during the one (1) year period is found to be deficient with respect to any provision of the plans and specifications. The Contractor shall make all repairs and replacements promptly upon receipt of written orders from the Engineer. If the Contractor fails to make the repairs and replacements promptly, the City may do the work and the Contractor and his surety shall be liable to the City for the cost.

Whenever any work is to be guaranteed or maintained by a manufacturer, supplier, or subcontractor, said obligation shall be that of the Contractor.

All guarantees shall be in writing and delivered to the Engineer by the Contractor prior to final acceptance of the work.

86-1.06 Maintaining Existing and Temporary Electrical Systems. All work and materials required to keep the existing traffic signal and highway safety lighting systems operational will be considered as included in the lump sum prices bid and no additional compensation will be allowed therefore. Such work and materials may include, but shall not be limited to, overhead and underground temporary wiring, if applicable.

Where the Contractor-installed facilities are damaged prior to final acceptance by the Engineer, the Contractor shall repair or replace such facilities at the Contractor's expense.

The Contractor shall receive approval to shutdown any traffic signal system 48 hours in advance from the Engineer. Traffic signal system shutdowns shall be limited to periods between the hours of 9:00 a.m. and 3:00 p.m.

The Contractor shall place one "Stop Ahead" and one "Stop" sign for each direction of traffic to direct vehicle and pedestrian traffic through the intersection during traffic signal system shutdown. Temporary "Stop Ahead" and "Stop" signs shall be either covered or removed when the system is turned on. Location of the signs shall be as directed by the Engineer. In addition, the Contractor shall furnish additional traffic control if required by the Engineer.

"Stop Ahead" and "Stop" signs shall be furnished by the Contractor and shall conform to the provisions in Section 12-3.06, "Construction Area Signs," of the State Standard Specifications except that the base material for the signs shall not be plywood.

86-1.07 Scheduling of work. The Contractor shall order poles and all associated traffic signal equipment immediately after the receipt of the Notice to Proceed. A complete submittal of material order and delivery schedule is required.

In addition, the Contractor shall erect signal and luminaries standards within three weeks from the day when foundations are installed unless approved otherwise by the Engineer. If standards cannot be installed within the previously mentioned time limit, temporary asphalt shall be placed in all excavated areas to provide adequate and safe access for pedestrians. The cost for placing and removing temporary asphalt shall be included in the Contract lump sum price and no additional compensation will be allowed.

86-2 MATERIALS AND INSTALLATION

86-2.01 Excavating and Backfilling. All excavation and backfill shall conform to Caltrans Standard Specifications, except as noted for City of Glendale trench resurfacing detail 25-153. Excavation pits shall not be in walkways or continuation/elongation of private walkways into the public right-of-way.

86-2.02 Removing and Replacing Improvements. All shall apply.

86-2.03 Foundations. Portland cement concrete shall conform to Section 90-2, "Minor Concrete," of the Caltrans Standard Specifications.

Flyash substitutes and/or admixtures shall not be permitted.

All cast-in-drilled-hole foundations for traffic signal standards excluding Type 1 pole foundations, a hole the same size as the pole foundation shall be drilled and filled with one-sack slurry and re-drilled the following day for the actual pole foundation.

86-2.04 Standards, Steel Pedestals, and Posts. In addition to identifying each pole shaft as detailed on Caltrans Standard Plan RSP ES-1C, the Contractor shall also identify each mast arm for both signals and luminaries. The stamped metal identification tag shall be located on the mast arm near the connection plate and shall contain the same information required on the pole shaft.

Where the Caltrans Standard Plans refer to the side tenon detail at the end of the signal mast arm, the applicable tip tenon detail may be substituted.

Decorative Poles: (NOT APPLICABLE)

All traffic signal and luminaire standards shall be Type WR5, manufactured by Ameron, or Type P16-B864 manufactured by Union Metal Corporation or equivalent. Vehicles and luminaire mast arms shall be straight. Vehicle mast arms shall be mounted with flange to accept the specially made internally illuminated street name signs. Signal standards and equipment shall be painted "Midwest Brown". The City of Glendale will maintain the integrity of the painted signal equipment after installation and acceptance of project. This requirement shall apply to the following intersections:

- Not Applicable

Standard Caltrans Poles:

All traffic signal and luminaire standards shall be the State of California Department of Transportation standard poles. Signal standards, mast arms, posts and other ferrous materials shall be galvanized as provided in Section 86-2.15 'GALVANIZING' of the Standard Specifications, State of California Department of Transportation. This requirement shall apply to the following intersections:

- Not Applicable

86-2.05 Conduit. Conduit shall be rigid PVC Schedule 80 conforming to the requirements in the UL Standard for Rigid Non-Metallic Conduit (Publication UL 651), except when existing metal conduit runs are to be modified or extended, conduit of the same material only shall be used. All conduit installed beneath railroad tracks shall be Type 2 conduit per Section 86-2.05A of the Caltrans Standard Specifications. Street lighting conduit shall be Type 1, rigid galvanized steel, unless otherwise noted on the plan. Electrical service conduit shall be Type 1, rigid galvanized steel, unless otherwise noted on the plan.

All conduits with 2 inch or less diameter shall be installed at a minimum depth of 36 inches below grade in the pavement and at connections with 24"x36"x36" pull boxes, and minimum 24 inches below grade in the sidewalks. All conduits with 3 inch diameter shall be installed at a minimum depth of 36 inches below grade at all locations. All conduits with 4 inch diameter shall be installed at a minimum depth of 60 inches below grade at all locations. All conduits shall have a minimum 2 foot radial clearance from all existing utilities.

All fiber optic conduits shall be installed to a depth of not less than 36 inches below finished grade in all areas. All conduits (traffic signal or fiber optic) installed beneath railroad tracks shall be installed to a depth of not less than 5 feet below bottom of tie.

All copper conductor and cable conduit runs shall have no more than a total of three 90 degree bends or two 90 degree bends and two 45 degree bends. All fiber optic conduit runs shall have 3 foot radius sweeps and 90 degree bends into pull boxes.

All traffic signal conduit ends shall terminate 3 inches above the gravel surface and 9 inches minimum clearance between the top of the bushing and the top of the pull box shall be provided. In addition, conduits shall be terminated at 90 degrees to the

ground level. Conduit ends shall have bell or end bushing and be sealed with oakum after conductors are installed.

All fiber optic conduits shall have pull rope and a green #10 AWG copper tracer wire. Fiber optic conduit ends shall have bell or end bushing and be sealed with oakum after fiber optic cables are installed.

Metal conduit couplings shall be threaded or compression type. Thread less connections or threaded coupler with two bolts as a clamp will not be allowed.

All conduit runs may be installed by open trenching, directional boring, jacking or drilling methods unless otherwise noted on the plan. Open trenching, directional boring, jacking, or drilling methods shall not begin or terminate in walkways or continuation/elongation of private walkways into the public right-of-way. No additional compensation will be granted to the Contractor for using one method over the other.

86-2.06

Pull Boxes. Pull boxes shall be made of pre-cast reinforced Portland cement concrete (PCC) or Polymer Concrete. All reinforced PCC pull boxes shall be provided with polypropylene cap with ultra violet inhibitor as manufactured by OES Concrete Product or approved equal. All Polymer Concrete pull boxes shall be as manufactured by Armorcast Products Company or approved equal.

All traffic signal pull boxes shall be No. 6E unless shown otherwise on the plan. All fiber optic pull boxes shall be No. 6E unless shown otherwise on the plan.

Lift pins on all fiber optic pull box covers shall be stainless steel. All traffic signal and signal interconnect pull box covers shall be marked "TRAFFIC SIGNAL" unless otherwise noted on the plan. All fiber optic pull box covers shall be marked "FIBER OPTICS" unless otherwise noted on the plan.

Pull boxes shall be installed no less than 1 foot from any existing, proposed or future (as shown on plans) wheelchair ramp and no less than 3 feet from any existing, proposed or future (as shown on the plans) traffic signal pole unless approved by the Engineer in the field. Pull boxes shall not be placed in walkways or continuation/elongation of private walkways into the public right-of-way. All pull box locations shall be approved by the Engineer in the field prior to installation.

86-2.07A

Auxiliary AC Outlet for Traffic Signal Controller Cabinet Assembly. The Auxiliary AC Outlet shall consist of the following materials and specifications:

Installation of one (1) single-gang, metallic electrical outlet box, insulating cable bushing, one (1) heavy duty 20amp, 125VAC duplex electrical power outlet receptacle, and cover. Installation of 2-conductor #12AWG cable with integral ground conductor from outlet box to main cabinet power terminals and a 20 amp in-line fuse.

The new outlet box should be located on the rear, lower- right side of the Traffic Signal Cabinet and not conflicting with any other equipment. The single-gang electrical box shall be rigidly attached to cabinet with minimum of two (2) sheet metal screws, and without piercing exterior of cabinet. Installation shall include all materials required for a fully functional auxiliary power outlet.

Materials List:

- One(1) Single gang metallic electrical box
- One (1) metallic duplex outlet cover
- One (1) insulation bushing/fitting
- One (1) 20A, 125VAC heavy duty, commercial grade duplex electrical power outlet
- One (1) 2-conductor, #12 AWG cable w/ integral ground wire (Approx. Length = 18 in.)
- One (1) 20 amp in-line fuse
- Minimum 2 sheet metal screws

86-2.08 Conductors. Splicing of individual signal cable shall be made in signal standard terminal blocks and in controller cabinets only. A minimum of three feet of slack shall be provided in each pull box and on loop cable in the controller cabinet.

Splices of individual conductors and drain wires for street name signs and safety lighting shall be done in the pull box only. Splices shall be per method "B" as shown on Caltrans Standard Plan RSP ES-13A.

86-2.08A Conductor Identification. In addition to the section listed in the Caltrans Standard Specifications, the following is added:

At the controller cabinet, all cables shall be marked per pole as shown on the conductor schedule (A, B, C, D, E, etc)

86-2.08B Multiple Circuit Conductors. The insulation for multiple circuit conductors shall be Type THW polyvinyl chloride.

Multiple conductors for all traffic signal phases terminating in the controller cabinet output file shall be terminated in crimp style terminated lug. If more than 2 conductors need to be terminated at the same location, the screw type-clamping lug shall be used for that terminal.

86-2.08E Signal Interconnect Cable. All Signal Interconnect cable shall be removed per the direction of the engineer if encountered at no additional cost.

86-2.09 Wiring. Splices shall be Type C insulated by Method B as shown on State Standard Plan RSP ES-13A.

86-2.10 Bonding and Grounding. Bonding and grounding jumpers shall be visible after cap have been poured on foundations.

86-2.11 Service. Electrical service equipment installation and conduit run details shall meet the City of Glendale Water and Power Department requirements and the appropriate sketch in Appendix "E". Conduits used for electrical service shall be rigid galvanized steel or PVC as shown on the plan. When PVC conduits are used, they shall be provided with concrete encasement per Glendale Water and Power Department requirements. **The contractor shall furnish and install service cabinet type (Model USP16) manufactured by Meyers Pacific Utility Products and meeting the requirements of Section.** The Contractor shall be responsible for all service details, and scheduling far in

advance of need. The Contractor is encouraged to work on service cabinets and their associated conduits and pull boxes prior to receiving signal equipment.

The Contractor is required to pay all service connection fees and provide inspection release form once installation is complete. For more information, please contact the Glendale Water and Power Department, Mr. Victor Pacheco at 818-550-4591.

Service equipment wiring shall consist of 120/240V with 120V unmetered luminaires, traffic signal, and illuminated street name sign equipment. Circuit breakers shall be rated 50 amps for the traffic signals, 30 amps for the highway safety lighting, and 15 amps for illuminated street name signs.

86-2.12 Testing. The text of Subsection 86-2.14 is hereby deleted and replaced by the following:

Attention is directed to Section 4-1, "Materials and Workmanship" of these Special Provisions. The first paragraph of Section 86-2.14A, "Materials Testing," of the Caltrans Standard Specifications is superseded by the following:

Controller assemblies, units and auxiliary equipment including wiring diagrams and manuals, shall be delivered to the City's maintenance contractor. Contractor to coordinate with City for the exact location and address of maintenance contractor.

The cost of testing controller cabinet and assemblies shall be paid by the Contractor. The cost of picking up and delivering the controller cabinets for testing shall be included in the contractor's lump sum bid.

Whenever the term "State" is used in Section 86-2.14A, "Materials Testing," it shall be understood to mean and refer to the agency specified by the Engineer.

The cost of subsequent testing for failed material shall be paid by the Contractor.

86-2.13 Painting. All paint shall be furnished by the Contractor. (NOT APPLICABLE)

Paint shall be Ameron Amershiel "Midwest Brown" gloss finish for the following intersections:

- Not Applicable

The Contractor shall furnish a color chip to the Engineer for approval. New and used traffic signal equipment to be painted "Midwest Brown" shall include vehicle head housing, pedestrian signal head housings, back faces of backplates, internally illuminated street name sign frames, luminaires, pedestrian push button units, anchor bolts and washers, video detection camera riser arms, CCTV camera mounts, controller cabinets and service cabinets.

All new signal standards, luminaire standards, mast arms and pedestrian push button posts shall be painted Ameron Amershiel "Midwest Brown" gloss finish by the manufacturer. The Contractor shall furnish a color chip to the Engineer for approval prior to manufacturer painting equipment. The front face of the back plates and the

inside surface of the signal visors shall be painted black. The paint for equipment shall be aliphatic polyurethane. All painting systems for exterior application shall be supplied by the same manufacturer to ensure compatible protective coating system and color material.

Poles shall be handled in a manner that will preserve the overall appearance and prevent damage to the coating. The use of chains or cables for loading, unloading, shipping or installing is prohibited. Only 0.75 inch diameter or larger non-abrasive nylon rope or equivalent nylon belting shall be used. Adequate hold-downs and appropriate blocking shall be utilized for shipping to prevent load movement and damage to the outer coating in transit. No handling shall be allowed until "dry-through" conditions have been achieved with coating.

For painting of existing signal standards, luminaire standards, mast arms, pedestrian push button posts, and signal equipment, all painting systems for exterior application shall be supplied by the same manufacturer to ensure compatible protective color coating system and color match. Prior to the paint application, poles, mast arms, and signal equipment shall be cleaned to remove dirt, bird droppings, stickers, paint chips, and anything else that would prevent the paint from properly bonding to the surface. The Contractor shall apply a rust inhibitor primer to cover all exterior surfaces prior to painting. The Contractor shall apply paint with rollers, spraying applications will not be allowed. The Contractor shall apply enough paint to cover and provide a uniform finish throughout.

86-2.14 Bird Spikes. Bird spikes shall be BIRD-X Stainless steel BIRD SPIKES (Model #: STS) or approved equal. Bird spikes shall have a base mold of transparent polycarbonate, with two types of spiked projections: stainless steel projections protrude up and out (angled) to both sides; a central row of polycarbonate projections protrude straight up.

The bird spikes shall have stainless steel bird spike projections (4.5" spread) with narrow stainless steel bird spike projections (1.75" spread) and a central row of straight-up polycarbonate projections.

Bird spikes shall be installed with a special adhesive and adhesive shall not be visible to traffic.

86-3 CONTROLLER ASSEMBLIES

86-3.00 Caltrans ROW Controller Assembly. (NOT APPLICABLE) For controllers in Caltrans ROW, contractor shall obtain Caltrans furnished Type 332 controller cabinet and controller. Contractor shall coordinate with Caltrans in regards to procurement, labeling, software, warranties, guaranties, software license and installation, and traffic signal timing installation. Coordinate with Ralph Griffo (213) 999-1905.

86-3.01A City ROW Controller Assembly. The controller assemblies will consist of existing/new Model 2070 controller units in existing/new Model 332 cabinets.

Model 2070 Controller Units shall comply with the Caltrans Transportation Electrical Equipment Specifications (TEES) dated March 12, 2009, plus TEES Errata 1 dated January 21, 2010, shall be on the August 24, 2010 Caltrans "Qualified Products List"

and the following City requirements. In case of conflict, the City requirements shall govern the procurement.

1. Procurement is for Model 2070 Controller with a Unit Version of "2070 E" including these specified modules:
 - 2070-1E CPU Module
 - 2070-2A or 2070-2E Field I/O Module
 - 2070-3B LCD/Front Panel Module
 - 2070-4A Power Supply
 - 2070-6A dual 1200 baud modem
 - 2070-7A dual RS232 serial ports.
2. A permanent label, "CITY OF GLENDALE", shall be stenciled or embossed on the front of Model 2070 Controller Unit.
3. The Model 2070 controller shall operate Mc Cain 2033 intersection control software.
4. Warranties and Guaranties: It is the responsibility of the contracted vendor to ensure that all equipment provided has been thoroughly tested prior to shipment, and that each shipment conforms to these specifications. The minimum warranty for any equipment and materials shall be for a period of two (2) years from the date of test acceptance by the Engineering Division, City of Glendale. The warranty shall cover all manufacturers' defects, parts, labor, and shipping costs. The warranty for each unit of equipment that requires repair shall be extended by the length of time that the unit is out of service for repair.

86-3.01B

(Broadway/Brazil St and San Fernando Rd) Controller Assembly. The controller assembly shall be furnished and installed by the Contractor and consist of new Model 2070LX controller unit in new Model 350i ATC cabinet manufactured by McCain, Inc..

The controller assembly must be fully compliant with the 2009 Caltrans Transportation Electrical Equipment Specifications and included on the current Caltrans QPL. The controller assembly must also fully support NTCIP 1201 and 1202 standards and be fully backwards compatible with the City's existing traffic cabinet hardware.

1. Procurement is for Model 2070LX Controller including these specified modules:
 - 2070-1C CPU Module
 - 2070-2E + Field I/O Module
 - 2070-4A Power Supply
 - 2070-LX Front Panel Module
 - Options:
 - 2070-6A 1200 dual baud modem

Controller cabinet shall be Type 350i Advanced Transportation Controller Cabinet (ATCC) manufactured by McCain, Inc. The ATCC must meet or

exceed Chapter 6 of the latest edition of the Caltrans Traffic Signal Control Equipment Specification (TSCES) for Model 332 cabinets. The ATCC shall be made of aluminum with a natural finish and handles on all 4qty doors with Corbin No. 2 locksets.

ATC Type 350i controller cabinet shall be capable of cabinet flash signal operation in the absence of any of the following assemblies: input, output, cabinet power supply and controller. The ATCC shall protect from accidental contact per NEC. Service assembly shall have 4qty fused outputs utilizing automotive industry standard blade fuses. The 350i ATCC shall be supplied with the following assemblies and components and all ancillary equipment necessary to provide the intended operation:

- 4qty 24-channel input assemblies with 4qty horizontally installed Field input termination assemblies (FITA)
 - 4qty 2218-MC Serial Interface Units
 - 4qty Opto Isolator Switches
 - 3qty 242L DC Isolators
 - 1qty 32-channel output assembly with 2qty horizontally installed Field output termination assemblies (FOTA)
 - 1qty 2212-MC CMUip
 - 2qty 2218-MC Serial Interface Units
 - 16qty 2202-MC High Density Swithpacks
 - 1qty Dual Service Assembly
 - 2qty 2202-MC High Density Swithpacks
2. A permanent label, "CITY OF GLENDALE", shall be stenciled or embossed on the front of Model 2070LX Controller Unit.
 3. The Model 2070LX controller shall operate McCain Omni eX Software.
 4. Warranties and Guaranties: It is the responsibility of the contracted vendor to ensure that all equipment provided has been thoroughly tested prior to shipment, and that each shipment conforms to these specifications. The minimum warranty for any equipment and materials shall be for a period of two (2) years from the date of test acceptance by the Engineering Division, City of Glendale. The warranty shall cover all manufacturers' defects, parts, labor, and shipping costs. The warranty for each unit of equipment that requires repair shall be extended by the length of time that the unit is out of service for repair.

86-3.02 Software License (NOT APPLICABLE)

86-3.03 Software Installation

Contractor shall install Omni eX intersection control software at Broadway/Brazil St and San Fernando Road Intersection and Mc Cain 2033 at all other intersections.

86-3.04 Traffic Signal Timing Installation

City will install traffic signal timing for each controller.

86-4 TRAFFIC SIGNAL FACES AND FITTINGS

86.4.01 All vehicle signal heads including programmed visibility heads shall have 12 inches (300 mm) lenses, visors, and backplates. All pole-mounted three-section vehicle heads shall have standard backplates. All mast-arm mounted vehicle signal heads or five-section vehicle heads mounted on Type 1-A and Type 15 TS poles shall have louver backplates.

All signal heads shall be aluminum alloy. All nonprogrammed lenses shall be glass with aluminum reflectors. Plastic housings, visors, and backplates will not be permitted.

All signal mounting required shall be furnished by the Contractor. Holes drilled on poles for the purpose of fitting wire shall be grinded to provide smooth edge prior to mounting. Top and bottom openings of signal heads shall be sealed with neoprene gaskets.

86-4.02 Light Emitting Diode Signal Module (12 inch) balls and (12 inch) arrows. All (red, amber and green) traffic signal sections shall be provided by the Contractor and shall be Light Emitting Diode "LED" module and shall conform to the following specifications:

LED Circular Signal Module Specification 300mm (12 in) Balls and 300mm (12 in) Arrows

1. The purpose of this specification is to provide the minimum performance requirements for Light Emitting Diode circular traffic signal modules hereafter called modules. This includes 300mm (12in), circular vehicle traffic signal modules and 300 mm (12 in) omnidirectional arrows. All modules will comply with either the **Vehicle Traffic Control Signal Heads - Light Emitting Diode (LED) Circular Supplement, Adopted June 27, 2005**, or the ITE arrow spec **Vehicle Traffic Control Signal Heads - Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement, Adopted July 1, 2007**, hereafter called VTCSH for both specs, which are published by the Institute of Transportation Engineers, hereafter called ITE. The following requirements are in addition to, or clarification of the VTCSH.

2. All modules must fit in existing signal housings without the use of special tools.

Electrical

3. Luminous intensity requirements of the VTCSH must be met across the entire temperature range from -40°C to + 74°C, (-40°F to +165°F).

4. The following cable colors shall be used for the AC power leads on all modules: white for common, red for the red module line, yellow for the yellow module line, and brown for the green module line.

5. The AC power leads shall exit the module via a rubber grommited strain relief, and shall be terminated with quick connect terminals with spade tab adapters. The leads shall be separate at the point at which they leave the module.
6. All external wiring used in the module shall be anti-capillary type cable to prevent the wicking of moisture to the interior of the module.
7. All power supplies shall be conformally coated for additional moisture and thermal protection.
8. The module shall have an incandescent, non-pixilated appearance when illuminated.
9. Nominal power usage is measured at 25° C, 120 VAC. For the 300 mm (12") modules it shall not exceed 8 watts for Red, 12 watts for Yellow, and 9 watts for Green modules. For the arrows it shall not exceed 6 watts for any color.
10. All modules shall use LEDs that have been manufactured with materials that have industry acceptance as being suitable for uses in outdoor applications. At no time is the use of LEDs that utilize AlGaAs technology acceptable.

Mechanical

11. The external lens shall have a smooth outer surface to prevent the build up of dirt & dust and shall be designed to minimize the potential for sun phantom signals.
12. The module lens material must be clear for green indications, and tinted for all other indications. A tinted transparent film or coating is not permitted.
13. A module shall be sealed against dust and moisture intrusion, including rain and blowing rain per Mil-Std-810F Method 506.4, Procedure 1.
14. Arrow modules shall be clearly marked with the phrase "Suitable for mounting in any orientation."
15. All modules must be certified in the **Intertek LED Traffic Signal Modules Certification Program** and be labeled with the ETL Verified Label shown in Figure 1.



Figure 1 -- Intertek- ETL Verified Label

Warranty

16. Manufacturers shall provide a written warranty issued by the factory located in the NAFTA country of module origin with the following minimum provisions.
17. Modules shall, at the manufacturer's option, be repaired or replaced if the module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery.
18. Modules shall, at the manufacturer's option, be repaired or replaced if the module exhibit luminous intensities less than the minimum specified values within the first 60 months of the date of delivery.
19. Upon request, the LED lamp module manufacturer shall provide written documentation of its ability to satisfy a worst-case, catastrophic warranty claim. A current corporate annual report duly-certified by an independent auditing firm, containing financial statements illustrating sufficient cash-on-hand and net worth to satisfy a worst-case, catastrophic warranty claim is an example of suitable documentation.
20. The documentation shall clearly disclose the country in which the factory of module origin is located, the name of the company or organization that owns the factory including all of its parent companies and/or organizations, and their respective country of corporate citizenship.
21. For firms with corporate citizenship in the United States of less than seven years, the documentation shall clearly disclose the process by which the end-users/owners of the modules will be able to obtain worst-case, catastrophic warranty service in the event of bankruptcy or cessation-of-operations by the firm supplying the modules within North America, or in the event of bankruptcy or cessation-of-operations by the owner of the factory of origin.

All new LED units furnished by the Contractor shall be Part No. GTx (balls) and GT1 (arrows) modules manufactured by GE or approved equal.

86-4.06 Pedestrian Signal Faces. Pedestrian signals shall be Type A with international symbols of man and hand. **The unit provided shall be a countdown pedestrian indication type manufactured by "Dialight" Part No. 430-6479-001X or approved equal.** All pedestrian signal mounting shall be provided by the contractor. Pedestrian signals shall have clamshell mountings.

All pedestrian signal housings shall be of one piece design.

All pedestrian indications shall be international symbol of man and hand.

All pedestrian signal mountings shall be furnished by the Contractor.

86-5 DETECTORS

86-5.01 Vehicle Detectors. The detector sensor units shall be digital and self-turning in design with on LED indication per channel and two channels per detector unit.

Detector units shall be Type LMD222 for left and through traffic lanes and Type LMD602t for right-turn lanes.

86-5.01A

Inductive Loop Detectors. Slots for round traffic signal loop detectors shall be 6 feet in diameter and .375 to a maximum of .500 inch in width, and 5.0 inches in depth. The slots shall be either core drilled or cut by the use of "circle loop cutter" machine. This machine must be so configured, that once started it will continue to cut a circle without any overlap and able to circumscribe a six-foot diameter round loop without being raised or repositioned. This method of installation shall not cause any additional holes to be placed in the pavement for the purpose of anchoring the installing machine. Home runs shall be saw-cut to the appropriate pull box and shall be .5 inch in width by 5.0 inches in depth. In addition, home runs shall be routed along the lane lines, limit lines, and crosswalk lines when applicable.

The loop wire shall be of double insulated type and meet the specification for Caltrans Type 2 traffic loop wire. The tubing shall have an outside diameter of 0.27 inch. It shall be of a continuous and un-spliced conductor shall be wound three turns in a clockwise direction into the saw cut by hand when the saw cut width is approximately .375 inch or shall be performed and stacked for insertion in the saw cut. When the saw cut width is approximately .500 inch, the preformed loop shall be used and consist of three (3) turns of loop wire stacked in a circle six (6) feet diameter, each turn shall be laid on top of another and be secured in such a manner that when it is placed in the saw cut, it will remain in place and not drop in the slots. Loop wires in the home run slot shall be twisted in one direction only with at least 2 turns per foot.

Loops shall be installed on the same day in which the loop slots are cut including placement of the loop conductors and sealant. Slots shall be completely dried before the loop conductors are installed. Loop sealant shall be hot melt rubberized asphalt in accordance with Caltrans specifications. The sealant shall be injected into the saw cut through a heated nozzle. Pouring sealant into the saw cut will only be permitted if the loop saw cut is .5 inch wide.

Residue resulting from slot cutting operations shall not be permitted to flow across shoulders or lanes occupied by public traffic and shall be removed from the pavement surface. Water and slurry shall be vacuumed out, leaving a clean and dry loop area. This vacuumed water shall be dumped in a private dumpsite and it will not be allowed in catch basins and storm drain.

Contractor shall obtain approval of exact loop location prior to final placement. The locations of the loops, beginning loop wires and home runs shall be pre-marked for inspection before cutting and installation.

Stubout conduits for loop detectors shall be inserted next to the gutter edge in the street and be a minimum of 1.5 inches in diameter PVC Schedule 80 and installed at a minimum depth of 8 inches from the top of the pavement. Install a 3 inch diameter PVC Schedule 80 sleeve between the stubout end and the top of pavement. Dust seal shall be used at the end of the conduit during loop installation. Loop sealant is not allowed in the conduit. The end of future loop stubout shall be exposed for inspection and backfill with sand and cold patch. The exact location of each stub out

shall be marked with concrete nail driven into the top of the curb. The concrete nail shall have a red top.

Loop detector lead-in cable shall be Type B. All shields shall be connected to ground on the input panel in the 332 cabinet. Inductive loop detector expansion joint shall be as shown on State Standard Plan ES-5E shall be installed wherever a loop wire saw cut crosses a pavement type change or where vertical pavement fracture may occur as determined by the Engineer.

Contractor shall obtain approval of exact loop location prior to final placement. The locations of the loops and home runs shall be premarked for inspection before cutting.

86-5.01B Video Detection. Refer to Section 86-10 Video Detection System.

86-5.02 Pedestrian Push Buttons.

Caltrans ROW. Pedestrian push buttons shall be Polara Navigator APS or approved equal, unless otherwise indicated by the Caltrans inspector in the field. Pedestrian push buttons shall meet all ADA accessibility requirements. Pedestrian push button signs shall be pedestrian actuated signal sign R10-3b. APS buttons shall be programmed by either percussive tones or standard speech walk messages, as required by the Caltrans inspector in the field.

City ROW. Pedestrian push buttons shall be Polara Engineering Inc. Bulldog or approved equal, unless otherwise indicated in the General Notes of the respective traffic signal modification plan. Pedestrian push buttons shall meet all ADA accessibility requirements. Pedestrian push button signs shall be pedestrian actuated signal sign R10-3b.

The pedestrian push button shall be pressure activated and can withstand an impact from a baseball bat or hammer. When the button is activated, a beep will sound and the LED will light and stay on until the walk cycle. The push button body material shall be made of aluminum, powder coated and vandal proof. The button body shall be colored green. The button material shall be made of 316 Stainless Steel. The button shall have a Piezo driven solid state switch with an operating force to activate the switch of 3 lbs maximum. The button shall have an operating temperature range of -30 degrees F to 165 degrees F.

The operating voltage of the button shall be 18 VDC and have an operational life of greater than 100 million operations. The beeper shall sound simultaneously with LED flash. The LED luminous intensity shall be greater than 1200 mcd (ultra bright red) with a viewing angle of 160 degrees.

86-6 LIGHTING

86-6.01 High Pressure Sodium Luminaires. (NOT USED)

86-6.02 LED Luminaires. Highway safety lighting luminaries shall be of the full cut-off type. The integral driver components shall be mounted on a separate down opening door. The gasket, if IP66 rating is required, shall be high-grade silicone rubber to provide an inte-

gral seal. Minimum light distribution shall be as shown on State Standard Plan RSP ES-10A.

Newly installed Luminaires shall be operational the same day of the installation, under no circumstances the intersection will be allowed to be left without illumination for any period of time.

All luminaires shall be American Electric Lighting (AEL) – Autobahn Series or approved Equal. All components and entire Luminaire shall be made in the U.S.A. Each luminaire shall be provided with a NEMA twist-lock photo cell receptacle, appropriate voltage NEMA twist lock Photo Cell, and wattage indication label and meet the following specifications:

Galvanized Pole: ATBM-F-MVOLT-R3-NL-P7-AO
2 bolt mounting
4000K CCT
Type 3 Distribution

Decorative Pole: ATBM-F-MVOLT-R3-BZ-P7-AO
2 bolt mounting
4000K CCT
Type 3 Distribution

Warranty: 5 year Driver & LED; 10 year paint finish

86-6.03

Internally Illuminated Street Name Signs.

Internally Illuminated Street Name Signs. All internally illuminated street name signs (IISNS) shall use a LED light source from the edge of the sign and shall be manufactured by National Signal or approved equal. The sign housing frame shall be made of aluminum with a Midwest Brown or natural aluminum finish with a height of 22" or 24" and maximum thickness of 3". The sign panels shall have clear film with 3M protective film.

All street name signs shall have white letters on Monarch Blue background with a 0.5" white border. All "Ped Xing" signs shall have black letter and yellow background with a 0.5" white border, and with the additional requirements:

Sign Panel Size: 22" x 72" – 96" x 2.5" if single street name
24" x 72" – 96" x 2.5" if two street names

Font: HWY D/E

Font Size: 12" UC/9" LC

Font Color: White

Sign Panel Background Color: Monarch Blue

Sign Panel Material: 0.093 Clear Polycarbonate

Frame Finish: Midwest Brown (Decorative Poles)
Natural Aluminum (Standard Caltrans Poles)

Signs shall be mounted with Midwest Brown Rigid Sign Mounts or adjustable mounting brackets or approved equal.

The sign panel brightness shall be a minimum 250 cd/m2. The LED shall have a minimum service life of 100,000 hours and have an operating temperature range of -30 degrees C and 70 degrees C.

A 1/2" close nipple and LB conduit shall be installed on the mast arm at the coupling point. The cable between sign and conduit shall be a 3-conductor AWG No. 16 Type SJO. The green conductor of the cable shall be used for grounding between sign housing and conduit. The cable shall enter the sign housing and conduit through neoprene bushed CGB connectors. All internally illuminated street name signs shall be provided with individual photocells.

86-6.04 Retro-reflective (RIGID) Mast Arm Street Name Signs. (NOT USED)

86-6.05 Photoelectric Controls. Photoelectric control shall be Type IV for all highway safety lighting and internally illuminated street name signs.

All new photoelectric control units furnished by the Contractor shall be Part No. LED4536SWK manufactured by Intermatic or approved equal, unless otherwise indicated by the Engineer in the field.

86-6.06 High Intensity Discharge Lamp Ballasts. The integral ballasts for highway safety lighting luminaries shall be designed for operation on 120 volt multiple circuits.

86-7 REMOVING/REINSTALLING OR SALVAGING ELECTRICAL EQUIPMENT

All signal equipment to be salvaged, if any, except otherwise directed by the engineer in the field, shall be delivered to an address in the City of Glendale to be determined by the Engineer in the field. Contractor shall contact the recipient of the salvaged equipment 48 hours prior to the scheduled acceptance of delivery.

All other existing equipment, which is not to be reused, shall become the property of the Contractor.

86-7.01 Reinstalling Removed Electrical Equipment.

When removed electrical equipment is to be reinstalled, the Contractor shall furnish and install all necessary materials and equipment, including signal mounting assemblies, anchor bolts, nuts, washers and concrete as required to complete the new installation.

86-7.02 Bird Spikes.

The Contractor shall clean the mast arms thoroughly removing all dirt and bird droppings. If the mast arms are to be painted by the Contractor, the bird spikes shall be installed after the mast arms are painted. The Contractor shall install bird spikes per manufacturer instructions to ensure proper installation.

86-8 PAYMENT FOR LUMP SUM PRICE ITEMS

Payment for lump sum price items shall be made in accordance with appropriate payment clause. The City according to the following schedule will process progress payment:

<u>Percent of Lump Sum Bid</u>	<u>Work Completed</u>
10%	All signal pole submittals approved and ordered
10%	All hardware submittals approved and ordered
12%	All conduits and pull boxes in place
12%	All foundations dug and concrete poured
5 %	All loops cut with wires and sealant in place
5 %	All wires pulled in all conduits
20%	All signals standards and poles installed
12%	All signal hardware and controller cabinet installed
14%	Miscellaneous concrete and minor work completed, and operation and maintenance manual submitted
100%	Total Project

86-9 BATTERY BACKUP SYTEM (BBS)

86-9.1 SCOPE

The BBS shall provide uninterruptible reliable emergency power to a traffic intersection in the event of a power failure or interruption. The uninterruptible power supply (UPS) shall provide battery power to traffic intersections for a period of time as specified. The transfer from utility power to battery power will not interfere with the normal operations of the traffic controller, conflict monitor or any other peripheral devices within the traffic control system. The battery back system shall be Meyers Power Products, Inc. MP2000E, or Alpha Technologies Caltrans FXM 1100 UPS, or approved equal. The BBS / UPS system shall be comprised as noted below and shall include, but not be limited to: External UPS/Battery cabinet attached to 332 controller cabinet, inverter/charger (UPS), power transfer switch (PTS), Four (4) AGM 105 Ah batteries, a separate manually operated non-electronic bypass switch, all necessary hardware and interconnect wiring.

The system shall be capable of providing power for full run-time operation, flashing mode operation, and a combination of both full and flash mode operation of an intersection. The operation of the flash mode shall be field programmable to activate at various times, battery capacities, or alarm conditions locally using the touch pad or remotely using a standard PC's Ethernet or RS-232 interface.

Field programmability via touch pad or RS232 interface must be in ASCII formats and must not require any external or proprietary software. The DB-9 connector for the RS232 interface must be installed on the front panel of the UPS. Remote programmability and acquire status information via Ethernet connection using a web browser interface.

The system shall be designed for outdoor applications and meet the environmental requirements as detailed herein.

86-9.2 SYSTEM CAPACITY AND RUNTIMES

The BBS shall be configured such that it provides a MINIMUM of two (2) hours of full run-time operation for an intersection using LED traffic and pedestrian signals. The UPS shall be Meyers Power Products, Inc. MP2000E, or Alpha Technologies Caltrans FXM 1100 UPS, or

approved equal with 80% minimum inverter efficiency. The batteries shall be four (4) AGM 105Ah.

86-9.3 RELAY CONTACTS

86-9.3.1 The UPS shall provide the user with 6 sets of N/O N/C panel-mounted, potential free, and fully programmable relay contacts rated 1 Amp, 120 VAC and labeled C1 through C6. Each relay's setting shall be programmable to activate under any number of conditions locally using the touch pad or remotely using the RS-232 interface. The available settings for the relays are outlined below.

Relay contacts C1 through C6 can be independently configured to activate under any of the following conditions:

86-9.3.2 ON BATTERY, relay activates when BBS switches to battery power.

86-9.3.3 LOW BATTERY, relay activates when batteries have reached a certain level of remaining useful capacity while on battery power. This number is adjustable from 0 to 100%.

86-9.3.4 TIMER, relay activates after being on battery power for a given amount of time. This number is adjustable from 0 to 8 hours.

86-9.3.5 ALARM, relay activates after a specific or general alarm is detected. These alarm conditions include: line frequency, low output voltage, no temperature probe, overload, batteries not connected, high temperature, and low temperature. The relay can be programmed to activate when any of these alarm conditions is met, or when a specific condition is met.

86-9.3.6 FAULT, relay activates after a specific or general fault is detected. These fault conditions include: short circuit, low battery voltage, high battery voltage, high internal temperature, and excessive overload. The relay can be programmed to activate when any of these fault conditions is met, or when a specific condition is met.

86-9.3.7 OFF, relay is disabled and will not activate under any condition

86-9.4 DEFAULT RELAY SETTING

86-9.4.1 Relay C1 shall be set to activate whenever the UPS transfers to battery power and shall be labeled "ON BATT"

86-9.4.2 Relays C2 and C3 shall be set to activate whenever the batteries reach 40% of remaining useful capacity and shall be labeled "LOW BATT".

86-9.4.3 Relays C4 and C5 shall be set to activate whenever the UPS has been on battery power for 2 hours and shall be labeled "TIMER".

86-9.4.4 Relay C6 shall be set to activate when any alarm condition is detected and shall be labeled "ALARM"

86-9.5 OPERATION

- 86-9.5.1 The Manual Bypass Switch shall be rated at 240VAC, 40 Amps minimum.
- 86-9.5.2 The BBS shall use a temperature compensated battery charging system. The charging system shall compensate over a wide range of 2.5 to 4 mV / °C / Cell. The charger shall be rated 10 Amps at 48 VDC.
- 86-9.5.3 The temperature sensor shall be external to the UPS unit. The temperature sensor shall be supplied with 2 meters (6' 6") of wire.
- 86-9.5.4 Batteries shall not be charged when battery temperature exceeds 50°C ± 3°C.
- 86-9.5.5 When utilizing battery power, the BBS output voltage shall be between 110VAC and 125VAC, pure sine wave output with THD < 3% at 60 Hz +/- 3 Hz.
- 86-9.5.6 In the event of UPS failure, battery failure or complete battery discharge, the power transfer switch shall revert to the NC (and de-energized) state, where utility power is supplying the cabinet.

86-9.6 ENVIRONMENTAL

The operating temperature for both the inverter/charger (UPS), power transfer switch (PTS) and manual bypass switch (MBPS) shall be -37 °C to +74 °C.

86-9.7 PRODUCT COMPATIBILITY

- 86-9.7.1 BBS shall be compatible with all of the following for full phase, flash operation mode or a combination of both full and flash mode operation:
 - Type 332 cabinets,
 - Type 170 controllers,
 - Type 2070 controllers,
 - NEMA TS1 Controllers,
 - NEMA TS2 Controllers.
 - Electrical Service Pedestals
- 86-9.7.2 **The BBS System shall fit inside a Meyers Power Products, Inc. Model No. BC-100HZ-UPS external cabinet attached to the 332 cabinet, or approved equal.**

86-9.8 LOSS / RESTORATION OF UTILITY POWER

- 86-9.8.1 In the event the BBS senses the utility line voltage is outside the Hi and Low Limits (100 & 130 VAC respectively set as default), the BBS shall transfer the load to battery power.
- 86-9.8.2 The BBS shall return to line mode when the utility power has been restored to above 105VAC for more than 30 seconds. This line qualification time can be adjusted to 3, 10 or 30 seconds locally using the touch pad or remotely using the RS-232 interface.
- 86-9.8.3 The BBS shall return to line mode when the utility power has been restored to below 125VAC for more than 30 seconds. Or, the BBS shall return to line mode when the utility power is back to nominal, in cases where the nominal voltage is between 125

and 130VAC. This line qualification time can be adjusted to 3, 10 or 30 seconds locally using the touch pad or remotely using the RS-232 interface.

- 86-9.8.4 The maximum transfer time allowed, from disruption of normal utility line voltage to stabilized inverter line voltage from batteries, shall be 65 milliseconds. The same maximum allowable transfer time shall also apply when switching from inverter line voltage to utility line voltage.

86-9.9 BACK-FEED AND OTHER PROTECTIONS

- 86-9.9.1 The BBS shall be equipped to prevent a malfunction feedback to the cabinet or from feeding back to the utility service per UL 1778, Section 48 "Back-feed Protection Test". The upstream backfeed voltage from BBS system shall be less than 1 Volts AC for the protection of the traffic engineer or a technician.
- 86-9.9.2 The BBS shall have lightning surge protection compliant with IEEE/ANSI C.62.41 for 2000 Volts AC.

86-9.10 MOUNTING / CONFIGURATION

Installation configuration and mounting consists of Meyers Power Products, Inc. MP2000E, or Alpha Technologies Caltrans FXM 1100 UPS, or approved equal with single string (4 batteries) at 25C and 105 Ah. The system shall be complete including Rack mount bypass assembly, RS-232 Serial Port, Ethernet Port, Power Transfer Switch (PTS) and manual relay switch. The battery backup system shall be manufactured by Meyers Power Products, Inc., Alpha Technologies, Inc., or approved equal. The battery backup system is installed in the following configuration:

- A. Install battery backup system in exterior UPS Battery cabinet manufactured by Meyers Power Products, Inc. Model No. BC-100HZ-UPS or approved equal and attached to the 332 controller cabinet.
- B. Foundation: The 332 Controller Cabinet foundation shall be extended to extend fully underneath the depth of the BC-100HZ-UPS cabinet and include anchor bolts per manufacturer specifications.

All necessary hardware for mounting (shelf angles, rack, shelving, harness, etc.) shall be included in the bid price of the BBS. When the external cabinets are used, they shall meet all adequate environmental and physical requirements. In addition exterior cabinets shall be painted with color to match the existing cabinets at the intersection.

86-9.11 FUNCTIONALITY, DISPLAYS, CONTROLS, DIAGNOSTICS AND MAINTENANCE

- 86-9.11.1 The BBS shall include a LCD display to indicate current battery charge status, various input/output voltages, power output, battery temperature, date, time and settings of the various field programmable relays. The same parameters shall be available via RS232 interface for remote monitoring.
- 86-9.11.2 The UPS shall provide the power and the temperature control for an external fan in a separate battery cabinet. The temperature setting shall be adjustable from the touch pad or remotely via RS-232. The temperature range shall be from +20C to +55C in 1 degree C increment.

- 86-9.11.3 The optional BUCK or BOOST mode shall be provided in case of extended power variations.
- 86-9.11.4 The UPS shall be provided with a resettable inverter event counter and a cumulative inverter timer that is accessible via the LCD screen or remotely via RS-232.
- 86-9.11.5 The UPS shall be equipped with an event log for at minimum the last 100 events. The events shall be time and date stamped. The event log shall be retrievable via RS-232 and the last event in the log shall be viewable from the LCD screen.
- 86-9.11.6 The BBS shall be capable of performing a SELF-TEST, locally from the UPS front panel LCD, or remotely via RS-232 interface. The duration of the SELF-TEST shall be programmable in 1-minute increments from 1 min. to 4 hours.
- 86-9.11.7 Certain maintenance controls such as Battery Test, BBS inverter ON/OFF viewing the Event log and changing default settings shall be password protected. The UPS shall be provided with a default password. The user can change the password in order to restrict access to sensitive functions.
- 86-9.11.8 The following LED lights conditions shall be used to indicate current status:
- Red LED Flashing for ALARM
Red LED steady ON for FAULT
Green LED Flashing for battery back-up mode
Green LED steady ON for normal line mode operation
- 86-9.11.9 BBS shall be easily replaced and installed (complete turnkey system with all necessary hardware). BBS shall not require any special tools for installation. The manual bypass switch shall allow replacement of the UPS without having to lose power to the intersection.
- 86-9.12 BATTERY SYSTEM
- 86-9.12.1 Individual batteries shall be AGM 105Ah, 12V type and shall be easily replaced and commercially available off the shelf.
- 86-9.12.2 The battery system used in the BBS shall consist of 4 batteries. Batteries shall be provided with quick disconnect terminals and a keyed battery cable for easy field installation. Battery sizing will be determined by the load and runtime requirements for any given intersection.
- 86-9.12.3 Batteries shall be extreme temperature, deep cycle, sealed prismatic lead-calcium based AGM/VRLA (Absorbed Glass Mat/ Valve Regulated Lead Acid) batteries.
- 86-9.12.4 Batteries shall be certified to operate over a temperature range -25°C to +74°C
- 86-9.12.5 The batteries shall be provided with appropriate interconnect wiring and a corrosion-resistant stationary or swing-out mounting tray and/or brackets appropriate for the cabinet into which they will be installed.

- 86-9.12.6 Batteries shall indicate maximum recharge data and recharging cycles.
- 86-9.12.7 Recharge time for the battery, from protective low cutoff to 80% or more of full battery charge capacity, shall not exceed twenty (20) hours.
- 86-9.12.8 The external battery cabinet shall be vented through the use of louvered vents, filter, and one thermostatically controlled fan operated from the UPS. The Fan will automatically turn ON at the temperature programmed into the UPS.

86-9.13 SERVICE AND WARRANTY

- 86-9.13.1 Manufacturer shall provide a five (5) year factory-repair warranty for parts and labor on the BBS.
- 86-9.13.2 Manufacturer shall provide 24 hour trouble shooting via "800" number.
- 86-9.13.3 Manufacturer shall make field maintenance available via 24 hour customer service "800" number.

86-9.14 SPECIFICATIONS

Input Specifications	
Nominal Input Voltage	120VAC, Single Phase
Input Voltage Range	120VAC +/- 25%
Input Frequency	60 Hz +/- 5%
Output Specifications	
Nominal Output Voltage	120VAC, Single Phase
Power Rating	1250VA (875 Watts) / 2KVA (1500 Watts)
Output Frequency	60 Hz (+/- 5%)
Voltage Wave Form	Sine Wave, THD < 3%
Efficiency (nominal)	95-97%
Mechanical Size	
Inverter / Charger	17" wide x 5.25" high (3U) x 10" deep
PTS Assembly	17" wide x 5.25" high (3U) x 7" deep
Weight	Under 50 Lbs

86-10 VIDEO DETECTION SYSTEM

- 86-10.1 System Hardware:
- The video detection system shall consist of video camera, surge suppressor for video, Video Detection Processor (VDP), which mounts in a standard detector rack, an optional detector rack mounted Extension Module (EM), a pointing device, and Windows™-based system configuration software for an optional computer interface.
- 86-10.2 System Software:

The system shall include software that detects vehicles in multiple lanes using only the video image. Detection zones shall be defined using only an on-board video menu and a pointing device to place the zones on a video image. Up to a minimum of 24 detection zones per camera shall be available. A separate computer shall not be required to program the detection zones, but shall be optional and shall provide more features and capabilities.

86-10.3

Functional Capabilities:

The VDP shall process video from one or two sources. The source can be a video camera or video player. The video shall be input to the VDP in NTSC composite video format and shall be digitized and analyzed in real time.

The VDP shall detect the presence of vehicles in up to a minimum of 24 detection zones per camera.

Detection zones shall be programmed via an on-board menu displayed on a video monitor and a pointing device connected to the VDP. The menu shall facilitate placement of detection zones, settings of zone parameters, and/or to view system parameters. A separate computer shall not be required for programming detection zones, or to view system operation, but shall be optional and shall provide more features and capabilities.

The VDP shall detect vehicles in real time as they travel across each detector zone.

The VDP shall have a communication port for communications with an external computer. The method communications shall be either through a 9-pin sub-miniature RS-232 port or an RJ-45 Ethernet port.

The VDP shall accept new detector patterns from an external computer through the communications port when the external computer uses the correct communications protocol for downloading detector patterns. A Windows™-based software designed for local or remote connection and providing video capture, real-time detection indication, and detection zone modification capability shall be provided with the system.

The VDP shall send its detection patterns to an external computer through the communications port when requested when the external computer uses the appropriate communications protocol for uploading detector patterns.

The VDP I/O shall have the capability of 24 outputs and 8 inputs using external wire harness for expanded flexibility. An optional method would be to use an EM. This would be used if an alternative method is needed to avoid the need of rewiring the detector rack. The extension module shall be connected to the VDP by a simplified wiring cable with modular connectors. The EM shall be at a minimum 2-channel-per-unit configuration. EM configurations shall have the ability to be programmed to direct outputs to the appropriate output channel.

The camera system shall be able to transmit the composite video signal, up to 1000 feet under ideal conditions. Typical distances for minimal signal degradation are less than 500 feet.

In the event of loss of video signal, the associated VDP shall default to a safe condition, such as a constant call on each active detection channel.

The VDP shall be capable of automatically detecting a low-visibility condition, such as fog, and respond by placing all defined detection zones in a failsafe condition, such as a constant-call mode, call during red only, or a fixed time call. An optional operations log entry shall record the tie of the failsafe output to assist in maintenance and troubleshooting. A user-selected output shall be active during the low-visibility condition that can be used to modify the controller operation if connected to the appropriate controller input modifier(s). The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

86-10.4

Vehicle Detection:

A minimum of 24 detection zones shall be supported and each detection zone shall be user-definable in size and shape to suit the site and the desired vehicle detection region.

A single detection zone shall be able to replace multiple inductive loops and the detection zones shall be OR'ed as the default or may be AND'ed together to indicate vehicle presence on a single phase of traffic movement.

Detection zones are drawn on the video image from the video camera. To do this, a pointing device is used to outline the detection zones with a graphical interface that is built into the VDP and displayed on a video monitor. The type of pointing device shall communicate through either a 9-pin RS-232 port or a standard USB port. No separate computer shall be required to program the basic detection zones.

The VDP's memory shall be non-volatile to prevent data loss during power outages. The VDP shall continue to operate (that is, detect vehicles) using the existing zone configurations even when the operator is defining/modifying a zone pattern. The new zone configuration shall not go into effect until the configuration is saved by the operator.

The selection of the detection zone for current use shall be done either through a local menu selection or remote computer via a communication port. It shall be possible to activate or download a detection zone pattern for a camera.

When a vehicle is detected crossing a detection zone, the detection zone will flash on the video overlay display screen to confirm the detection of the vehicle.

Detection shall be at least 98% accurate in most weather conditions. Detection accuracy depends on site geometry, camera placement, camera quality, weather conditions, and detection zone location. These accuracy levels do not include allowances for occlusion or poor video due to camera location or quality.

Detector placement shall not be more distant from the camera than ten times the mounting height of the camera.

The VDP shall provide a minimum of 24 channels of vehicle presence detection per camera through a standard detector rack edge connector and one or more extension modules or through a wiring harness.

If a loss of video signal occurs, the VDP shall output a constant call for each enabled detector output channel. During the background learning period, the VDP shall output a constant call.

Detection-zone output capabilities shall be configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user-definable from a minimum of 0.1 to 25.0 seconds.

A minimum of six detection zones shall be able to count the number of vehicles detected. The count value shall be internally stored for later retrieval through the communication port. The data collection interval shall be user-definable in periods of a minimum of 5, 15, 30 or 60 minutes, or optional counts by phase.

86-10.5 Radar Sensor (NOT USED)

The radar sensor shall operate in the 24 GHz frequency band.

The radar detection range shall be 600 feet minimum, +/- 5%.

The radar sensor shall be able to track up to 20 independent objects simultaneously.

Object speed detection shall be within a range of 0 to 150 miles per hour +/- 1.0 miles per hour.

The radar sensor shall be able to detect vehicles in 1 to 4 traffic lanes.

The radar sensor shall be housed in a weather-tight sealed enclosure conforming to IP-67 specifications. The housing shall allow the radar to be adjusted to allow proper alignment between the sensor and the traveled road surface.

When mounted outdoors in the enclosure, the radar shall operate in a temperature range from -34 °C to +74 °C and a humidity range from 0% RH to 100% RH.

The radar sensor shall communicate with the sensor data combiner.

The radar sensor shall acquire its power from the sensor data combiner.

86-10.5.1 Multi-Sensor Assembly

Both camera and radar sensors shall be housed in an overall, single enclosure assembly.

The overall size of the multi-sensor enclosure shall not exceed 14 inches x 15 inches x 17 inches.

The overall weight of the multi-sensor unit shall not exceed 11 pounds.

The effective projected area (EPA) shall not exceed 2.0 square feet.

The maximum power consumption for the multi-sensor assembly shall be less than 10 watts typical, 20 watts peak.

86-10.5.2 Sensor Data Combiner

A sensor data combiner that combines sensor information from both video and radar sensors shall be employed.

The sensor data combiner shall supply primary power to each sensor unit.

The sensor data combiner shall facilitate digital communications between the sensor data combiner and each of the sensor units.

The sensor data combiner shall get its primary power from an AC power source using industry standard 3-conductor cabling.

The sensor data combiner shall communicate with the detection processor using a single coax cable. Both video imaging and radar data shall use the single coax cable.

The sensor data combiner shall also employ industry standard Wi-Fi connectivity for remote sensor system setup using a mobile programming device such as a netbook or tablet computer. Video camera and radar sensor shall be able to be configured independently.

The sensor data signal shall be fully isolated from the mechanical enclosure and power cabling

Cable terminations at the sensor data combiner shall not require crimping tools.

The sensor data combiner shall be housed in a weather-tight sealed enclosure conforming to IP-67 specifications.

86-10.6 Video Detection Processor and Extension Module Hardware:

The VDP and EM shall be specifically designed to mount in a standard NEMA TS 1, TS 2, 2070 ATC, and 170-type detector racks, using the edge connector to obtain power and provide contact closure outputs. No adapters shall be required to mount the VDP or EM in a standard detector rack.

The VDP and EM shall operate in a temperature range from -34°C to +74°C and a humidity range from 0%RH to 95%RH, non-condensing.

The VDP and EM shall be powered by 12 or 24 VDC. These modules shall automatically compensate for the different input voltages.

VDP power consumption shall not exceed 300 milliamps at 24 VDC. The EM power consumption shall not exceed 120 milliamps at 24 VDC.

The VDP shall utilize flash memory technology to enable the loading of modified or enhanced software through the communication port without modifying the VDP hardware.

The VDP and EM shall include detector output pin-out compatibility with industry standard detector racks.

The front of the VDP shall include detection indications, such as LEDs, for each channel of detection that displays detector outputs in real time when the system is operational.

The front of the VDP shall include one BNC video input connection suitable for NTSC video inputs as required. Video must be inputted via a BNC connector on the front face of the processor. RCA-type connectors/jacks for video inputs are not allowed. Video shall not be routed via the edge connectors of the processor.

The front of the VDP shall include one BNC video output providing real time video output that can be routed to other devices. An RCA-type connector/jack for video output is not allowed.

86-10.7

Video Detection Camera:

Video detection cameras used for traffic detection shall be furnished by the VDP supplier and shall be qualified by the supplier to ensure proper system operation.

The camera shall produce a useable video image of the bodies of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 2.0 lux to 10,000 lux.

The camera shall use a CCD sensing element and shall output color video with resolution of not less than 380 lines horizontal.

The camera shall include an electronic shutter control and iris based upon average scene luminance.

The camera shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry by means of a portable interface device designed for that purpose and manufactured by the detection system supplier. The horizontal field-of-view (FOV) shall be adjustable from 9 to 45 degrees. This camera configuration may be used for the majority of detection approaches in order to minimize the setup time and spares required by the user.

The camera shall be housed in a weather-tight sealed enclosure. The enclosure shall be made of aluminum. The housing shall be field-rotatable to allow proper alignment between the camera and the traveled road surface.

The camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera's field of view. The camera enclosure with sunshield shall be less than 6" diameter, less than 15" long, and shall weigh less than 6 pounds when the camera and lens are mounted inside the enclosure.

The camera enclosure shall include a thermostatically controlled heater to assure proper operation of the lens functions at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure.

When mounted outdoors in the enclosure, the camera shall operate satisfactorily in a temperature range from -34 °C to +60 °C and a humidity range from 0% RH to 100% RH. Measurement of satisfactory video shall be based upon VDP system operation.

The camera shall be powered by 120-240 VAC 50/60 Hz. Power consumption shall be 15 watts or less under all conditions. An optional power configuration shall be available to facilitate 12 VDC operations.

The cameras shall be installed on signal mast arms or luminaire mast arms of traffic signal poles. For optimum detection, the camera should be centered above the lane mark on the traveled roadway. The camera shall view approaching vehicles at a distance not to exceed 350 feet for reliable detection (height-to-distance ratio of 1:10). Camera placement and FOV shall be unobstructed and as noted in the installation documentation provided by the supplier.

The camera enclosure shall be equipped with separate, weather-tight connections for power and video cables at the rear of the enclosure. These connections may also allow diagnostic testing and viewing of video at the camera while the camera is installed on a mast arm or pole using an optional lens adjustment module (LAM) supplied by the VDP supplier. Video and power shall not reside within the same connector.

Multiple camera configurations shall be available to support color video output in either NTSC standards.

The video signal shall be fully isolated from the camera enclosure and power cabling.

The coaxial cable to be used between the camera and the VDP in the traffic cabinet shall be Belden 8281. This cable shall be suitable for installation in conduit or overhead with appropriate span wire. 75-ohm BNC plug connectors should be used at both the camera and cabinet ends. The coaxial cable, BNC connector, and crimping tool shall be approved by the supplier of the video detection system, and the manufacturer's instructions must be followed to ensure proper connection.

The power cabling shall be 16-18 AWG 3-conductor cable with a minimum outside diameter of 6-9 mm. The cabling shall comply with the National Electric Code, as well as local electrical codes.

The video detection camera shall be installed by supplier factory-certified installers and as recommended by the supplier and documented in installation materials provided by the supplier. Proof of factory certification shall be provided.

86-10.8 Warranty:

The video detection system supplier shall provide a 2-year warranty on the video detection system and camera.

During the warranty period, technical support shall be available from the supplier via telephone and this support shall be available from factory-certified personnel or factory-certified installers.

Updates to VDP software shall be available from the supplier without charge.

86-10.9 Maintenance and Support:

The video-detection-system supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the then current pricing and terms-of-sale of the supplier of said parts.

The video detection system supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the then current pricing and terms-of-sale of the supplier of on-site technical support services.

During the video detection system installation process, the supplier shall provide eight hours of installation and training support. Installation or training support shall be provided by a factory- authorized representative.

86-11 CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM (NOT USED)

86-12 FIBER OPTIC CABLES

86-12.1 Requirements for Contractor

The Contractor shall be responsible for the furnishing, installation, splicing, termination, and testing of the fiber optic cable and all related equipment/components shall meet the following requirements:

- A. The Contractor shall have minimum of three years experience in the installation of fiber optic cables, including fusion splicing, terminating and testing of single-mode fiber optic cable.
- B. The Contractor shall have completed at least two systems where fiber optic cables are installed in outdoor conduits and the system has been in continuous satisfactory operation for at least one year. As proof, the Contractor shall submit the following reference material within a maximum one page format:
 - Name of System owner
 - Contact name for operation of System

- Contact name for maintenance of System
- Date system was installed and accepted
- Address of System owner
- Telephone and fax number of System Owner
- Short description of the project

Each project must have included the installation of at least 20,000 linear feet of fiber optic cable and 100 terminations of fiber optic cable. If more than two projects are needed to meet the footage and terminations requirements, submit additional reference sheets.

The above material shall be submitted with the project proposal bid package so that references can be checked prior to award of the contract. Prior to contract award, the Engineer will contact the above references and confirm that they do meet the above specifications. If satisfactory references are not obtained, then the next low bid Contractor will be selected.

The Contractor shall furnish, install, splice and test all the required fiber optic cable. All splicing kits, fiber optic cable caps, moisture/water sealants, terminators, splice trays, patch cords, connectors, pig tails and accessories to complete the fiber optic network shall be provided as incidentals. All equipment for installation, splicing and testing shall be provided by the Contractor.

86.12.2 General

This item shall govern for the furnishing and installation of fiber optic cable in designated locations as shown on the plans and as detailed in accordance with these Specifications.

86-12.3 Requirements

Fiber optic cables shall be supplied in the configurations shown on the plans and specified in these Specifications.

Each fiber optic cable shall be suitable for both underground conduit/duct placement and indoor application. The fiber optic cable shall be plenum and fire rated. Additionally, there will be ancillary drop and connecting (patching) optical fiber cables procured under this Contract and these Specifications, which are more precisely described elsewhere in this document.

All materials furnished, assembled, fabricated or installed under this item shall be new, corrosion resistant and in strict accordance with the details shown on the plans and in these Specifications. All fibers in the cables shall be usable fibers and free of surface imperfections and occlusions, in order to meet or exceed all of the optical, mechanical, and environmental requirements contained in these Specifications.

All cables shall be free of material or manufacturing defects and dimensional non-uniformity that would:

- Interfere with the cable installation employing accepted cable installation practices.
- Degrade the transmission performance and environmental resistance after installation.

- Inhibit proper connection to interfacing elements.
- Otherwise yield an inferior product.
- Each fiber optic cable for this project shall be all-dielectric, dry water-blocking material, duct type, with loose buffer tubes, and shall conform to these Specifications.

The Contractor shall furnish, install, splice and test all the required fiber optic cable. All splicing kits, fiber optic cable caps, moisture/water sealants, terminators, splice trays, patch cords, connectors, pig tails and accessories to complete the fiber optic network shall be provided as incidentals. All equipment for installation, splicing and testing shall be provided by the Contractor.

All fiber optic glass/cable on this project shall be from the same qualified manufacturer regularly engaged in the production of optical fiber material.

The optical fibers shall be contained within buffer tubes. The buffer tubes shall be stranded around an all-dielectric central member. Aramid yarn and/or fiberglass shall be used as a primary strength member, and a medium or high-density polyethylene outside jacket shall provide overall protection.

The cable shall be qualified as compliant with Chapter XVII, of Title 7, Part 1755.900 of the Code of Federal Regulations, "REA Specification for Filled Fiber Optic Cables."

86-12.4 Packaging

1. The completed cable shall be packaged for shipment on non-returnable wooden reels. Required cable lengths shall be stated in the purchase order.
2. Top and bottom ends of the cable shall be available for testing.
3. Both ends of the cable shall be sealed to prevent the ingress of moisture.
4. Each reel shall have a weather resistant reel tag attached identifying the reel and cable.

Fiber optic cable meeting the above specifications is available from Corning Cable Systems, P.O. BOX 489, Hickory, NC 28603-0489. Any other cable meeting the above specifications shall also be considered.

86-12.5 Cable Marking

1. The optical fiber cable outer jacket shall be marked with manufacturer's name, the month and year of manufacture, the words "Optical Cable," telecommunications handset symbol as required by Section 350G of the National Electrical Safety Code[®] (NESC[®]), fiber count, fiber type, and sequential meter marks.
2. The markings shall be repeated every two (2) feet.
3. The actual length of the cable shall be within -0/+1% of the length marking.
4. The marking shall be in a contrasting color to the cable jacket.

5. The marking shall be approximately 0.1 inches in height and must be permanent and weatherproof.

86-12.6 Quality Control

The manufacture of supplied optical cable, optical cable assemblies, and hardware shall be TL 9000 and/or ISO 9001 registered. All cabled optical fibers shall be 100% attenuation tested. The attenuation of each fiber shall be provided with each cable reel.

86-12.7 General Considerations

The fiber optic cable shall consist of, but not be limited to, the following components:

- Single-mode optical fiber
- Buffer tubes
- Central member
- Filler rods (as needed per cable type)
- Stranding
- Dry-filled water blocking tape and water blocking yarn
- Tensile strength member
- Ripcord
- Outer jacket

Single-mode Optical Fiber - Each optical fiber shall be glass and consist of a doped silica core surrounded by concentric silica cladding. All fibers in the buffer tube shall be usable fibers, and shall be sufficiently free of surface imperfections and occlusions to meet the optical, mechanical, and environmental requirements of these specifications. The coating shall be a dual layered, UV cured acrylate. The coating shall be mechanically or chemically strippable without damaging the fiber.

Buffer Tubes.- The loose buffer tubes shall be single or dual layered in construction. For single layer, use polypropylene. For dual layer, the inner layer shall be made of polycarbonate and the outer layer shall be made of polyester. Buffer tubes shall provide clearance between the fibers and the inside of the tube to allow for expansion without constraining the fiber. The fibers shall be loose or suspended within the tubes and shall not adhere to the inside of the tube. Each buffer tube shall contain either 6 or 12 fibers based upon the total fiber count in the cable and the fiber assignment table as shown on the plans and these Specifications. No individual fiber tube shall contain more than 12 fibers.

The loose buffer tubes shall be extruded from a material having a coefficient of friction sufficiently low to allow free movement of the fibers. The material shall be tough and abrasion resistant to provide mechanical and environmental protection of the fibers, yet designed to permit safe intentional "scoring" and breakout, without damaging or degrading the internal fibers.

Buffer tube filling compound shall be a homogenous, hydrocarbon-based gel with anti-oxidant additives. It shall be used to prevent water intrusion and migration. The filling compound shall be non-toxic and dermatologically safe to exposed skin. It shall be chemically and mechanically compatible with all cable components, non-nutritive to

fungus, non-hygroscopic and electrically non-conductive. The filling compound shall be free from dirt and foreign matter and shall be readily removable with conventional, nontoxic solvents.

Buffer tubes shall be stranded around a central member by a method, such as the reverse oscillation stranding process, that will prevent stress on the fibers when the cable jacket is placed under strain.

Each buffer tube shall be distinguishable from other buffer tubes in the cable by using the same color coding as specified for fibers elsewhere in this document.

Central Member - The central member, which functions as an anti-buckling element, shall be a glass reinforced plastic rod with similar expansion and contraction characteristics as the optical fibers and buffer tubes. To provide the proper spacing between buffer tubes during stranding, a symmetrical, linear, overcoat of polyethylene may be applied to the central member to achieve the optimum diameter.

Filler rods - Fillers may be included in the cable cross-section. Filler rods shall be solid medium or high density polyethylene. The diameter of filler rods shall be the same as the outer diameter of the buffer tubes.

Stranding - The buffer tubes shall be helically wrapped using the reverse lay stranding process around the central member in order to decouple the buffer tubes and optical fibers from the mechanical forces experienced during installation.

Completed buffer tubes shall be stranded around the central member using stranding methods, lay lengths, and positioning such that the cable shall meet mechanical, environmental, and performance specifications. A polyester binding shall be applied over the stranded buffer tubes to hold them in place. Binders shall be applied with sufficient tension to secure the buffer tubes to the central member without crushing the buffer tubes. The binders shall be non-hygroscopic, non-wicking, and dielectric with low shrinkage.

Core and Cable Water-block material - The cable core shall use a dry water-blocking material to block the ingress and migration of water. The water-blocking performance shall be equivalent to flooded optical cables when tested in accordance with industry standards (ICEA, RUS). Dry water-blocking material is used in optical cables to enhance the ease of handleability while maintaining reliable water-blocking performance.

Tensile Strength Member - Tensile strength shall be provided by high tensile strength aramid yarns and/or fiberglass which shall be helically stranded evenly around the cable core and shall not adhere to other cable components.

Ripcord - The cable shall contain at least one ripcord under the jacket for easy sheath removal.

Outer jacket - The all-dielectric cables (no armoring) shall be sheathed with medium or high density polyethylene. The minimum nominal jacket thickness shall be 1.4 mm. Jacketing material shall be applied directly over the tensile strength members and shall not adhere to the aramid strength material. The polyethylene shall contain carbon black to provide ultra-violet light protection, and it shall not promote the growth of fungus. The

jacket shall be free of holes, splits, and blisters. The cable jacket shall contain no metal elements and shall be of a consistent thickness.

The outer jacket for the backbone cable shall have a different color from the outer jacket for the distribution cable. The color of the jacket for the backbone, distribution, and drop cable shall be approved by the Engineer before ordering.

86-12.8 Fiber Characteristics

One hundred percent (100%) of the optical fibers shall meet or exceed the requirements contained in this specification.

The cable shall be tested in accordance with TIA/EIA-455-3A (FOTP-3), "Procedure to Measure Temperature Cycling Effects on Optical Fiber, Optical Cable, and Other Passive Fiber Optic Components." The average change in attenuation at extreme operational temperatures (-20°C to +70°C) will not exceed 0.05 dB/km at 1550 nm. The magnitude of the maximum attenuation change of each individual fiber will not be greater than 0.15 dB/km at 1550 nm. This figure includes an allowance of up to 0.05 dB/km for measurement repeatability.

All fibers within the finished cable shall be composed primarily of silica and shall have a matched clad index of refraction profile as well as the physical and performance characteristics that shall meet the requirements in the following table:

Parameters	Value
Mode	Single
Type	Corning Cable System or equivalent
Core diameter	8.3 μm (nominal)
Cladding diameter	125 $\mu\text{m} \pm 1.0 \mu\text{m}$
Core to Cladding Offset	$\leq 0.8 \mu\text{m}$
Coating Diameter	245 $\mu\text{m} \pm 10 \mu\text{m}$
Cladding Non-circularity defined as: $[1 - (\text{min. cladding dia} \div \text{max. cladding dia.})] \times 100$	$\leq 1.0\%$
Proof/Tensile Test	100 kpsi, min.
Attenuation: @ 1310 nm @ 1550 nm	$\leq 0.4 \text{ dB/km}$ $\leq 0.3 \text{ dB/km}$
Attenuation Uniformity	No point discontinuity greater than 0.1 dB at either 1300 nm or 1550 nm
Attenuation at the Water Peak	$\leq 2.1 \text{ dB/km @ } 1383 \pm 3 \text{ nm}$
Attenuation At Extreme Operational Temperatures	$\leq +0.05 \text{ dB @ } 1310 \text{ nm or } 1550 \text{ nm}$
Chromatic Dispersion: Zero Dispersion Wavelength (λ_0) Zero Dispersion Slope	$1301.5 \leq \lambda_0 \leq 1321.5 \text{ nm}$ $\leq 0.092 \text{ ps}/(\text{nm}^2 \cdot \text{km})$
Maximum Dispersion:	$\leq 3.5 \text{ ps}/(\text{nm} \cdot \text{km})$ for 1285 - 1330 nm $\leq 18 \text{ ps}/(\text{nm} \cdot \text{km})$ for 1550 nm
Cut-Off Wavelength	$< 1260 \text{ nm}$

Parameters	Value
Mode Field Diameter (Petermann II)	9.3 ± 0.5 µm at 1310 nm 10.5 ± 1.0 µm at 1550 nm

86-12.9 Color Coding

Optical fibers shall be distinguishable from others in the same buffer tube by means of color-coding according to the following:

1. Blue (BL)	7. Red (RD)
2. Orange (OR)	8. Black (BK)
3. Green (GR)	9. Yellow (YL)
4. Brown (BR)	10. Violet (VL)
5. Slate (SL)	11. Rose (RS)
6. White (WT)	12. Aqua (AQ)

The colors shall be targeted in accordance with the Munsell color shades and shall meet TIA/EIA-598B "Color Coding of Fiber Optic Cables" and RUS 7 CFR 1755.900.

The color formulation shall be compatible with the fiber coating and the buffer tube filling compound, and be heat stable. It shall not fade or smear or be susceptible to migration, it shall not affect the transmission characteristics of the optical fibers and shall not cause fibers to stick together.

86-12.10 General Cable Performance Specifications

The fiber optic cable shall withstand water penetration when tested with a one meter static head or equivalent continuous pressure applied at one end of a one meter length of filled cable for one hour, no water shall leak through the open cable end. Testing shall be done in accordance with TIA/EIA-455-82 (FOTP-82), "Fluid Penetration Test For Fluid-Blocked Fiber Optic Cable."

The cable shall exhibit no flow (drip or leak) for 24 hours at 80°C. The weight of any compound that drips from the sample shall be less than 0.05 grams (0.002 ounce). A representative sample of cable shall be tested in accordance with TIA/EIA-455-81B (FOTP-81), "Compound Flow [Drip] Test for Filled Fiber Optic Cable". The test sample shall be prepared in accordance with method A.

Crush resistance of the finished fiber optic cables shall be 220 N/cm applied uniformly over the length of the cable without showing evidence of cracking or splitting when tested in accordance with TIA/EIA-455-41 (FOTP-41), "Compressive Loading Resistance of Fiber Optic Cables." The 220 N/cm (125 lbf/in) load shall be applied at a rate of 2.5 mm (0.1 in) per minute. The load shall be maintained for a period of 1 minute. The load shall then be decreased to 110 N/cm (63 lbf/in). Alternatively, it is acceptable to remove the 220 N/cm (125 lbf/in) load entirely and apply the 110 N/cm (63 lbf/in) load within five minutes at a rate of 2.5 mm (0.1 in) per minute. The 110 N/cm (63 lbf/in) load shall be maintained for a period of 10 minutes. Attenuation measurements shall be performed before release of the 110 N/cm (63 lbf/in) load. The change in attenuation shall not exceed 0.4 dB during loading at 1550 nm for single-mode fibers and 1.0 dB during loading at 1300 nm for multimode fiber. The repeatability of the measurement system is typically 0.05 dB or less. No fibers shall exhibit a measurable change in attenuation after load removal.

The cable shall withstand 25 cycles of mechanical flexing at a rate of 30 ± 1 cycles/minute with a sheave diameter not greater than 20 times the cable diameter. The cable shall be tested in accordance with Test Conditions I and III of TIA/EIA-455-104A (FOTP-104), "Fiber Optic Cable Cyclic Flexing Test." The magnitude of the attenuation change will be within the repeatability of the measurement system for 90% of the test fibers. The remaining 10% of the fibers will not experience an attenuation change greater than 0.1 dB at 1550 nm. The repeatability of the measurement system is typically ± 0.05 dB or less. The cable jacket will exhibit no cracking or splitting when observed under 5X magnification.

Impact testing shall be conducted in accordance with TIA/EIA-455-25B (FOTP-25) "Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies." The cable shall withstand 20 impact cycles. The magnitude of the attenuation change will be within the repeatability of the measurement system for 90% of the test fibers. The remaining 10% of the fibers will not experience an attenuation change greater than 0.1 dB at 1550 nm. The repeatability of the measurement system is typically ± 0.05 dB or less. The cable jacket will not exhibit evidence of cracking or splitting at the completion of the test.

Using a maximum mandrel and sheave diameter of 560 mm, the finished cable shall withstand a longitudinal tensile load of 2700 N (608 lbs.) applied for one hour (using "Test Condition II" of the test plan). The test shall be conducted in accordance with TIA/EIA-455-33 (FOTP-33), "Fiber Optic Cable Tensile Loading and Bending Test." The measured fiber tensile strain shall be $\leq 60\%$ of the fiber proof strain. The cable will not experience a measurable increase in attenuation when subjected to the rated residual tensile load, 890 N (200 lbf). The repeatability of the measurement system is typically ± 0.05 dB or less.

The cable shall be capable of withstanding a bending radius of fifteen (15) times the cable diameter under tensile loading and ten (10) times the cable diameter under a no-load condition.

86-12.11 Drop Cable

The drop cable shall be a 12-SMFO and shall have one (1) or two (2) fiber strand(s) spliced into the appropriate fiber strand of the main branch cable as prescribed elsewhere in the Plans and/or these Specifications. The drop cable shall have the "active fibers" terminated at its other end with a ST type connector as described elsewhere in this specification.

Optical fiber cable used for a drop cable shall comply with all other aspects of the specifications as set forth in the Specifications for optical fiber cable. The drop cable shall have sufficient length to extend from the fiber splice location to the optical interface of the associated communications equipment, allowing for routing and securing with nylon ties plus cable slack at each end, unless otherwise specified in the Plans or these Specifications or directed by the Engineer.

86-12.12 Splice Equipment

All fiber optic cable splicing performed on this project shall be of fusion type and shall not exceed 0.1 dB loss per splice.

The field splices shall connect the fibers of the two fiber optic cable lengths together. The termination splices shall connect the fiber optic cable span ends with pigtails. The field splices shall be placed in a splice tray and the splice tray with splices shall be placed in a splice closure.

The termination splices shall be placed in a splice tray and the splice tray with splices shall then be placed in a fiber distribution unit or field cabinet as required. Splices shall be protected with a thermal shrink sleeve.

The fiber optic field splices shall be enclosed in splice closures, which shall be waterproof, rodent proof, and re-enterable, and shall accommodate all the fibers in a single cable.

Splice closures shall be complete with splice organizer trays, brackets, plugs, clips, cable ties, seals and sealant, and a dry encapsulate.

The splice closure shall be suitable for either a direct burial or pull box/vault application.

86-12.13 Splice Closures and Trays

The Contractor shall furnish and install fiber optic splice closures in vaults where splicing is required. The splice closure shall be capable of accommodating and terminating the required number of cable and fiber strands as shown on the plans and shall include the required encapsulant. The splice closure shall be able to accommodate up to 4 cable entries. If all 4 cable entry holes are not required, the remaining unused entry holes will be closed such that moisture does not enter the splice closure and affect the operation of the fiber optic cable. The splice closure shall have sleeves to size the cable entry to the appropriate cable diameter. Each splice closure shall come equipped with the required number of single-mode splice trays. The Contractor shall provide all mounting hardware required to securely mount the closures to the splice vault.

Included within the splice closure, the Contractor shall also supply and install splice trays. Each splice tray shall be appropriately sized to fit inside the splice closure. The splice trays shall be of injection-molded plastic type with a clear plastic cover so allow visibility of fibers without opening the tray. Each splice tray shall handle up to 12 single-mode fusion splices.

A minimum of 3 unopened kits required for the resealing of the splice closure shall be supplied with this contract and considered as part of the necessary equipment.

Acceptable splice closures, encapsulant, trays, and reseal kits shall be from Corning Cable System, P.O. Box 489, Hickory, NC 28603 -0489, or approved equal.

86-12.14 Fiber Optic Patch Panel

Fiber optic patch panel shall be 12 ST high-density adapter bulkhead. All fibers from the cable shall be terminated into a 19" rack mount fiber optic patch panel.

86-13 IP VIDEO ENCODER MPEG4 (IPVE) (NOT USED)

86-14 LAYER 2 GIGABIT ETHERNET SWITCH TYPE 2 (GigE)

86-14.1 Description

The GigE shall be a Cisco IE-3000 managed Ethernet switch providing two SFP fiber optic Gigabit Ethernet ports and eight 10/100Mbps ports. The GigE devices are located in:

- Traffic signal cabinets
- CCTV cabinets

86-14.2 Materials

(1) Layer 2 Gigabit Ethernet Switch Type 2 (GigE)

The GigE shall meet the following minimum requirements:

The GigE field units shall be DIN rail mounted.

The GigE shall comply with the following:

- 2 - Single mode SFP Fiber Optic Gigabit-Ethernet Ports
- 2 – Single mode SFP transceiver with LC fiber connectors
- 8 - 10/100BaseTX, auto-negotiating RJ-45 ports
- Full compliance with IEEE: 802.3, 802.3u and 802.3z
- Full duplex operation and flow control compliant with IEEE 802.3x
- Full compliance with IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- Full compliance with IEEE 802.1p Quality of Service
- Full compliance with IEEE 802.1q VLAN Tagging
- Non-blocking switching
- SNMP v2 and RMON
- IGMP Snooping for multicast filtering
- Automatic learning of 8000 MAC addresses (min)
- Loss of link recovery time of less than 250ms
- Port configuration, status, statistics, security
- Telnet and CLI management interfaces
- LED indicators for link and activity
- 15dB optical link budget (min) for locations where the distance to the next switch does not exceed four miles
- 19dB optical link budget (min) for locations where the distance to the next switch exceeds four miles
- Powered from 120VAC, 60Hz (Cisco Brand)
- -34°C to +74°C operating temperature without the use of fans

The contractor shall provide fiber optic attenuators, where required.

(2) Warranty

All work and equipment shall be guaranteed for a minimum of one (1) year from the date of acceptance.

(3) Submittal Requirements

Prior to purchase or fabrication of any equipment or material for use on this project, the Contractor shall submit for review by the Engineer, appropriate catalog cut sheets and specifications for all standard, off-the-shelf items and

shall submit shop drawings and other necessary data for all non-catalog or custom-made items.

Two sets shall be submitted to the Engineer for review and approval. Detailed submittal data is required. If reprinted literature, such as catalog cut sheets, is used to satisfy some or all of the submittal data requirements, there shall be no statements on the literature that conflict with the requirements of the contract documents. Any such statements shall be crossed off and initialed by the Contractor. Explanation of how specifications shall be met pertaining to items changed from the literature shall be given. All options that the Contractor is proposing to supply shall be clearly indicated on the submittal.

Prior to completion of the project or within 15 days of the Engineer's request, provide all final configuration information for contractor installed equipment. Submit two bound paper copies and one electronic copy in the form of a Microsoft® Office® document saved to a CD-ROM. Include all configuration parameters for each device. Include device location, make and model number, serial number, date of installation, Vendor, and vendor contact information, and warrantee expiration date.

86-14.3 Construction Requirements:

The contractor shall furnish and install the communications equipment identified in this special provision as shown on the project plans.

The contractor shall install all communications equipment in a neat and orderly fashion utilizing cable ties and connector labels. The contractor shall coordinate with the Engineer on the placement and mounting of equipment within the cabinets, as well as labeling of the Ethernet switches with sequential labels provided by Seton (Style No. 35968)

(A) Installation Requirements:

- (1) The contractor shall install fiber optic communications equipment to implement communications between the ITS field devices and the TMC using Internet Protocol (IP) and IEEE 802.3 compliant equipment as shown in the project plans. The IEEE 802.3 compliant equipment shall use IEEE 802.1q VLAN tagging to assign each ITS device to a virtual local area network. The contractor shall request the VLAN and IP configuration information a minimum of 45 calendar days prior to requiring it.
- (2) The contractor shall implement Rapid Spanning Tree Protocol (IEEE 802.1w) on all Ethernet switches within the network and shall demonstrate proper operation by creating breaks at different points within the network and verifying that the network re-converges in less than 60 seconds.
- (3) The contractor shall develop and submit to the Engineer a cutover plan to connect, configure, and integrate the new and existing network

communication equipment identifying planned outages (system offline) associated with testing and integration.

(B) Testing:

The contractor shall demonstrate that communications from the TMC building and the new and existing field devices works properly. The contractor shall test each device that is connected to the TMC building.

86-14.4 Method of Measurement:

The Layer 2 Gigabit Ethernet Switch type 2 (GigE) equipment will be measured as an each, complete and in place, in accordance with the plans and special provisions.

86-14.5 Basis of Payment:

All installation will be paid for at the contract lump sum price bid for each respective traffic signal modification item as designated on the bidding schedule, complete in place; this shall be full compensation for the work described herein and on the Plans.

86-15 REMOTE COMMUNICATIONS MODULE AND SERVER

86-15.1 General

This specification sets forth the minimum requirements for a module that provides a single point interface to multiple rack-mounted video detection units. This module shall also have the capability to stream up to 4 simultaneous video streams over an Ethernet interface. Model shall be Iteris Vantage Edgeconnect or approved equal.

86-15.2 Functional Capabilities:

- (1) The interface device shall provide capabilities to enable multiple rack-mounted video detection processors to be locally and remotely accessed from a single point via one set of user interface devices. User interface devices are defined as a pointing device (mouse or track-ball) and video monitor.
- (2) Up to four video detection processor chains (video detection processor and extension modules) shall be accommodated.
- (3) The device shall allow the operator to switch video output display for any of the attached rack-mounted video detection processors by pressing a momentary switch or by using the remote access software.
- (4) Local user access to video detection programming shall be limited to the detection processor unit that is currently being displayed on the monitor.
- (5) All local programming and setup parameters for the video detection processor shall be user accessible through the interface unit without requiring the user to swap user interface cables between video detection processors.

- (6) Remote access to the device shall be through the built-in Ethernet port or EIA-232 port via access software running on a Microsoft Windows based personal computer.
- (7) An internet browser-based remote access firmware shall also be available for remote setup and diagnostics of the interface unit.
- (8) The interface unit shall support streaming video technology using MPEG4 and H.264 standards to allow the user to monitor video detection imagery over the Ethernet interface. Motion JPEG streaming video shall not be allowed.
- (9) The user shall be able to select which video input to be displayed on the output video monitor by repeatedly depressing the menu button.
- (10) The user shall be able to select a quad view of all of the four cameras simultaneously on the output video monitor by depressing the menu button.
- (11) The interface unit shall allow four independent streams, one from each video detection processor, to be transported via Ethernet to four independent streaming video players simultaneously in CIF resolution.
- (12) The interface unit shall also have a browser interface that allows the user to configure the module.
- (13) The browser interface shall also allow the user to view the streaming video on the browser interface.
- (14) The browser interface shall allow the user to select the resolution of the displayed streamed video.
- (15) The interface unit shall support the streaming and display of D1, CIF, QCIF, VGA and QVGA video resolutions in a single stream or four concurrent streams in CIF resolution.
- (16) The interface unit shall allow the user to select a quad-view of all four input video signals to be shown on the browser interface.
- (17) The interface unit shall allow the user to manage the unit's Ethernet bandwidth usage by allowing the user to select the maximum bandwidth limit between 256 kbps and 7.0 Mbps.
- (18) The browser interface shall allow the user to change the unit's Ethernet network settings of IP address, subnet mask and default gateway.
- (19) The interface unit shall allow the user to upload new application firmware through the use of the browser interface.
- (20) Access to the interface unit shall be under password control and the browser interface shall allow the user to change the password.

- (21) The interface unit shall have the capability to perform IP port redirecting between the remote management software and each attached video detection processor. A unique IP port number shall be assigned for each video detection interface. The port number shall not be identical to the web browser interface of 80.

86-15.3

Interface Device Hardware

- (1) The interface device shall be specifically designed to mount in a standard TS-1, TS-2, and 170 type detector rack, using the edge connector to obtain power. No adapters shall be required to mount the interface device in a standard detector rack.
- (2) The interface device shall occupy no more than two slots in the detector rack and shall provide a loop-type handle for easy installation and removal.
- (3) The interface device shall be powered by 12 or 24 volts DC and shall not consume more than 6.25 watts. The unit shall automatically compensate for the different input voltages and shall be hot-swappable.
- (4) The interface device shall operate in a temperature range from -35°C to +74°C and a humidity range from 0% RH to 95% RH, non-condensing.
- (5) Video Ports - The interface unit shall accommodate a maximum of four composite video inputs and one video output.
 - (a) Video inputs and video output shall be made via BNC connectors to ensure secure connections. RCA or other straight friction plug-in type connections shall not be allowed. Video inputs shall use a vendor supplied "octopus" cable to accommodate the four video inputs. Provisions shall be made to accommodate the mating cable to utilize jack screws for securing the octopus cable.
- (6) The interface unit shall accommodate either monochrome or color video signals conforming to NTSC or PAL video standards.
- (7) The interface unit shall automatically sense the video input signal and configure the video output port to either NTSC or PAL standards. Each video input signal shall be separately sensed to allow mixed video signals.
- (8) The interface unit shall interface with up to four video detection processors using RJ-45 interface connectors.
- (9) The interface unit shall support the use of USB pointing devices. The unit shall support either a USB mouse or trackball. Pointing devices shall not require vendor specific pointing device software drivers.
- (10) An EIA-232 communications port shall be provided for local and remote access. The connector for this port shall be a 9-pin "D" subminiature connector on the front of the interface unit. Provisions shall be made to accommodate mating cables to utilize jack screws for securing cables.

- (11) Hi-intensity LED status lights shall be provided to facilitate system monitory. Indicators shall be provided to show the status of the internal processor, video lock and indication of which video input is being monitored.
- (12) An Ethernet port shall be integrated within the interface unit. The Ethernet port shall conform to 802.3 Ethernet specifications and shall auto-sense between 10 and 100 Mbps data rates. Industry standard TCP/IP (UDP and TCP packets) protocol shall be supported. The Ethernet connection shall be made through a RJ-45 connector.

86-15.4 Limited Warranty

The supplier shall provide a limited three-year warranty on the video detection system. See suppliers standard warranty included in the Terms and Conditions of Sale documentation.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

86-15.5 Maintenance and Support

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the interface unit and video detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on site technical support services.

Installation or training support shall be provided by a factory authorized representative.

All product documentation shall be written in the English language.

86-15.6 Remote Communications Server

Furnish and install remote communications server to allow communication with controller cabinet equipment and other field equipment meeting the requirements specified herein.

The RCS will be used to view, modify, update, and transfer IP video streams and data streams from the field equipment in the controller cabinet to the TMC, as necessary. All hardware shall be furnished and delivered by the contractor. All operating systems and application software shall be loaded and the server shall be made fully operational prior to acceptance.

86-15.6.1 Materials

All materials provided shall be for new un-depreciated stock. Refurbished materials shall not be acceptable. All materials provided shall be currently

supported by the manufacturer, in current production, and not scheduled for end-of-life.

86-15.6.2 Remote Communications Server

The RCS shall meet the following minimum requirements:

Processor	Intel 7 th Generation Core i7 Processor @ 1.7GHz
Memory	16GB
Video Card	Intel 5000
Hard Drive	512GB Solid State
Battery Life	Up to 13.5 hours
Chassis/Screen	Tablet PC 12.3" PixelSense Display 10point Multitouch
Resolution	2736x1824 (267 PPI)
Aspect Ratio	3:2
Operating System	Windows 10 Pro
Data Ports	Full Size USB 3.0 MicroSDXC card reader Surface Connect 3.5mm Headset Jack Mini DisplayPort Cover port
Network	Wireless Wi-Fi 802.11ac/802.11 a/b/g/n Bluetooth 4.1
Cameras, Video, Audio	8.0MP rear-facing camera 1080p 5.0MP front-facing camera 1080p Dual microphones Stereo speakers with Dolby sound
Warranty/Tech Support	1 year for hardware defects and malfunctions 90 days tech support for preinstalled software
Other Equipment	Stylus Power Supply

86-15.6.3 Submittal Requirements

Prior to purchase or fabrication of any equipment or material for use on this project, the Contractor shall submit for review by the Engineer, appropriate catalog cut sheets and specifications for all standard, off-the-shelf items and shall submit shop drawings and other necessary data for all non-catalog or custom-made items.

Detailed submittal data is required. If reprinted literature, such as catalog cut sheets, is used to satisfy some or all of the submittal data requirements, there shall be no statements on the literature that conflict with the requirements of the contract documents. Any such statements shall be crossed off and initialed by the Contractor. Explanation of how specifications shall be met pertaining to items changed from the literature shall be given. All options that the Contractor is proposing to supply shall be clearly indicated on the submittal.

86-15.6.4 Construction Requirements

(1) Installation Requirements

(a) Remote Communications Server

The Contractor shall install the Remote Communications Server at locations designated by the Engineer.

(2) Testing

The Contractor shall generate a test procedure to demonstrate that the RCS is configured correctly and operating properly. The Contractor shall submit the test procedure to the Engineer for approval a minimum of one week prior to beginning any testing.

(3) Basis of Payment

Remote communications server will be paid for at the contract lump sum price bid for each respective traffic signal modification item as designated on the bidding schedule, complete in place; this shall be full compensation for the work described herein and on the Plans.

86-16 17-INCH DIAGONAL RACK MOUNT LCD MONITOR

86-16.1 General

This specification sets forth the minimum requirements for a 17-inch LCD color video monitor that is capable of being mounted in a 1U high 19-inch rack.

86-16.2 Functional Capabilities

The 17-inch diagonal color LCD monitor shall be housed in a sliding 1U high rack mount drawer.

The monitor shall be able to be flipped up vertically for viewing and flipped down horizontally for storage.

The drawer shall be able to be locked using a key to restrict unauthorized usage.

The LCD panel shall be industrial grade (Grade A) and employ thin film transistor (TFT) technology.

The LCD panel shall have a high contrast ratio of 700:1 minimum.

The LCD panel shall have a brightness level of 300 cd per square meter minimum.

The LCD panel shall have support computer resolution up to 1280 (horizontal) x 1024 (vertical).

The LCD panel shall support both NTSC and PAL video formats and shall be auto-sensing.

The LCD panel shall support 16.2 million display colors.

The typical pixel rise time shall be 2 milliseconds. The typical pixel fall time shall be 6 milliseconds.

The LCD panel shall have a pixel pitch of 0.264 (horizontal) x 0.264 (vertical) millimeters minimum.

The minimum viewing angle shall be 150 degrees horizontally and 135 degrees vertically.

The on screen display (OSD) shall enable control of brightness, contrast, phase & clock, color, horizontal and vertical positioning.

The LCD panel shall support VGA analog RGB, S-video and composite video interfaces.

The LCD panel shall have a MTBF rating of 50,000 hours minimum.

The monitor system shall be able to operate from 110 VAC or 220 VAC, 50 or 60 Hz.

The monitor system shall be FCC, VCCI, EMC and CE approved.

The monitor system shall operate between 0 and 50 degrees Celsius, 90% non-condensing.

The monitor system shall be able to accept mechanical shock of 10 G's peak acceleration (11 ms, half sine wave)

The monitor system shall be able to accept vibrations of 5 to 500 Hz at 1 G RMS random vibration.

86-16.3 Physical Characteristics

The monitor system shall be 44.2 x 4.45 x 55 cm (17.4 x 1.75 x 21.6 in.) (W x H x D).

The monitor system shall weigh no more than 10.9 kg (24 pounds).

86-16.4 Warranty

The LCD monitor shall be warranted to be free of defects in material and workmanship for a period of not less than 3 years from date of receipt.

SECTION 310 – STRIPING, PAVEMENT AND CURB MARKINGS

310-5 PAINTING VARIOUS SURFACES

310-5.6 Painting Traffic Striping, Pavement Markings, and Curb Markings.

Existing traffic stripes and markings that do not conform to the Plans shall be removed by wet sandblasting.

310-5.6.4 Geometry, Stripes, and Traffic Lanes; and 310-5.6.5 Traffic Stripes and Markings. All details and dimensions for traffic stripes and markings shall conform to the 2015 Caltrans Standard Plans.

310-5.6.5 Traffic Stripes and Markings.

All striping and pavement markings shall be thermoplastic materials conforming to State Specifications PTH-02SPRAY, PTH-02HYDRO or PTH-02ALKYD. Glass beads shall be applied to the surface of the molten thermoplastic material and shall conform to the requirements of the State Specifications 8010-004 (Type II).

Marking for disable parking shall be thermoplastic materials conforming to State Specifications or blue hot tape marking shall be made of durable skid resistant material meeting ADA requirements. Paint for blue, red and green markings shall conform to Section 84-3.02 of the Caltrans Standard Specification, 2010.

310-5.6.5.1 Application of Raised Pavement Markers. Subsection 310-5.6.5.1 is hereby added to the Standard Specifications as follows:

Where called for on the Plans, pavement markers shall be installed with or instead of painted stripes per Section 85, Pavement Markers, of the Caltrans Standard Specifications and appropriate details in the Caltrans Standard Plans.

310-5.6.5.4 All traffic paint used for traffic stripes, pavement markings, or curb markings shall conform to Section 84-3 of the Caltrans Standard Specifications. Curb markings will be re-stenciled with 4 inch numbers and letters with proper identification, such as loading zone, passenger loading zone along with times of day and parking limit time.

310-5.6.7 Layout, Alignment, and Spotting. The Contractor shall furnish the necessary control points for all striping and markings, and shall be responsible for the completeness and accuracy thereof to the satisfaction of the Engineer. No final markings shall be done without the approval of the engineer in the field.

Spotting shall be completed prior to the removal of any existing stripes. Existing stripes and markings shall be removed prior to painting new stripes and markings, but in no case shall any section of street be left

without the proper striping for more than 24 hours, or over weekends or holidays. All lanes open to public traffic shall have lane line delineation.

310-5.6.8 Application of Paint. All paint shall be applied in two coats, the second coat shall be applied after the first coat is dry. Reflective material shall be applied as specified in Section 210-1.6.1 of the Standard Specifications.

320-5.6.10.1 Measurement and Payment. The first paragraph of Subsection 310-5.6.10 of the Standard Specifications is hereby deleted and replaced with the following:

Payment for traffic striping, marking and raised pavement markers will be considered as included in the lump sum price bid for each respective traffic signal modification item and in the unit price bid for the other items of work and no additional compensation will be allowed therefore.

SECTION 312 - SIGNS

Section 312 is hereby added to the Standard Specifications as follows:

312-1 Traffic Signs

312-1.1 General. All details and dimensions for traffic signs and the installation thereof shall conform to the latest editions of the California Department of Transportation Traffic Sign Specifications, Standard Plans, and Standard Specifications. Materials shall be certified as meeting all applicable specifications. Copies of the Standard Plans, the Specifications, and the Manuals are available from the State of California, Department of Transportation, Central Publication Distribution Unit, 6002 Folsom Boulevard, Sacramento, CA 95819.

312-1.2 Sign Installation and Relocation. New or relocated signs shall be installed using 2-inch square unistrut type posts set a minimum 24-inches deep in a minimum 12-inch diameter P.C.C. The length of the metal post shall be sufficient to extend from the top of the sign to the bottom of the concrete footing and provide seven feet clearance between finish grade and the bottom of the sign(s). New or relocated signs shall be installed using $\frac{3}{4}$ stainless steel banding .025 thick and buckles.

Aluminum side mount brackets for non-illuminated street name sign installations or relocations on to traffic signals standards shall be for a 9-inch wide street name sign. The bracket shall be fastened to the sign by 2 hex bolts that are 5/16 by 1-1/4 with locking nuts and washers. The bracket shall hold a sign blank that is 1/8 inch thick and be banded to light pole or traffic signal using $\frac{3}{4}$ inch wide by .025 thick stainless steel banding and buckles.

All signs shall be retroreflective and shall be certified as meeting all applicable requirements. All school warning, crosswalk warning, advanced warning signs for both crosswalks and schools shall have Fluorescent yellow green retroreflective sheeting with overlay as specified in attached sheeting requirement tables.

312-1.3 Payment for Traffic Signs. Payment for traffic signs will be considered as included in the lump sum price bid for the respective traffic signal modification bid item and in the unit price bid for the other items of work and no additional compensation will be allowed therefore.

312-2 Sheeting Requirements. Signs shall conform to the following sheeting requirements or approved equal:

Retroreflective Sheeting Requirements on Street Signs

Category	Color Combo	Sheeting Type		
		Microprismatic		Protective Film Clear
		HIP	DGC	
Guide	WHITE ON GREEN	RS	OH	Required
Guide	WHITE ON BLUE	RS, OH	NR	Required
Guide	WHITE ON BROWN	RS, OH	NR	Required
Warning	BLACK ON YELLOW	RS, OH	NR	Required
Warning	BLACK ON FY	DNU	RS, OH	Required
Warning	(1) BLACK ON FYG	DNU	RS, OH	Required
Temporary	BLACK ON ORANGE	RS	NR	Required
Temporary	(2) BLACK ON FRO	DNU	RS, OH	Required
Regulatory	BLACK ON WHITE	RS, OH	NR	Required
Regulatory	WHITE ON RED	RS	NR	Required
Regulatory	(3) RED ON WHITE	RS	NR	Required
Regulatory	(3) GREEN ON WHITE	RS	NR	Required
Other	(4) NON-TCD SIGNS	RS	NR	Required

LEGEND: RS = OK on roadside signs OH = OK on overhead signs DNU = Do Not Use NR = Not required FY = Fluorescent Yellow FYG = Fluorescent Yellow Green FRO = Fluorescent Orange or Fluorescent Red Orange DGC = 3M Diamond Grade Cubed HIP = 3M High Intensity Prismatic	FOOTNOTES: (1) For school zone and pedestrian crossing. (2) Fluorescent orange is a color that appears brighter in daylight and twilight. (3) Parking type signs (4) E.G., Adopt-A-Highway. Click It Or Ticket, Report Drunk Drivers, etc.	NOTES: 1 Use same "Type" for legend & background on same sign. 2 Black is non-reflective and does not have an ASTM designation.
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312-3 HIGH PERFORMANCE PRISMATIC RETROREFLECTIVE SHEETING

312-3.1 Scope

This specification covers flexible white or colored, prismatic retroreflective sheeting (hereinafter called sheeting), and related processing materials designed to enhance nighttime visibility of traffic control signs and objects. The sheeting shall consist of cube corner prismatic optics encapsulated by a flexible transparent plastic film that has a smooth outer surface. The sheeting shall have a precoated adhesive protected by an easily removable liner.

The sheeting shall be part of a family of products required for the manufacture and imaging of traffic control signs as described in Section 312-3.4. Imaged (printed or overlain) areas of signs are covered only by Section 312-3.2, Section 312-6.2, Table 1, Section 312-3.6.3 and Table 2.

312-3.2 Prequalification and Performance History

Materials shall be considered for use only when, in the opinion of the agency, sufficient evidence exists to ensure that the materials and services offered can reliably conform to this specification. The sheeting manufacturer shall provide evidence of performance and suitability for use in accordance with the Agency's Qualified Products Procedures

312-3.3 Classification and Conformance

The sheeting shall meet the performance requirements contained in *all* of the standards and specifications listed below, as modified herein. The sheeting need not conform to any construction or composition limitations included in the reference specifications; and the retroreflectance measurements shall be limited to observation angles less than 2.0°.

AASHTO M 268 Type III and Type IV	AS/NZ 1906.1 Class 1
ASTM D 4956 Type III and Type IV	BS 873 Class 1
CGSB 62-GP-11 Type 1	DIN 67520 Type 2
EN 12899-1 Class 2	FP-03 Type III and Type IV
GB/T 18833 Class 3	JT/T 279 Class 3
NBR 14644 Type II	NTC 4739 Type III and IV
SABS 1519.1 Class III	

The adhesive shall be a pressure-sensitive adhesive of the aggressive tack type requiring no heat, solvent or other preparation for adhesion to smooth, clean surfaces when properly applied at temperatures above 50°F. For application to rough surfaces, a surface primer may be required.

312-3.4 Imaging Systems

312-3.4.1 Process Inks

The process colors shall be a single line of traffic colors which may be applied before and after the sheeting is applied to a substrate; require no component premixing; and will air dry for packing in 4 hours or less and requires no clear coating.

312-3.4.2 Overlay Films

The sheeting manufacturer shall also manufacture colored imaging films and clear protective overlays, which are compatible with the sheetings, and when used in

accordance with the sheeting manufacturer's instructions shall not lessen the warranty term as described in Section 312-3.7.2.

312-3.5 Test Panels and Test Conditions

Unless otherwise specified herein, when tests are to be performed using test panels, the specimens shall be applied to smooth aluminum 0.020 in. (0.508 mm), 0.040 in. (1.016 mm) or 0.063 in. (1.600 mm) in thickness cut from Alloy 6061-T6 or 5052-H38. The aluminum shall be degreased and lightly acid etched before the specimens are applied. Unless otherwise specified, all test samples shall be conditioned for 24 hours prior to testing and all tests shall be conducted at a temperature of $73 \pm 3^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and $50 \pm 5\%$ relative humidity.

312-3.6 Material Requirements

312-3.6.1 Color Requirements:

Color shall be as specified and shall conform to the requirements for standard highway colors as defined all the standards and specifications listed in Section 312-3.3 above.

312-3.6.2 Coefficient of Retroreflection:

The coefficients of retroreflection shall be determined in accordance with ASTM E-810, for the minimum requirements of Table 1, as specified.

312-3.6.2A Units: Coefficients of retroreflection shall be specified in units of candelas per lux per square meter. The observation angles shall range from 0.2° to 1.0° . The entrance angles shall range from -4° to 40° .

312-3.6.2B For screen printed transparent colored areas on white sheeting, the coefficients of retroreflection shall not be less than 70% of the values for corresponding color in the above table. Standard traffic colors not available in integrally colored sheeting may be produced using acrylic overlay films.

312-3.6.3 Color Processing:

The retroreflective sheeting shall be designed to work in concert with recommended imaging systems. Color processing with compatible transparent and opaque process colors shall be possible in accordance with the sheeting manufacturer's recommendation at temperatures of 66 to 100°F (16 to 38°C) and relative humidity of 20 to 80%. The sheeting shall be heat resistant and permit force curing without staining of applied or unapplied sheeting at temperatures recommended by the sheeting manufacturer.

312-3.6.4 Flexibility:

The reflective sheeting shall be sufficiently flexible to show no cracking during application to substrates in accordance with the manufacturer's instructions.

312-3.6.5 Adhesion:

The retroreflective sheeting shall comply with the liner removal and adhesion requirements contained in the standards and specifications listed in Section 312-3.3.

312-3.6.6 Impact Resistance:

The retroreflective sheeting shall comply with the impact resistance requirements contained in the standards and specifications listed in Section 312-3.3.

312-3.6.7 Resistance to Accelerated Weathering:

The retroreflective sheeting shall comply with the weathering resistance requirements contained in the standards and specifications listed in Section 312-3.3.

312-3.6.8 Resistance to Heat, Cold and Humidity:

Three samples of retroreflective sheeting, 3 x 6 inch, applied to test panels in accordance with Section 312-3.5 above, shall be exposed as follows:

312-3.6.9 Heat:

One specimen shall be placed in an oven at $160^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ($71^{\circ}\text{C} \pm 3^{\circ}\text{C}$) for 24 hours, then conditioned as in Section 312-3.5 for 2 hours.

312-3.6.10 Cold:

The second specimen shall be exposed to an air temperature of $-70^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ($57^{\circ}\text{C} \pm 3^{\circ}\text{C}$) for 72 hours, then conditioned as in Section 312-3.5 for 2 hours.

312-3.6.11 Humidity:

The final specimen shall be subjected to 100% relative humidity at a temperature of $75^{\circ} - 78^{\circ}\text{F}$ ($23^{\circ} - 27^{\circ}\text{C}$) in accordance with US Federal Test Method Standard 141, method 6201, for 24 hours, then conditioned as in Section 312-3.5 for 24 hours.

Examination of each of the three samples following the exposures shall show no evidence of cracking, peeling, chipping or delamination from the test panel. After heat exposure the sheeting shall retain a minimum of 85% and a maximum of 115% of the original coefficient of retroreflection when measured at room temperature.

Table 1
Minimum Coefficient of Retroreflection
(Candelas per Lux per Square Meter)

White

	-4/5	30	40
0.2	360	175	90

Green

	-4/5	30	40
0.2	50	30	8

0.5	150	70	45
1.0	20	10	9.0

Yellow

	-4/5	30	40
0.2	270	135	65
0.5	110	60	32
1.0	14	8.5	7.0

Red

	-4/5	30	40
0.2	65	35	15
0.5	27	14	7
1.0	3.0	2.0	1.0

Orange

	-4/5	30	40
0.2	145	70	29
0.5	60	28	14
1.0	5.0	3.0	1.0

0.5	21	12	3.0
1.0	2.0	2.0	0.8

Blue

	-4/5	30	40
0.2	30	14	5.0
0.5	13	6.0	2.0
1.0	1.0	0.8	0.5

Brown

	-4/5	30	40
0.2	18	8.5	2.0
0.5	7.5	3.5	1.0
1.0	1.0	0.2	0.1

312-3.7 Performance Requirements and Obligations

312-3.7.1 Certification. The sheeting manufacturer shall submit with each lot or shipment, certification that states that the material supplied will meet all the requirements listed herein.

312-3.7.2 Field Performance Requirements

Sheeting processed and applied to sign blank materials in accordance with sheeting manufacturer's recommendations, shall perform effectively for the number of years stated in Table 2 of this specification. The retroreflective sheeting will be considered unsatisfactory if it has deteriorated due to natural causes to the extent that: (1) the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions; or (2) the coefficient of retroreflection is less than the

minimum specified for that sheeting during that period listed in Table 2. All measurements shall be made after sign cleaning according to sheeting manufacturer's recommendations.

Table 2
Minimum Coefficient of Retroreflection
(.2° obs, and -4° entrance)

Candelas per Lux per Sq-Meter

Sheeting Color	Minimum Coefficient of Retro. (7 years) ¹	Minimum Coefficient of Retro. (10 years)
White	288	250
Yellow	216	170
Green	40	35
Red	52	45
Blue	24	20
Brown	14	12
Orange	100	

For screen printed transparent colored areas on white sheeting, the coefficients of retroreflection shall not be less than 70% of the values for the corresponding color in the above table.

312-3.7.3 Sheeting Manufacturer's Replacement Obligation

Where it can be shown that retroreflective traffic signs manufactured with sheeting supplied and used according to the sheeting manufacturer's recommendations have not met the performance requirements of Section 312-3.7.2 due to internal defects, the sheeting manufacturer shall cover restoration costs as follows for sheetings shown to be unsatisfactory during:

312-3.7.3A The entire ten years (three years for work zone materials): the sheeting manufacturer will replace the sheeting required to restore the sign surface to its original effectiveness.

312-3.7.3B In addition, during the first seven years (excluding work zone materials): the sheeting manufacturer will cover the cost of restoring the sign surface to its original effectiveness at no cost to the using Agency for materials and labor.

312-3.7.4 Government Using Agency Obligation

The using Agency shall be responsible for requiring the dating of all signs at the time of application. That date constitutes the start of the field performance obligation period.

312-4 SUPER-HIGH EFFICIENCY, FULL CUBE RETROREFLECTIVE SHEETING

¹ When sheeting is used in temporary work zone applications the warranty period shall be limited to 3 years

NOTICE: This specification contains a sheeting manufacturer's field performance obligation Section 312-4.7.2 which shall apply only when included and made part of a bid request, proposal, and/or purchase agreement of (Agency).

312.4.1 Scope

This provisional specification covers flexible white or colored, Super-High Efficiency Full Cube Retroreflective Sheeting (hereinafter called sheeting), tape and related processing materials designed to enhance nighttime visibility of traffic control signs and objects. The sheeting shall consist of full cube prismatic lens elements with a distinctive interlocking diamond seal pattern visible from the face of a smooth surface. The sheeting shall have a precoated adhesive protected by an easily removable liner.

The sheeting shall be part of a family of matched component products required for the manufacture and imaging of traffic control signs as described in Section 312-4.4. Only Section 312-4.2, Section 312-4.6.5, Section 312-4.6.4, and Section 312-4.7.2 cover printed colored areas of signs.

312.4.2 Prequalification

Materials (sheeting, process colors, overlay films) shall be considered for use only when, in the opinion of (Agency), sufficient evidence exists to ensure that the materials and services offered can reliably conform to this provisional specification.

312-4.3 Classification and Conformance

312-4.3.1 The sheeting shall conform to ASTM D 4956-05 as modified by this special provision.

312-4.4 Items to be Included in Bids

312-4.4.1 Process Colors

312-4.4.1A The manufacturer of the sheeting shall manufacture and offer process colors in standard traffic colors, clears and thinners recommended for the sheeting to meet the performance requirements of this specification.

312-4.4.1B The process colors shall be a single line of traffic colors which may be applied before and after sheeting is applied to a substrate, require no component premixing, and will air dry for packing with proper ventilation in 3 hours or less and require no clear coating.

312-4.4.2 Overlay Films

The sheeting manufacturer shall also manufacture colored acrylic imaging films and clear protective overlays, which are compatible with the sheetings, and when used in accordance with the sheeting manufacturer's instructions, shall not lessen the warranty term as described in Section 312-4.7.2.

312-4.5 Test Panels and Test Conditions

Unless otherwise specified herein, sheeting shall be applied to test panels in accordance with ASTM D 4956-05, Section 312-4.7.2 and test conditions shall conform to ASTM D 4956-05 Section 312-4.7.1.

312-4.6 Requirements

312-4.6.1 Color Requirements

312-4.6.1.1 Colors

Color shall be as specified and shall conform to the requirements of ASTM D 4956-05, Table 17. Luminance factors shall conform to Table 10 for ordinary colors and Table 14 for fluorescent colors.

312-4.6.1.2 Ordinary Colors

Conformance to standard chromaticity (x , y) and luminance factor ($Y\%$) requirements shall be determined by instrumental method in accordance with ASTM E 1164 on sheeting applied to smooth aluminum test panels cut from Alloy 6061-T6 or 5052-H38. The values shall be determined on a HunterLab ColorFlex 45/0 spectrophotometer. Computations shall be done for CIE Illuminant D65 and the 2° standard observer.*

312-4.6.1.3 Fluorescent Colors

Conformance to standard chromaticity (x , y) and luminance factor ($Y\%$) requirements shall be determined by instrumental method in accordance with ASTM E 991 on sheeting applied to smooth aluminum test panels cut from Alloy 6061-T6 or 5052-H38. The values shall be determined on a HunterLab ColorFlex 45/0 spectrophotometer. Computations shall be done for CIE Illuminant D65 and the 2° standard observer.*

* The instrumentally determined color values of ordinary and fluorescent colored retroreflective sheeting can vary significantly depending on the make and model of colorimetric spectrophotometer as well as the color and retroreflective optics of the sheeting (David M. Burns and Timothy J. Donahue, Measurement Issues in the Color Specification of Fluorescent-Retroreflective Materials for High Visibility Traffic Signing and Personal Safety Applications, Proceedings of SPIE: Fourth Oxford Conference on Spectroscopy, 4826, pp. 39-49, 2003). For the purposes of this document, the HunterLab ColorFlex 45/0 spectrophotometer shall be the referee instrument.

312-4.6.2 Coefficient of Retroreflection

312-4.6.2.1 Conformance to minimum requirements for Retroreflectance is determined as follows:

312-4.6.2.2 Three 8 in. x 8 in. samples spaced evenly across and down a representative piece of sheeting shall be taken. The Coefficient of Retroreflection (R_a) shall be determined for each of the three samples per

ASTM E810. The average of the three values shall comply with the stated minimum table value and no single sample shall be less than 80% of the table value.

312-4.6.2.3 The observation angles shall be 0.2°, 0.5°, 1.0°.

312-4.6.2.4 The entrance angles shall be -4° and 30°.

312-4.6.2.5 For screen printed transparent colored areas or transparent colored overlay films on white sheeting, the coefficients of retroreflection shall not be less than 70% of the values for corresponding color in Table I.

312-4.6.3 Fractional Retroreflectance

The optical design of the sheeting shall be such that when measured at an entrance angle of -4° the fractional retroreflectance within a 2° observation angle cone, as defined in ASTM E808 as R_T with $\alpha_{max} = 2^\circ$, is at least 55%.

Table I
Minimum Coefficient of Retroreflection
(cd/lux/m²)

White	-4	30
0.2	570	215
0.5	400	150
1.0	120	45

Blue	-4	30
0.2	26	10
0.5	18	6.8
1.0	5.4	2.0

Yellow	-4	30
0.2	425	160
0.5	300	112
1.0	90	34

FYG	-4	30
0.2	455	170
0.5	320	120
1.0	96	36

Red	-4	30
0.2	114	43
0.5	80	30
1.0	24	9

FY	-4	30
0.2	340	130
0.5	240	90
1.0	72	27

Green	-4	30
0.2	57	21
0.5	40	15
1.0	12	4.5

FO	-4	30
0.2	170	64
0.5	120	45
1.0	36	14

Indicates that the protective liner can be removed exposing the adhesive and providing adequate bond to the substrate or the sign. Results in a smooth, efficient, long term application to the substrate

312-4.6.4 Color Processing

The retroreflective sheeting shall be designed to work in concert with recommended imaging systems. Color processing with compatible transparent and opaque process colors shall be possible in accordance with the sheeting manufacturer's recommendation at temperatures of 60° to 100°F (16° to 38°C) and relative humidity of 20% to 80%. The sheeting shall be heat resistant and permit force curing without staining of applied or unapplied sheeting at temperatures recommended by the sheeting manufacturer.

312-4.6.5 Shrinkage

The retroreflective sheeting shall comply with the shrinkage requirements contained in ASTM D 4956-05 Section 312-4.6.6.

312-4.6.6 Adhesive

The retroreflective sheeting shall comply with the liner removal and adhesion requirements contained in ASTM D 4956-05 Sections 312-4.6.8 and 312-4.6.9 respectively.

312-4.6.7 Optical Stability

Three samples of retroreflective sheeting applied to test panels and conditioned as in Section 312-4.5 shall each first have their photometric properties characterized by measuring the coefficients of retroreflection in accordance with ASTM E 810 at all test geometries shown in Table I. These panels shall then be exposed in an air circulating oven at $160 \pm 5^\circ\text{F}$ ($71 \pm 3^\circ\text{C}$) for a period of 24 hours. After exposure the panels shall be allowed to condition according to the provisions of Section 312-4.5. These panels will again be characterized for photometric properties by measuring the coefficients of retroreflection at all test geometries measured before exposure.

The coefficients of retroreflection measured after exposure shall be between 85% and 115% of the values measured before exposure for each of the three samples.

312-4.6.8 Fungus resistance

The retroreflective sheeting shall comply with the supplementary requirements contained in section S1 of ASTM D 4956-05.

312-4.6.9 General Characteristics and Packaging

The retroreflective sheeting as supplied shall be of good appearance, free from ragged edges, cracks and extraneous materials and shall be furnished in either rolls or sheets.

When furnished in continuous rolls, the number of splices shall not be more than two per 50 yards (45.7 m) of material, with a maximum of three pieces in any 50-yard (45.7 m) length. Splices shall be butted or overlapped and shall be suitable for continuous application as furnished.

The sheeting shall be packaged in accordance with commercially accepted standards. Each carton shall clearly stipulate the brand, quantity, size, lot or run number, color and type adhesive. Stored under normal conditions the retroreflective sheeting as furnished shall be suitable for use for a minimum period of one year.

312-4.7 Performance Requirements and Obligations

312-4.7.1 Certification

The sheeting manufacturer shall submit with each lot or shipment, a certification that states the material supplied will meet all the requirements listed herein.

312-4.7.2 Field Performance Requirements

312-4.7.2.1 For Permanent Signing – Ordinary Colors:

Sheeting manufactured of ordinary colors and processed and applied to sign blank materials in accordance with sheeting manufacturer's recommendations, shall perform effectively for at least 12 years. The retroreflective sheeting will be considered unsatisfactory if it has deteriorated due to natural causes to the extent that: (1) the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions; or (2) the coefficient of retroreflection is less than the minimum specified for that sheeting during that period listed.

80% of values listed in Table I up to 7 years and
70% of values listed in Table I up to 12 years

Failure of process colors or overlay films provided and/or sold for use on recommended sheeting shall constitute a failure of the sign and shall be replaced under the manufacturer's replacement obligations (Section 312-4.7.3).

For screen printed transparent colored areas or transparent colored overlay films on white sheeting, the coefficients of retroreflection shall not be less than 70% of the values for the corresponding integral color.

All measurements shall be made after sign cleaning according to the sheeting manufacturer's recommendations.

312-4.7.2.2 For Permanent Signing – Fluorescent Colors:

Sheeting manufactured of fluorescent colors and processed and applied to sign blank materials in accordance with sheeting manufacturer's recommendations shall perform effectively for the number of years stated in this specification. The retroreflective sheeting will be considered unsatisfactory if it has deteriorated due to natural causes to the extent that: (1) the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions; or (2) the coefficient of retroreflection is less than the minimum specified for that sheeting during that period listed.

80% of values listed in Table I up to 7 years* and

70% of values listed in Table I up to 10* years

Failure of process colors or overlay films provided and/or sold for use on recommended sheeting shall constitute a failure of the entire sign and shall be replaced under the manufacturer's replacement obligations (Section 312-4.7.3).

All measurements shall be made after sign cleaning according to sheeting the manufacturer's recommendations.

* 5 years in states listed in Table II

* 7 years in states listed in Table II

<u>Table II</u> Minimum Total Luminance Factor (All measurements shall be made after cleaning according to manufacturer's recommendations)		
Color	Warranty Period	Minimum Total Luminance Factor Y _T %
Fluorescent Yellow	10 Years*	45%
Fluorescent Yellow Green	10 Years*	60%

*Due to climatic conditions, the warranty in the following states will be a seven year warranty: Alabama, Arizona, Florida, Georgia, Hawaii, Louisiana, Mississippi, New Mexico, South Carolina, Texas

312-4.7.2.3 For Temporary Signing – Fluorescent Orange Colors

Sheeting manufactured of fluorescent orange and applied to sign blank material in accordance with the sheeting manufacturer's recommendations, is expected to perform effectively for a minimum of three years. The retroreflective sheeting will be considered unsatisfactory if it has deteriorated due to natural causes to the extent that: (1) the sign is ineffective for its intended purpose or (2) retains less than 50% of the coefficient of retroreflection values listed in Table I at 0.2 degrees observation, -4 degrees entrance (measured in accordance with ASTM E810).

All measurements shall be made after sign cleaning according to the sheeting manufacturer's recommendations.

Natural causes include effects of exposure to weather. Natural causes exclude (without limitation) damage from exposure to chemicals, abrasion and other mechanical damage (such as from fasteners used to mount the sign, collisions or mishandling), vandalism, or malicious mischief.

312-4.7.3 Sheeting Manufacturer's Replacement Obligation

312-4.7.3.1 For ordinary colors where it can be shown that retroreflective signs, supplied and used according to the sheeting manufacturer's recommendations, have not met the performance requirements of Section 312-4.7.2, the sheeting

manufacturer shall cover restoration costs as follows for sheetings shown to be unsatisfactory during:

312-4.7.3.1A For the entire 12 years, the sheeting manufacturer will replace the sheeting required to restore the sign surface to its original effectiveness.

312-4.7.3.1B In addition, during the first seven years the sheeting manufacturer will cover the cost of restoration of the sign surface to its original effectiveness at no cost to (Agency) for materials and labor.

312-4.7.3.2 For fluorescent colors where it can be shown that retroreflective signs, supplied and used according to the sheeting manufacturer's recommendations, have not met the performance requirements of Section 312-4.7.2, the sheeting manufacturer shall cover restoration costs as follows for sheetings shown to be unsatisfactory:

312-4.7.3.2A For those states with a 10 year warranty, if the failure occurs within the first 7 years from the date of fabrication, the sheeting manufacturer shall, at its expense, restore the sign surface to its original effectiveness.

312-4.7.3.2B If the failure occurs in the 8th through the 10th year from the date of fabrication, the sheeting manufacturer will furnish the necessary amount of sheeting to restore the sign surface to its original effectiveness.

312-4.7.3.2C Replacement sheeting shall carry the unexpired warranty of the sheeting it replaces.

312-4.7.3.2D For those states with a 7 year warranty, if the failure occurs within the first 5 years from the date of fabrication, the manufacturer will, at its expense, restore the sign surface to its original effectiveness.

312-4.7.3.2E If the failure occurs within the 6th or 7th year from the date of fabrication, the manufacturer will furnish the necessary amount of sheeting necessary to restore the sign surface to its original effectiveness.

312-4.7.3.2F Replacement sheeting shall carry the unexpired warranty of the sheeting it replaces.

312-4.7.3.3 For temporary signing, fluorescent orange, where it can be shown that the retroreflective sheeting fails to conform to the performance requirements of Section 312-4.7.2, the sheeting manufacturer's sole responsibility and purchaser's and user's exclusive remedy shall be:

312-4.7.3.3A Provide replacement sheeting. This sheeting shall carry the unexpired warranty of the sheeting it replaces

312-4.7.3.4 (Agency) Obligation

(Agency) shall be responsible for requiring the dating of all signs at the time of application. That date constitutes the start of the field performance obligation period.

312-4.8 Applicable Documents

The following documents, of the issues in effect on the date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

312-4.8.1 ASTM Standards

D 4956 Standard Specification for Retroreflective Sheeting for Traffic Control.

312-4.8.2 E 810 Standard Test Method for Coefficient of Retroreflection of Retroreflective Sheeting.

312-5 PREMIUM PROTECTIVE OVERLAY FILM

312-5.1 Scope

This specification covers premium transparent protective overlay film designed for application to sign faces reflectorized with retroreflective sheeting to provide a superior barrier to staining by graffiti and other markings.

312-5.2 Description

The protective overlay film shall be a clear, non-chlorinated, colorless film which may be used in lieu of clear coating. It shall be durable, solvent resistant and shall be coated with a transparent, UV stabilized pressure sensitive adhesive protected by an easily removable paper liner.

312-5.3 Compatibility

The protective overlay film shall be compatible with reflective sheeting and inks used for signing. This compatibility shall be clearly designated by the manufacturers of each component or, alternately, each component shall be produced by a single manufacturer.

312-5.4 Performance Requirements

312.5.4.1 Tensile Strength. A 1" (25mm) wide sample of protective overlay film, with the liner removed shall have a minimum tensile strength of 4500 psi when tested at 72°F (23°C) using a jaw speed of 5 inches per minute.

312-5.4.2 Dimensional Stability. The protective overlay film, without adhesive, shall have a minimum melt point of 520°F (270°C).

312-5.4.3 Color. When protective overlay film is applied in accordance with the manufacturer's recommendation over retroreflective sheeting, the color of the film/sheeting composite shall conform to the color requirements of the screen processed colors for the type of sheeting material used.

312-5.4.4 Transparency. The overlay film, without adhesive, shall provide a minimum of 95% transmittance of light in the visible range (400 - 700 nanometers.) The overlay film shall remain transparent through the expected life of the sheeting to which it is applied.

312-5.4.5 Solvent Resistance. The protective overlay film, without adhesive shall show no swelling or crazing after immersion in any of the following solvents for 7 days:

- Methylene Chloride
- Toluene
- Ethyl Acetate
- Gasoline
- Mineral Spirits
- Naphtha

312-5.4.6 Cleanability. The overlay film manufacturer shall identify acceptable cleaning systems sufficient to clean paint and other surface contaminants without damaging the sign face.

312-5.4.7 Field Performance. The expected performance life of a sign face constructed of overlay film and reflective sheeting shall be equivalent to the expected performance life of the retroreflective material used.

312-5.4.8 Storage. The overlay film, when stored in accordance with the manufacturer's recommendations shall be suitable for use up to 1 year from date of purchase.

SECTION 11 – CONSTRUCTION OF WATER FACILITIES

A. GENERAL:

11.1 MAINTAINING CUSTOMER WATER SERVICE

Allowed system shutdown time is described in Sections 11.15 (*Potable Water System Shut-down*) and 11.30 (*Joining A New Potable Water Main to an Existing Main (a.k.a. Tie-ins or Cut-ins)*), herein.

11.2 WATER SUPPLY

The Contractor shall furnish and install, at his/her own expense, all piping or other necessary apparatus required to make water available for the purpose of construction, field hydrostatic tests, pipe flushing, and chlorination. The City will furnish water to the Contractor at fire hydrant connections near the site of work and that are convenient to the City. A temporary water meter is required at all fire hydrants where water is to be drawn. For more information about temporary water meter, please contact GWP Water Engineering at (818) 548-2062.

B. EARTHWORK:

11.3 GENERAL

The Contractor shall perform all excavation necessary or required for the construction of the pipelines and appurtenances, as shown on the drawings and/or in the Specifications. Excavations shall include the removal and disposal of all materials of whatever nature encountered, including all obstructions of every nature that would interfere with the proper construction and completion of the work. Any existing improvements not designated for permanent removal that are interfering and need to be removed to accomplish the excavation work shall be restored to their existing condition or better after the excavation work has been completed. The Contractor shall include the furnishing, placing and maintaining of timbering and shoring necessary to safely support the sides of the excavations. All work performed shall comply with the Construction Safety Orders of the California Division of Industrial Safety. The work shall also include all pumping, ditching and other required measures for the removal or exclusion of water.

In cutting or breaking up the street, parking lot surfacing and other existing improvements, the Contractor shall not use equipment which will injure, damage, or endanger nearby surface or subsurface facilities or improvements of any type.

The maximum allowable length of open trench shall not be greater than the distance needed to accommodate the amount of pipe installed in a single day. The distance is the collective length, including excavation, construction, pipe laying, and necessary repairs to existing utilities that may have been damaged by the Contractor during construction of the pipeline, compacted soil backfilling (or slurry backfill) and temporary repaving at any one location.

It shall be the responsibility of the Contractor to dispose of all water released from the City's mains, including water released as a result of system valve leakage during system shut-down. The Contractor shall also take care of drainage water from the construction operations, and of storm water and waste water reaching the street right-of-way from any source, so that no damage will be done to the trench, pipe or structures; and the Contractor shall be responsible for any damage to persons or property on or off the right-of-way due to such drainage water or to interruption or diversion of such storm or waste water on account of his/her operations.

11.4 PAVEMENT REMOVAL

All asphalt cement pavement removals shall be made to clean straight lines saw cut to a minimum of one-and-one-half inches (1.5") deep. All Portland cement concrete pavement removals shall be to clean straight lines saw cut to the full thickness of the concrete pavement. If the normal cut line is less than three feet (<3') from previous cut lines, or less than three feet (<3') from concrete expansion joints and edges, the existing pavement shall be removed to said cut lines, joints and edges or as directed by the Owner or

his/her designee. Pavement saw cuts shall not extend beyond the boundaries for that section of pavement to be removed.

Over-cutting of pavement removals will not be accepted.

During trenching, excavation and sub-grade preparation, the Contractor shall take all necessary steps to insure the protection of all improvements, whether public or private, including utilities and their service connections, from any damage that could occur due to its operation.

11.5 EXCAVATION & TRENCHING

Excavation for the pipelines and appurtenances shall be in open-cut trenches with vertical sides as shown on the drawings and in accordance with CAL/OSHA codes and regulations. If it becomes necessary to excavate below the established grade line in order to remove rock, hardpan, shale or other interfering objects, the void shall be filled with fine granular material and compacted to not less than ninety percent (90%) of the maximum density as determined by test methods in accordance with Standard Specifications for Public Works Construction (2021 Edition), Section 211.

Wherever excavation is made below the required grade of the ditch bottom owing to an error, the excess excavation shall be refilled to proper grade with suitable selected excavated material, moistened and compacted in layers by means of power driven tampers of an approved type. The trench bottom shall then be prepared as required under Section 11.6 (*Pipe Bedding and Shading*), described below.

Wherever excavation is in soft unstable soils which do not provide a satisfactory bedding for the pipe, sand shall be brought in and the trench bottom shall be prepared as required under Section 11.6 (*Pipe Bedding and Shading*) at no additional cost to the City.

Storage of excavated earth material will not be permitted within the street right-of-way. Hauling, storing and acquiring a temporary storage site for excavated earth material shall be the responsibility of and at the expense of the Contractor.

All earth work should be done in accordance with **City of Glendale Public Works Department, Engineering Division, Standard Plan No. 25-153.**

Protective Fencing for Open Trench Excavation:

The Contractor shall install temporary protective fencing for open trench excavation where necessary for pedestrian and vehicular safety.

All costs for temporary protective fencing shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefor.

11.6 PIPE BEDDING AND SHADING

The bottom of the trench shall be brought to finished grade for pipe bedding with a 4-inch minimum thickness of sand material compacted by tamping to ninety-five percent (95%) of the maximum density as determined by test methods in accordance with Standard Specifications for Public Works Construction (2021 Edition), Section 211. The new water pipe shall then be laid on the prepared bedding and installed per all applicable AWWA requirements and best practices. Additional sand shall then be placed in the trench and on top of the installed pipe to a 12-inch minimum thickness above the top of the water pipe, and then compacted to ninetyfive percent (95%) density. This procedure of covering the pipe with sand is known as pipe "shading". The details for the bedding are shown on GWP Standard Water Drawing No. 6722-A, "*Standard Trench for New Water Main Installation*". The pipe bedding mix design shall be submitted to the City for review and approval prior to ordering and placement. The cost for furnishing the sand and performing all the required work shall be included in the bid price for the pipe installation work.

11.7 BACKFILL, COMPACTION, AND SUB-GRADE PREPARATION

A. General

Trench backfill shall be as required on the Plans and per the requirements of the City of Glendale Public Works (P.W.) Department Excavation Permit.

Slurry Backfill

Slurry backfill shall consist of a one-sack cement-sand slurry mixture. The details for slurry backfill of a water main trench are shown on GWP Standard Water Drawing No. 6722-A, "*Standard Trench for New Water Main Installation*", Case 2: Slurry Backfill, Sheet No. 2 of 2. After sand bedding/backfill has been placed to a depth of 12-inches above the top of the water pipe (a.k.a. "shading") and warning tape has been placed on top of the sand, slurry backfill shall be placed to a depth of one-inch below the bottom of the existing adjacent pavement. Immediately after the completion of placing the slurry backfill mix, steel trench plates shall be placed over the trench and the edges of the plates shall be sealed with temporary asphalt pavement. The slurry mix design shall be submitted to the City for review and approval prior to ordering and placement. The slurry shall set for a minimum of 24-hours before the steel plates can be removed. Immediately after the steel plates have been removed, either temporary asphalt pavement or permanent pavement shall be placed to grade. If the temporary asphalt pavement option is chosen, a minimum three-inch (3") thickness layer of temporary asphalt pavement, the mix thereof approved by the Engineer, shall be placed and rolled over the cured slurry backfill.

All work and costs associated with backfilling trenches and excavations with sand and slurry mixture and the placing of temporary asphalt pavement shall be included in the prices bid for the items of work that require backfilling, such as new pipeline installation, valve installation, installing pipe joint restraints on existing water mains, and etc.

Compacted Soil Backfill

Where or if soil backfill is allowed or specified, soil backfill material shall be native material or imported crushed miscellaneous base (CMB). The details for compacted soil backfill of a water main trench are shown on GWP Standard Water Drawing No. 6722-A, "*Standard Trench for New Water Main Installation*", Case 1: Compacted Soil Backfill, Sheet No. 1 of 2. After sand bedding/backfill has been placed to a depth of 12-inches above the top of the water pipe (a.k.a. "shading") and warning tape has been placed on top of the sand, the soil backfill shall be placed to a depth of one-inch below the bottom of the existing adjacent pavement. The backfill material shall be compacted to ninety percent (90%) with the top six inches (6") to ninety-five percent (95%). All compaction percentages shall be of the maximum density as determined by test methods in accordance with Standard Specifications for Public Works Construction (2021 Edition), Section 211. Mechanical tamping, hand tamping or other similar approved methods shall be used. The material shall be placed in layers not exceeding eight inches (8") in thickness, and the depth of the compacted material on each side of the pipe shall be approximately the same during the entire back-filling operation. The moisture content of the soil as determined by the required soil density shall be uniformly distributed throughout each layer. Hand or mechanical tampers with suitably shaped tamping feet shall be provided to compact the material and ensure the specified soil density is obtained beneath the haunches of the pipe. Wedging or blocking of the pipe will not be permitted. Compaction of trench backfill by ponding or jetting might be permitted when, as determined by the Engineer, the backfill material is of such character that it will be self-draining when compacted and that foundation materials will not soften or be otherwise damaged by the applied water and no damage from hydrostatic pressure will result. Ponding and jetting methods shall be supplemented by the use of vibratory compaction equipment when necessary to obtain the required compaction.

If the Contractor is unable to achieve the minimum required compaction of the backfill material, the Contractor shall remove the backfill from the trench and dispose of it at a landfill or other appropriate disposal facility. The trench shall then be backfilled by the Contractor with a one-sack cement-sand slurry mixture, as described in the section above.

Other Requirements

Where supports of any nature are used in the trench, said supports shall all be removed unless otherwise approved by the Engineer. Where tight sheeting is used, it shall be removed systematically as soon as

practicable after backfilling by pulling alternate pieces along each side of the trench, alternating also from one side of the trench to the other. All backfilling shall be done in accordance with the Plans and Specifications.

Immediately after the completion of soil backfilling and compaction, the Contractor shall either cover the trench with steel plates, place temporary asphalt pavement flush with grade, or place permanent pavement. If the temporary asphalt pavement option is chosen, a minimum three-inch (3") thickness layer of temporary asphalt pavement, the mix thereof approved by the Engineer, shall be placed and rolled over the soil backfill.

All work and costs associated with backfilling and compacting the soil for trenches and excavations and the placing of temporary asphalt pavement shall be included in the price for pipeline installation.

B. Soil Compaction Testing and Verification

Any operations performed by the Contractor involving compaction of soil back-fill material will be closely observed and monitored by the City. The City will retain the services of a certified soils testing firm to measure the compaction of the soil and verify that it is within acceptable limits. Any defective or unacceptable compaction work will require the removal, replacement, and re-compaction of the back-fill at the Contractor's expense. The costs for compaction testing shall be borne by the Contractor. The City will directly contract with a certified soils testing firm and pay that firm for all work invoiced by the firm. Later, through a contract change order(s), the Contractor will be back-charged by the City for the costs incurred by the City for the compaction testing.

11.8 DISPOSAL OF SURPLUS EXCAVATED MATERIAL

All surplus excavated material not used in the compacted backfill of the pipe trench or that was removed from a trench that was slurry backfilled shall be disposed of at the end of each day by the Contractor at his/her own expense. It shall be the responsibility of the Contractor to locate such suitable disposal sites as may be required.

11.9 PERMANENT TRENCH RESURFACING – ASPHALT AND PORTLAND CEMENT CONCRETES

A. General Requirements

All permanent trench resurfacing shall be in accordance with City of Glendale Public Works Engineering Standard Plan No. 25-153 "*Trench Resurfacing*". This plan indicates that asphalt concrete pavement materials used for resurfacing require the trench to have a "T" cut. Sometimes a "T" grind is allowed. The Contractor's attention is directed to the excavation permit required by the Public Works Engineering Division for this project for additional / superseding trench restoration requirements.

The Contractor must closely follow-up the pipeline installation and trench backfill process with the placement of permanent pavement per the requirements in these Specifications. Under no circumstances, in any particular stretch of excavation, will temporary asphalt pavement be permitted to remain in-place longer than twenty-one (21) calendar days before permanent pavement is placed. Until such time that the Contractor constructs the permanent pavement, the Contractor shall be responsible to maintain all the temporary trench surfaces in a good condition and perform regular cleaning. Any temporary surfaces damaged or found to be substandard shall be repaired immediately by the Contractor.

Permanent trench resurfacing shall be placed upon completing two (2) blocks of pipe laying, unless otherwise approved by the Engineer.

B. Asphalt Concrete (A.C.) Pavement

A.C. Base Pavement

Construction of asphalt concrete (A.C.) pavement shall be made with asphalt concrete meeting the City of Glendale street specifications with every effort made to match the existing pavement to color, composition, and surface texture. Where the original asphalt pavement thickness is six inches or less ($t_{\text{Exist A.C.}} \leq 6"$), the replacement thickness shall be a minimum of one-inch greater (+1") than the original thickness, up to a maximum of six inches. If the thickness of the original asphalt is more than six inches ($t_{\text{Exist A.C.}} > 6"$), then the replacement thickness shall be to the same thickness as the original asphalt, or as directed by the City Engineer. All permanent asphaltic concrete pavement resurfacing shall be placed in two courses; base course and wearing surface, respectively.

All pavement is required to have a neat saw cut line before pavement removal and permanent resurfacing.

The completed asphalt concrete pavement resurfacing shall be thoroughly compacted to be free from humps, depressions or irregularities. Any ridges, indentations or other objectionable marks left on the surface of the asphalt concrete pavement shall be eliminated by roller or other means. See the *Excavation Permit Policy* for further information and requirements.

Final A.C. Pavement Cap (Wearing Surface)

The final A.C. pavement cap shall be placed upon completion of a maximum of 2,500 lineal feet of pipe laying, unless otherwise directed by the Engineer. See the *Excavation Permit Policy* for further information and requirements.

C. Portland Cement Concrete (P.C.C.) Pavement

Repairs to Portland cement concrete pavement (P.C.C.) shall be made of Portland cement concrete equal to the existing pavement thickness and type plus an undercut below the existing pavement of a minimum 4-inches width by 4-inches thickness on each side of the trench and shall conform with Section 11.11 (*Portland Cement Concrete Work*), herein.

All pavement is required to have a neat saw cut line before pavement removal and permanent resurfacing.

The longitudinal and transverse joints shall be constructed to have a uniform finished surface throughout. The joints shall be constructed straight, tight and seamless. Irregular joints will not be accepted. Any finished surface with a rugged appearance will be rejected.

B. Asphalt Rubber Hot Mix (ARHM) Pavement

There are existing streets in the City of Glendale that were paved with asphalt rubber hot mix (ARHM) as a wearing surface. Public Works Engineering Division requires that for these streets, where a trench has been excavated, the trench be base paved with A.C. pavement and capped with ARHM pavement.

Asphalt Rubber Hot Mix (ARHM) shall be of type ARHM-GG-C, conforming to the provisions of subsection 203-11 of the Greenbook. The viscosity grade of paving asphalt shall be PG 64-16 per Section 203-1 of the Greenbook or as determined by the Engineer. The Contractor shall only use the "Wet Process" in the manufacture of rubberized asphalt in accordance with Section 203-11 of the Greenbook.

Paint binder (tack coat) shall be SS-1h Type asphaltic emulsion conforming to Section 203-3 of the Greenbook. The surface course shall be spread in one layer with the use of a self-propelled paving machine and shall be spread to the after compaction thickness as shown on the Plans.

The existing surface to receive the ARHM surface course shall be clean, to the satisfaction of the Engineer and paint binder (tack coat) shall be applied at the rate of 0.10 gallons per square yard conforming to the provisions of Section 302-5.4 of the Greenbook. Similarly, paint binder (tack coat) shall be applied to all vertical surfaces to be joined.

Distribution, spreading and compacting shall conform to the provisions of Section 302-5 of the Greenbook and these Special Provisions.

The completed asphalt rubber resurfacing shall be thoroughly compacted to be free from humps, depressions or irregularities. Any ridges, indentations or other objectionable marks left on the surface of the asphalt rubber shall be eliminated by roller or other means.

The longitudinal and transverse joints shall be constructed to have a uniform finished surface throughout. The joints shall be constructed straight, neat, smooth, tight and seamless, irregular joints will not be accepted. Any finished surface with rugged appearance will be rejected.

The Contractor shall provide the equipment for a hand held viscometer test per Section 203-11.4.1 for use by an independent testing company hired by the City.
A certificate of compliance for Asphalt Rubber binder shall be required from the materials supplier.

Rock Dust Blotter

Where traffic will have access to rubberized asphalt concrete prior to complete cooling, a rock dust blotter shall be placed as directed by the Engineer to avoid "tracking" per Section 302-9.7 of the Greenbook. Rock dust blotter shall be uniformly applied using a mechanical spreader at a rate of two pounds minimum and four pounds maximum per square yard (2-4 lbs/yd²).

All work and costs associated with the furnishing and application of Rock Dust Blotter shall be included in the proposal price.

C. Removal of Temporary Striping and Restoration of Permanent Striping

The Contractor shall remove all the temporary traffic striping within 48 hours of the placement of permanent trench resurfacing. The striping shall be removed by sandblasting, grinding or other methods approved by the Engineer.

All traffic striping and pavement markings obscured, damaged, or removed during construction shall be permanently replaced in kind within 48 hours after final paving.

All costs for removal of temporary traffic striping and restoration of permanent striping shall be included in the unit price bid for the various related items of work and no additional compensation will be made therefor.

D. Reconstruction of Damaged Concrete Curb and Pavements

In the event that a portion of Portland cement concrete curb, gutter, monolithic curb-and-gutter, cross-gutters, sidewalks, sidewalk (ADA) ramps or driveway aprons are damaged by the Contractor's operation, restoration shall start from a joint or scoring line and shall end in a joint or scoring line with a minimum replacement of five feet (5'). Scoring lines shall be saw-cut prior to removal.

All cutting and restoring pavement should be done in accordance with City of Glendale Public Works Division, Standard Plan No. 25-153.

11.10 MAINTENANCE, REMOVAL AND RECONSTRUCTION OF UTILITIES AND OTHER FACILITIES

Insofar as practicable during the progress of the work, no pipeline, conduit, sewer, culvert, storm drain, drainage channel, pole line, street lighting system, overhead wires or cables, or underground wires or cables, either main line structures or laterals and services, or any other structure or facility, shall be disturbed, but all shall be supported and protected against injury and maintained by the Contractor in good

operating condition. In no case shall any such property be disturbed or removed without the approval of the Engineer as hereinafter provided. The Contractor shall be responsible for and make good all damage due to his/her operations and the provisions of this section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of backfilling.

All affected traffic signal materials or equipment as a result of this improvement shall be restored or replaced by the Contractor at no cost to the City.

This includes, but is not limited to pull boxes, inductive loop detectors, detector's lead-in wire and interconnect cable, etc.

Where a pipe fitting or portion of the pipe is to be removed near a valve, and the valve is to be left in-place as a stop against water main pressure, the valve shall be "tied back" by the Contractor to the satisfaction of the Engineer. This could also include restraining pipe joints located near to the valve. Any damage which might result to the City's property as a result of a main break or pipe movement caused by inadequate restraint of the valve or fitting will be charged to the Contractor.

11.11 PORTLAND CEMENT CONCRETE WORK

The Contractor shall perform all cement concrete work as shown on the plans and/or as necessary to complete the project, including street, cross-gutters, ADA curb ramps, sidewalk, catch basin local depressions, driveway approaches, curb and gutter, pipe collars, pads, thrust blocks and any other required concrete work. Concrete shall conform to the City of Glendale Specifications and shall be Class 520-C-2500 Portland cement concrete for sidewalks and ADA curb ramps, and shall be Class 565-C-3250 (high early strength) Portland cement concrete for thrust blocks, driveway aprons and all locations in the public roadway. Concrete shall be carefully deposited in such a manner as not to separate the ingredients. Concrete shall be placed in horizontal layers not exceeding twelve inches (12") in depth. Pours made in hot weather shall be given special protection to ensure that the concrete will not dry out too rapidly, both during and after placing. Effective consolidation shall be obtained by vibration, agitation, spading and rodding until the concrete is free from voids, air bubbles or rock pockets. Vibrators shall not be used to transport concrete within the forms. All concrete shall be adequately protected from injurious action by sun, wind and freezing for a period of forty-eight (48) hours after pouring by applying a vapor-proof membrane coating to the concrete surface, or any approved method which will keep the concrete continuously wet. All concrete construction work shall be done in accordance with the **Standard Plans For Public Works Construction (SPPWC), 2021 Edition, and the requirements of the Glendale Public Works Engineering Division.**

11.12 MATERIALS FOR CONSTRUCTION OF POTABLE WATER FACILITIES & INFRASTRUCTURE

As required by California Assembly Bill 1953 (AB 1953), all brass water works fittings must contain less than 0.25% weighted average lead content to comply with requirements specified in NSF/ANSI Standard 61, Annex G.

All materials used in the construction of water facilities and infrastructure shall be NSF 61 approved by the National Sanitation Foundation (NSF).

Glendale *Water and Power* requires that all pipe, fittings, and other appurtenances used in the construction of water facilities and infrastructure be mined, milled, and manufactured in the U.S.A. The Contractor will be required to provide and submit product literature or other submittals from the manufacturer verifying or stating that their product is U.S.A. made.

- A. Pipe** – Pipe shall be Tyton joint, ductile-iron pipe, Class 350 for 12-inch diameter and smaller in size and Class 350 for 16-inch diameter and larger in size, manufactured in the U.S.A., in accordance with AWWA C151 / ANSI A21.51 Specifications, or the latest revision to method of

design, for a maximum depth of cover of eight feet (8') under laying condition 2. The bell and spigot joint shall be of a type which employs a single elongated rubber gasket to effect the joint seal. Pipe shall have standard asphaltic coating on the exterior of the pipe and shall be cement-mortar lined on the interior per AWWA C104 / ANSI A21.4 Specifications, or latest revision, and be furnished complete with all necessary accessories. All pipeline joints, bells/spigots, and fittings that are present on the water pipe and are within the required minimum restraint distance calculated and specified on the water main construction plans on each side of mainline valves and fittings shall be fully-restrained against axial movement.

- B. Pipe Fittings** – Pipe fittings shall be Class 350 ductile-iron material, manufactured in the U.S.A., as specified by AWWA C110 / ANSI A21.1 or AWWA C153 / ANSI A21.53 Standard Specifications, or latest revision. Fittings shall be cement-mortar lined. Fittings shall have flanged ends or mechanical joint ends. Mechanical joints shall employ *EBAA Iron, Inc. MEGALUG® glands; Ford Meter Box Company, Uni-Flange Series 1400 retainer glands; Romac Industries RomaGrip pipe restrainer* or approved equal. Flanged-end fittings shall employ *EBAA Iron, Inc. MEGAFLANGE® adapters, Romac RFCA*, or approved equal. All pipe fittings that are connected to the water pipe and are located within the restraint distance specified on the water main construction plans on each side of mainline valves and fittings shall be fully-restrained against axial movement. Acceptable pipe fittings manufacturers are *Tyler Union* (domestic product version only), *South Bay Foundry*, or approved equal.

- C. Tapping Sleeves** – Tapping sleeves used for tapping mains that are 12-inches in diameter and smaller shall be of type *Smith-Blair 622, Romac FTS 419 (max. 175 psi)*, or *Mueller H-304 Stainless Steel Tapping Sleeve*, for corresponding outside diameter of pipe, or an approved equal, fusion bonded epoxy-lined and coated, with 316 stainless steel bolts, nuts and other hardware. When tapping water mains that are 16-inches in diameter and larger, tapping sleeves shall be *International Style 228* or *Nappco Baker Series 428*.

- D. Gate Valves** –

Main Line Isolation – Gate valves shall be designed for buried service and shall be of the resilientwedge type and shall be manufactured by *Clow, Kennedy, M&H, Mueller Co., U.S. Pipe* or *American Flow Control* to meet all applicable requirements of AWWA Standard C509. Gate valves shall be rated for a maximum working pressure of 250 psi. The interior of the body shall be epoxy coated. The stem shall be a non-rising O-ring, bronze with maximum 4% zinc content and shall have a 2inch square AWWA operating nut that closes in a clock-wise direction. The pipe connection ends shall be of a mechanical joint type, a flanged joint type, or a combination of both types. Bolts, nuts, and other mounting hardware shall be 316 stainless steel material. All gate valves shall be fully restrained to the pipe and fittings. Gate valves shall be installed according to GWP Std. Dwg. No. 6772-A.

Gate Valve for Air Valve Assembly – Gate valves for 2" vacuum and air release assemblies shall be a 2" bronze gate valve, with non-rising stem, bronze wedge and screw-in bonnet, Class 150, inlet female NPT, outlet female NPT. Acceptable types are *Nibco T-136 (up to 300 psi)*, or *Watts WGVX (up to 200 psi)*. See GWP Std. Dwg. No. 6070-A for application of the gate valve in an air/vac assembly.

- E. Butterfly Valves** – Butterfly valves shall comply with AWWA C504 as augmented or modified herein. The valves shall be rated to match pressure class of connected pipe or as indicated on plans. Butterfly valves shall be *Pratt Groundhog, Dresser 450, Kennedy 4500, Mueller Co. Lineseal III®* or Engineer-approved equivalent, with a 2-inch square AWWA operating nut that closes in a clockwise direction. The pipe connection ends shall be of a mechanical joint type or a

flanged joint type. Where flange-type valves are used, the flanges shall have an ANSI 125# bolt pattern. Bolts, nuts, and other mounting hardware shall be 316 stainless steel. All butterfly valves shall be fully restrained to the pipe and fittings. Butterfly valves shall be installed according to GWP Std. Dwg. No. 6772-A.

- F. Valve Boxes** – Valve boxes and valve box covers shall be provided for all new buried valves identified on the drawings. Valve boxes and covers for the potable water system shall conform to Glendale Water & Power Standard Drawing No.'s. 1588-A, 1589-A, and 1590-A, for adjustable sleeve, valve box cover, and valve box, respectively. All new and existing potable water valve covers shall have their top painted in a City-approved "blue" color by the Contractor.

- G. Flanged Coupling Adapters** – Flange coupling adapters shall be used for adapting and restraining a plain-end pipe to a flange fitting and shall be restrained.

D.I. Pipe – Flange coupling adapters for ductile iron pipe shall be *Smith-Blair 912 coupling adapters for ductile iron pipe* (sizes 4" – 12", max. 250 psi), *EBAA MEGAFLANGE® Series 2100* restrained flange adapters with flat-faced flanges (sizes 3" – 48", 350 psi), *Romac RFCA* (sizes 3" – 24", max. 275 psi), *Romac Alpha FC* (sizes 4" – 12", max. 350 psi), or *Krausz Hymax® Grip Flange Adapter* (sizes 3" – 12"). The adapter shall be rated for 250 psi working water pressure. The adapter shall be epoxy-lined and coated. Bolts, nuts, and other hardware shall be 316 stainless steel with track head bolts and hexagonal nuts.

- H. Straight Couplings** – Straight couplings shall be used for joining and restraining two plain-end same-diameter pipes of the same or dissimilar materials. The coupling shall be constructed of ductile-iron material. All Straight couplings shall be restrained.

Ductile iron pipes of sizes 4" through 12" – The coupling shall be of type *EBAA Iron, Inc. Series 3800 Mega-Coupling® Restrained Coupling* (max. 350 psi), *Krausz USA Hymax Grip® Restrained Coupling* (max. 232 psi), *Romac Industries, Inc. Alpha Restrained Coupling* (max. 350 psi), or *Smith-Blair Pipe-Lock 471* steel restraint coupling (max. 350 psi).

Ductile iron pipes of sizes 14" through 36" – The coupling shall be *Romac Industries, Inc. 400RG Restrained Coupling* (max. 350 psi), *EBAA Iron, Inc. Series 3800 Mega-Coupling® Restrained Coupling*, *Smith-Blair Pipe-Lock 471 steel restraint coupling* (14"-16" - max. 350 psi, 18"-36" - max.

- I. Transition Couplings** – Transition couplings shall be used to connect pipes of differing outside diameters when the maximum O.D. variation does not exceed the listed coupling O.D. range for the coupling. Transition couplings shall be *Smith-Blair model 413 steel transition coupling* (2"-48", max. 150 psi), *Romac RC501* (2"-24", max. 260 psi) or Engineer-approved equivalent. Bolts, nuts, and other mounting hardware shall be 316 stainless steel. Finish shall be fusion bonded epoxy. All transition couplings shall be restrained (250 psi).

- J. Reducing Couplings** – Reducing couplings shall be used to connect pipes with larger differences in outside diameter (O.D.).

D.I. Pipe – Reducing couplings, when required for ductile iron pipe, shall be *Smith-Blair Model 413 steel reducing coupling* (max. 150 psi), *Smith-Blair 474 Pipe-Lock™ Fabricated Steel Coupling* (sizes 4" – 48"), *Romac Style RC400 steel reducing coupling* (14"-36", max. 150 psi), *Baker Coupling Company steel reducing coupling*, (series and middle ring size to be determined by the Contractor and approved by the Engineer), complete with gaskets, type 316 stainless steel bolts and insulating boot. The Contractor shall pothole to measure the existing pipe O.D. before selecting the appropriate couplings. All reducing couplings shall be restrained.

- K. Joint Restraint Systems** – Joint restraint systems shall be used to restrain pipes, fittings, and valves at all locations shown or specified on the plans or in the Specifications. Bolts, nuts, washers, and other mounting hardware shall be 316 stainless steel.

Restraint of New Ductile Iron Pipe to Fittings:

For Pipe or Fittings with Mechanical Joints – MEGALUG® Series 1100 Mechanical Joint for Ductile Iron Pipe, manufactured by EBAA Iron, Inc. or approved equal shall be used for pipe and fittings of sizes 4" through 36" for connecting new ductile iron pipe to new ductile iron pipe/D.I. fittings/Valves or for connecting new ductile iron pipe to existing buried in-situ ductile iron pipe/D.I. fittings/Valves.

For Pipe with Push-On Type Joints – MEGALUG® Series 1700 Restraint Harness for Push-on Joints, manufactured by EBAA Iron, Inc. or approved equal shall be used for D.I. pipe and D.I. fittings of sizes 4" through 12" for connecting new ductile iron pipe to new ductile iron pipe or for connecting new ductile iron pipe to existing buried in-situ ductile iron pipe. Field Lock gaskets are not accepted.

For New Ductile Iron Pipe Connecting to Existing In-Situ Buried Cast Iron Pipe – Where new ductile iron pipe is to be connected or tied-in to existing in-situ buried cast iron pipe shall have all pipe joints and fittings restrained against axial movement.

Pipe and Fittings of sizes 4" through 12" – Krausz USA Hymax Grip Restraining Coupling or Romac Industries, Inc. Alpha Restraining Coupling shall be used.

Pipe and Fittings for sizes greater than 12" – A system of clamps and threaded tie rods shall be used to restrain the joint. For this case, a non-restraining type of coupling should be used to join the two pipes and to provide a water-tight connection. Smith-Blair 441-442 Omni Coupling System is acceptable for joining 12" and 16" sizes of pipe. The restraint of the two pipes against possible axial movement shall then be accomplished by a system of clamps and threaded tie rods. All clamps, bolts, threaded rods, washers and nuts shall be of 316 stainless steel material.

Restraint of Existing In-Situ Buried Ductile Iron Pipe and Fittings

Where indicated on the contract drawings, existing, in-situ, buried ductile iron pipe and fittings shall have their joints exposed and restrained against axial movement. MEGALUG® Series 1100HD Split MEGALUG® Bell Restraint Harness, manufactured by EBAA Iron, Inc. or approved equal shall be used for pipe and fittings of sizes 4" through 36" for push-on bell/spigot style joints. Alternatively, a clamps and threaded tie rods restraint system may be used. The clamps, threaded rods, bolts, washers and nuts shall be of 316 stainless steel material.

Restraint of Existing In-Situ Buried Cast Iron Pipe and Fittings

Where indicated on the contract drawings, existing, in-situ, buried cast iron pipe and fittings shall have their joints exposed and restrained.

Pipe and Fittings of sizes 4" through 16" – Krausz USA Hymax® Grip Restrained Coupling or Romac Industries, Inc. Alpha Restrained Coupling shall be used.

Pipe and Fittings for sizes greater than 16" – A clamps and threaded tie rods restraint system shall be used. The clamps, threaded rods, bolts, washers and nuts shall be of 316 stainless steel material.

- L. Clamps and Tie-rods** – Clamps (a.k.a. "socket b clamps", "retainer clamps", or "friction clamps") and all-thread rods shall be used where indicated on the plans for restraining water pipes and water fittings. Bolts, nuts, and washers shall be 316 stainless steel material. Acceptable manufacturers of clamps for ductile iron pipe are *Trumbull Industries, Inc. Socket Clamps*, or approved equal.
- M. Blow-Off Assemblies** – Blow-off assemblies shall be constructed and used to facilitate the draining and filling of the potable water mains.
- Two-inch (2") water blow-off assemblies of the sub-surface "box" type shall conform to GWP Std. Dwg. No. 3282-A, unless shown otherwise on the plan drawings.
- N. Fire Hydrants** – Fire hydrants shall be 6-inch diameter wet barrel, *Jones J-3700, Clow 2050 or Long Beach Iron Works B-125*, with one 4-inch diameter and one 2.5-inch diameter outlet, or *Jones J3775, Clow 2065 or Long Beach Iron Works B-135*, with two 4-inch diameter and one 2.5-inch diameter outlet, as indicated on the plans. Hydrants shall be supplied with 1.75-inch pentagonal nuts and bronze protective cap. Hydrants shall be painted with one (1) primer coat of rust preventative paint and one (1) finish coat of Rustoleum Federal Safety Yellow #7744. Old reconnected fire hydrant heads shall be painted with one (1) finish coat of Rustoleum Federal Safety Yellow #7744.
- O. Fire Hydrant Bury** – Fire hydrant bury ells shall be of the type used with wet barrel hydrants, constructed of ductile-iron material, and shall have a mechanical joint (MJ) on its horizontal end and a flange (FLG) joint on its vertical end, with six (6) 3/4-inch diameter bolt holes. Burys shall be cement-mortar lined. Hydrant bury ells can be replaced by a 90° elbow (FLG x MJ) and hydrant extensions with flanged ends. Acceptable hydrant bury manufacturers are *Clow Valve Company, South Bay Foundry*, or approved equal.
- P. Fire Hydrant Extensions** – Hydrant extensions (a.k.a. "risers") shall either be of a non-break-off type or of a break-off type, ductile-iron or cast-iron material, and flanged on both ends, with six (6) 3/4-inch diameter bolt holes. Extensions shall be cement-mortar lined. See GWP Standard Drawing No. 4946-A for the situations that require a non-break-off type versus a break-off type. Acceptable hydrant extension manufacturers are *Clow Valve Company, South Bay Foundry*, or approved equal.
- Q. Fire Hydrant Bolts** – Hydrant bolts shall be T-316 stainless steel, hex head, hollow break-off type or solid type, 5/8" diameter by 3" long, with accompanying T-316 stainless steel nuts. See GWP Standard Drawing No. 4946-A for the situations that require hollow break-off type bolts versus solid bolt types. Acceptable hydrant bolts are *Tripac, Hydrant Breakoff T-316, Hex Bolt T-316*, or approved equal.
- R. Fire Hydrant Gaskets** – Gaskets for hydrants, hydrant burys, hydrant extensions, and butterfly valves shall be full-face, 1/8"-thick rubber-cloth inserted-type with 6-inch diameter center hole and six (6) bolt holes. Acceptable hydrant gaskets are *Tripac, Teadit Style NA 1001*, or approved equal.
- S. Service Clamps (Saddles)** – Service saddles are required for all pipe taps 2-inches and smaller in diameter. Service saddles for tapping ductile iron water mains shall be the double-strap type (with 316 ss u-bolts or stainless steel straps), AWWA taper thread (CC), neoprene gasket cemented in

place, and of a size appropriate for the type of material and size of the pipe to be tapped. Acceptable service saddles are *Mueller Co. DR2A Series, Ford FS323, Jones, or Romac 202SSU, 202NSSU*.

- T. Corporation Stops** – Corporation stops shall be used for pipe taps of 3/4" through 2" sizes, and shall be the "ball" type, of bronze construction, and rated for 300 psi maximum working pressure. The inlet shall be AWWA taper threads (a.k.a. Mueller "CC") and the outlet shall be a Mueller® 110™ conductive compression connection designed for connection to type "K" copper tubing. Acceptable corporation stops are *Mueller® 300™ Ball Corporation Valve, Model B-25008N; Jones; or Ford*.
- U. Meter Valves** – Meter valves shall be installed on both sides of water meters (for 3/4" to 2" size services) to isolate the water meter for installation, removal and repair. Meter valves shall be the ball valve type, straight configuration, constructed of bronze, have a tee head, lock wing, and furnished with lever handle.
1. **3/4" and 1" Services** – Allowable Inlet/Outlet configurations are F.I.P. x Swivel Nut OR F.I.P. x F.I.P.. Acceptable meter valves are *Ford B-13W, with HB-34S lever handle, or Jones J-1908W*.
 2. **1-1/2" and 2" Services** – Allowable Inlet/Outlet configurations are F.I.P. x Meter Flange OR F.I.P. x F.I.P.. Acceptable meter valves are *Ford BF-13W, with HB-67S lever handle, Jones J-1913, or Mueller 300 Ball Straight Meter Valve Model B-24337N (F.I.P. x meter flange) with lever handle*. For standard blow-off assemblies, the valve shall be 1-1/2" bronze (*Jones or Ford*).
- V. Copper Tube and Fittings** – Copper tube shall conform to the requirements of Seamless Copper Water Tube ASTM Standard B88 and shall be Type K, annealed. All fittings shall be soldered or sweated as shown on the drawings, and shall be cast bronze or forged brass, containing not less than 85% copper.
- W. Meter Boxes** – Potable water meter boxes shall be either of type rotocast polyethylene body with polymer concrete (RPM) frame or polymer concrete box (which type to use is dependent on the box dimensions – see 1. and 2. below). Rotocast polyethylene boxes shall be rotationally molded using Linear Low Density Polyethylene with attached polymer concrete frames. Polymer concrete boxes shall be manufactured using only polymer concrete material. Polymer concrete material shall consist of calcareous and siliceous stone; glass fibers and thermoset polyester resin. Boxes shall be straight wall with vertical reinforcement ribs, flared out wall boxes are not acceptable. Box frames shall be manufactured using polymer concrete material, no other material is acceptable. Acceptable meter boxes are as follows:
- 3/4" and 1" Services** – Meter boxes shall be *Armorcast Products Company, No. P6000485 (Glendale No. 4)*. Material = Rotocast polyethylene body & polymer concrete frame, Color = Concrete Gray, Dimensions = 12"W x 20"L x 12"D.
- 1-1/2" and 2" Services** – Meter boxes shall be *Armorcast Products Company, No. A6001640PCX12 (Glendale No. 6)*. Material = Polymer Concrete, Color = Concrete Gray, Dimensions = 17"W x 30"L x 12"D.
- Box for 1-1/2" Blow-off Assembly** – Box shall be *Armorcast Products Company, No. P6000485 (Glendale No. 4)*. Material = Rotocast polyethylene body & polymer concrete frame, Color = Concrete Gray, Dimensions = 12"W x 20"L x 12"D. See GWP Std. Dwg. No. 3282-A for application.

- X. Meter Box Covers** – Potable water meter box covers shall be manufactured using polymer concrete material. Covers shall have a cavity on the top to accept Itron 200W antenna (RPM cover w/touch read hole). Covers shall be manufactured using matched die molds. Meter box covers for potable water services shall be “Concrete Gray” in color from the factory, and marked “Water Meter”. Acceptable meter box covers are as follows:

3/4" and 1" Services – Meter box covers shall be RPM cover w/touch read hole, *Armorcast Products Company, No. A6000484-H11*. Material = Polymer Concrete, Color = Concrete Gray, Marking = “Water Meter”, Dimensions = 12"W x 20"L x 1-3/4"D.

1-1/2" and 2" Services – Meter box covers shall be RPM cover w/touch read hole, *Armorcast Products Company, No. A6001643-H11*. Material = Polymer Concrete, Color = Concrete Gray, Marking = “Water Meter”. Dimensions = 17"W x 30"L x 2"D.

Box Cover for 1-1/2" Blow-off Assembly – Box covers shall be RPM cover, *Armorcast Products Company, No. A6000484*. Material = Polymer Concrete, Color = Concrete Gray, Marking = “Water Meter”, Dimensions = 12"W x 20"L x 1-3/4"D. There shall be no touch read.

- Y. Meter Vaults** – Meter Vaults are required for 4" and larger service installations. Vaults shall conform to Glendale Water & Power Standard Drawing No. 6683-A. Vaults and their covers shall be constructed of polymer concrete. The cover shall be of a “torsion assist” type with a 5" x 7" reading lid on each cover, and the cover shall have standard marking “Water Meter”. The vault and its cover shall be “Concrete Gray” in color from the factory. Vaults shall be 48" in depth and with length and width dimensions based on the size of the service and its components that need to fit inside the vault. Acceptable meter vaults are as follows: *Armorcast A6001447TAP48MT* for a 5' x 4' vault, or approved equal.

- Z. Meter Strainers** – Strainers shall be installed upstream of all compound meters. The strainer shall be made from bronze alloy, of the same size as the service line, and with Flg. x Flg. connections. Acceptable meter strainers are *Badger Meter®* plate strainers (sizes 2" through 6", max. 150 psi).

- AA. Manhole Frame and Cover** – Manhole frame and cover shall be traffic rated for H-20 wheel loading and be in accordance with GWP Std. Dwg. No. 1651-A. Material shall be gray cast iron and conform to ASTM A48 Class 35B. Castings shall be dipped in black bituminous paint. The clear opening size shall be 30-inches diameter. The lettering “GWP Water” shall be applied at the foundry during the casting process. Acceptable manufacturers are *Alhambra Foundry #A-1252B*, *Long Beach Ironworks LB-1252*, or *South Bay Foundry SBF 1252-6*.

- BB. Air Valves** – Air valves shall be used to release air and/or vacuum from the potable water main. All air valves for potable water shall be painted “blue” in color. See GWP Std. Dwg. No. 6070-A for a sample application of the air valve. Acceptable air valve types and manufacturers are as follows:

Air Release Valves – Shall be used to vent entrained air that collects at high points in a pipeline. Air release valves shall be *Cla-Val Series 34*. The 1" size shall be *Model 3410 AR-332 (max. 150 psi)*, the 2" size shall be *Model 3420 AR-316C (max. 150 psi)*, or Engineer-approved equivalent.

Air and Vacuum Valves – Shall be used to allow large quantities of air to be exhausted from the pipeline as it is being filled with water. Secondly, if the line is being drained, it allows air to enter the pipeline and prevents a vacuum from forming. Air and vacuum valves shall be *ClaVal Series 35*, or Engineer-approved equivalent.

Combination Air Release and Vacuum Valves – Shall be used to vent entrained air that collects at high points in a pipeline. In addition, it will also allow large quantities of air to be exhausted from the pipeline as it is being filled with water, and, if the line is being drained, it allows air to enter the pipeline and prevent a vacuum from forming. Combination air release and vacuum valves shall be *Cla-Val Series 36*, or Engineer-approved equivalent.

2" Street Shut-off Valve for Air/Vac Assembly – The valve used to isolate the 2" Vacuum and Air Release Valve Assembly in the street shall be a 2" ball valve (F.I.P. x F.I.P.). Acceptable manufacturer and model is *Jones No. J-1900*, or approved equal. See GWP Std. Dwg. No. 6070-A for application of the 2" ball valve.

- CC. Pressure Regulators** – Pressure Regulators for individual services shall be manufactured by *Watts, No. 25AUB-Z3* or approved equivalent. The valve shall be equipped with an integral strainer. The valve shall feature a bronze body suitable for water supply pressures up to 300 psi. Water pressure reducing valves with a built-in bypass check valve will be acceptable. Approved valve shall be listed to ASSE 1003 and IAPMO and certified to CSA B356.
- DD. Backflow Prevention Devices** – Only backflow prevention devices that are approved by the County of Los Angeles Department of Public Health (LACDPH) will be accepted. A current list of approved devices may be found at the Department of Public Health's web site at <http://www.lapublichealth.org/eh/>. Backflow Prevention Assemblies shall be installed per GWP Standard Drawing No. 6528-A and No. 6762-A.
- EE. Check Valves** – Check valves installed in vaults shall be manufactured by *Val-Matic Valve and Manufacturing Corporation, model no. 9808*, or Engineer-approved equivalent.
- FF. Casement Pipe / Pipe Sleeve** – Casement pipe or pipe sleeve shall be used to encase portions of the potable water main, where indicated on the plans. Typical situations are: within Caltrans right-of-ways, sanitary sewer pipes crossing the water main, drainage channel crossings, and railroad crossings. The outside diameter, pipe wall thickness and any other information specific to the casement pipe will be specified on the construction plans. See Section 11.37, "*Casings For Potable Water Mains*" herein, for more information regarding requirements for casement pipe.
- GG. Polyethylene Encasement** – Polyethylene film for encasing cast iron, ductile iron and steel pipes, fittings, and valves shall comply with AWWA C105-10/ ANSI A21.5-10 specifications. Polyethylene film shall be in natural (clear) color.
- HH. Underground Utilities Identification/Warning Tape** – Identification/Warning tape for marking underground potable water pipes shall be constructed of polyethylene film, minimum 4.0 mil thickness, minimum 3" width, and APWA color coded. See Section 11.22, "*Potable Water Pipe and Facilities Identification & Tracer Wire*" for more information regarding requirements for underground warning tape.
- II. Tracer Wire** – Tracer wire shall be #10 AWG solid copper conductor with 45 mil HDPE insulated jacket. Connections shall be Buchanon connectors or a similar approved method for splicing. See Section 11.22, "*Potable Water Pipe and Facilities Identification & Tracer Wire*" for more information regarding requirements for tracer wire.

B. POTABLE WATER PIPE INSTALLATION:

11.13 SCOPE OF WORK FOR PIPELINE INSTALLATION

- A. The Contractor shall furnish all plant, equipment, materials, transportation, superintendence, labor and workmanship necessary to install new pressure class 350 ductile iron water pipe and all appurtenances at locations shown on the contract drawings and in accordance with these Specifications. The work shall include, but not be limited to traffic control, survey, pavement marking, pavement saw-cutting and removal, utility potholing, excavation, shoring, cut out and removal of conflicting existing pipe and fittings, installation of new pipe, fittings and couplings, polyethylene film for corrosion protection, warning tape, slurry backfill (or compacted earth backfill where allowed), hydrostatic pressure testing, disinfection, flushing of pipeline, temporary and permanent trench resurfacing and pavement restoration, restoring damaged pavement striping and markers, restoring damaged traffic loop detectors, storm water control, disposal of excess materials, and all incidentals, as directed by the Engineer. All required pipe appurtenances (whether identified or not on the drawing) required to properly connect the pipeline segments to make a functional potable water piping system, and the installation of pipe taps with corporation valves needed in order to be able to flush and chlorinate the pipe shall be furnished and installed as part of the pipeline installation unit cost bid. This includes, but is not limited to tees, crosses, angled fittings, reducers, gaskets, restraining clamps, thrust blocks, hardware, all incidentals, and etc. All pipeline and/or appurtenance abandonment work or removal work identified on the plans shall also be included as part of the pipeline installation unit cost bid.
- B. All pipe, fittings, materials, and appurtenances shall comply with Section 11.12 (*Materials For Construction of Potable Water Facilities & Infrastructure*).
- C. Payment for the installation of new water main pipelines shall be under the appropriate items listed on the Bid forms.

11.14 PIPELINE ALIGNMENT

The proposed pipeline alignment is shown on the contract drawings. However, the Contractor shall assume responsibility for sufficient potholing at his/her own discretion. However, at a minimum, the Contractor shall make exploratory excavations at all utility crossings, and at a minimum of one excavation every 50 feet along the proposed water main's horizontal alignment for parallel existing utilities that are near to the proposed water main's alignment. In addition, potholing must be done at a minimum distance of 200 feet in advance of performing any trench excavation for the proposed water main. These potholing results, in combination with the Underground Service Alert (USA) utility markings, and the plan and profile drawings will be reviewed with the Engineer, and if required, the horizontal and vertical alignments will be adjusted in the field so as to clear any obstructing substructures, both horizontally and vertically. The pipe shall be deflected to clear interference with obstructions or other utilities, unless otherwise directed by the Engineer. GWP Std. Dwg. No. 6771-A, "*Pipe Assembly for Clearing an Obstruction*" provides a detail for deflecting the pipeline around existing utilities.

The final location of fire hydrants, outlet/blow-off assemblies and air release/vacuum valves will be determined by the Engineer to suit field conditions.

If the results of potholing and USA markings indicate a more intensive remediation to the horizontal and vertical alignment that involves a redesign of the pipe and revisions to the construction drawings, the Contractor shall redesign and revise the plans at their expense. If that case were to occur, the Contractor shall determine other project related construction work for his/her field crew to do and shall propose to the City a revised construction schedule, that may involve re-ordering the sequence of the original proposed work schedule to work around the delay. It shall be the responsibility of the Contractor to keep his/her people busy with work. The City will not be liable for any costs to the Contractor resulting from the redesign including delay claims, office overhead costs, equipment rental costs, personnel wages, and etc. The Contractor however, might be entitled to an extension of the contract time depending on whether this was due to an unforeseen field condition or error/negligence in the design and plans.

11.15 POTABLE WATER SYSTEM SHUT-DOWN

Scheduling for any required shut-down of the existing potable water system shall be approved by the Engineer. Shut-downs may be required at times other than normal working hours so as to minimize inconvenience to water customers and to avoid the use of temporary by-pass piping. Some shut-downs may need to be done at night or on weekends. Therefore, this should be considered in determining the proposal price for the work.

The City will perform the initial and subsequent valve operations to isolate the water mains affected by the shut-down. However, the Contractor shall notify the City not less than five (5) working days in advance of when such service is desired. The City needs this time to prepare a water shut-down plan to determine which valves need to be closed and which properties will be without water service during the shut-down, and to notify all affected water customers. During the course of a system shut-down, if a valve becomes inoperable or will not fully close, the Contractor shall allow the City sufficient time to perform the emergency repairs that may be necessary. The City will make a concerted effort to make the repairs in a timely manner. The City will recharge the system after completion of the work.

The Contractor is responsible for confirming that system shut-downs result in isolation of the water mains affected and that pressure in the affected mains has been properly released. The Contractor is also responsible for the draining and proper disposal of all water contained in the pipes.

The Contractor shall not be entitled to compensation for costs associated with delays and/or the rescheduling of his/her work that may arise due to problems the City may encounter with existing valves while attempting to isolate a section(s) of pipe during the shut-down. This includes, but is not limited to, the scheduled day for the attempted shut-down as well as the time that it takes for the City to repair or replace the inoperable valve(s). The Contractor may, however, be entitled to an extension of contract completion time because of the delay; as approved by the Engineer. The Contractor will be encouraged to work on other areas of the project so as to minimize the impact on his/her overall work schedule.

11.16 NOTIFICATION OF CUSTOMERS

The Contractor shall notify all potable water customers/consumers no less than twenty-four (24) hours in advance of when their potable water service will be disrupted. The City will furnish the Contractor with door knob handout cards for distribution to customers affected by shut-downs. Potable water service disruption includes, but is not limited to those times when:

- The potable water main is shut down to connect a source feed for temporary by-pass piping (e.g. bulkhead),
- The customer's potable water service is switched over to temporary by-pass piping,
- The customer's potable water service is switched back to the main from temporary by-pass after the work has been completed,
- In-service potable water mains are shut down for cut-ins (a.k.a. tie-ins) to the new water main,
- In-service potable water main is shut down for a repair of the water main or cutting in a new valve,
- Existing potable water services are individually switched over to a new potable water main, and • All other situations that cause the water service to be disrupted.

In addition to the 24-hour notice for water shut-off, the Contractor is responsible for notification of properties affected by the construction work related to the project. For more information, please contact GWP Water Engineering at (818) 548-2062.

11.17 PIPE LAYING

Water pipe installed in trenches shall be laid on a prepared bed as specified in Section 11.5 (*Excavation & Trenching*), herein. Under ordinary conditions of pipe laying, the work shall be so scheduled that the bell end of the pipe faces in the direction of laying. In placing pipe in the trench, the pipe shall be held by a sling, or other implements approved by the Engineer, at the balancing point of the section. The pipe shall not be dragged in the bottom of the trench or bumped, but shall be supported by the sling, or other approved implements, while being fitted into the adjacent pipe section.

At all times when the work of installing pipe is not in progress, all openings into the pipe and the ends of the pipe in the trenches or structure shall be kept tightly closed to prevent the entrance of animals and foreign materials. The Contractor shall take all necessary precautions to prevent the pipe from floating due to water entering the trench from any source, shall assume full responsibility for any damage due to this cause and shall, at his/her own expense, restore and replace the pipe to its specified condition and grade if it is displaced due to floating. The Contractor shall maintain the inside of the pipe to be free from foreign materials and in a clean and sanitary condition until its acceptance by the City.

Where closure sections are required by the Contractor's laying operations, the sections shall be installed in accordance with the applicable sections of these Specifications. No closure section shall be installed where restrained pipe joints are specified.

All pipe laying and pipe joining procedures shall be in accordance with AWWA Specifications C600, except as specified herein.

During the storage and installation of the pipes and fittings, preventive and corrective measures for disinfection shall be exercised in accordance with Section 4 of AWWA C651 for Disinfecting Water Mains.

11.18 JOINING OF "PUSH-ON" TYPE JOINT PIPE

The inside of the bell and the outside of the spigot end shall be thoroughly cleaned to remove oil, grit, excess coating and other foreign matter. The circular rubber gasket shall be flexed inward and inserted in the gasket recess of the bell socket.

A thin film of gasket lubricant shall be applied to both the inside surface of the gasket and the spigot end of the pipe, or both. Gasket lubricant shall be as supplied by the pipe manufacturer and approved by the Engineer. The spigot end of the pipe shall be entered into the socket, with care used to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end (spigot) of the pipe to the bottom of the socket (bell) with a forked tool, jack-type tool or other device approved by the Engineer. The pipe shall be depth-marked before assembly to assure that the spigot end is inserted to the full depth of the joint. Field-cut pipe ends shall be filed or ground to resemble the spigot end of such pipe as manufactured.

Acceptable methods of restraining pipes with push-on type joints is described in Section 11.12.K "*Joint Restraint Systems*".

11.19 JOINING OF "MECHANICAL" JOINT (MJ) TYPE VALVES AND FITTINGS

The last eight inches (8") outside of the spigot end of the pipe and inside of the bell of the mechanical joint shall be thoroughly cleaned to remove oil, grit, excess coating, and other foreign matter from the joint, and then painted with a soap solution made by dissolving one-half cup of granulated soap in one gallon of water. The ductile-iron gland shall then be slipped on the spigot end of the pipe with the lip extension of the gland toward the socket or bell end. The rubber gasket shall be painted with the soap solution and placed on the spigot end with the thick edge facing towards the gland.

The entire section of the pipe shall be pushed forward to seat the spigot end in the bell. The gasket shall then be pressed into place within the bell. Care shall be taken to locate the gasket evenly around the entire joint. The ductile-iron gland shall be moved along the pipe into position for bolting, all of the bolts inserted, and the nuts screwed up tightly with the fingers. All nuts shall then be tightened with an approved torque-limiting wrench to a torque between 60 to 90 ft.-lbs. Nuts spaced 180-degrees apart shall be tightened alternately in order to produce an equal distributed pressure on all parts of the gland. Acceptable methods of restraining pipes with mechanical type joints are described in Section 11.12.K, "*Joint Restraint Systems*".

11.20 **FIELD-APPLIED PROTECTIVE COATING**

When determined necessary by the Engineer, the Contractor shall furnish all material, labor and equipment required to field coat exposed buried valve bodies, flange and coupling bolts with *Pipe Coating EC-244*, as manufactured by *Minnesota Mining and Manufacturing Company*, or approved equal. Areas to be coated shall be thoroughly cleaned with a wire brush or other approved methods prior to application of the coating.

11.21 **CONCRETE THRUST BLOCKS**

All tees, elbows, crosses, offsets, fire hydrants and plugged pipe ends shall have concrete thrust blocks or collars with a minimum acceptable bearing area against undisturbed earth or as indicated on the plans. All concrete used in constructing thrust blocks shall attain a 2,000 psi minimum strength. GWP Standard Drawing No. 6083-A lists additional information on thrust block requirements. Please take note that Dwg. No. 6083-A provides information on minimum required thrust block bearing area for pipes with a maximum internal working pressure of 100 psi only. Also, this plan does not provide sizing for vertical thrust blocks with anchor rods, which are based on thrust block weight rather than bearing area. For pipes with an internal water pressure in excess of 100 psi or that require vertical thrust blocks with anchor rods, the Contractor shall submit calculations to the Engineer with the proposed sizing of the thrust blocks for review and acceptance.

11.22 **POTABLE WATER PIPE AND FACILITIES IDENTIFICATION & TRACER WIRE**

Potable Water Pipe Marking Tape – All new potable water mains and service lines installed as part of the project must be labeled with a plastic warning tape. In addition, any existing potable water lines exceeding 3 inches in diameter exposed during construction must also be labeled with a plastic warning tape. The tape should be prepared with white lettering on a blue field, having the words "DRINKING WATER" or "POTABLE WATER."

Underground pipe marking tape shall consist of a minimum 4.0 mil thickness, inert polyethylene plastic which is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the soil, with a minimum 1/3 mil metallic foil. The overall width of the tape shall be at least equal to the pipe diameter, but not exceeding three inches (3") in width. Tape shall be imprinted continuously over the entire length in permanent white lettering on a blue background. The lettering shall be a minimum of 1-inch high. In no instance shall the spacing of the individual segment of the identifying message be greater than eight inches (8").

The marking tape shall be installed on all potable water pipelines and service lines. After the trench is backfilled with bedding sand to a depth of 12-inches above the outside top of the pipe, in accordance with applicable GWP standard drawings, the Contractor shall install the marking tape over all pipes. The sand shall be sufficiently leveled so that the tape will be installed on a flat surface. The tape shall be centered in the trench and laid flat with printed side up. Caution shall be exercised to avoid displacement of tape and to ensure its integrity. The remainder of the trench is then back filled in accordance with applicable GWP standard drawings.

Tracer Wire – All installed non-metallic pipe (i.e. HDPE or PVC) water mains and services shall be installed with a continuous tracer wire for location detection purposes by means of an electronic line tracer.

Tracer wire shall be #10 AWG solid copper conductor with 45 mil HDPE insulated jacket. Jacket color shall comply with ANSI Standard Z535 as reflected in the American Public Work Association Uniform Color Code. For potable water, the jacket color is "Safety Blue".

Conductor shall be annealed copper (soft drawn). Conductor shall meet or exceed all applicable ASTM specifications including ASTM B3 - Standard Specification for Soft or Annealed Copper Wire and ASTM B-170 Standard Specification for Oxygen-Free Electrolytic Copper. Conductor shall comply with all applicable requirements of the National Electrical Code (NEC).

Insulation shall be high density, high molecular weight, polyethylene (HDPE). Insulation shall meet or exceed all applicable ASTM specifications including ASTM D1248 - Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable and ASTM D1238 – Standard Specification for Test Methods for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.

Tracer wire connectors shall be lockable type specifically manufactured for use in underground tracer wire installations. An acceptable connector type is *Buchanon*.

Connectors shall be dielectric silicon filled to seal out moisture and prevent corrosion.

Connectors shall be designed to receive 10 AWG tracer wire and shall be rated for 600 volts.

Non-locking, friction fit, twist-on or taped connectors are not acceptable. Twisting of copper wiring is not acceptable.

Tracer wire shall be installed straight and parallel to pipe. Tracer wire shall be installed in a manner that prevents distortion of signal. Tracer wires shall not be crossed. Wires shall not be looped upon themselves. Multiple active wires shall not be installed in close proximity to one another.

Tracer wire shall be provided in conjunction with all methods of utility installation including open trench and directional drilling.

Tracer wire shall be laid directly upon pipe and attached at 8-10 ft. intervals with non-conductive tape. Additional attachment shall be provided at offsets and fittings in piping system. Tracer wire shall be placed carefully and great care shall be exercised during backfilling operations to maintain physical integrity and position relative to piping.

Tracer wires shall be interconnected at intersections of mainlines and branches utilizing single threeway connector at each point of connection.

Tracer Wire Termination Points – Tracer wire shall have terminations at all valves, hydrants, blowoffs, air/vac assemblies, and meter boxes. Terminations must occur at these locations even if the service line connecting from the non-metallic water main to these termination points is metallic material such as copper.

Final Testing and Operational Verification – Final testing of each tracer wire shall be performed after backfill is complete and terminal boxes have been permanently installed and wires terminated. Test shall be witnessed by the Engineer. It may be advisable for Contractor to perform preliminary test(s) during utility installation prior to final backfill and restoration. Testing shall be accomplished

using typical low frequency line tracing equipment. Continuity testing in lieu of actual line tracing is not acceptable. If the test fails, the Contractor shall repair or replace the tracer pipe and re-test it.

11.23 MAINLINE VALVES

- A. Installation of New Mainline Valve on a New Potable Water Main – New water valves that are to be installed on a new potable water main are identified on the contract drawings and described in Section 11.12 (*Materials For Construction of Potable Water Facilities & Infrastructure*). All valves, hardware, and appurtenances shall be furnished by the Contractor.

The work shall include, but not be limited to; furnishing of the new valve and related hardware, fittings and appurtenances, gaskets, couplings, and adapters; installation and connection of the new valve to the adjoining new pipe, including tie-backs or other restraint, and concrete support for the valve.

Other work items included as part of this bid item are: traffic control; pavement marking; pavement saw-cutting and removal; utility potholing; excavation; shoring; slurry backfill; hydrostatic pressure testing of the main after installation; disinfection; temporary and permanent trench resurfacing and pavement restoration; restoring damaged pavement striping and markers; storm water control, disposal of excess materials, and all incidentals.

In addition, the Contractor shall furnish and install all items described below in Sub-Sections D, E, and F.

This work shall be paid under bid items related to new valve installation, as listed on the contract bidding forms.

- B. Replacement of Existing Mainline Valve on Existing Potable Water Main – Specific valves scheduled for replacement on existing water mains are identified on the contract drawings and the new valves are described in Section 11.12 (*Materials For Construction of Potable Water Facilities & Infrastructure*). Existing gate valves that are 4" through 12" shall be replaced with new gate valves of similar size, and existing gate valves that are greater than 12" shall be replaced with new butterfly valves of similar size. All valves, gaskets, hardware, and appurtenances shall be furnished by the Contractor.

The work shall include, but not be limited to traffic control; pavement marking; pavement saw-cutting and removal; utility potholing; excavation; shoring; cutting out, removal and disposal of existing valve; cutting out, removal, and disposal of conflicting existing pipe and fittings; furnishing of the new valve and related hardware; installation of new valve, fittings and couplings; slurry backfill; hydrostatic pressure testing of the main after installation; disinfection; temporary and permanent trench resurfacing and pavement restoration; restoring damaged pavement striping and markers; storm water control, disposal of old valve and excess materials, and all incidentals, as directed by the Engineer. In addition, the Contractor shall furnish and install all items described below in SubSections D, E, and F. This work shall be paid under bid items related to valve replacement, as listed on the contract bidding forms.

- C. Exclusion of Fire Hydrant Assembly Gate Valves – The furnishing and installation of 6-inch gate valves that are part of a new fire hydrant assembly installation are included as part of the fire hydrant assembly scope of work and cost. See Section 11.24 (*Fire Hydrant Assemblies*), below.
- D. Painting – All new and existing valve box covers shall be painted blue by the Contractor, whether or not the valve cover is already painted blue.

- E. Valve Markers – The Contractor shall furnish and install round, blue-colored potable water valve markers with direction arrow on the curb adjacent to all valve cover locations. The markers shall be affixed with a proper adhesive manufactured for this purpose.
- F. Valve Box Sleeves, Covers, and Boxes – The Contractor shall furnish and install all valve box sleeves, valve box covers and valve boxes according to GWP Standard Drawing No.'s 1588-A, 1589A, and 1590-A, respectively for all installed valves. All work associated with furnishing and installing valve box sleeves, valve box covers, and valve boxes shall be included in the contract unit price for the valve installation(s).

11.24 FIRE HYDRANT ASSEMBLIES

- A. Hydrant Assemblies – GWP Standard Drawing No. 4946-A shows the details for constructing a new fire hydrant assembly to an existing water main. A detail for constructing a new fire hydrant on a new main is provided on the "Standard Water Details" sheet of the construction drawings. The hydrant assembly includes the fitting that connects the hydrant lateral pipe to the main line, which is typically a tee and sometimes a cross. If a reducer is needed, that is also to be included as part of the hydrant assembly. Section 11.12 (*Materials For Construction of Potable Water Facilities & Infrastructure*), lists the accepted fire hydrant assembly components, including the fire hydrant head.
- B. Hydrant Location – The exact location of all new or relocated fire hydrant heads and their assemblies specified on the plans will be determined by the Engineer to suit field conditions and all adjustments shall be included in the bid price in the Bid Schedule. The Contractor shall specifically coordinate with the Engineer the exact location of the fire hydrant and bollards before installing the "tee" on the main line.
- C. Fire Hydrant Assembly 6-inch Isolation Gate Valves – All 6-inch isolation gate valves that are part of the new fire hydrant assembly as shown on the "Standard Water Details" sheet of the construction drawings shall be new 6" gate valves furnished and installed by the Contractor. Section 11.12 (*Materials For Construction of Potable Water Facilities & Infrastructure*), lists the accepted gate valves. The cost for the furnishing and installation of this valve is included in the cost of the fire hydrant assembly, and shall include Sub-Sections D, E, & F of Mainline Valves, above.
- D. Reflective Fire Hydrant Markers – The Contractor shall provide and install two (2) blue reflective pavement markers at each existing and new fire hydrant, whether an existing marker was obliterated or not. One marker shall be placed on the top of the curb, in front of the fire hydrant. The other marker shall be placed at a three feet (3') distance towards the direction of the fire hydrant, measured from the street centerline or the street center median curb (if center median is present).
- E. Payment – Work for installing the fire hydrant assembly, including furnishing and installing the 6-inch gate valves shall be paid under the bid item(s) related to the furnishing and installation of fire hydrant assemblies, as listed on the contract bidding forms.

11.25 COPPER TUBE WATER SERVICE LATERALS – (1-INCH, 1.5-INCH, AND 2-INCH DIAMETERS)

- A. Installation of New Potable Water Service Laterals – The Contractor shall install new potable water service laterals of size and location specified on the Contract drawings, or as directed by the Engineer. Each service lateral shall consist of the materials listed on Glendale *Water and Power* Standard Drawing No. 1660-A, Sheets 1 and 2, and per Section 11.12 (*Materials For Construction of Potable Water Facilities & Infrastructure*). All corporation valves and fittings shall contain zero

lead. Excavations made for tapping the water main shall completely expose the main for the tap. New service laterals shall terminate at and be connected to the existing water meters or to new water meters supplied by the City. Service saddles shall be used for all taps. New 1", 1-1/2", or 2" taps shall be made at an angle of 60-degrees below the top of the pipe and may be made either when the main is shut down or when the main is in service (a.k.a. "wet tap" or "hot tap"). Taps made when the main is in-service shall be flushed while performing the tapping to dispose of cuttings.

- B. Replacement of Existing Potable Water Service Laterals – The Contractor shall replace existing potable water service laterals with new 1-inch, 1.5-inch, or 2-inch copper service laterals at all locations specified on the Contract drawings, or as directed by the Engineer. The new replacement service lateral shall be installed per Sub-Section A, above. Where an existing service line is indicated for replacement with a new service line on the construction drawings, the existing service line shall be abandoned per Sub-Section C, below.
- C. Abandonment of Existing Potable Water Service Laterals – Excavations made for abandoning the existing service lateral shall completely expose the existing tap to the water main and its corporation valve. The Contractor shall shut the existing service lateral corporation valve at the tapped connection to the existing potable water main, disconnect the existing service lateral and shall remove the existing curb valve and meter box, unless otherwise specified on the construction drawings, or per the direction of the Engineer.
- D. Reconnection (Re-use) of Existing Potable Water Service Laterals – Where specified on the construction plans, the existing potable water service lateral will be reconnected and reused by disconnecting it from the old potable water main and reconnecting it to the potable new water main. The reconnection shall be done per the service lateral reconnection detail shown on GWP Std. Dwg. No. 6773-A.
- E. Installation of new potable water service laterals shall be as shown on GWP Standard Drawing No. 1660-A, Sheets 1 and 2. Relocation of existing service laterals shall be as shown on GWP Standard Drawing No. 6536-A.
- F. Excavation, backfilling, and street resurfacing shall be in accordance with these specifications, GWP Std. Dwg. No. 6722-A, and per the detail shown on the "Standard Details" sheet of the construction drawings.
- G. The work for each service lateral in accordance with these specifications shall include, but not be limited to, the following:
 - 1. Pavement (marking, saw-cutting, removal, and disposal),
 - 2. Utility potholing,
 - 3. Excavation,
 - 4. Installation of a new potable water service lateral and a new meter box (per GWP Standard Drawing No. 1660-A, Sheets 1 and 2),
 - 5. Connection of the new potable water service lateral and customer-side piping to the water meter (existing or new),
 - 6. Disconnection of any existing potable water service laterals that are to be abandoned and the removal of the existing curb valve (as described above in sub-section B),
 - 7. Backfilling, compaction (or slurry backfill if required) and permanent pavement resurfacing of trench,

8. Restoration of any existing adjacent improvements disturbed or destroyed during the installation of the water meter box and service lateral to include, but not be limited to sod, concrete curb, gutter, sidewalk, brick work, ADA ramp, walls, planting areas, irrigation systems, traffic striping, pavement markers, curb painting, etc.
- H. Payment for installation of potable water copper tube service laterals shall be under the appropriate items listed on the contract bidding forms.

11.26 **FIELD HYDROSTATIC TESTING OF WATER MAINS**

The newly constructed potable water main shall be tested hydrostatically before final acceptance by the City. Hydrostatic testing shall comply with the requirements of AWWA C600-17, Section 5.2, and as modified herein.

- Contractor shall submit proposed materials, methods, and operations regarding testing to the Engineer for review prior to the start of testing.
- Contractor shall notify the Engineer 72 hours in advance of testing.
- Contractor shall have sufficient personnel at the site for the entire duration of all tests.
- Contractor is responsible to provide outlets to flush line, expel air, and perform specified tests.
- All fittings, hydrants and appurtenances must be properly braced and harnessed before the pressure is applied. Thrust restraining devices which will become a part of the system must also be tested at the test pressure.
- Prior to performing the hydrostatic test the Contractor shall thoroughly flush the water main as described in Section 11.27, "*Flushing of Potable Water Main and Disposal of Wastewater*".
- The pipeline to be tested shall be filled with water and shall be free from air. After the pipe has been completely filled, it shall be allowed to stand under a slight pressure for at least 24 hours before the test is made to allow the mortar lining to absorb water and to allow the escape of air from any air pockets.
- **The test pressure shall not be less than 1.25 times the stated working pressure of the pipeline measured at the highest elevation along the test section and not less than 1.5 times the stated working pressure at the lowest elevation of the test section, with a minimum of 200 psi, and not to exceed 300 psi. Loss of water pressure during test shall not exceed 5 psi in a 2-hour period.**
- Where practicable, pipelines shall be tested between line valves or plugs in lengths of **not more than 1,500 feet**. All hydrant valves shall be open so that the hydrants are included in the pressure test. If services are installed, testing shall be conducted up to the curb stop.
- All necessary apparatus for testing of the pipeline, including a calibrated tank, pump, hoses, fittings, pressure gauges, taps, corporation valves, tools, and etc. shall be furnished by the Contractor, and he/she shall perform all testing operations under the direction and supervision of the Engineer.
- Pressure gauge must be in good working condition and must be demonstrated to be accurate to the Engineer prior to any testing. Gauge must have proper labeling to allow Engineer to accurately distinguish the maximum allowable 5 psi change in pressure. Gauge must have markings at no greater than 2 psi increments to allow accurate readings.
- The pipe shall be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. Before applying the specified test pressure, all air shall be expelled from the pipe. If permanent air vents are not located at all high points, the Contractor shall install corporation cocks at such points so the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation cocks shall be closed and the test pressure applied.

- The duration of each pressure test shall **not be less than two (2) hours** unless a longer period is requested by the Engineer. Pressure should not fluctuate by more than **5 psi** during testing.
- The Contractor shall allow the Engineer opportunity to read the gauge and record the test results he/she witnesses. Results obtained by the Engineer are considered final, and not subject to discussion by the Contractor.
- **If the pressure drop is greater than 5 psi in 2 hours or leaks are visible** at exposed joints and/or evident on the surface where joints are covered, the Contractor, at his/her own expense, shall explore for the cause of the excessive leakage, repair the joints, retighten the bolts, relay the pipe, or replace the pipe until the leak is eliminated--regardless of total leakage as shown by the hydrostatic test. This shall also include, but not be limited to, the removal of backfill already placed, replacement and re-compaction of such excavated material, and making all repairs necessary to secure the required water-tightness. The line shall then be retested. This procedure shall be repeated until the pressure loss is less than the maximum allowable and the Engineer is satisfied.
- **If the pressure drop is 3 psi or greater but less than 5 psi in 2 hours**, the Contractor shall continue the test for another 2 hours. If the pressure drop over the 4-hour period is 5 psi or greater, the test shall be considered failed and must be repeated after the cause of the leakage is explored and the necessary repairs have been made.
- Lines which fail to meet the test shall be repaired and retested as necessary until test requirements are complied with at the expense of the Contractor.
- At the end of the test, the pressure shall be increased to the starting pressure, so that the "Leakage Test" data is acquired.

- Leakage Test

The leakage test shall be conducted concurrently with the pressure test.

The Contractor shall provide a meter certified within the last year or a source-water tank/barrel of small enough cross section so that measurable changes in water depth can be accurately recorded. A twohour test is permitted for circular tanks/barrels of 15 inches in diameter or less. A four-hour test is required for circular tanks/barrels greater than 15 inches in diameter.

The rate of leakage shall be determined at 15-minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test shall proceed until the rate of leakage has stabilized or is decreasing below an allowable value, for three consecutive 15-minute intervals. After this, the test pressure shall be maintained for at least another 15 minutes.

At the completion of the test the pressure shall be released at the furthestmost point from the point of application.

All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.

No pipe installation will be accepted if the leakage is greater than that determined by the formula:

$$L = \frac{SD(P)^{1/2}}{148,000}$$

148,000

in which,

L = the allowable leakage (makeup water), in gallons per hour

S = the length of pipeline tested, in feet;

D = the nominal diameter of the pipe, in inches; and

P = the average test pressure during the leakage test, in pounds per square inch gauge (psig).

- All hydrostatic tests shall be made in the presence of the Engineer prior to joining new pipeline to existing pipes.
- At the completion of the hydrostatic tests, the pipeline shall be thoroughly flushed and drained of hydrostatic test water per the requirements of Section 11.27, *"Flushing of Potable Water Main and Disposal of Wastewater"*.

11.27 FLUSHING OF POTABLE WATER MAIN AND DISPOSAL OF WASTEWATER

A. General

All new water mains are required to be thoroughly flushed with potable water in order to remove all dirt and miscellaneous foreign debris from the interior of the pipe and to remove high-chlorine concentration water generated by the chlorination process. Flushing shall be done at several key milestones as follows:

- After new pipe has been installed, but has not yet been connected to the potable water distribution system, prior to the hydrostatic test.
- After the hydrostatic test has been completed, prior to chlorination.
- After the pipe has been chlorinated, prior to water samples being taken.
- If the water sample fails the bacteriological test, the pipe may be required to be re-flushed.

The Contractor shall draw potable water from the nearest available fire hydrant, or from an alternate water source as directed by the Engineer, to use as the water supply for the flushing operation. No water shall be drawn from the hydrant without a temporary water meter and an approved backflow device being connected to the outlet port of the hydrant. The Contractor shall not operate the fire hydrant; only City water crews are allowed to operate the fire hydrant.

The Contractor is responsible for providing all equipment, materials, and labor needed to flush the line. This includes but is not limited to hoses, taps, valves, pressure gauge, flow gauge, pipe adapters, and etc.

Flushing must have sufficient flowrate to achieve a fluid velocity of 3.0 feet per second inside the water main, in accordance with AWWA C-651-17.

A minimum 2-inch tap is required for proper flushing of all water mains having a diameter of 8 inches or less, however, multiple taps or larger taps may be required. The Engineer shall be responsible for determining necessary connections and providing calculations verifying flushing conditions are met.

Refer to AWWA C651-17, for number of taps required to obtain the minimum 3.0 feet per second flow velocity in pipes of different diameters.

Flushing shall continue until three (3) pipe volumes have passed through the new waterline and the water appears sediment-free.

Flushing is described in more detail in the sections below.

Flushing of the New Pipe Prior to Hydrostatic Testing

After the pipeline has been constructed, but before its connection to the water distribution system, the water main must be thoroughly flushed with potable water by the Contractor in order to remove all dirt and miscellaneous foreign debris from the interior of the pipe.

All flush water must be discharged to the sanitary sewer system. All water in the line shall be discharged to the nearest sanitary sewer manhole.

Flushing must have sufficient flowrate to achieve a fluid velocity of 3.0 feet per second inside the water main.

Flushing shall continue until three pipe volumes have passed through the new waterline and the water appears sediment-free.

Flushing of Hydrostatic Test Water from the Pipe

Hydrostatic test water must be discharged to the sanitary sewer system. After the hydrostatic testing has been completed, the hydrostatic test water in the line shall be discharged to the nearest sanitary sewer manhole.

If there is no available sanitary sewer in the vicinity of the water main, or if the sanitary sewer cannot accommodate the flow rate that would be discharged to it from the flushed water main, then the Contractor subject to the approval of the Engineer, might be allowed to discharge the hydrostatic test water to the storm drain. The requirements for discharging to the storm drain are described below in the Section, "*Disposal of Hydrostatic Test Water to the Storm Drain System*".

Flushing of Chlorination Water from the Pipe

After the chlorination procedure is completed, the heavily-chlorinated disinfection water in the pipe shall be discharged to the nearest sanitary sewer manhole.

If there is no available sanitary sewer in the vicinity of the water main, or if the sanitary sewer cannot accommodate the flow rate that would be discharged to it from the flushed water main, then the Contractor subject to the approval of the Engineer, might be allowed to discharge the heavilychlorinated disinfection water to the storm drain. The requirements for discharging to the storm drain are described below in the Section, "*Flushing to the Storm Drain System*".

Flushing shall continue until three pipe volumes have passed through the new water line and the water appears sediment-free.

Neutralization of the heavily chlorinated water prior to disposal to the storm drain system shall be accomplished by using a *Pollard LPD-250 Combo Unit (Combo Kit SSDK-LPD01)* diffuser or an *Arden Industries Bazooka* dechlorination unit. The flushed water shall be disposed of per the requirements listed above.

Flushing to the Sanitary Sewer System

Hydrostatic test water must be discharged to the sanitary sewer system. If it is not at all possible or feasible to discharge these waters to the sanitary sewer system, the Contractor may be allowed to discharge to the storm drain system instead. Discharge to the sanitary sewer system is subject to the approval of the City of Glendale Public Works Department (PW), which is the owner of, and has jurisdiction over the sanitary sewer system. There are restrictions on the maximum allowable rate of discharge of the flushed water to the sewer because of hydraulic capacity limitations of the

sewer. The maximum allowable flow rate is usually **less than 200 gpm**. It is the Contractor's responsibility to contact PW prior to every discharge to obtain the allowable discharge flow rate for each specific discharge location and to inform them of the date of discharge, as they may wish to have a representative present during the discharge to their sewer. The Contractor must verify (quantify) his/her actual flow rate being discharged in order to not exceed the maximum allowable discharge rate. To accomplish this, PW requires the Contractor to furnish a water meter and connect it to the discharge line going to the sanitary sewer, and throttle the flow in order to not exceed the maximum allowed flow rate. The Contractor shall comply with all restrictions and requirements of the City.

Flushing to the Storm Drain System

Prior to disposal into the storm drain, all chlorine residual must first be removed from the wasted water. This shall be accomplished by using a *Pollard LPD-250 Combo Unit (Combo Kit SSDKLPD01)* diffuser, an Arden Industries bazooka dechlorination unit, or other City-approved device. The Contractor shall implement BMPs in accordance with General Conditions – Water Pollution Control section in the GWP Water Specifications, when discharging to storm drains. The discharge water shall be routed to the nearest catch basin or manhole via a drainage hose with one end connected to the water main and with the other end placed inside the catch basin or manhole. For longer distances to the nearest catch basin or manhole, the Contractor will be allowed to discharge to the street gutter and have the discharged water flow along the gutter to the catch basin. For more information on Water Pollution Control requirements, please contact GWP Water Engineering at (818) 548-2062.

Disposal of Hydrostatic Test Water to the Storm Drain System

Flushing and disposal of hydrostatic test water to the storm drain system shall be subject to the following procedures and requirements:

One month prior to planned discharge to the storm drain, the Contractor shall coordinate with GWP to collect samples to establish baseline water quality conditions per the effluent limits contained in NPDES CAG674001, CI9424. If test results indicate a potential exceedance of an effluent limit contained in CAG674001, CI9424, discharge to the storm drain may be prohibited.

Notify the Regional Board of pending discharge under the City's permit.

After the pipe passes the pressure test, City staff will collect water quality samples per GWP NPDES CAG674001, CI9424. This shall be coordinated with the GWP inspector and GWP Water Quality Section.

Flush the pipe.

GWP staff must be present to observe and record the visual appearance of the water.

GWP staff will record meter readings for quantifying volume of wastewater discharged.

GWP staff will track and record results for constituents listed in the NPDES permit.

11.28 DISINFECTION OF POTABLE WATER MAINS – REQUIREMENTS

Title 15 of the California Administrative Code, Section 64580 addresses the disinfection of new water mains as well as requirements for water quality testing. Section 64580 of the Waterworks standard states that *"newly installed water mains, or water mains that have been taken out of service for maintenance or repair,*

shall be disinfected and sampled for bacteriological quality in accordance with American Water Works Association Standard C651-05, which is hereby incorporated by reference."

A. Bacteriological Testing Requirements – According to AWWA Standard C651-14, Section 5.1, there are two options available for the bacteriological testing for total coliform analysis:

***"Option A:** Before approving a main for release, take an initial set of samples and then resample again after a **minimum of 16 hours** using the sampling procedures outlined. Both sets of samples must pass for the main to be approved for release."*

***"Option B:** Before approving a main for release, let it sit for a **minimum of 16 hours** without any water use. Then collect, using the sampling site procedure outlined and without flushing the main, two sets of samples a minimum of 15 minutes apart while the sampling taps are left running. Both sets of samples must pass for the main to be approved for release."*

A "set of samples" includes all samples collected along the length of the pipeline.

For new mains, sets of samples shall be collected every **1,200 feet** of the new water main, plus one set from each end of the line and at least one from each branch greater than one pipe length.

If the GWP construction inspector believes trench water entered the pipe during construction, or if he believes excessive dirt or debris entered the pipe during construction, then bacteriological samples will be collected approximately every **200 feet** of the pipe. Samples shall be taken of water that has stood in the new main for at least 16 hours after final flushing has been completed.

Samples will be tested for the presence of coliform bacteria, heterotrophic plate count (HPC), turbidity, and pH. HPC will only be tested with the first set of coliform bacteria samp

B. Sample Locations –

1. According to AWWA Standard C651-14, Section 5.1.3, no hose or fire hydrant shall be used for the collection of samples.
2. For pipe repairs, AWWA Standard 651-05 indicates that if no other sampling port is available, well-flushed fire hydrants may be used with the understanding that they do not represent optimum sampling conditions.

C. Responsibilities –

- The Contractor shall be responsible for chlorinating the newly installed water mains.
- The City will be responsible for collecting water samples for bacteriological testing and arranging for having a laboratory conduct the required tests, and relaying the "pass/fail" test result to the Contractor.
- If any of the bacteriological tests result in a "fail" status, (1) and (2) will be repeated until all tests have achieved a "pass" status.

D. The Contractor shall provide an authorized subcontractor trained in the use of chlorination and safety equipment for each water pipeline chlorination operation. Other employees of the subcontractor not meeting the necessary qualifications may assist in the water pipeline disinfection operation, but at no time shall such employee be in charge of injecting of chlorine into the water pipeline or the residual testing of the chlorine. The subcontractor shall furnish all equipment, labor, and materials for the testing and proper disinfection of all piping. This includes but is not limited to hoses, back flow preventer, temporary water meter, pipe end caps, sample ports, pipe fitting

adapters, shut-off valves, and etc. All chlorinating and testing operations shall be done in the presence of the Engineer.

Additionally, pipeline disinfection shall comply with the following requirements:

- E. Regulations issued by the U.S.-D.O.T., Title 49 in the U.S.-C.F.R., the U.S.-E.P.A., Title 40 in the U.S.-C.F.R., the U.S. Department of Labor, Title 29 in the U.S.-C.F.R., The Chlorine Institute, the American Water Works Association (AWWA), current Standard No. C651, and AWWA Distribution System Bacteriological Sampling and Control Guidelines with regard to the handling, application, sampling, and reporting of all chemicals used during the chlorination operation.
- F. While at the jobsite, the Contractor shall have personnel wear hard hats, safety vests, goggles, and safety shoes. A portable eye wash shall be available at all times at each jobsite. Cones, delineators, or barricades shall be used at the jobsite to protect workers and equipment.
- G. A proper manifest and Materials Safety Data Sheet for each hazardous chemical used under this contract shall be available for inspection at the jobsite. Hazardous materials identification shall be displayed on vehicles and equipment transporting or applying the hazardous materials.
- H. The Contractor shall submit an Emergency Response Plan to the Engineer for review and approval before beginning any work. The Emergency Response plan shall include the following:
 - 1. The name, address, and telephone number of the person or persons responsible for coordinating emergency response activities.
 - 2. Procedures to notify the Department and the emergency response agencies, including but not limited to, Police and Fire, in the event of a chemical spill or any other emergency condition that could be considered life threatening or hazardous to the surrounding environment.
 - 3. General procedures to contain and neutralize any chemical spills that occur as a result of the chlorination operations.
 - 4. Materials Safety Data Sheets (MSDS) for all hazardous chemicals used under this contract.
- I. The Contractor shall use sodium hypochlorite to disinfect all mains and sidelines under this contract.
- J. The Contractor shall dechlorinate all flush water discharged from pipelines with thiosulfate or sodium bisulfate to less than one mg/L (<1.0 mg/L). Any chlorinated water to be discharged to the storm drain shall have a chlorine residual of less than 0.1 parts per million (<0.1 ppm). If there is any question that the discharge will be greater than 0.1 parts per million at the storm drain inlet, apply a reducing agent at the inlet of the storm drain to maintain a discharge residual of less than 0.1 parts per million (<0.1 ppm), and test the water at the storm drain inlet to verify a total chlorine residual of less than 0.1 parts per million. The dechlorinated flush water shall be disposed of per the requirements of Section 11.27 (*Flushing of Potable Water Main and Disposal of Wastewater*), herein. The Contractor shall submit a plan to the Engineer for recording the dechlorinated discharges with the frequency and location of sampling for review and approval. The Contractor shall also submit the records of the dechlorinated discharges to the Engineer.
- K. The Contractor shall notify the Engineer not less than 24 hours prior to chlorination of each section of pipeline.
- L. Liquid chlorine shall be in accordance with the requirements of ANSI / AWWA B301. Liquid chlorine shall be used only under the following conditions:

1. In combination with appropriate gas flow chlorinators and ejectors.
 2. Under the direct supervision of an experienced technician.
 3. When appropriate safety practices are observed.
- M. Sodium hypochlorite shall be in accordance with the requirements of ANSI/AWWA B300.
- N. The Contractor shall schedule his/her work to allow adequate time to satisfy all the disinfection and sampling requirements described in this Section.

11.29 **DISINFECTION OF POTABLE WATER MAINS – PROCEDURES**

- A. The Contractor shall submit a Disinfection Plan (submittal) to the Engineer for review and approval before beginning any work.
- B. The Contractor shall disinfect all potable water pipelines and appurtenant piping in accordance with the requirements of ANSI / AWWA C651 using the **Continuous-Feed Method** as modified herein.
- C. During the filling operation, a chlorine-water mixture shall be injected by means of a solution-feed chlorinating device. The dosage applied to the water shall be sufficient to give a chlorine residual of at least **25 ppm** upon completion of the filling operation. Precautions shall be taken to prevent the strong chlorine solution from flowing back into the lines supplying the water.
- D. Chlorinated water shall be retained in the pipeline long enough to destroy all non-spore-forming bacteria, and, in any event, for at least twenty-four (**24**) hours. All valves shall be operated while the pipeline is filled with the heavily chlorinated water. After the chlorine-treated water has been retained for the required time, the chlorine residual in the pipeline shall be at least **10 ppm**. If the residual in the pipeline sampled at representative locations is less than **10 ppm**, the pipeline shall be flushed and rechlorinated by the Contractor. *(The Contractor shall be responsible for any damage or contamination resulting from disinfection work including damage or contamination to the facilities constructed under this Contract or to facilities providing water for disinfection. Contractor shall be responsible for any injuries or liabilities arising out of failure to properly perform disinfection work).*
1. The chlorine residual shall be monitored in the pipeline during filling by the Contractor. If at any time the residual exceeds 75 mg/L in the pipeline, the Contractor shall have the chlorination subcontractor lower the dosage (chemical feed) to 25 mg/L.
 2. Following completion of the 24-hour holding period, an authorized representative of the Contractor shall check the chlorine residual prior to the pipeline being flushed. The concentration of free chlorine shall be determined using the DPD dilution method (or an equivalent method). Litmus paper for testing pH will not be accepted. If the required residual is achieved, the treated water shall be thoroughly flushed from the main and replaced with water from the City's mains.
 3. Upon completion of flushing, bacteriologic tests will then be made by the City to demonstrate and record the sanitary condition of the pipeline. This involves the City taking water samples 16 hrs apart as described in Section 11.28 above titled "*Disinfection of Potable Water Mains – Requirements*". Both chlorine concentration tests and bacteriologic tests will be at the expense of the City. However, if any given chlorine concentration fails to meet specified requirements, or if polluting material is evident as revealed as a result of bacteriologic tests, disinfection procedures shall be re-initiated and subsequent testing, shall be performed as required, all at the expense of the Contractor.
 4. Two consecutive bacterial samples shall be free of coliform bacteria at the completion of the incubation period. In addition, heterotrophic plate count (HPC) bacteria shall be less

than 500 cfu/ml in the sample collected at the same time as the first coliform sample. If coliform bacteria are present or HPC are greater than 500 cfu/ml, the Contractor shall have the pipeline flushed and rechlorinated by the subcontractor. The HPC test is a 48-hour test and plans should take this into account.

- E. **Temporary Potable Water By-Pass Pipelines Only:** When bacterial samples can be obtained the same day as chlorination, the sodium hypochlorite solution shall be injected at a minimum concentration of 100 mg/L as the pipeline is being filled, unless otherwise directed by the Engineer. Once chlorinated, the solution shall be held in the pipeline for 3 hours before the chlorine residual is tested. If the residual in the pipeline sampled at representative locations is less than 50 mg/L, the Contractor shall have the pipeline flushed and rechlorinated by the subcontractor.
1. The Contractor shall monitor the chlorine residual in the pipeline during injection by the subcontractor. If at any time the residual exceeds 150 mg/L in the pipeline, the Contractor shall have the chlorination subcontractor lower the dosage (chemical feed) to 100 mg/L.
 2. Following completion of the 3-hour holding period, an authorized representative of the Contractor shall check the chlorine residual as the pipeline is being flushed. If the required residual is achieved, the treated water shall be thoroughly flushed from the main and replaced with water from the City's mains.
 3. Upon completion of flushing, bacteriologic tests will then be made by the City to demonstrate and record the sanitary condition of the pipeline. Both chlorine concentration tests and bacteriologic tests will be at the expense of the City. However, if any given chlorine concentration fails to meet specified requirements, or if polluting material is evident as revealed as a result of bacteriologic tests, disinfection procedures shall be re-initiated and subsequent testing, shall be performed as required, all at the expense of the Contractor.
 4. The bacterial samples shall be free of coliform bacteria and HPC less than 500 cfu/ml at the completion of the incubation period. If coliform bacteria are present or HPC are greater than 500 cfu/ml, the pipeline shall be flushed and shall be rechlorinated by the subcontractor.
- F. The City will advise the Contractor of the bacteriological test results. After successful completion of all disinfection procedures, including testing, the pipeline shall be placed in service, as directed by the Engineer.
- G. Disinfection and dechlorination of water mains and temporary by-pass pipeline shall be included in the contract unit price bid for water main installation.

11.30 JOINING A NEW POTABLE WATER MAIN TO AN EXISTING MAIN (A.K.A. "TIE-INS" or "CUT-INS")

The new potable water mains shall be joined to the existing potable water distribution system as shown on the construction drawings. The existing potable water mains and all water services must remain in service during construction, and shut-down time will be limited to that period deemed necessary to make the final connections to the existing water mains. The Contractor shall notify the Engineer seventy-two (72) hours prior to making the connections to the existing mains. The allowed/required time of day and duration for making the connections shall be subject to the approval of the Engineer, and in no event shall the existing pipeline be out of service for more than four (4) hours. Contractor shall use their best judgement based on the street conditions and existing utility locations and determine if a highline is needed for any specific street construction, or pipelines can be abandoned and new pipes installed at a different location. Any highline requirements will be at the expense of the Contractor and no additional compensation will be granted.

11.31 MOBILIZATION AND SETUP FOR CONSTRUCTION

Mobilization and setup for water main construction shall consist of the following:

- A.
 - 1.) Installation of the temporary by-pass pipeline,
 - 2.) Disinfection of the temporary by-pass pipeline,
 - 3.) Connection of the temporary by-pass pipeline to source water supply, and
 - 4.) Connection of all individual water services to the by-pass pipeline.
- B. Start of significant field activity which requires the continuous presence of the Engineer.
- C. Payment for mobilization and setup for construction shall be per the Contract Bidding Forms.

11.32 TEMPORARY BY-PASS PIPELINES

A. General Requirements

In the event that temporary potable water by-pass pipelines are required by the Contractor to perform the required contract work, and subject to the Engineer's agreement and approval that temporary by-pass is needed, the Contractor shall provide temporary by-pass subject to the following criteria.

Temporary by-pass pipelines will be required at specific locations where the potable water main is to be replaced, as shown on the contract drawings. The by-pass pipeline will provide temporary water service to all GWP potable water customers that have an existing service line tapped to a potable water main which will be out of service during the work. In addition, existing fire lines and temporary fire hydrants will be connected to the temporary by-pass pipelines. The Contractor shall design, furnish, install, chlorinate, assure proper functioning, maintain, and remove temporary by-pass pipelines to provide water supply and fire protection to the City's customers during the water main work.

B. Design of Temporary By-Pass Pipelines

- (1) It shall be the Contractor's responsibility to design the temporary by-pass pipeline system(s) for this project. To assist the Contractor with this task, the City will furnish maps that will provide the basic information for design that will include topographic contour maps with elevations, system static pressures, pressure zone boundaries, locations of large and small service lines, fire lines, mains, valves, blow-offs, and existing fire hydrants.
- (2) GWP Water Standard Drawing No. 6525-A in these Specifications provides a chart with guide lines and suggestions to assist with sizing the temporary by-pass pipelines, determining the number of required supply feeds, and determining the minimum distance between temporary fire hydrants. Please note that these are general guide lines and suggestions only. The Contractor shall be responsible for designing and selecting the appropriate feed water source locations, size (diameter) of by-pass pipelines, number of required by-pass pipelines, and length and extent of

by-pass pipelines needed to provide sufficient water flow and pressure to all the service locations, irrespective of the guide lines in the design flow chart. There might be instances where the required length and extent of the needed temporary by-pass significantly exceeds the length and geographic location of where the mains to be cleaned and lined are located, depending on the local conditions at these locations. For water mains located in a lower pressure zone that are in the vicinity of a pressure zone boundary of a higher pressure zone, a temporary by-pass connection from the higher pressure zone to the lower pressure zone via a pressure reducing valve (PRV) might be needed in order to provide sufficient water flow and pressure to all the service locations.

- (3) The temporary by-pass pipeline design shall be plotted on 24"x36" (Architectural D) size paper at an appropriate scale for legibility and shall clearly indicate all proposed by-pass pipelines with their proposed sizes and locations, proposed water source connection points, each individual service that is to be connected to the by-pass pipeline, all existing isolation valves that will need to be shut down, and any proposed line stops or pressure reducing valves. Water pressures inside of the by-pass pipeline shall be estimated/calculated and shown at critical locations on the plan. Maximum flows shall also be estimated/calculated and shown for each section of by-pass pipe. For each of the phases of the project, each independent contiguous section of pipe (i.e. sub-phasing) that is scheduled to be cleaned and lined shall have its proposed temporary bypass piping and cleaning and lining limits clearly delineated. All locations where a trench is proposed to be excavated within the paved roadway area to bury the by-pass pipeline shall be clearly shown. It is preferred that the temporary by-pass plan be prepared in AutoCAD computer software, rather than hand-drawn.
- (4) The temporary by-pass pipeline design shall be submitted to the Engineer for review and general approval a minimum of twenty-one (21) calendar days before the start of construction. The Contractor should begin preparing the by-pass plan as soon as he/she has been informed that he/she has been awarded a construction contract. **Please note that the review and general approval of the temporary by-pass plan by GWP is of the general concept of the design only and that the Contractor is fully responsible for providing a temporary by-pass pipeline system that fully and properly functions and that delivers adequate water flow and pressure to all service locations and temporary fire hydrants within the area(s) being serviced, at all times.** The City reserves the right, at any time during the project, to require the Contractor to modify his/her installed by-pass pipeline system or sub-divide the proposed contiguous cleaning and lining pipe segments into smaller segments, when, in the City's opinion or observation, water service to the customers will be degraded because of insufficient water flow and pressure. In these cases, the Contractor shall not receive additional compensation nor a time extension to complete the required work.
- (5) An excavation permit issued by the City of Glendale Public Works Department is required for any excavation work within the street public right-of-way. **The Contractor is responsible for obtaining an excavation permit for any excavations associated with the proposed temporary by-pass pipeline.** This responsibility includes submitting the by-pass plans and marked-up contract drawings showing the proposed excavation locations to the Public Works Department for their review and approval, complying with all their requirements for installation and maintenance of the temporary by-pass, complying with their requirements for backfilling and resurfacing the trench and street pavement, completing the permit paper work, and paying any required permit fees. All costs associated with the permit shall be borne by the Contractor.

C. Implementation of Temporary By-Pass Pipelines

- (1) The Contractor shall furnish, install, chlorinate, maintain, and assure the proper functioning of the complete temporary by-pass pipeline system. Pipe and fittings employed in the by-pass pipelines shall be subject to approval by the Engineer for use. Pipe and fittings shall be clean, free of rust, dirt, debris, and foreign material and shall consist of materials capable of withstanding the maximum system pressure. Pipe and fittings shall not impart any objectionable taste, odor, or color to the water being supplied. The primary material of consideration shall be high-grade aluminum pipe with restraint-type joints. Plastic pipe or hose, when employed, shall bear the imprint of the National Sanitation Foundation (NSF) approval for potable water, NSF-PW, or shall be capable of meeting the standards established by the NSF

for this use. Where "lever" or "toggle" type couplings are employed for joining lengths of pipe for the by-pass pipelines, the couplings shall be installed in the inverted position to prevent accidental uncoupling of the pipelines. Each run of by-pass pipeline shall terminate with a 2-inch minimum size valve for flushing and chlorination. Service connections shall not be used from or downstream of this terminal valve. When connections are made to fire hydrants, the Contractor shall maintain the same number of available outlets as originally existed on the fire hydrant.

- (2) Where the by-pass pipeline crosses a wheelchair ramp or sidewalk and there is less than a 4foot wide, unobstructed passageway, the Contractor shall install the pipeline in a recessed trench or shall provide a ramp at a slope not greater than 1:12 ($\leq 8.33\%$). The by-pass shall be located so as to cause the least impediment to pedestrians. At all street crossings, the Contractor shall install the by-pass pipeline in a recessed trench. In all cases, temporary resurfacing of recessed trenches shall be flush with the existing grade. If the by-pass pipeline crosses a driveway or wheelchair ramp, the Contractor shall mound over or provide a safe crossing ramp on that portion of the pipeline. The Contractor shall install plastic sheets underneath temporary asphalt concrete used to ramp over by-pass pipelines at driveways and wheelchair ramps. Ingress or egress to any property thus served shall not be blocked.
- (3) Changes or modification of the approved by-pass pipeline configuration may be made by the Contractor, but is subject to the approval of the Engineer.
- (4) Disinfection of the by-pass pipeline runs shall be performed by the Contractor in accordance with Sections 11.28 and 11.29 (*Disinfection of Potable Water Mains*), herein. Prior to disinfection, the Contractor shall thoroughly flush each run of by-pass pipeline to clear the pipe of dirt, debris, or foreign objects.
- (5) During installation, maintenance, and removal of the by-pass pipelines, the Contractor shall maintain continuity of service to the City's customers at all times.
- (6) Upon commencement of operation of the temporary by-pass pipelines, the Contractor shall furnish to the City the names and telephone numbers of the personnel designated to perform emergency repairs and maintenance to the by-pass pipelines and service connections.
- (7) It shall be the responsibility of the Contractor to maintain the temporary by-pass pipelines and service connections in good condition while they are in use. Leaking joints will not be permitted.
- (8) The Contractor shall designate some member of his staff to be "on call" for making emergency repairs to the temporary lines and services at all times when the Contractor is not working, and this expense shall be included in the total bid price. **If after a reasonable period of time there is no response to a call out, City forces will make the necessary repairs and the costs will be charged to the Contractor.**

The general procedure for implementing the temporary by-pass pipeline system is as follows: After the customers have had their water service switched over to the temporary by-pass pipeline, City crews will attempt to shut down the water main that is to be cleaned and lined or to be abandoned by closing the appropriate isolation valves. If, after the water main shutdown procedure has been implemented it is noted that water flow and pressure has dropped to unacceptable levels to the water customers, the City will reopen the isolation valves and recharge the system. The Contractor will then be required to redesign their by-pass system so that the water flow and pressure deficiencies are corrected. After the Contractor has redesigned the bypass at these locations, the City will then attempt to perform another system

shut-down. The Contractor shall not be compensated for any costs associated with this situation and shall not be entitled to a contract time extension.

- (9) After service has been restored to a section of the water main after the work has been completed for that section, the Contractor shall remove the by-pass pipeline and related facilities, shall leave the streets, sidewalks, and adjacent areas in a clean and orderly condition, and shall otherwise comply with the cleanup requirements of these Specifications. Temporary by-pass shall not be used or remain in any portion of the project for longer than ten (10) weeks unless it serves as a jumper to supply water to another section of the project. The temporary by-pass system must be fully removed before the Contractor will be allowed to begin work in the next phase of the project, unless otherwise approved by the Engineer.
- (10) When directed by the Engineer, the Contractor shall provide periodic daily flushing of by-pass pipelines to lower water temperatures. Flushing may also be required on weekends and holidays, depending on weather conditions.
- (11) Before submitting their proposal, the bidder is strongly advised to examine site conditions and become fully informed regarding services larger than 2-inch. Accommodations to open the actual vaults will be made available during the bidding period.
- (12) A single check valve shall be installed on all outlets that are used as a source of water supply for the by-pass. The Contractor shall provide 2-inch size, 150 lb. bronze swing check valves with female threaded ends and 4-inch size, 175 lb. swing check valves with flanged ends or threaded ends.

D. Costs of Temporary By-Pass Pipelines

All work associated with the design, furnishing, installation, chlorination, source potable water connections, proper functioning, maintenance, and removal of by-pass pipelines shall be included in the contract unit prices bid for the various items.

11.33 TEMPORARY POTABLE WATER SUPPLY & CONNECTIONS TO FEED THE TEMPORARY BY-PASS SYSTEM

A. **General** – The Contractor shall furnish all plant, equipment, materials, transportation, superintendence, labor and workmanship necessary to provide temporary water service to water consumers and temporary 4-inch fire hydrants. The Contractor shall live tap and connect to water mains or to fire hydrants as indicated on the by-pass plans. Connection to fire hydrants for water supply shall be with Contractor-furnished approved Siamese fitting, eddy valve and a tee. When tapping 4", 6", 8", 12" and larger mains, a service clamp is required. Contractor shall block, restrain and support temporary water supply pipes, as required.

B. Potable Water Supply, Connection, and Feed to 2-Inch Diameter Temporary By-Pass Lines

- (1) The Contractor shall install, maintain, and later remove 1-1/2-inch service taps at locations deemed necessary to provide water supply to the 2-inch diameter temporary by-pass pipelines. The 1-1/2-inch taps shall be made to existing cast iron, ductile iron, and steel pipelines and shall be installed with the existing pipelines in service and operating under normal pressure. All by-pass pipelines shall be able to withstand maximum system pressure.
- (2) The taps shall be made at an angle of 60 degrees below the top of the pipe on the side of the pipeline to which the supply for the by-pass pipeline is required. Dual taps shall be spaced not less than 12-inches apart. The tapping machine shall be capable of cutting 1-

7/16-inch outlet holes through Contractor-furnished 1-1/2-inch service clamps and inserting Contractor-furnished 1-1/2-inch bronze corporation valves with 4-7/8-inch outside diameter. One service clamp and one 1-1/2-inch corporation valve shall be furnished and permanently installed at each location by the Contractor.

- (3)** The Contractor shall furnish, install, and later remove the following temporary fittings for each connection in accordance with Table 1 below:

Table 1

TEMPORARY FITTINGS				
Item	Main Size (inches)	Manufacturer		
		James Jones	Mueller	Ford
<u>Service Clamp</u> 1-1/2" x 4", 6", 8" and 1-1/2" x 10", and 12"	4", 6", 8", 10", 12", 16", 20", 24", 30"	4", 6", 8" J-975 10", 12", J-979 16" J-979	4" H-16080, 1-1/2"CC 6" H-16084, 1-1/2"CC 8" H-16088, 1-1/2"CC 10" H-16134, 1-1/2"CC 12" H-16137, 1-1/2"CC	4" 101B- 540 x CC6 6" 101B- 750 x CC6 8" 101B- 962 x CC6 10" 202B-1212 x CC6 12" 202B-1438 x CC6
1-1/2" Corp. Valve, (C.C. x C.T.)	All	J-1930 (1-1/2" x 1-1/2")	H-15000- or B-25000 (1- 1/2" x 1-1/2")	FB-600 1-1/2" x 1-1/2"
1- 1/2" Copper Tube	All	-----	-----	-----
1-1/2" Bronze Plug, (C.C. Thread)	All	-----	H-10033, 1-1/2"	-----
1-1/2" Bronze Plug, (I.P. Thread)	All	-----	H-10035, 1-1/2"	-----
1-1/2" x 1-1/2" Brass Coupling (B&S x I.P. Thread)	All	-----	H-15082, 1-1/2"	C01-66
2" x 2" Brass Coupling (B&S x I.P. Thread)	All	-----	H-15082, 2"	C01-66
1-1/2" x 2" Brass Coupling (B&S x B&S)	All	-----	H-15405, 1-1/2"	-----
2" Close Nipple	All	-----	-----	-----
2" x 2" x 1" Tee, (I.P. Thread)	All	-----	-----	-----
1" x Close Nipple, (I.P. Thread)	All	-----	-----	-----
1" Curb Valve, (I.P. Thread – Female)	All	-----	-----	-----
2" Curb Calve, (Female)	All	-----	-----	-----
2" Nipple, (I.P. Thread x Victaulic Groove)	All	-----	-----	-----
<p>Note: Equivalent fittings may be used to provide a temporary connection of equal quality and similar configuration. These materials shall be submitted to the Engineer for review a minimum of fourteen (14) calendar days prior to use.</p>				

- (4) Following installation of the temporary connection assembly, the excavation shall be temporarily backfilled or covered in a manner suitable for traffic use. When the by-pass pipeline is in service, the 2-inch curb valve shall be readily accessible at all times to perform repairs to the by-pass pipeline.
- (5) Following removal of the connected by-pass pipelines and temporary fittings, the Contractor shall cap each corporation valve with a Contractor-furnished, 1-1/2-inch, bronze coupling, B&S x IPT - female, and a Contractor-furnished, 1-1/2-inch, bronze plug, IPT. With the approval of the Engineer, the Contractor may plug the service clamp with a Contractor-furnished, 1-1/2-inch, c.c. bronze plug and recover the corporation valve. Following installation of the cap or plug, the Contractor shall place the slurry backfill in the excavation and shall place the permanent paving over the excavation as soon as practicable.
- (6) The work for each temporary connection shall include, but not be limited to, pavement removal, excavation, installation and later removal of the connection assembly, capping the corporation valve, slurry backfill, and permanent paving, all in accordance with these specifications.
- (7) All work associated with the installation, removal, and maintenance of temporary connections for water supply shall be included in the bidding price.

C. **Potable Water Supply, Connection, and Feed to 4-inch through 8-inch Diameters Temporary By-Pass Lines**

- (1) The Contractor shall install, maintain, and later remove 4-inch through 8-inch, temporary bulkheads at locations determined by the Contractor and approved by the Engineer to provide water supply to 4-inch through 8-inch diameters temporary by-pass pipelines. The 4-inch through 8-inch temporary bulkheads shall be installed on existing 4-inch through 30-inch diameters, cast-iron, ductile iron, and steel pipelines and shall be installed with the pipelines temporarily out of service.
- (2) The Contractor shall attach a 4-inch through 8-inch diameter hose to the temporary bulkhead to supply the by-pass pipelines. The hose shall be laid in a trench and shall be covered with a temporary asphalt material to a depth flush with the existing grade. The hose shall connect to the 4-inch through 8-inch diameters by-pass pipelines at the curb. The hose shall be subject to approval by the Engineer in accordance with Sub-section 11.34 K. "*Temporary Potable Water Service Connections (Temporary By-Pass System to Potable Water Meter)*", below.
- (3) The work for each temporary bulkhead shall include, but not be limited to, pavement removal, excavation, removal and reinstallation of the nipple, and installation and removal of the temporary bulkhead, slurry backfill, and permanent paving.
- (4) In lieu of a temporary bulkhead, the City may install a tap in the Contractor's excavation and may provide the Contractor with a flanged outlet gate valve to connect with the by-pass pipeline.
- (5) All work associated with the installation of temporary bulkheads or City-installed taps for potable water supply shall be included in the contract price.

11.34 **TEMPORARY POTABLE WATER SERVICE CONNECTIONS (TEMPORARY BY-PASS SYSTEM TO POTABLE WATER METER)**

- A. Following disinfection of the by-pass pipeline by the Contractor and before shutdown of the water main to be replaced, the Contractor shall furnish, install, and maintain temporary service connections from the temporary by-pass pipeline to the inlet side of the City's customer's potable water meters, including fire and large domestic services. For large services in vaults, the Contractor shall conduct a field check to establish or verify a by-pass scenario. The Contractor may either connect within the vault or excavate outside of the vault and make the connection. Existing vaults may or may not have been built to a City Standard.
- B. The existing potable water meters shall be connected to the temporary by-pass piping so that all potable water consumption by customers is metered for the entire time the customers are receiving water service from the temporary by-pass system.
- C. All potable water meters in the City's potable water distribution system are of an Automated Metering Infrastructure (AMI) type. The City uses *Badger* company meters. Each of these potable water meters has an electronic connection via a cable that connects the water meter to an antenna mounted to the bottom of the water meter box lid. The antenna system is manufactured by *Itron*. The Contractor shall protect all components of the potable water meter, cable, and antenna from damage during the disconnection of the water service line on the City side of the meter and the connection of the temporary by-pass pipe to the water meter. The potable water meter, cable and antenna shall be protected from damage and vandalism for the entire time that the temporary bypass is connected and is in service. After the work has been completed, the Contractor shall disconnect the by-pass from the City side of the meter and reconnect the permanent service lateral. If needed because of access and space limitations, potable water meters 2" and smaller in size shall be removed and reinstalled by the Contractor in order to make the connection of the temporary bypass pipe to the potable water meter.
- D. Any movement or temporary relocation of potable water meters to facilitate the temporary connection shall be made only with the approval of the Engineer. In the City of Glendale's Potable Water System, the potable water meter is the terminal point of City ownership. Any relocations or modifications downstream of the potable water meter shall be made with the approval of the City's water customer. Since the condition of the customer's piping is unknown to the City, the Contractor shall prevent any damage or leakage in the customer's piping resulting from movement of the City's water meter or the customer's piping. If any damage or leakage should occur, the Contractor shall repair the customer's piping in a timely manner at the Contractor's own expense.
- E. Temporary service hoses shall be placed to cause the least impediment to pedestrians. A barricade shall be placed over every meter box service location. All temporary risers, valves or large fittings in the parking areas of a street must be protected with a sand bag.
- F. Potable Water Meter Safety Requirements – The Contractor shall take all necessary precautions to protect property from damage, and life from loss or injury especially when removing or reinstalling the potable water meters or curb valves, which could be electrically energized due to grounding or stray current. Such precautions shall include but not necessarily be limited to providing and utilizing approved safety devices and safeguards such as low voltage gloves and minimum #6 THW or THHN cable jumpers when working on or near meters. The Contractor shall require each of the Contractor's Subcontractors to also comply with this Section. When an electrically energized potable water meter or curb valve is found, the Contractor shall immediately stop working at that location and notify the Engineer. Before resuming work, the Contractor shall verify that the unsafe condition has been abated or corrected, and shall continue to provide all necessary safety precautions.
- G. Fire line services and water meters larger than 2 inches shall be pressurized with a minimum 2-inch connection, or as directed by the Engineer.

- H. The Contractor shall prevent any damage or leakage in the customer's piping resulting from movement of the City's water meter or the customer's piping. If any leakage or damage should occur, the Contractor shall repair the customer's piping as quickly as possible at his/her sole expense.
- I. The Contractor shall be required to notify potable water customers with services of a size 2" and greater, not less than 24 hours prior to shutdown of the potable water main and to mediate any conflicts. The Contractor shall coordinate with any and all uninterruptible customers such as hospitals, kidney dialysis centers, schools, restaurants, and any other customers with critical water needs. This coordination may include, but is not be limited to, performing work required in this Section during non-business hours of the day.
- J. Flexible pipe and fittings employed for connections shall be subject to approval by the Engineer. Flexible pipe and fittings shall consist of materials capable of withstanding the pressures shown on the drawings and shall not impart any objectionable taste, odor, or color to the water being supplied.

Plastic pipe or hose, when employed, shall bear the imprint of the National Sanitation Foundation (NSF) approval for potable water (NSF-PW) or shall be capable of meeting the standards established by the NSF for this use.
- K. Maintenance, protection, and removal of the connections shall be under the same conditions as Section 11.32 (*Temporary By-Pass Pipelines*), and Sub-sections 11.34 F, I, J, and M.
- L. After service has been restored to a section of the potable water main that has been replaced, the Contractor shall disconnect the temporary service connections, furnish and install insulating tailpieces for services tapped off of steel mains, and reconnect the service laterals from the water main to the water meters. Prior to connection to the water meter, each service lateral shall be flushed for not less than 30 seconds to clear the lateral of any debris. Should the flow through the lateral appear to be impaired, the Contractor shall make the necessary repairs to restore full flow or may request the City to perform the repairs. The expense of such repairs done by the City will be charged against the Contractor.
- M. The Contractor shall immediately distribute City-furnished notices to all service locations where the Contractor was unable to flush the service lateral prior to connecting the service lateral to the meter.
- N. All work associated with the connecting, disconnecting, and maintenance of temporary potable water service connections and potable water meters shall be included in the contract price.

11.35 WATER SERVICES

- A. Water services shall be divided into five (5) categories as follows:
 - Category 1:** Active water service with a water meter installed in a meter box.
 - Category 2:** Inactive water service with a water meter installed in a meter box.
 - Category 3:** Inactive water service with no water meter, but a meter box.
 - Category 4:** Inactive water service with no water meter and no meter box.
 - Category 5:** Category 1 services with meters larger than 2-inches.
- B. Categories 1 and 5 services shall be treated in accordance with the requirements of Section 11.34 (*Temporary Potable Water Service Connections (Temporary By-Pass System to Potable Water Meter)*), herein.

- C. Categories 1, 2, 3, and 5 services shall be cleaned by air or water pressure after cleaning and after cement-mortar lining to prevent blocking of the waterway. Should any service in these categories become blocked during the cleaning and cement-mortar lining operation, the Contractor shall clear the obstructions. If the Contractor requests the City to perform such work, the costs by the City will be charged to the Contractor. Category 3 services shall be cleaned and cleared in accordance with these requirements, except as directed by the Engineer.
- D. Water meters in Categories 1, 2, and 5 services shall be treated in accordance with Section 11.34 (*Temporary Potable Water Service Connections (Temporary By-Pass System to Potable Water Meter)*), herein. The City reserves the right to furnish to the Contractor a replacement water meter and to recover the existing water meter during the time interval between disconnecting the water service line from the City's water main and reconnecting the water service line to the City's water main after cleaning and cement lining.
- E. Meter boxes in Categories 1, 2, and 3 services may be an obsolete style or in a damaged condition. If requested by the City, the Contractor shall replace the existing obsolete or damaged meter box with a replacement meter box furnished by the City. The replacement meter box shall be installed prior to or in conjunction with the reconnection of the water meter to the City's water main. The replacement meter box, as described in Sub-section 11.12 W. and as shown on GWP Std. Plan No 1660-A, shall be installed level and flush with the adjacent ground. The replacement meter box shall be installed in such a manner to prevent future settlement and to require a minimum removal of adjoining lawn or ground cover. The interior of the meter box shall be backfilled to a level adequate, to support the meter and service line. In addition, the meter dial and curb valve shall be easily accessible. Excess material excavated for installation of the meter box shall be removed by the Contractor.
- F. With the approval of the Engineer, Category 4 services need not be cleared and flushed after cleaning and cement lining or require any work by the Contractor.
- G. As directed by the Engineer, the Contractor shall replace specified Domestic and Commercial Category 5 meters with City furnished meters. The Contractor shall also replace valves directly upstream of the water meter with Contractor-furnished valves.
- H. Meter vaults in Category 5 may be obsolete or damaged. As directed by the Engineer, the Contractor shall replace the existing obsolete or damaged meter vault with a replacement meter vault furnished by the Contractor. The replacement meter vault shall be installed prior to or in conjunction with the reconnection of the water meter to the City's water main. The replacement meter vault shall be installed level and flush with the adjacent ground. The replacement meter vault shall be installed in such a manner to prevent future settlement and to require a minimum removal of adjoining lawn or ground cover. In addition, the meter dial and gate valves shall be easily accessible. The Contractor shall remove excess material excavated for installation of the meter vault. All work associated with removal of the existing meter vault and installation of the new meter vault shall be paid on a to-be-negotiated dollar amount.
- I. The Contractor shall take all protective measures necessary to protect personnel against electrocution and property from damage during the removal and installation of water meters.
- J. All work associated with the replacement of water meters shall be included in the bid prices.

11.36 TEMPORARY LINE STOPS ON POTABLE WATER MAINS:

- A. Temporary line stops may or may not be needed in order to temporarily shut down the flow of water in some potable water mains for this project. A typical situation requiring a line stop is where an existing valve is broken, not properly functioning, or is not completely sealing the water in the pipe when in the closed position or when one is attempting to close the valve.
- B. The line stop work shall include the following, and be done in accordance with the "Line Stop Detail" shown on the "Standard Details" sheet of the contract drawings:
 - a. Traffic control, field marking, pavement saw cutting, installation of safety barriers.
 - b. Excavation of an access pit of sufficient size at the proposed location of the line stop in order to safely and properly install the saddle and line stop.
 - c. Furnishing and installation of an appropriate, approved flanged saddle to the existing potable water main. The saddle must be water tight against normal operating pressure.
 - d. Installation of a tap with corporation shut-off valve adjacent to the saddle to allow for release of pressure and drainage from the potable water main.
 - e. Construction of concrete encasement around the potable water main and saddle, "keyed-in" to the sides of the trench, and installation of steel reinforcement bar as needed to securely hold the line stop in place against unbalanced hydrostatic forces that are generated when the water pressure is released in the main and water is drained from the main on one side of the line stop.
 - f. Installation of the line stop machine to include bolting it in place to the saddle, coring out the top of the potable water main, insertion of line stop into the main, and sealing of line stop to stop water flow in main.
 - g. Maintaining line stop in-place while the potable water main is drained and work is done on the potable water main, such as replacement of a new valve.
 - h. Removal of the line stop, installation of a permanent blind flange to the top of the saddle.
 - i. Slurry back fill of access pit, pavement restoration.
- C. Payment for the furnishing, installation, operation, and removal of the temporary water main line stop shall be under the Bid Items related to line stops on the Contract Bidding Forms.

11.37 CASINGS FOR POTABLE WATER MAINS

Casings are oversized load-bearing conduits or ducts through which a utility such as a water main ("carrier pipe") is inserted and shall, where required, be installed for the following situations:

1. To protect a railroad from damages and to provide for repair, removal and replacement of the water main without interference to railway traffic.
2. To protect a freeway or local bridge structure from damages and to provide for repair, removal and replacement of the water main without interference to freeway or local vehicular traffic.
3. To convey leaking water away from the area directly beneath a railroad or freeway if the carrier pipe happens to develop a leak or break.
4. To protect a water main in close proximity to a sanitary sewer or other conduit conveying hazardous fluid from possible contamination and to protect human health.

5. To protect the water main from external loads or shock, either during or after construction.

Casing and water pipeline installations should be accomplished by directional boring, jack-and-bore, tunneling or other approved methods. In some situations, casing installation might be allowed by open trench construction.

The interior and exterior of the steel casing pipe shall be epoxy lined and coated with a minimum thickness of 8 mils.

Steel casing pipe shall comply with the following Standards:

1. ASTM A53, "Specification for Pipe Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless",
2. ANSI/AWWA C200, "Steel Water Pipe – 6 in. (150 mm) and Larger",
3. ANSI/AWWA C206, "Field Welding of Steel Water Pipe",
4. ANSI/AWWA C213, "Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines".

Casing shall be installed to a minimum depth of 5.5 feet (below either the railway footing or finished paved surface), or at depth specified on the contract plans, with even bearing throughout its length and shall have a slope between 0.1% and 0.5%. Wall thickness of the casing must be no less than that specified in Table 1 of GWP Std. Dwg. No. 6870-A. The inside diameter of the casing shall be no less than 4 inches greater than the largest outside diameter of carrier pipe, joints, or couplings.

A casing pipe is required for all railroad/Metrolink crossings. All crossings shall be designed for the casing pipe to withstand Cooper's E-80 railroad live loading. The Contractor must follow all requirements of the jurisdictional railroad/Metrolink company. Pipelines shall be designed, where practicable, to cross tracks at approximately right angles. Casing pipes must extend five (5) feet past the edge of the railroad/Metrolink right-of-way, on both sides.

A casing pipe is required for all water mains constructed within a Caltrans right-of-way. Caltrans requires an Encroachment Permit for any work done within the limits of their right-of-way. There are many requirements for the issuance of the Encroachment Permit and for installing the water main within the Caltrans right-of-way. The Contractor should visit the Caltrans website for more information on their requirements.

Steel casing sections shall be connected together by seam welding. The seam shall be a butt joint type, welded around the entire circumference of each joint to provide a water tight seam. Field welding shall conform to ANSI/AWWA Standard C206 and shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the type of materials to be used. Welders shall be qualified under the provisions of ANSI/AWS D1.1 by an independent local, approved testing agency not more than 6 months prior to commencing work on the casing or pipeline. Machines and electrodes similar to those used in the work shall be used in qualification tests. The Contractor shall be responsible for all material and bear the expense of qualifying welders. Tolerances: Pipe casing shall be installed true to line and grade. The tolerance for pipe slopes is 0.005+/-.

The casing shall be welded steel pipe meeting ASTM A53, Grade B, and have a minimum yield strength of 35,000 psi. Minimum wall thickness shall be as shown in the table provided in GWP Std. Dwg. No. 6870-A. The ends of the casing shall be suitably sealed to the outside of the carrier pipe against the intrusion of foreign material which might prevent ready removal of the carrier pipe, but shall allow leakage to pass in the event of a carrier pipe break. Casing seals shall be *Calico model C pull-on casing end seal*, *Cascade*, or approved equal.

The carrier pipe (potable water main) and casing shall be separated by a casing insulator (spacer) manufactured from high-density polyethylene. Spacers shall be of such size as to center the carrier pipe within the casing pipe. Spacers shall insulate the steel casing from the carrier pipe and its joint restraint system so as to prevent galvanic current and corrosion due to touching of dissimilar metals. The spacers shall be sized and spaced to support the weight of the carrier pipe and its contents. Spacer location and spacing shall be per GWP Std. Dwg. No. 6870-A or per manufacturer's recommendations, whichever is most stringent. Timber skids are not allowed. Casing spacers shall be sized according to the manufacturer's specifications for pipe sizes. Skid height shall be adequate to prevent carrier pipe from contacting steel casing. Casing spacers shall be manufactured by *Advance Products and Systems, Model SSI or Cascade Waterworks Manufacturing* stainless steel casing spacers.

Carrier pipe (i.e. the new water main) shall be class 350 ductile iron pipe with push-on type joints or mechanical joints. All joints of the carrier pipe must be mechanically restrained with the appropriate EBAA joint restraint products for the entire length of the casing pipe and for a minimum distance of three (3) pipe joints beyond the end of the casing.

Voids around the outside of the casing pipe shall be pressure grouted using clean, dry concrete mix, composed of one-part Portland cement and 10-parts of sand and gravel by volume, or low- density cellular concrete grout with a minimum net density of 45 pcf and minimum compressive strength at 28 days of 160 psi. (Acceptable products: *Mearl Geofoam Liquid Concentrate*) or other mix approved by the City.

11.38 **SPECIAL PROVISIONS AND OTHER MISCELLANEOUS ITEMS**

- A. For the situation where the actual length of the new ductile-iron pipe differs from the approximate length shown in the Bidding Forms, the City will pay an additional amount or deduct the difference in costs based on the unit price bid per foot.
- B. A one-sack cement-sand slurry back-fill is required for all access holes, trenches, and excavations in this project.
- C. Pipe joints shall be deflected to clear interference with obstructions or other utilities unless otherwise directed by the Engineer.
- D. When the work of installing new pipe is not in progress, all openings into the pipe and the ends of the pipe in the trenches or structure shall be kept tightly closed to prevent the entrance of animals and foreign materials. The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition until its acceptance by the City.
- E. **Concrete Encasement** – Per GWP Water Std. Drawing No. 6081-A, concrete encasement shall be constructed whenever the cover over a water pipeline is less than twenty-four inches (<24") in the street, or as directed by the Engineer. Where the need for concrete encasement is indicated on the construction drawings, the cost for said concrete encasement shall be included in the unit cost bid for pipeline installation, as listed on the bidding forms. Where the need for concrete encasement of the pipeline is not called out on the construction drawings, but is required due to unforeseen field conditions or at the request of the Engineer, the City will pay **\$100.00 per cubic yard** of concrete used for encasement to cover the costs for all forms, concrete, steel reinforcement, labor, etc. associated with the construction of the encasement.
- F. Concrete thrust blocks must be poured with ready-mixed concrete in bags or transit-mixed concrete. The mixing of concrete materials on site shall not be permitted.

- G. Prior to installing the new water mains, the Contractor shall pothole to measure the outside diameter (O.D.) and ovality (out-of-roundness) of the existing pipes, verify the specified fittings and connection types and sizes shown on the construction drawings and verify the depth of the existing pipes in order to figure out the alignment and obtain the correct materials for joining the pipelines. Excavation for the tie-in of the new water pipe to the existing water distribution system shall be done at least twenty-four (24) hours prior to tying-in the pipes. The excavation shall be properly plated.
- H. The Contractor must closely follow-up the pipeline installation process with permanent pavement installation per the project Specifications. Under no circumstances, in any particular stretch of excavation, will temporary pavement be permitted longer than twenty-one (21) calendar days before permanent base and cap pavement is placed. Until such time that the Contractor constructs the permanent base pavement, the Contractor is responsible to maintain temporary trench surfaces in good condition and perform regular cleaning. Any temporary surfaces damaged or found to be substandard shall be repaired immediately. The pavement cap must be placed within two (2) days of the base pavement work, to help minimize traffic inconvenience and impacts in the neighborhood.
- I. The backfill compaction operations performed by the Contractor will be closely observed and monitored by the City. The City will retain the services of a certified soils testing firm to measure the compaction of the soil. Any defective compaction will require removal and replacement.

J. Petro-Mat Fabric Material in Existing Asphalt Pavement

Asphaltic concrete (A.C.) pavements that are to be excavated for this project could contain a layer of petro-mat fabric material. There are streets in the City which have been paved in the past years that have had this product incorporated in the pavement resurfacing process. Many of these street locations are undocumented.

The petro-mat fabric material, including the pavement in which it is contained, is not always accepted at local landfills and in those cases must be transported to a special waste disposal facility that accepts it for disposal.

If petro-mat is encountered during the course of construction of this project, it must be immediately reported to the Engineer. Detailed records must be kept of the locations and quantities of the petromat material found. The Engineer may direct the Contractor to dispose of the material at a preferred disposal site.

Costs to the Contractor related to the disposal of petro-mat material will be compensated as the difference in cost between the disposal cost charged by the special waste disposal facility and the cost of disposal for regular A.C. pavement. The Contractor shall provide written proof from both facilities of the facilities' disposal cost rates. The Contractor must also provide all load tickets or receipts and invoices for the special disposal facility.

There shall be no other compensation to the Contractor for the removal and disposal of petro-mat pavement.

- K. The use of field lock gaskets to connect push-on type pipe sections together is not acceptable. Mechanical joints and flanged-end joints shall be restrained using glands and adapters as shown in Sub-section 11.12 B (*Pipe Fittings*), herein.
- L. In cutting the pavement, vacuuming is required for saw cutting.

- M. The new water main shall be installed at least three inches (3") below the existing water main at the location of a new fire hydrant to avoid conflict with the existing water main in installing the new fire hydrant.
- N. For the situation where a valve on the new potable water main or a valve on the existing potable water main is left in place to be used as a stop for a water main under pressure, the valve shall be securely restrained with *Megalug* glands or *Uni-Flange* retainer glands and/or a concrete thrust collar. For existing valves, the Contractor shall provide a pipe restraining system with clamps and threaded tie rods (see GWP Standard Drawing No. 1667-A) or use clamps and tie rods to tie back the valve to a new concrete thrust collar. All costs associated with restraining the valve shall be included in the proposal price.
- O. The locations of and type of elbows shown on the plans are approximate only. The Contractor shall verify in the field in such a manner to keep the alignment of the new water main with respect to that of the existing water main as shown on the plans. **The Contractor shall not deflect the pipes at their joints beyond the deflection angle recommended by the manufacturer.**
- P. The new pipeline shall be placed in service or tied into the existing potable water system no more than three (3) days after the Contractor has been informed that the bacteriologic test results are known to be "negative" (i.e. a "passed" test). If the tie-in is not completed within this time, the Contractor shall have the line flushed and shall have the bacteriologic tests re-performed by a laboratory accepted by the City and provide the City with the results before the pipeline can be placed in service, all at the expense of the Contractor.

11.39 **SUBMITTALS**

A list of required water construction project submittals can be found in Table 2 below. The Contractor should begin the preparation of submittals as soon as he/she been informed that they have been awarded a construction contract. The timely submission of the submittals will help to prevent delays to the start of construction. No construction activities will be allowed to commence until all submittals have been received and approved by the City, irrespective of whether the Notice to Proceed letter is already issued or not.

The submittals shall be submitted electronically in a pdf format. Submittals based on catalogs or brochures from manufacturers shall be scanned in color. The submittal submission shall be via email, "Dropbox", CD, or other methods that are able to handle the transfer of large files. The review comments of the Submittal by the City will also be returned through electronic files.

SECTION 12 – IRRIGATION SPECIFICATIONS (SECTION 02810)

PART 1 - GENERAL

12.1.01 SCOPE OF WORK

Contractor shall furnish all labor, materials, equipment and services necessary to install the irrigation system indicated on the approved drawings and specified herein and shall perform all other incidental work necessary to carry out the intent of this Specification and drawings including the following:

- A. Furnish and install all pipe lines and fittings.
- C. Furnish, assemble, install material described in this specification and as indicated on the drawings, and final adjustments as determined by the Architect to insure efficient and uniform distribution of the irrigation system.
- D. Excavate and backfill trenches.
- E. Test and inspection of the irrigation system.
- F. One-year guarantee.

12.1.02 QUALITY ASSURANCE

A. General

- 1. Carefully check all grades and existing utilities to determine that work may safely proceed, keeping within the specified material depths with respect to finish grade and drainage.
- 2. Verify that irrigation systems shall be installed in strict accordance with all pertinent codes and regulations, the original design, the referenced standards, and the manufacturer's recommendations.
- 3. Inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

4. Water Service

Coordinate with the City of Glendale for connections to the water supply and/or installation of water meter(s) at the location(s) shown on the drawing(s). Minor changes caused by actual site conditions shall be made at no cost to the City. All changes to the plans shall be approved by the City.

5. Electrical Service

Coordinate with Southern California Edison for connections to electrical service and/or installations of conduit, electrical wiring and meter pedestal at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made at no cost to the City. All changes to the plans shall be approved by the City and the Electrical Engineer.

6. Do not install the irrigation system as shown on the construction drawings when field conditions such as physical obstructions, grading discrepancies and field dimensions vary from those recorded on the construction drawings. Immediately bring any such discrepancies to the attention of the Architect prior to proceeding with work. If immediate notification is not given and such discrepancies exist, the Contractor shall assume full responsibility for necessary revisions, as determined by the City.
7. All central control system communication cable installation and splicing or radio communication shall be tested and certified in writing by the appropriate manufacturer's representative and shall also be tested on line with the central computer system prior to beginning the maintenance period.

B. Qualifications of Installers

The person present during execution of the work shall be thoroughly familiar with the type of materials being installed and the material manufacturer's recommended methods of installation and who shall direct all work performed.

C. Codes and Standards

In addition to complying with all current City of Glendale codes and regulations, comply with the latest rules of the National Electrical Code and the Electrical Safety Orders of the State of California, Division of Industrial Safety, for all electrical work and materials.

D. Physical Layout

1. The drawings are essentially diagrammatic. All scaled measurements are approximate. Before proceeding with the work, the Contractor shall ascertain all dimensions at the job site. Provide offsets in piping and changes in equipment locations as necessary to conform with structures and to avoid obstructions or conflicts with other work.
2. Prior to installation, the Contractor shall stake out all pressure supply lines, routing and location of sprinkler heads, make minor adjustments required due to differences between site and drawings. Where piping is shown on drawings under paved areas but running parallel and adjacent to planted areas, install the piping in planted areas. All layout shall be certified by the irrigation system designer and approved by the City prior to installation.
3. Contractor shall coordinate the installation of all irrigation material with the landscape drawings to avoid interfering with existing or new plants.
4. Irrigation head spacing as shown on the drawings shall not be exceeded.

E. Existing Field Conditions

1. Preserve and protect all existing trees, plants, monuments, structures, hardscape and architectural elements from damage due to work in this section. In the event that damage does occur to inanimate object and structures, the Contractor will repair or replace such damage to the satisfaction of the City or City's representative. Damage or injury to living plant material will be replaced by the Contractor at the Contractor's expense.
2. Trenching or other work required in this section under the limb spread of existing trees shall be done by hand or by other methods so as to prevent damage or harm to limbs, branches and roots.

3. Trenching in areas where root diameter exceeds two (2) inches shall be done by hand. Exposed roots of this size shall be heavily wrapped with moistened burlap to avoid scarring or excessive drying. Where a trenching machine is operated in proximity to roots that are less than two (2) inches, the wall of the trench shall be hand trimmed, making clean cuts through roots.
4. Trenches adjacent to or under existing trees shall be closed within 24 hours, and when this is not possible, the side of trench closest to the tree or trees affected shall be covered with moistened burlap.
5. Protect, maintain and coordinate work with other contracts, specifications, trades and utilities. Extreme care shall be exercised in excavating and working in the area due to existing utilities. Contractor shall be responsible for damages caused by their operations. In the event that damage does occur, the costs of such repairs shall be paid by the Contractor unless other arrangements have been made with the City.
6. Use caution where trenches and piping cross existing roadways, sidewalks, hardscape, paths or curbs. In the event that damage does occur, the Contractor will repair such damage at the Contractor's expense.

F. Required Documents

1. Submittals

Submit four (4) sets of submittal books that include all irrigation equipment to be used, manufacturer's brochures, service manuals, guarantees, and operating instructions for approval to the Landscape Architect prior to beginning of work. Submittals should be in a bound form complete with table of contents. The Contractor shall not proceed with work in the field until this submittal is approved in its entirety by the Landscape Architect's irrigation designer.

2. Service Manuals

- a. The Contractor shall furnish four (4) service manuals to the City prior to scheduling a walk through for substantial completion. Manuals shall be submitted in a bound form complete with a table of contents, copy of Contractor's warranty, and workmanship form on company letterhead and shall contain complete enlarged drawings of all equipment installed showing component warranties and catalog numbers together with the manufacture's name and address. Manuals shall include operation instructions. Manuals shall be subject to approval by the City or City's representative as to completeness.
- b. The service manual will be incorporated into the maintenance manual prepared by the Contractor. Contractor shall provide City with three (3) manuals for distribution and one (1) to the Landscape Architect for its records.

12.1.03 SUBMITTALS

A. Prior to Performing Any Work

The following items shall be submitted to the City, two (2) weeks prior to performing any work. In addition to Section 1.02, G., 1., the following information shall be listed after the Table of Contents but prior to any of the manufacturer's information, etc.

1. Materials List

Complete materials list that shall include the manufacturer, model number, and description of all materials and equipment to be used and shall use the following format (double space between each item).

Item No.	Description	Manufacturer	Model
1.	PVC Lateral Fittings	Spears	Schedule 40
2.	Turf spray heads	Rain Bird	1800 SAM/PRS Series

2. Notarized Certificates

Notarized certificates for plastic pipe and fittings manufacturer indicating that material complies with the specifications unless material has been previously approved.

3. The Contractor shall furnish the articles, equipment, materials or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written approval by the City.

- a. The Contractor shall submit to the Landscape Architect catalog data and full descriptive literature for approval of all items specified.
- b. Submit shop drawings and specifications for controller enclosure assembly(s), including electrical wiring schematic(s). Submit shop drawings and specifications for all special assemblies, e.g. booster pump(s), fertilizer injection, controller enclosure, central control computer system, flow sensing equipment, etc., if shown on the drawings.
- c. Equipment or materials installed or furnished without the prior approval of the Landscape Architect may be rejected and the Contractor required to remove such materials from the site at Contractor's own expense.
- d. Approval of any item. alternate or substitute, indicates only that the product(s) apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.
- e. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranty shall only supplement the guarantee.
- f. Material shall be of the best quality obtainable, of American manufacture, and shall comply strictly with the drawings and specifications. All equipment shall be new and unused prior to installation.

B. Prior to Substantial Completion

The following items shall be submitted to the Landscape Architect no later than 10 days prior to substantial completion. Once approved by the Landscape Architect these items shall be forwarded to the City for distribution.

1. Two Controller Charts for Each Controller
 - a. Provide two (2) sets of controller drawings for each controller unit installed on the project. The controller drawings shall be an actual AutoCadd Release 2000i reduction of the area covered by that controller unit and shall be at the maximum allowable scale that will fit inside the controller door without folding the drawing.
 - b. After final approval from the architect, each controller drawing shall be hermetically sealed between two (2) pieces of minimum 20 mils thick plastic.
 - c. Contractor shall supply a RW-CD of the AutoCADD Release 2000i controller charts to be turned over to the City prior to substantial completion.
2. The Contractor will permanently fix one (1) controller drawing to the inside of each controller unit and bind one complete set of controller drawings in a loose leaf binder and submit to City or City's representative prior to scheduling a final walk through.

3. Two Operation and Maintenance Manuals

Contractor to prepare two (2) individually hardbound copies of operation and maintenance manuals. The manuals shall describe the material installed. Each complete manual shall include the following information:

- a. Index sheet stating Contractor's address and telephone number, list of equipment including names and addresses of local manufacturer representatives.
 - b. Complete operating and maintenance instruction for all equipment.
 - c. Spare parts lists and related manufacturer information for all equipment.
 - d. A guarantee for the sprinkler irrigation system. This guarantee form shall be retyped onto the Contractor's letterhead.
 - e. Contractor's performance bond information, including bonding company, bond number, agent and phone number.
 - f. Listing of all required warranties and guarantees with effective dates and expiration date.
 - g. Current watering schedule requirements.
4. Equipment

As part of the contract, the Contractor shall supply the following items:

- a. Two (2) keys for controller, controller enclosure.
- b. 10% or ten, which ever is greater, of each type of sprinkler head used.

12.1.04 PRODUCT HANDLING

A. Protection

Use all means necessary to protect irrigation system materials before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements

In the event of damage and all discrepancies or unsatisfactory work, immediately make all repairs and replacements necessary to the approval of the City and at no additional cost to the City.

- 1. Exercise care in handling, loading, unloading and storing PVC pipe and fittings. Store PVC pipe and fittings under cover until ready to install and return any portion of the unused PVC pipe back under cover after that day's work; transport PVC pipe only on a vehicle with a bed long enough to allow the pipe to lay flat to avoid undue bending and concentrated external load.
- 2. Repair all dented and damaged pipe by cutting out the dented or damaged section and rejoining with couplings.

C. Connections to Existing Main Lines

- 1. Source of water supply: the Contractor shall verify and be familiar with the location, size and detail of stub-outs provided as the source of water supply to the sprinkler system, as shown on the plans. Source of supply and point of connection shall be as shown on plan.
- 2. Existing utilities and conditions: Prior to cutting into the soil, the Contractor shall locate all cables, conduits, sewers, septic tanks and other utilities as are commonly encountered underground and he shall take proper precautions not to damage or disturb such improvements. If a conflict exists between such obstacles and the proposed work, the Contractor will proceed in the same manner if rock layer or any other conditions encountered underground make changes advisable.

Where investigation of subsurface conditions have been made by a qualified body in areas in which local materials may be obtained, the Contractor may request the use of such information but will be directly responsible for it's verification and accuracy.

D. Observation

The Contractor shall at all times permit the City and its authorized agents to visit and observe the work or any part thereof. The Contractor shall maintain proper facilities and provide safe access for such observations to all parts of the work. Where the specifications require work to be tested by the Contractor, it shall not be covered up until tested or approved by the City and the Contractor shall be solely responsible for notifying the proper governmental agencies where and when such work is in readiness for testing. Should any such work be covered without such test or approval, it shall, if so ordered, be uncovered at the Contractor's expense.

E. Standard of Installation

Material and workmanship shall be in accordance with local codes and ordinances of legally constituted authorities, except that where provisions of these specifications and details exceed such requirements.

F. General Requirements

1. Code requirements shall be those of State and Municipal Codes and Regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith but exceeding the code requirements shall govern, unless written permission to the contrary is granted by the Landscape Architect.
2. Conform to the requirements of the reference information listed below except where more stringent requirements are shown or specified in the most current set of construction documents:
 - a. American Society for Testing Material (ASTM), for test methods specifically referenced in this section.
 - b. Underwriter's Laboratories (UL), for UL wires and cables.
3. Work involving substantial plumbing for installation of copper piping, backflow prevention devices and other related work shall be executed by a licensed and bonded plumbing Contractor. Any necessary permits shall be obtain prior to beginning work.
4. Specified depths of pressure supply lines, laterals and pitch of pipes as stated in this section are minimums. Settlement of trenches lower than grades specified on the final grading plans is cause for removal of finish grade treatment, refilling trenches, recompact and repairing of finish grade treatment.
5. Pre-planting requirements: The Contractor shall have installed all the irrigation per each meter per the irrigation plans and specifications. Prior to planting any plant material the irrigation system shall be 100 percent operational per the irrigation plans and specifications.

G. Preservation and Cleaning

The Contractor shall clean up the work as it progresses. At frequent intervals, and at all times when directed by the City or Landscape Architect the Contractor shall remove and dispose of accumulations of rubbish and debris of all kinds. At the time of completion the entire site shall be cleaned of tools, equipment, rubbish, etc., all of which shall be removed from the site, and the entire project, including surrounding premises, shall be left in proper, clean condition ready for acceptance.

H. Completion

The work will be considered for acceptance in writing when the entire scope of work has been completed satisfactorily to the City and Landscape Architect. In judging the work, no allowance for deviation from the original plans and specifications will be made unless already approved at proper times by the irrigation designer.

1. When any item appears on the plan and not in the specifications, or in the specifications and not on the plan, it shall be considered in both.
2. The City shall have final authorization on all items of the project.

I. Loose Equipment to Furnish

Loose operating keys and spare parts shall be furnished to the City by the Contractor in quantities as specified herein.

J. Irrigation Guarantee

1. The entire sprinkler system shall be unconditionally guaranteed by the Contractor as to material and workmanship, including settling of backfilled areas below grade for a period of one (1) year following the date of final acceptance of the work.
2. If, within one (1) year from the date of final acceptance of the work, settlement occurs and adjustments in pipes, valves and sprinkler heads, sod or paving is necessary to bring the system, sod or paving to the proper level of the permanent grades, the Contractor, as part of the work under his contract, shall make all adjustments without extra cost to the City, including the complete restoration of all damaged planting, paving or other improvements of any kind.
3. Should any operational difficulties in connection with the sprinkler system develop within the specified guarantee period which in the opinion of the City may be due to the inferior material or workmanship, said difficulties shall be immediately repaired at no additional cost to the City, including any and all other damage caused by such defects.

K. Licenses and Permits

The Contractor shall secure the required licenses and permits including payments of charges and fees and give required notices to public authorities and verify permits secured or arrangements made by others affecting the work of this section.

12.1.05 MEASUREMENT AND PAYMENT

Full compensation for conforming with the requirements of Irrigation including all labor, tools, equipment, and material necessary to perform the work shall be included in the lump sum price for "Irrigation Items" and no additional compensation will be allowed therefore.

PART 2 - PRODUCTS

12.2.01 GENERAL

Materials or equipment installed or furnished shall be new. Any that do not meet the City standards shall be rejected and shall be removed from the site at no expense to the City.

A. Pipe

1. Pressure supply line from point of connection through the basket strainer assembly on reclaimed water systems shall be brass, copper, or other materials approved by the City.
2. Above-ground installation shall be UVR-PVC Schedule 40 pipe per section 2.01, D., 1-4.
3. All threaded pipe shall be threaded by the manufacturer of the pipe.

B. PVC Pipe and Fittings

1. Solvent weld pressure supply lines 2" – 2-1/2" downstream of the basket strainer assembly on reclaimed water systems shall be Purple Class 315 PVC.
2. Pressure supply lines 1" - 1-1/2" downstream of the basket strainer assembly on reclaimed water systems shall be Schedule 40 Purple PVC.
3. Rubber gasket PVC pipe – refer to Section 2.01 item G.
4. Plastic pipe shall bear the following marking: manufacturer's name, nominal pipe size, schedule or class, type of material, pressure rating in psi, NSF seal of approval, and the date of extrusion.
5. All pressurized PVC solvent weld fitting shall be Spears Schedule 80.
6. Threaded nipples shall be standard weight Schedule 80 with molded threads.
7. Separate primer and solvent cement applications shall be required for all plastic pipe joints per manufacturer's recommendations.
8. Each pressurized supply line from 1" to 2-1/2" shall be installed within a separate trench only and each trench shall have a minimum width of 1'.
9. There shall be four (4) inches of sand between both, the mainline and the remote control valve wiring and below the entire length the mainline.

C. PVC Non-Pressure Lateral Line Piping

1. Non-pressure buried lateral line piping shall be Purple PVC Schedule 40 with solvent welded joints.
2. Purple PVC Schedule 40 BE pipe shall be made from NSF approved Type 1, Grade 1 PVC compound conforming to ASTM Resin Specification 1785. All pipe must meet requirement as set forth in Federal Specification PS-21-70 with an appropriate standard dimension ratio.
3. Except as noted in paragraphs 1 and 2, all requirements for non-pressure lateral line pipe and fittings shall be the same as for solvent-weld pressure mainline pipe and fittings as set forth in Section 2.01-B of these specifications.
4. All non-pressure lateral fittings shall be Schedule 40 PVC as manufactured by Spears.

D. Ultra-violet resistant plastic pipe (solvent weld).

Pipe shall meet manufacturer's tolerance specified, in addition to commercial standards. All pipe shall be NSF approved.

1. Specified lateral on slopes shall be a UVR-PVC on grade, Schedule 40, PVC pipe.
2. The pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions or other defects.

3. Pipe shall be continuously and permanently marked with manufacturer's name, material designation UVR-PVC 1120, Schedule NSF and manufacturing code approval.
4. UVR plastic fittings shall be Schedule 40 PVC 1120, Type I, Grade I, manufactured by SUN-STOP or approved equal.

E. Brass Pipe and Fittings

1. Where indicated on the drawings, use 85% red brass, ANSI, Schedule 40, screwed pipe conforming to Federal Specification #WW-P-351.
2. Fittings shall be medium brass, screwed 125-pound class, con-forming to Federal specification #WW-P-460.

F. Copper Pipe and Fittings

1. Pressure supply line (from point of connection through backflow prevention device): Type K copper hard tempered, in accordance with ASTM B4284.
2. Fittings: Wrought copper, solder joint type.
3. Joints: Solder shall be made up of 45% silver, 15% copper, 16% zinc and 24% cadmium and solids at 1125 degrees Fahrenheit and liquefies at 1145 degrees Fahrenheit.

G. Gasket-End Pressure Supply Line and Fittings

1. Lay pipe and make pipe to fitting or pipe to pipe joints following OR70 recommendations (Johns-Manville Guide for Installation of Ring-Tite Pipe), or pipe manufacturer's recommendations.
2. Pipe shall be snaked from side-to-side of trench bottom to allow for expansion and contractions.
3. All changes of direction over 15 degrees shall be made with fittings.
4. For thrust blocking use and refer to Leemco joint restraint system. See manufacturer's recommendations for installation.
5. When pipe laying is not in progress and at the end of each working day, close pipe ends with tight plug or cap.
6. Install pressure supply line locating tape along the entire length of pressure supply line to identify pressurized reclaimed irrigation mainline.
7. Center load pipe with small amount of backfill to prevent arching and slipping under pressure. Leave joints exposed for inspection during testing.
8. Coordinate pressure supply line with sand bedding operations.
9. No water shall be permitted in the pipe until inspections have been completed and a period of at least 24 hours has elapsed for solvent weld setting and curing to have occurred.

10. All fittings shall be deep bell, manufactured of ductile iron, Grade 65-45-12 in accordance with ASTM A-536. Reducers and plugs shall be made available with four lugs to accommodate joint restraints in any orientation. Fittings shall be manufactured by Leemco, Inc., Corona, CA.
11. All gasketed end pressure supply line shall be installed within a separate trench only and each trench shall be a minimum width of 1', or shall be a minimum of 3 times the diameter of the gasketed pipe whichever is greater.
12. All bolts shall be stainless steel only.
13. There shall be four (4) inches of sand between both, the mainline and the remote control valve wiring and below the entire length the mainline.

H. Drip Supply Tubing

1. Manufactured of flexible vinyl chloride compound conforming to ASTM D2955M, D380 and D1599.
2. Drip supply tubing fittings: type and make as recommended by tubing manufacturer.

I. Drip Emitters/Emitter Stakes

1. Drip Emitters: Emitters as specified on the irrigation legend.
2. Emitter Stakes: Stakes as specified on the irrigation legend.

12.2.02 ISOLATION VALVES

Isolation Valves shall be as follows, as specified on the drawings.

- A. NIBCO 595-Y-66 ball valves for 1" – 2" pipe Brass construction; solid wedge, ISC threads, non-rising stem with brass cross-top handle.
- B. All isolation valves shall have a T. Christy's ID-MAX-P2-RC1P2 attached to each isolation valve stem. Each valve box lid shall have an Applied Engineering Product #999 reclaimed nameplate and shall be attached with stainless steel sheet metal screws.

The above specified valve shall be installed with a green lockable 10" round valve box manufactured by Applied Engineering Products Model #910L-IG-T-2G.

- C. NIBCO F-619 gate valves for 3" and larger pipe: Iron body, brass or bronze mounted AWWA gate valves with a clear waterway equal to full nominal diameter of valve; rubber gasket or mechanical joint-type only. Valve shall be able to withstand a continuous working pressure of 150 psi and be equipped with a square operating nut. The valve shall be supported by a Pipe Line Products valve support and a 12"x12"x6" concrete pad.

The above specified valve shall be installed within a green lockable heavy duty 12" rectangle valve box manufactured by Applied Engineering Products Model #1015T-1G1G HD. Any applicable valve box extensions shall be manufactured by Applied Engineering Products Model #1015-KG body.

All flanged gate valves shall have a T. Christy's ID-MAC-P2-RC1P2 attached to each isolation valve stem. Each valve box lid shall have an Applied Engineering Product #999 reclaimed nameplate attached to each lid with stainless steel sheet metal screws.

12.2.03 QUICK COUPLING VALVES

- A. Quick coupling valves shall be brass or bronze with built-in flow control and self-closing valve and supplied in three-quarter (3/4) inch size unless otherwise specified. When a quick-coupler assembly is specified, it shall consist of the valve, quick coupler connection and hose swivel.
- B. All quick coupler(s) shall have a T. Christy's ID-MAX-P2-RC1P2 attached to each quick coupler. Each valve box lid shall have an Applied Engineering Product #999 reclaimed nameplate and shall be attached with stainless steel sheet metal screws.

The above specified quick coupler(s) shall be installed with a green lockable 10" round valve box manufactured by Applied Engineering Products Model #910L-IG-T-2G.

12.2.04 BASKET STRAINER

- A. Basket strainer shall have a threaded or flanged bronze body, tee handle as specified in the irrigation legend. Each basket strainer shall have a mesh stainless steel basket per the irrigation legend.
- B. The flanged assembly shall be bolted together using stainless steel nuts and bolts.
- C. The above specified basket strainer shall be installed within a metal lid at a depth of 48" for the box.
- D. All basket strainers shall have a T. Christy's ID-MAC-P2-RC1P2 attached to them.

12.2.05 FLOW SENSOR

Flow Sensors shall be provided as specified on drawings and details, and as follows:

- A. Contractor shall install one (1) 1-1/4" Schedule 40 conduit for each flow sensor to each controller with pull box locations at every 200' o.c.
- B. The above specified flow sensor shall be installed within a green lockable heavy duty 12" rectangle valve box manufactured by Applied Engineering Products Model #1015T-1G2G HD. Any applicable valve box extensions shall be manufactured by Applied Engineering Products Model #1015-KG body.
- C. All flow sensors shall have a T. Christy's ID-MAC-P2-RC1P2 attached to each isolation valve stem. Each valve box lid shall have an Applied Engineering Product #999 reclaimed nameplate attached to each lid with stainless steel sheet metal screws.

12.2.06 MASTER VALVES

- A. Master Valves: See irrigation legend for the model number, type and size as specified on drawings.
- B. The above specified master valves shall be installed within a green lockable heavy duty 12" rectangle valve box manufactured by Carson Industries, Model #3636-48 with a steel cover.

- C. All master valves shall have a T. Christy's ID-MAC-P2-RC1P2 attached to each isolation valve stem. Each valve box lid shall have an Applied Engineering Product #999 reclaimed nameplate attached to each lid with stainless steel sheet metal screws.

12.2.07 WARNING TAPE FOR POTABLE WATER SYSTEMS

- A. Warning tapes shall be used on all constant pressure main line piping carrying potable water. Blue labeled pipe permitted on potable water.
- B. Warning tapes shall be a minimum of three (3) inches wide and shall run continuously for the entire length of all constant pressure mainline piping. The tape shall be attached to the top of the pipe with plastic tape banded around the tape and pipe every five (5) feet on-center.
- C. Warning tape for constant pressure potable water piping shall be blue in color with the words "CAUTION BURIED WATER LINE BELOW" imprinted in minimum one (1) inch high letters black in color.

12.2.08 CONTROL WIRING

- A. Control wires shall be direct burial, Type UF, 600 volt, AWG UF UL copper wire specified per the irrigation legend. Control wires shall be a different color for each automatic controller. Common wires shall be white with a different color stripe for each automatic controller.
- B. Connections shall be epoxy-sealed packet type connectors. They shall be a Spears DS-500 DRI-Splice Wire connector sealing packs. Use one DRI splice wire connector per connection.
- C. Install three (3) spare control wires that shall be blue in color, and one (1) common wire spare wire to be white in color in a 10" round plastic lockable valve box.
- D. Master control wires shall be green in color.
- E. Control wires for moisture sensing stations shall be orange in color.
- F. Wiring shall occupy the same trench and shall be installed along the same route as pressure supply or lateral lines wherever possible. Minimum 24 inches below finish grade or six (6) inches below mainline whichever distance is greater.
- G. Where one (1) wire or more is placed in a trench, the wiring shall be taped together with electrical tape with five (5) wraps around the RCV wires at intervals of ten (10) feet.
- H. An expansion curl shall be provided within three (3) feet of each wire connection and at each change of direction of a wire run. Expansion curls shall be formed by wrapping at least five (5) turns of wire around a one (1) inch diameter pipe, then withdrawing the pipe.
- I. When the control wiring or tubing is installed in a pipe trench, it shall be installed a minimum of 24 inches below finish grade. Continuous caution tape with suitable markings shall be installed in the trench six (6) inches above the wire or tubing.

When the electric valve remote control wires or hydraulic tubing is installed in a pipe trench, it shall be installed a minimum of 24" below finish grade. Contractor shall install a four-inch (4") wide continuous caution tape with suitable markings six inches (6") above the remote control wires or hydraulic tubing.

- J. Control wiring or hydraulic control tubing shall be housed in conduit between the controller and a concrete pull box installed at least two (2) feet outside the limits of the controller foundation, or the structure foundation where the controller is housed.

12.2.09 AUTOMATIC CONTROLLER

- A. Automatic Controllers shall be as specified on drawings and consist of a 120 volt single-phase, electric clock unit and shall be capable of being operated manually.
- B. The automatic controller shall have the minimum number of stations as indicated on the drawings and shall feature automatic, semi-automatic or manual operation.
- C. Each station shall have variable timing from two to sixty minutes and shall be equipped with on-off position to eliminate operation from any of the watering schedules.
- D. All controllers shall be pedestal mounted type in a heavy duty stainless steel, weather tight, lockable enclosure with stainless steel piano hinges per the irrigation legend.
- E. Each station shall have a repeat switch allowing selected schedules to be repeated after completion of the initial watering schedule.
- F. All controller components shall be fused and have a chassis ground.
- G. All controllers shall be equipped with a four by four (4x4) inch electrical junction box, with an on/off G.F.I. switch, and a grounded duplex receptacle mounted inside the enclosure.

12.2.10 ELECTRIC REMOTE CONTROL VALVES

- A. Electric remote control valve shall be as specified on drawings.
- B. The valve must have an automatic mechanical self-cleaning internal control system and must be slow closing to ensure smooth and shock free operation.
- C. The electric remote control valve shall be equipped with a corrosion proof solenoid constructed of stainless steel and molded in epoxy resin to form one integral unit which is suitable for 24 volt operation.
- D. The electric remote control valve shall be internal diaphragm and disassembly guided by a stainless steel stem in all positions.
- E. All electric remote control valves shall be equipped with a control stem capable of reducing a higher inlet flow to a constant lower flow regardless of supply fluctuations.
- F. All electric remote control valves shall be serviceable from the top without removing the valve body from system.
- G. All electrical remote control valves shall have the capability of manual operation.
- H. If electric remote control valves are specified with a pressure regulator, the Contractor shall provide the type specified on the plans.

- I. Contractor shall install one (1) T. Christy's I.D. tag to each valve type as follows: non-potable water conditions ID-MAX-P2-RC2P2 and for potable water conditions IC-MAX-B2-PW2B2 with a ID-MAX-G2-PW1G1 with the valve number.
- J. The above specified electric control valve shall be installed within a green lockable heavy duty 12" rectangle valve box manufactured by Applied Engineering Products Model #1015T-1G2G HD. Valve box lid shall have an Applied Engineering Product #999 reclaimed name plate attached to each lid with stainless steel sheet metal screws.

12.2.11 ELECTRIC DRIP REMOTE CONTROL VALVE

- A. Electric remote control valve shall be as specified on drawings.
- B. The valve must have an automatic mechanical self-cleaning internal control system and must be slow closing to ensure smooth and shock free operation.
- C. The electric remote control valve shall be equipped with a corrosion proof solenoid constructed of stainless steel and molded in epoxy resin to form one integral unit which is suitable for 24 volt operation.
- D. The electric remote control valve shall be internal diaphragm and disassembly guided by a stainless steel stem in all positions.
- E. All electric remote control valves shall be equipped with a control stem capable of reducing a higher inlet flow to a constant lower flow regardless of supply fluctuations.
- F. All electric remote control valves shall be serviceable from the top without removing the valve body from system.
- G. All electrical remote control valves shall have the capability of manual operation.
- H. If electric remote control valves are specified with a pressure regulator, the Contractor shall provide the type specified on the plans.
- I. Contractor shall install one (1) T. Christy's I.D. tag to each valve type as follows: non-potable water conditions ID-MAX-P2-RC2P2 and for potable water conditions IC-MAX-B2-PW2B2 with a ID-MAX-G2-PW1G1 with the valve number.
- J. Flush valve assemblies: Isolation Spears Schedule 80 PVC ball valve.
- K. The above specified electric drip control valve shall be installed within a green lockable heavy duty 12" rectangle valve box manufactured by Applied Engineering Products Model #1015T-1G2G HD. Valve box lid shall have an Applied Engineering Product #999 reclaimed name plate attached to each lid with stainless steel sheet metal screws.

12.2.12 VALVE BOX

Valve boxes shall be fabricated from a durable plastic material resistant to weather, sunlight and chemical action of soils. They shall be green in color. The cover shall be capable of sustaining a load of 1,500 psi. Valve box

extensions shall be by the same manufacturer as the valve box. All valve boxes shall be as manufactured by Applied Engineering Products.

- A. Install valve boxes with each type of irrigation equipment so that of valve box is above finish grade as specified on the detail drawings. Valve box extensions are not acceptable except for master valves, flow sensor and large gate valves.
- B. Place gravel sump below and around each valve box prior to installing valve box as specified on the drawings. Place remaining portion of gravel inside valve box allowing full access in and around all fittings. Valve box shall be fully supported by gravel sump. No brick or wood supports are allowed except for the large basket strainer assembly and the master valve assembly that will need to be supported with concrete blocks.
- C. Brand valve box lid of associated equipment as follows:
 - 1. Electric control valve box lid with "Controller Letter and Station Number".
 - 2. Drip valve assembly box lid with "Controller Letter and Station Number".
 - 3. Flush valve assembly box lid with "Controller Letter and Station Number" and the letters "F.V".
 - 4. Quick coupling valve box lid with "Controller Letter" and the letters "QC".
 - 5. Isolation gate valve box lid with "Controller Letter" and the letters "GV".
 - 6. Air relief valve box lid with "Controller Letter" and the letters "AR".
 - 7. Wire splice box lid with "Controller Letter" and the letters "WS".
 - 8. Manual drain valve box lid with "Controller Letter" and the letters "MDV".
 - 9. Communication cable splice box lid with "Controller Letter" and the letters "IRR-COMM".
- D. Letter and number size of brand shall be 2" in height and shall be 1/8" maximum in depth. Provide sample branding to the City or City's representative prior to commencement of work.
- E. Walk though for establishment and/or substantial completion will not be allowed until all branding is complete.
- F. All valve boxes shall be installed within shrub planting areas only.

12.2.13 SPRINKLER HEADS

- A. All sprinkler heads shall be of the same size, type and deliver the same rate of precipitation with the diameter (or radius) of the throw, pressure and discharge as shown on the plans and/or specified in these special provisions.
- B. Equipment of one type and flow characteristic shall be from the same manufacturer and all equipment shall bear the manufacturer's name and identification code in a position where they can be identified in the installed position.

- C. Rotary heads shall be impact-type drive rotary, pop-up type and designed with an integral check valve for control of line drainage. The sprinkler shall be capable of delivering spray radius and volume (gallons) indicated on drawings. Retraction shall be accomplished by means of a heavy duty stainless steel spring. The sprinkler shall have a riser seal and wiper.
- D. Pop-up spray heads shall be constructed of impact-resistant Cyclac material. Heads shall be retracted by means of a stainless steel retraction spring and shall have a combination piston/wiper seal. All heads shall be a minimum six (6) inch pop-up.
- E. Pop-up sprinklers shall rise at least to minimum operative height per manufacturer's specifications during operation.
- F. Full or part circle sprinklers shall be interchangeable in the same housing.
- G. Shrubbery and bubbler heads shall be adjustable from full flow to shut-off.
- H. Sprinkler heads for small turf, small shrub, and ground cover areas shall be as specified in the irrigation legend. All nozzles shall be per the irrigation legend.
- I. Sprinkler heads for large turf and ground cover areas shall be gear driven rotary type pop-up. The body shall be constructed with 3/4-inch or one (1) inch N.P.T. bottom inlet. Sprinkler nozzle shall pop up a minimum of 2-1/2 inches with positive spring retraction. Sprinkler heads shall be Hunter (Institutional Series only), or approved equal.
- J. Angled nipples on swing joints below spray heads and rotors shall not exceed 45 degrees nor be less than 10 degrees.
- K. After installation adjust nozzle sizes, arcs and radius of throw to allow head to head uniform distribution. Adjust all spray head and rotors to correct height above sod as detailed. No over spray will be allowed on paving, hardscape, sidewalks and paths.
- L. Adjust adjacent plant material so that it does not interfere with uniform distribution of each spray head or rotor.
- M. Landscape Architect may request nozzle changes and/or adjustments without additional cost to the City.
- N. All spray heads and rotor heads shall be installed per the details.

12.2.14 ELECTRICAL HIGH VOLTAGE

- A. All electrical equipment shall be NEMA Type 3, waterproofed for exterior installations.
- B. All high voltage electrical work shall require separate electrical permit and inspection.

12.2.15 EQUIPMENT ENCLOSURES

- A. All equipment enclosures for pumps and controllers shall be vandal-resistant, stainless steel, have stainless steel piano hinges and be UL listed. Stainless steel enclosures shall be "The Strong Box" and shall not be painted.

- B. Automatic controller enclosures shall be louvered vents covered by a brass or stainless steel mounted inside the enclosure.
- C. All backflow preventers shall have a "Strong Box" vandal resistant smooth touch backflow enclosure installed. See the irrigation legend for model number and color.

12.2.16 CONDUIT

- A. Conduit and conduit fittings shall be galvanized by the hot-dip, electrode positing, or metallizing process in accordance with subsection 210-3 of the Standard Specifications for Public Works Construction 2000 Edition. Galvanized conduit shall conform to standards for rigid steel conduit as specified by Underwriter's Laboratories, Inc., and shall bear the underwriter's label on each length.
- B. Conduit shall be of the size indicated on the plans. It shall be the option of the Contractor to use larger conduit than that specified, provided that where such substitution is made, it shall be for the length of the conduit run. No reducing fittings will be permitted.
- C. The ends of the conduit shall be free of burrs and rough edges.
- D. The maximum bend of a conduit shall be 90 degrees and the minimum radius of a bend shall be not less than six (6) times the inside diameter of the conduit.
- E. All threads shall be treated with approved joint compound before fittings are placed thereon. Where the galvanized coating of conduit or fittings has been injured in handling or installing, such damaged areas shall be thoroughly painted with a rust preventative paint.
- F. Ends of conduit shall be properly coupled. Running threads, thread-less connectors or threadless couplings will not be permitted.

12.2.17 CONDUCTORS

- A. Line voltage conductors shall be supplied in the sizes and types shown on the plans and shall be THW or THWN, 600-volt insulation rating, conforming to the applicable provisions of ASTM D 2219 and D 2220.
- B. Control System Interconnect Conductors
 - 1. All irrigation interconnect conductors shall be pulled by hand.
 - 2. A total of two feet of slack shall be left at each field satellite unit and within each pull box. Sufficient slack shall be left to allow the wire to extend 18" above the top of the pull box grade.
 - 3. Small, permanent, identification bands shall be marked "irrigation interconnect" or as specified and securely attached to irrigation interconnect wires in each pull box near the termination of each wire. Permanent identification bands shall be embossed 6-mil oil-resistant PVC tape with pressure sensitive backing.
 - 4. The irrigation interconnect wire shall be continuous from satellite to satellite. All splices shall occur within the satellite enclosure unless specifically authorized by the Architect. All splices shall be made using approved connectors only. All splices shall be capable of satisfactory operation under continuous submersion in water.

12.2.18 PULL BOXES

- A. Pull boxes shall be installed at intervals not to exceed two hundred feet and at each location where the installation of the conduit is to be phased, and at each point where the conduit crosses a roadway, bridge, or major utility easement.
- B. Pull boxes shall be installed in shrub planted areas only.
- C. The bottom of box shall be bedded in pea gravel six inches deep and one-half inch of grout prior to installation of the irrigation interconnect. A layer of 15# roofing paper shall be placed between the grout and the pea gravel. A one-inch diameter drain hole shall be provided through the center of the pull box grout and roofing paper.
- D. Contractor shall install communication cable, flow sensor wires, master valve wires, or spare RCV wires within a gray 12" rectangular, lockable valve box at each pull box location. Contractor shall heat brand each lid to reflect the type of wire and use of said wire, i.e. IRR COMM for communication cable.

12.2.19 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper irrigation system installation, shall be new, first quality of their respective kinds and subject to the approval of the City & Landscape Architect.

PART 3 - EXECUTION

12.3.01 SURFACE CONDITIONS

A. Inspection

Prior to all work of this section, carefully inspect the original design, the referenced standard and the manufacturer's recommendations. System to be installed in accordance with all pertinent City codes and regulations, the original design and the referenced standards.

B. Discrepancies

- 1. In the event of discrepancy, immediately notify the City.
- 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved to the satisfaction of the City.

12.3.02 FIELD MEASUREMENTS

Make all necessary measurements in the field to ensure precise fit of items in accordance with the original design.

12.3.03 TRENCHING AND BACKFILLING

A. Trenching

- 1. Pulling in of pipe and control wires shall not be permitted.

2. Mechanical trenching machines shall be of an approved type to cut trenches with straight sides. Pipes shall be supported continuously on the bottom of the trench and shall be laid to an even grade. Trenching excavation shall follow layout indicated on drawings to the depths below finish grade as noted.
3. When two (2) lateral pipes are to be placed in the same trench, it is required to maintain a twelve (12) inch space between pipes as is minimum. No pipe shall be installed directly over another.
4. Where it is necessary to excavate adjacent to existing trees, the Contractor shall avoid injury to trees and tree roots. Excavation in areas where two (2) inch and larger roots occur shall be done by hand. All roots two (2) inches and larger in diameter shall be tunneled under and shall be heavily wrapped with wet burlap. Trenches within the drip line of trees shall be closed within 24 hours.
5. All pressurized mainline shall be installed in a twelve-inch (12") wide trench minimum. Each mainline shall be installed in a separate trench, as described in previous sections of the irrigation specifications.

B. Backfilling

1. Backfill material shall be per the irrigation details. Unsuitable material, including clods and rocks over one-half (1/2) inches in size, shall be removed from the premises and disposed of legally at no cost to the City.
2. Trenches and excavations shall be backfilled so that the specified thickness of topsoil is restored to the upper part of the trench. Backfill shall be flooded in accordance with subsection 306-1.3.3 of the Standard Specifications of Public Works Construction, 2000 Edition.
3. Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe per details.
 - a. Provide minimum cover of 24 inches for 24 volt control wires (36 inches under hardscape areas).
 - b. Provide minimum cover of 24 inches on pressure supply 2-1/2 inches and smaller (36 inches under hardscape areas).
 - c. Provide minimum cover of 24 inches on pressure supply lines three (3) inches and larger (36 inches under hardscape areas).
 - d. Eighteen-inch (18") cover over lateral lines crossing (24 inches under hardscape items).
 - e. Electrical conduit - 24 inches cover (36 inches under roadways).
 - f. Where it is necessary to excavate adjacent to existing trees, the Contractor shall avoid injury to trees and roots. Excavation in areas where two (2) inch and larger roots occur shall be done by hand. All roots two (2) inches and larger in diameter shall be tunneled under and shall be heavily wrapped with burlap, to prevent scarring or excessive drying. Where a ditching machine is run close to trees having roots smaller than two (2) inches in diameter, the wall of the trench adjacent to the tree shall be hand trimmed, making clean cuts through roots. Roots one (1) inch and larger in diameter shall be painted with two (2)

coast of Tree Seal, or equal. Trenches adjacent to trees should be closed within 24 hours; and where this is not possible, the side of the trench adjacent to the tree shall be kept shaded with burlap or canvas.

- g. All mainline, lateral and RCV wires shall have a minimum clearance of twelve (12) inches from each other and twelve (12) inches from lines of other trades.
- h. Parallel lines shall not be installed directly over one another.
- i. Surplus earth remaining after backfilling shall be disposed of on the premises as directed by the City.
- j. For minimum clearance to domestic lines per Health Code please review IRWD Note #J.

12.3.04 INSTALLATION OF PIPING

A. General

- 1. Lay out the piping system in strict accordance with the drawings and to the depth as specified in Section 3.03.
- 2. Unless otherwise provided, irrigation system layout shown on the plans shall be considered schematic. With the City's approval, the Contractor may make adjustments where necessary to conform to actual field conditions. The irrigation system shall be operational, with uniform and adequate coverage of the areas to be irrigated prior to planting.

B. Under Existing Pavement

- 1. Piping under existing pavement may be installed by jacking, boring or hydraulic driving except that no hydraulic driving will be permitted under asphalt concrete pavement, or at depth less than 36 inches.
- 2. Where cutting or breaking of existing pavement is necessary secure permission from the City of Glendale before cutting or breaking the pavement. Contractor shall make and be financially responsible for all necessary repairs as required by the City of Glendale or City at no additional cost to the City of Glendale.

C. Inspection of Pipe and Fittings

Carefully inspect all pipe and fittings before installation, removing all dirt, scale, burrs and reaming as required; install all pipe with all markings up for visual inspection and verification.

D. Gasket-End Pressure Supply Line and Fittings

- 1. Gasket-End Pressure Supply Line: (downstream of backflow prevention device) PVC Class 200RT (3" and larger).
 - a. Manufactured from virgin polyvinyl chloride (PVC) compound in accordance with ASTM D2241 and ASTM D1784; cell classification 12454-B
 - b. Type 1, Grade 1

2. All fittings shall be Leemco deep bell, manufactured of ductile iron, Grade 65-45-12 in accordance with ASTM A-536. Reducers and plugs shall be made available with four lugs to accommodate joint restraints in any orientation. Fittings shall be manufactured by Leemco, Inc., Corona, CA.
3. Gaskets: factory installed in pipe and fittings, having a metal or plastic support within the gasket or a plastic retainer ring for gasket.
4. Lubricant: as recommended by manufacturer of pipe fittings.
5. Leemco joint restraint system shall be used per manufacturer's recommendations for any PVC Class 200RT (3" and larger).

E. PVC Pipe

1. PVC pipe shall be installed in a manner which will provide for expansion and contraction as recommended by the pipe manufacturer. When requested by the City, the Contractor shall furnish the manufacturer's printed installation instructions before pipe installation.
2. In jointing, use only the specified solvent and make all joints in strict accordance with the manufacturer's recommended methods, give solvent welds at least 15 minutes setup time before moving or handling and 24 hours curing time before filling with water.
3. For plastic-to-metal connections, work the metal connections first, use a non-hardening pipe dope on all threaded plastic-to-metal connections and use only light wrench pressure. All plastic-to-metal connections shall be made with plastic male adapters. All non-hardening pipe dope to be used per PVC fittings manufacturer's recommendations.
4. During installation of pipe, fittings, valves, and other pipeline components, foreign matter shall be prevented from entering the system. All open ends shall be temporarily capped or plugged during cessation of installation operations.
5. Changes in pipeline size shall be accomplished with reducer fittings.
6. Plastic pipe shall be jointed by socket type solvent welded fittings, threaded fittings, rubber ring fittings or by other means specified. When plastic pipe is joined to steel pipe, the steel pipe shall be installed first.
7. Plastic pipe shall be cut square, externally chamfered approximately 10-15 degrees, and all burrs and fins removed.
8. Solvent welded joints shall be made in accordance with ASTM D 2855. The solvent recommended by the manufacturer shall be used.
9. Plastic pipe installation shall be in accordance with ASTM D 2774 and the requirements herein.
10. Care shall be exercised in assembling a pipeline with solvent welded joints so that stress on previously made joints is avoided. Handling of the pipe following jointing, such as lowering the assembled pipeline into the trench, shall not occur prior to the set times specified in ASTM D 2855.

11. Solvent shall be applied to pipe ends in such a manner that no material is deposited on the interior surface of the pipe or extruded into the interior of the pipe during jointing. Excess cement on the exterior of the joint shall be wiped clean immediately after assembly.
12. Threads for plastic pipe shall be as specified in Subsection 308-5.2.2. A plug shall be installed in the bore of the pipe to prevent distortion prior to threading.
13. Threaded pipe joints shall be made using Teflon tape or other approved jointing material. Solvent shall not be used with threaded joints.
14. Pipe shall be protected from tool damage during assembly. Vises shall have pleated jaws and strap wrenches shall be used for installations of fittings and nipples.
15. Plastic pipe which has been nicked, scarred or otherwise damaged shall be removed and replaced. Plastic pipe shall be snaked from side to side in the trench to allow one (1) foot of expansion and contraction per 100 feet of straight run.
16. The pipeline shall not be exposed to water for 24 hours after the last solvent welded joint is made.
17. Center-load all plastic pipe prior to pressure testing to resist displacement.
18. All threaded PVC to PVC connections shall be assembled using Permatex #51 pipe joint compound, a non-hardening sealant or approved equal.
19. Threaded PVC female fittings shall not be used with brass or copper pipe. Use a non-hardening pipe dope on all threaded plastic-to-metal connections, except where noted otherwise.

12.3.05 INSTALLATION OF EQUIPMENT

A. Automatic Controller Location and Installation

1. Automatic controller shall be installed outside of the coverage pattern of the irrigation system at location shown on the plans. The control components in the controller shall be fused and the chassis shall be grounded.
2. The controller location is essentially diagrammatic, and shall be specifically located and approved by the City.
3. All local and applicable codes shall take precedence in the furnishing and/or connecting of 120 volt electrical service to the controller.
4. All service wiring shall be installed at the minimum depth specified in Subsection 308-2.8 shall govern the locations of service points. A separate disconnect switch or combination meter socket, as required, shall be installed between the source of power and the controller. The minimum service wire shall be No. 12 AWG copper 600 volt type TW, THW or THWN or larger as required by the Specification or controller manufacturer. Wire splices shall be located only in specified pull boxes and shall be made with a packaged kit approved for underground use, or as specified in Subsection 307-2.5. Pull boxes shall be concrete, set to grade on a 12-inch layer or one (1) inch crushed rock.

5. Controller shall be located behind shrubs and/or adjacent to hardscape with an 18 inch planting space between the face of the concrete assembly base and for back of turf mow curb or other hardscape areas. Overspray onto controller shall not be accepted. Maintenance access shall be provided.
6. The location of the controller shall be as shown on the drawings and shall be approved by the City before installation. The electrical service shall be coordinated with this location.
7. City-maintained controllers shall have the irrigation interconnect terminating inside the controller enclosure. All conduits and wiring shall enter the enclosure from the bottom.

B. Control Wiring

1. Control wires shall be installed in accordance with valve manufacturer's specifications and wire chart.
2. Control wiring located beneath paved areas shall be installed in a separate schedule 40 PVC sleeve.
3. Wiring shall occupy the same trench and shall be installed along the same route as pressure supply or lateral lines wherever possible lay below the mainline. Control wires shall be laid loosely in trench without stress or stretching to allow for contraction of wires. Where more than one (1) wire is placed in a trench, the wiring shall be taped together at intervals of ten (10) feet.
4. An expansion curl shall be provided within three (3) feet of each wire connection. Expansion curl shall be of sufficient length at each splice connection at each electric control valve, so that in case of repair, the valve bonnet maybe brought to the surface without disconnecting the control wires.
5. An expansion curl shall be provided every 100 feet on runs of more than 100 feet in length. Provide looped slack at valves and changes in direction of 90 degrees.
6. Field splices between the automatic controller and electrical control valves shall not be allowed without prior approval of the City. Splices in control wire shall be made in accordance with the requirements of service wire. Splices shall be vaulted and noted on as-built drawings. An expansion curl of two (2) feet shall be provided at each field splice and point of connection in pull boxes and valve boxes.

C. Electrical Work

All electrical work shall be installed per code requirements.

D. Quick Coupling Valves

1. Quick coupling valves shall be set approximately 12 inches from walks, curbs, header boards or paved areas where applicable. Vertical positioning of quick coupling valves shall be such that sleeve top will be four (4) inches above settled finish grade in ground cover areas and at grade in turf areas.
2. Quick coupler valve boxes shall be located 12" from paved surfaces.

E. Valves and Valve Boxes

1. All valves shall be installed as shown in details and in accordance with manufacturer's recommendations.
2. All valves shall be the full size of the line in which they are installed unless otherwise indicated.
3. All valves shall be set at sufficient depth to provide clearance between the cover and the cap, valve handle, or key with the valve is in the fully open position.
4. Valves and valve boxes shall be installed as shown on the drawings and details. The top of valve boxes shall be one (1) inch above finish grade in ground cover and shrub areas. Install each remote control valve and quick coupling valve in a separate valve box and allow at least 12 inches between valve boxes.
5. Place four (4) cubic feet of pea gravel prior to installation of any valve box 12" in length and smaller. Any valve box larger than 12" in length shall receive twelve (12) cubic feet of pea gravel.

F. Drip Supply Tubing/Emitter Supply Tubing

1. Install fitting connections according to manufacturer's specifications.
2. Use manufacturer's recommended hole punch for all penetrations to drip supply tubing.
3. Install all flush valve assemblies at each and every end of the drip supply tubing as specified on the irrigation drawings.
4. Install drip supply tubing stakes as specified on drawings.

G. Closing of Trenches and Flushing of Pipes

1. Main Lines

Mains shall be flushed before installing remote control valves, quick-coupler valves, hose bibbs or pressure-relief valves and with pipe center-loaded. All water being discharged shall be temporarily piped up and out of the trenches. Trenches are to be kept dry for pressure tests to follow. Install all valves after approval of flushing procedure by the City's representative. Contractor shall notify City and submit in writing a description of the proposed flushing operation five (5) working days prior to flushing operation commencing.

2. Lateral Lines

Prior to installation of sprinkler heads and after all new lateral lines and risers are connected, the valves shall be opened and a full head of water used to flush out the lines and risers. Flushing shall be performed in the presence of the City's representative until flow is clean and free of all foreign material. Contractor shall notify City and submit in writing a description of the proposed flushing operation five (5) working days prior to flushing operation commencing.

12.3.06 TESTING AND INSPECTION

A. General

1. Furnish all necessary testing equipment and personnel.

2. Correct all leaks and retest until accepted by the City.
3. Contractor shall notify City's representative and deliver required submittal items at least 48 hours in advance of the time installation is required.
4. Contractor shall review, and make the necessary coordination calls to the landscape architect per the site observation schedule on the irrigation legend and notes.
5. Contractor shall coordinate a pre-installation meeting with the controller assembly manufacturer and the Landscape Architect to discuss project constraints, goals and manufacturer's required schedule of site certification milestones. This is to certify that each controller assembly meets the manufacturer's requirements as well as the Technical Specifications and Irrigation Plans.

B. Closing in Uninspected Work

Do not allow or cause any of the work of this section to be covered up or enclosed until it has been inspected, tested and approved by the City or governing agencies.

C. Flushing

Before backfilling the mainline and with all control valves in place but before lateral pipes are connected, completely flush and test the drain line and repair all leaks, flush out each section of lateral pipe before sprinkler heads are attached. Contractor shall notify City and submit in writing a description of the proposed flushing operation five (5) working days prior to flushing operation commencing.

D. Testing

1. Make all necessary provisions for thoroughly bleeding the line of air and debris.
2. Before testing, fill the line with water for a period of at least 24 hours.
3. Irrigation mainlines shall be center-loaded prior to conducting hydrostatic pressure test.
4. All hydrostatic tests shall be made in the presence of the City. No pressure line shall be backfilled until it has been inspected, tested, and approved in writing.
5. All gate valves along mainline shall be fully open for testing.
6. Testing of pressure mainlines shall occur prior to installation of remote control valves.
7. All pressure lines shall be tested under a hydrostatic pressure of 150 psi for a period of not less than four (4) hours. If leaks develop, joints shall be replaced, and test repeated until entire system is proven watertight.

E. Adjustment of the System

1. The Contractor shall adjust all irrigation components for optimum performance, and to prevent overspray onto walks, roadways, buildings, and equipment as much as possible.

2. If it is determined that adjustments in the irrigation equipment will provide more uniform performance the Contractor shall make such adjustments prior to planting. Adjustments may also include changes in nozzle sizes and degrees of arc as required.
3. Lowering raised sprinkler heads and valve boxes by the Contractor shall be accomplished within ten (10) days after notification by City.
4. All sprinkler heads and valve boxes shall be set perpendicular to finished grades unless otherwise designated on the plans.

F. Coverage Test

1. When the sprinkler irrigation system is completed and prior to any planting a coverage test shall be performed in the presence of the City's representative to determine if the water coverage for planting areas is complete and adequate. If coverage is inadequate, corrections shall be made and another coverage test performed. Prior to the cover test to commence the irrigation system shall be operated by "radio remotes".
2. Contractor, at the time of the irrigation coverage, shall perform a pressure test at the last head for each irrigation RCV. The Contractor shall perform the test in the presence of the City's representative. Prior to performing this test the Contractor shall adjust each valve to reflect the pressures set for each type of spray, bubbler, and rotor head in the irrigation legend.
3. The entire sprinkler irrigation system shall be under full automatic operation for a period of seven (7) days prior to any planting.

END IRRIGATION SPECIFICATIONS (SECTION 02810)

SECTION 13 - PLANTING SPECIFICATIONS (SECTION 02910)

PART 1 - GENERAL

13.1.01 SCOPE OF WORK

- A. Contractor to furnish all labor, material, equipment, and services required to install all landscape planting, as indicated on the approved drawings and as specified herein, and shall perform all other incidental work necessary to carry out the intent of this specification and drawings including the following:
 - 1. Fine grading, soil preparation, planting of nursery and city trees, ground covers and lawn, guying and staking trees, and weed abatement.
 - 2. 90-day Establishment/90-day Maintenance Period.
 - 3. Provide guarantee.
- B. All irrigation work shall be approved by the City prior to any work in this section being performed.
- C. The above provisions do not alleviate Contractor from the cost responsibility for, but not limited to the following: (i) coordination, (ii) delivery, (iii) special handling, (iv) off loading, (v) storage, (vi) protection, and (vii) maintenance; nor do the above provisions alleviate Contractor from all warranty responsibility of the trees as set forth in the Contract documents; nor do the above provisions alleviate Contractor from any other requirements or terms, or conditions set forth in the Contract documents. Contractor is responsible to purchase sodded turf, flatted ground cover and trees.

13.1.02 AGRONOMIC SOILS REPORT

- A. Representative soil samples have been taken in the field and a written report has been prepared by the agronomist and includes recommendations for soil amendments and application rates for soil preparation pre-plant fertilization, planting backfill mix, any auger hole requirements, and post-maintenance fertilization program and shall be approved by Landscape Architect in writing prior to proceeding. A copy of the agronomic soils report is included in the Project Appendices, Section "-". (NOT APPLICABLE)
- B. Soil tests shall be performed by the Contractor at his own expense after soil preparation at locations selected by the City equal to the quantity of locations originally sampled for testing. Soil tests results shall be provided to the City to confirm that soil preparation was performed in compliance with preplant soils report and specifications.

13.1.03 SUBSTITUTIONS

- A. Specific reference to manufacturers' names and products specified in this section are used as standards; this implies no right to substitute other materials or methods without written approval from the City.
- B. Installation and warranty of any approved substitution shall be Contractor's responsibility. Any changes required for installation or any approved substitution must be made to the satisfaction of the City without additional cost to the City. Approval by the City of substituted equipment and/or dimension drawings does not waive these requirements.

13.1.04 SUBMITTALS

- A. Prior to installation, the Contractor shall submit to the City two copies of manufacturers' literature, receipts of sale, and laboratory analytical data for the following items:
 - 1. Organic Amendments
 - 2. Topsoil
 - 3. Commercial Fertilizer
 - 4. Mulch
 - 5. Erosion Control Fabric
 - 6. Plant Material
 - 7. Hydroseeding Work Sheets
- B. Prior to hydroseeding, the Contractor shall submit to the Landscape Architect a six (6) ounce sample of the certified seed mix and bill of lading for materials.
- C. Refer to irrigation specifications for additional submittal requirements.

13.1.05 PRODUCT HANDLING

- A. Contractor shall furnish standard products in manufacturer's standard containers bearing original labels showing quantity, analysis, and name of manufacturer. All containers, bags, etc., shall remain on site until work is completed.
- B. Contractor shall notify Landscape Architect seven (7) days prior to delivery of plant material and submit itemization of plants in each delivery.

13.1.06 CLEAN-UP

Upon completion of each phase of work under this section, the Contractor shall clean up and remove from the area all unused materials and debris resulting from the performance of the work. The site shall be left in a broom-clean conditions, and wash down all paved areas within the project site. Leave walks in a clean and safe condition.

13.1.07 MEASUREMENT AND PAYMENT

Full compensation for conforming with the requirements of Planting including all labor, tools, equipment, and material necessary to perform the work shall be included in the lump sum price for "Plant 24-Inch Box Tree (Various Types in Tree Well/Parkway)", where applicable, and no additional compensation will be allowed therefore.

PART 2 - PRODUCTS

13.2.01 PLANT MATERIAL

- A. All plants shall be of the size, variety, age and condition as shown on the drawings and as specified here.
- B. Quality - Plants shall be in accordance with the California State Department of Agriculture's regulation for nursery inspections, rules, and grading. All plants shall have a normal habit of growth and shall be sound,

healthy, vigorous, and free of insect infestations, plant diseases, sun scales, fresh abrasions of the bark, or other objectionable disfigurements. Tree trunks shall be sturdy and well 'hardened' off. All plants shall have normally well-developed branch structure, and vigorous and fibrous root systems which are not root or pot bound. In the event of disagreement as to condition of root system, the root condition of the plants furnished by the Contractor in containers will be determined by removal of earth from the roots of not less than two (2) plants of each species or variety. Where container grown plants are from several sources, the roots of not less than two (2) plants of each species or variety from each source will be inspected. In case the sample plants inspected are found to be defective, the Landscape Architect reserves the right to reject the entire lot or lots of plants represented by the defective samples.

- C. Plants shall be measured when branches are in their normal upright position. Height and spread dimensions specified refer to main body of plant and not branch tip to tip. Caliper measurement shall be taken at a point on the trunk three (3) feet above natural ground line. If a range of size is given, no plant shall be less than the minimum size and not less than 40 percent of the plants shall be as large as the maximum size specified. The measurements specified are the minimum size acceptable and are the measurements after pruning, where pruning is required. Plants that meet the measurements specified, but do not possess a normal balance between height and spread, shall be rejected.
- D. Plants shall be nursery grown in accordance with good horticultural practices under climatic conditions similar to those of project for at least two (2) years unless otherwise specifically authorized by the Landscape Architect. All plants shall be heavy, symmetrical, tightly knit, so trained or favored in development and appearance as to be in form, number of branches, compactness and symmetry.
- E. All plants shall meet the specifications of federal, state, and county laws requiring inspection for plant diseases and insect control. All inspection certificates required by law shall accompany each shipment, invoice, or order for stock; and when such plants arrive at the site, the certificates shall be delivered to the Landscape Architect.
- F. Plants shall be true to species and variety in accordance with the American Association of Nurserymen Standards. Each group of plant materials delivered to the site shall be clearly labeled as to species and variety and nursery source.
- G. Plants shall not be pruned before delivery. Trees which have damaged or crooked leaders, or multiple leaders, unless specified, will be rejected. Trees with abrasions of the bark, sun scalds, disfiguring knots, or fresh cuts of limbs over 3/4 inch which have not completely callused will be rejected.
- H. Plants not conforming to the requirements herein specified will be considered defective and such plants, whether in place or not, will be marked as rejected. Contractor shall immediately remove rejected plants from the premises and replace with new acceptable plants at his expense.
- I. There shall be no substitutions of plants or sizes for those listed on the accompanying plans except with the approval of the Landscape Architect.
- J. Container stock shall have grown in the containers in which delivered for at least six months, but not over two (2) years. Samples shall show no root-bound conditions. Container plants that have cracked or broken balls of earth when taken from container will be rejected by the Landscape Architect.

13.2.02 TOPSOIL

- A. Soil to be used as planting medium for the project shall be fertile, well-drained, or uniform quality, free of stones or one (1) inch in diameter, sticks, oils, chemicals, plaster, concrete, and other deleterious materials.

- B. Imported topsoil shall be from sources approved by the Landscape Architect which meet the standards specified above. Topsoil shall be determined by Agronomic Soils Report.
- C. The Contractor shall provide for the testing of proposed topsoil by a certified agronomic soils testing laboratory and shall submit soils analysis, recommendations and topsoil sample to the Landscape Architect for approval. Import topsoil shall not be delivered to the site prior to Landscape Architect's approval. The Landscape Architect may request additional testing of imported topsoil at the site to determine conformance to the approved report. Rejected topsoil shall be removed at no cost to the City.
- D. If stockpiling is requested, locations and amounts of stockpile shall be approved by the City.

13.2.03 SOIL AMENDMENTS AND FERTILIZER

A. Materials

Provide standard, approved and first-grade quality materials, in prime condition when installed and accepted. Deliver commercially processed and packaged material and manufacturer's guaranteed analysis. Supply a sample of all supplied materials accompanied by analytical data from an approved laboratory source illustrating compliance, or bearing the manufacturer's guaranteed analysis to the Landscape Architect.

B. Organic Amendments

All organic amendments shall be as specified in the Agronomic Soils report prepared by and is included in the Project Appendices, Section "E".

C. Soil Amendments

All soil amendments shall be as specified in the Agronomic Soils report prepared by and is included in the Project Appendices, Section "E".

D. Fertilizer

1. Fertilizer shall be pellet or granular form consisting of the percentage by weight of nitrogen, phosphoric acid and potash as recommended by the approved agronomic report. Planting fertilizer shall be mixed by the commercial fertilizer supplier.
2. Plant tablets shall be slow release type with potential acidity of not more than five (5) percent by weight.

13.2.04 PESTICIDES AND HERBICIDES

- D. All chemicals used for weed control shall be registered by the State of California Department of Food and Agriculture and the Environmental Protection Agency with registration identification on the label. Label shall be at job site at all times.
- E. All chemicals shall be applied as per registered label instruction and manufacturer's recommendations.

- F. Chemicals requiring a licensed applicator must be applied by persons registered with the County of Los Angeles Department of Agriculture's Commissioner's Office as possessing a current, valid, qualified pest control applicator's license.
- G. The use of any restricted materials is forbidden unless a special use permit is obtained from the County of Los Angeles Department of Agriculture.
- H. The non-selective, translocative herbicide shall be "Round-Up" or approved equal.

13.2.05 SEED

- A. Seed shall be of the species and variety specified on the plans. Wet, moldy, or otherwise damaged seed shall not be acceptable.
- B. The Contractor shall have all seed to be used on the project officially tested by the California State Department of Agriculture and shall submit to the Landscape Architect prior to hydroseeding, official seed labels, and a signed statement from the Agriculture Department certifying that the seed meets the analysis shown on the labels. Unlabeled collected seed shall be tested and analyzed and the results furnished in lieu of the seed labels.
- C. The seed quantities listed shall be on the basis of pure live seed.

$$\text{Total Seed Material} = \frac{\text{Pounds pure, live seed required}}{\text{Percent purity} \times \text{percent germination}}$$

13.2.06 TURF

Turf type shall be as shown on the drawings and as specified herein.

13.2.07 STAKING MATERIALS

- A. Tree stakes shall be straight grained lodge pole pine free of knots, splits, checks, or disfigurements. Stakes shall be two (2) inch minimum nominal size in diameter and 10 feet in length, or as required by tree height. Stakes shall have a tapered driving point and chamfered top and shall be treated with copper naphthanate or pentachlorophenol to heartwood.
- B. Supports for double staking shall be Steel Twist Brace as manufactured by V.I.T. Company, Inc., Huntington Beach, or approved equal. Supports for single staking shall be a 10 gauge minimum steel wire tie completely covered by a new rubber hose.

13.2.08 GUYING MATERIALS

- A. Guy wire shall be zinc coated iron, 10-gauge minimum, and solid core.
- B. Turnbuckles shall be galvanized or dip-painted and weldless.
- C. Cable clamps shall be galvanized or copper, size as required.
- D. Plastic guy covers shall be white class 200 PVC 1/2-inch diameter and shall be six (6) feet in length or provide 90 percent cover of guy wire.

- E. Guying collar shall be 1/2-inch diameter new two (2) ply garden hose (reinforced rubber). The collar shall completely cover the wire and loop around tree limbs. It shall be long enough to permit tree movement within the loop.
- F. Deadmen shall be Steel Rapid Anchors as manufactured by V.I.T. Company, Inc. or approved equal. Size of anchor shall be per manufacturer's recommendations.

13.2.09 TRUNK PROTECTORS

Trees within turf areas shall be installed with trunk protection devices. Trunk protectors shall be Arbor Gard as manufactured by Deep Root Corp., Westminster, CA.

Where two or more segments of root protection devices are installed. One joint shall be left unattached to prevent girdeling.

13.2.10 ROOT CONTROL BARRIERS

- A. Root control barriers shall be provided as indicated on the plans, as required by the City of, and as specified herein.
- B. Barriers shall be construction of prefabricated high impact polyethylene as manufactured by Deep Root Corp., Westminster, CA.
- C. Barriers shall be a minimum of 16-inch depth when installed adjacent to sidewalk, 26-inch depth when installed adjacent to curb. Barriers may be linear or a box, according to the approved plan and per City of Glendale requirements.

PART 3 - EXECUTION

13.3.01 GENERAL

- A. Perform actual planting only during those periods when weather and soil conditions are suitable and in accordance with locally accepted practice.
- B. Confirm location and depth of underground utilities and obstructions. If underground structures or utility lines are encountered in the excavation of planting areas, other locations for planting shall be approved by the Landscape Architect.
- C. All planting layout and staking shall be accurately made in accordance with the plans.
- D. Plant locations shall be approved by the Landscape Architect prior to excavation and may be subject to spacing and distances required by City standards.

13.3.02 FINISH GRADING

- A. All grading and mounding with the exception of final planting shall be completed prior to soil preparation.
- B. Planting areas shall be free of all weeds (plants not specified in planting areas), stones, stumps, roots, or other debris one (1) inch in diameter and greater.

- C. Soil shall be graded to a smooth and even surface conforming to required finish grade. Finish grade adjacent to walks, paved areas, curbs, manholes, clean-outs, valve boxes, and similar features shall be one (1) inch below the surface in turf and two (2) inches below in ground cover/shrub areas. Grades between such features shall be carefully sustained and blended to eliminate abrupt changes.
- D. Planting areas to receive hydroseed turf shall sustain a finish grade of such depth that the top of installed sod shall be flush with finish surfaces (walks, paved areas, etc.).
- E. Contractor shall allow for soil amendments when establishing subgrade elevations. All planting areas shall have a finish grade conforming to approved plans and specifications after full settlement has occurred.
- F. All planting areas adjacent to buildings shall be graded to drain away from the building at a minimum of two (2) percent slope, for a minimum of five (5) feet horizontal distance.

13.3.03 SOIL PREPARATION

- A. Soil preparation shall be as specified in the specification included in the Project Appendices, Section "E".
- B. Planting areas with slopes 2:1 and steeper shall not be soil prepared unless directed by Landscape Architect.
- C. Contractor shall not work under muddy conditions.
- D. Should 30 calendar days elapse between completion of soil preparation and commencement of planting, all areas shall be prepared again.

13.3.04 WEED ERADICATION

- A. The Contractor shall eradicate all weeds within the planting areas to be revegetated as shown on the planting plans prior to the start of any grading or construction.
- B. At the beginning of work, spray all existing perennial weeds with an approved systemic herbicide (Roundup Pro or Rodeo) as recommended and applied by an approved licensed pest control adviser and applicator. Leave sprayed plants intact for at least seven (7) days. Clear these existing weeds with a flail mower weed whip or equivalent equipment, at least one-quarter (1/4") inch below the surface of the soil. Areas that are too steep for heavy equipment shall be cleared with weed whips or equivalent devices prior to planting or seeding. All flower heads and seed heads shall be bagged, and all cleared weeds shall be removed and legally disposed of off-site.

13.3.05 PLANTING OF TREES, SHRUBS AND VINES

A. Excavation

Planting holes shall have irregular, non-glazed sides, and shall be as described in the attached agronomic soils report.

B. Planting procedure for container grown material

- 1. Backfill plant pit with well-tilled on-site soil without amending to the depth of the rootball. Water thoroughly and compact backfill in such a manner so that after settling, the crown of the plant stem is one (1) inch above adjacent grade. Center plant in pit.

2. Uniformly blend amended backfill at a centralized location in minimum one (1) cubic yard lots. Backfill amendments shall be as indicated on the approved agronomic soils report. Mixing in plant pits or beds will not be permitted. Make available for inspection, all delivery slips and analytical data from approved laboratories for specified organic amendments. For bidding purposes use the following mixture:
3. Backfill remainder of plant pit around the rootball with amended backfill. Firm down, eliminating air pickets. Do not pack. Form a shallow basin around the plant to hold enough water to saturate the rootball and backfill.
4. Plant tablets shall be required for all tree, shrub, and vine plantings. Plant tablets shall be placed from one (1) to three (3) inches below the finish surface within three (3) inches of the rootball. Application rate an nutrients shall be per the manufacturer's recommendation.
5. Immediately after planting, apply water to each tree and shrub by means of a hose. Apply water in a moderate stream in the planting hole until the material about the roots is completely saturated from the bottom of the hole to the top of the ground. Add additional amended backfill material as necessary to correct any settlement around rootball. Apply water in sufficient quantities and as often as seasonal conditions require to keep the plant areas moist at all times, well below the root system of grass and plants.

C. Planting procedure for field grown material

Plant in accordance with the above specification; however, do not use nitrogen stabilized organic amendment in the backfill mix.

13.3.06 GROUND COVERS

- A. Ground cover plants shall not be allowed to dry out before or while being planted. Roots shall not be exposed to the air except while actually being placed in the ground. Wilted plants will not be accepted.
- B. Plant ground covers in straight rows evenly spaced, and at intervals required by drawings, use triangular spacing.
- C. Plant each rooted plant with its proportionate amount of flat soil. Immediately water after planting until entire area is soaked to full depth of each hole.
- D. Protect plants from damage and trampling at all times.
- C. Top-dress all ground cover and shrub areas with 2-inch layer of approved bark mulch, and all areas planted with 6-inch plant/flats with 1-inch layer. The bark mulch shall be ground, aged and screened to a consistent 3-inch minus sizing. Bark Mulch shall be 3-inch minus by Recycled Wood Products (877) 476-9797.

13.3.07 SODDED TURF

- A. Lay first strip of sod slabs along a straight line (use a string in irregular areas). Butt joints tightly; do not overlap edges. On second strip, stagger joints much as in laying masonry. Use a sharp knife to cut sod to fit curves, edges, sprinkler heads. Lay sod in one direction only.

- B. Do not lay whole lawn before watering. When a conveniently large area had been sodded, water lightly, preventing drying. Continue to lay sod and to water until installation is complete.
- C. After laying sod, roll lightly to eliminate irregularities and to form good contact between sod and soil. Avoid heavy roller or excessive initial watering which may cause roller marks.
- D. Water thoroughly the completed lawn surface. Soil should be moistened at least eight (8) inches deep. Repeat watering at regular intervals to keep sod moist at all times until rooted. After sod is established, decrease frequency and increase amount of water per application as necessary.
- E. All unsuccessfully established sod shall be removed and new sod laid to the satisfaction of the City.

13.3.08 TURF

- A. After soil preparation, establishment of final grades, and weed abatement, carefully smooth all surfaces to be planted, roll area to expose soil depressions or surface irregularities. Regrade as required. Prior to planting, the soil shall be loose and friable to receive turf.
- B. Immediately prior to planting, evenly broadcast a pre-plant commercial fertilizer as recommended in the approved agronomic soils report. Rake in lightly. Avoid planting of turf on dry soil.
- C. Turf shall be planted by seeding, hydroseeding, stolonizing, or sodding as indicated on the plans.

13.3.09 INSPECTION

- A. All inspections herein specified shall be made by the Landscape Architect or the City. The Contractor shall request inspection at least two (2) working days in advance of the time inspection is required.
- B. Inspection will be required for the following parts of the work:
 - 1. During the preliminary fine finish grading and soil preparation.
 - 2. When fine finish grading and soil preparation are completed.
 - 3. Plants after delivery to site (prior to planting), when shrubs and trees are spotted for planting, but before planting holes are excavated.
 - 4. Specimen trees at source before delivery.
 - 5. Planting areas prior to planting.
 - 6. All landscape construction items, prior to the start of the maintenance period.
 - 7. Final inspection at the end of the maintenance period, provided that all previous deficiencies have been corrected.

13.3.10 WATERING

- A. Watering to commence immediately after completion of job and to continue at a rate necessary to keep area moist without drying out or puddling. Normally, irrigating ONCE AN HOUR for a short duration, and continuing this procedure each and every day light hour, seven (7) days a week will be sufficient. This

continual moist condition shall prevail each and every day until seeds are well rooted. After the rooting stage is completed, irrigation should still continue on the basis of at least once or twice a day until turf is well established.

- B. Immediately after planting, apply water to each tree, shrub and ground cover by means of a hose. Apply water in a moderate stream in the planting hole until the material about the roots is completely saturated from the bottom of the hole to the top of the ground.
- C. Water plants which cannot be watered efficiently with the existing water system by means of a hose.
- D. Apply water in sufficient quantities, and as often as seasonal conditions require, and keep the ground wet at all times, well below the root system of grass and planting. Do not cause erosion damage in watering slopes.

13.3.11 ESTABLISHMENT/MAINTENANCE PERIOD

- A. **General:** All areas landscaped by the Contractor under this contract shall be established and maintained for a duration of no less than one hundred and twenty (120) days.
- B. **Start of Establishment/Maintenance criteria**
 - 1. Establishment period shall not commence until all elements of the project are completed in accordance with the approved plans. Upon satisfactory completion of the improvements and acceptance by the City of Glendale the Contractor will start the 60-Day Establishment period.
 - 2. Power, either temporary or permanent, to remote controllers shall be established prior to the beginning of the Establishment period.
 - 3. Written approval by the City must be obtained prior to the beginning of the Establishment period.
 - 4. If the project Establishment fails to continuously meet standards required for start of Establishment the Establishment period shall be suspended. An additional Establishment period of up to 60 days shall begin when the Contractor has corrected all deficiencies.
 - 5. Upon satisfactory completion of the plant Establishment period and acceptance by City, the Contractor shall commence a 60-Day Maintenance Period. The 60-Day Establishment period will not be accepted by the City unless growth has achieved a minimum of 75% coverage of the appropriate project areas.
- C. **End of Maintenance**
 - 1. The Contractor shall be responsible to coordinate and arrange a preliminary final inspection of the landscape improvements to be held approximately thirty (30) calendar days prior to completion of the period. This meeting shall include the Contractor, City and Landscape Architect. If applicable, the City will arrange attendance of the future Property Manager or city. The purpose of this meeting is to inspect the improvements in advance of City's final acceptance while allowing sufficient time for Contractor to make corrections of noted deficiencies.

Contractor's failure to schedule the preliminary final inspection in a timely manner shall not alleviate Contractor of the responsibility to maintain the landscape improvements beyond the establishment/maintenance period at its sole expense.

2. Deficiencies noted during inspection shall extend the maintenance period.
 3. End of maintenance shall occur only upon written acceptance by City.
 4. The duration for Establishment and Maintenance of the improvements as stated above (i.e., 60 calendar days for establishment and 60 calendar days for maintenance shall hereinafter be referred to as the "Establishment/Maintenance Period," and shall have a combined duration of 120 calendar days.
- D. During the Establishment/Maintenance period the Contractor shall provide all watering, weeding, fertilizing, cultivating, spraying, and mowing necessary to keep the plants and turf in a healthy, weed free, growing condition and to keep the planted areas neat, edged, and attractive. All shrubs shall be pinched-pruned as necessary to encourage new growth and to eliminate rank sucker growth. Old wilted flowers and dead foliage shall be immediately pinched or cut off. All trees shall be pruned for structural form and health. Limbs shall be removed to the growth collar per good arboricultural practices.
- E. During the Establishment/Maintenance Period, should the appearance of any plant indicate weakness, that plant or cutting shall be replaced immediately with a new healthy plant. Any trees or shrubs with damaged cambium shall be replaced immediately. At the end of the maintenance period, all plant material shall be in a healthy growing condition and spaced as indicated on the plans.
- F. Post plant maintenance for the first year shall consist of a nitrogen-only fertilizer program. Apply 5 lbs./1000 sq. ft. ammonium sulfate at 30-day intervals beginning 30 days after planting. In the event that ground cover, trees, or shrubs exhibit iron chlorosis symptoms, necessary action shall be taken to correct the deficiency.
- G. Sod**
1. Sod shall be fully mature, well maintained, of the grass variety specified, free of all other grasses or weeds, and shall have been harvested within 24 hours prior to delivery.
 2. All sod shall be cut evenly with a conventional sod cutting machine to a thickness of 1-1/2 inches. Sod mat size shall be between 3/8 and 5/8 inches.
 3. All sod shall have been treated with appropriate preventative fungicide and insecticides within one week prior to shipment.
 4. All sod shall have been inspected by the California Department of Food and Agriculture to ensure conformance with the standards set by the State of California.
- H. Turf**
- Unless noted otherwise, all turf shall be mowed to a height recommended for the species at least once a week. Grass clippings shall be removed off-site. Maintenance height for all grass is two (2) inches, unless otherwise specified. All turf shall be trimmed around sprinklers, valve boxes and trees during entire maintenance period.
- I. Irrigation**

1. Contractor shall properly and completely maintain all irrigation systems, automatic and manual. A balanced watering program shall be maintained to ensure proper germination. Contractor shall be responsible for the irrigation system for the entire maintenance period.
2. All controllers are to have each station individually adjusted on a weekly basis. System shall be set considering the application rate each area is capable of receiving. The system shall operate on short intervals, with the cycle repeating at a later time to reduce runoff.
3. Maintain all valve boxes and controllers free of debris. Boxes shall remain locked at times.

J. Site Maintenance

1. All planted areas shall be kept neat and clean and free of all clippings, debris and trash.
2. All subsurface drains shall be periodically flushed with clear water to avoid build up of silt and debris. Keep all drain inlets clear of leaves, trash and other debris.
3. All paved areas shall be cleaned weekly of trash, debris and silt.
4. The Contractor shall be responsible for the elimination of vertebrate pests determined by the Landscape Architect to be detrimental and damaging to the area of development. Elimination shall be performed by safe, approved methods.

K. Utilities

All utility costs incurred during the maintenance period shall be the responsibility of the Contractor.

END PLANTING SPECIFICATION (SECTION 02910)

PAYMENT ITEMS

PAYMENT ITEMS

Street Improvements Plan No. 1-3071

1. **Payment for "Pavement Removal and Grading"** will be made at the contract unit price for Item No. 1, per Cubic Yard, which shall include all costs for furnishing all labor, materials tools, and equipment, and for doing all the work involved in removing the existing pavement and preparing the sub-grade for new pavement, complete in place, as shown on the plans, including field marking, saw-cutting, removing and disposing of existing asphalt concrete and/or Portland cement concrete pavement of varying thickness, removal and disposal of pavement fabric, if any, dump fees, sub-grade preparation, grading and compaction, construction survey, and all incidentals, as directed by the Engineer.

Item No. 1 **does not include** the removal and disposal for the following:

- a. Concrete curbs
- b. 4", 5", 6" and 8" PCC pavements, including areas of "concrete over pour"
- c. Header cutting existing asphalt concrete pavement

Payment for the above work shall be included in the unit price bid for the various related items.

2. **Payment for "Pavement Removal, Surface Plane (2-Inches)"** will be made at the contract unit price for Item No. 2, in Square Yard, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in the grinding and removal of variable thickness (approximately 2 inches) of the existing asphalt concrete and/or Portland cement concrete pavements, complete in place, as shown on the plans, including field marking, traffic control, removal and disposal of pavement fabric and traffic loops, if any, hauling away and disposing of excess grindings, dump fees, and all incidentals, and directed by the Engineer.
3. **Payment for "Pavement Removal, Surface Plane (3-Inches)"** will be made at the contract unit price for Item No. 3, in Square Yard, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in the grinding and removal of variable thickness (approximately 3 inches) of the existing asphalt concrete and/or Portland cement concrete pavements, complete in place, as shown on the plans, including field marking, traffic control, removal and disposal of pavement fabric and traffic loops, if any, hauling away and disposing of excess grindings, dump fees, and all incidentals, and directed by the Engineer.
4. **Payment for "Over-Excavation of Sub-grade (2-Inch to 6-Inch Deep) **"** will be made at the contract unit price for Item No. 4, in Cubic Yard, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in the over-excavation of sub-grade due to unsuitable native material, complete in place, as shown on the plans, including haul away and disposal of excess excavated materials, dump fees, and all incidentals, as directed by the Engineer.
5. **Payment for "Crushed Aggregate Base"** will be made at the contract unit price for Item No. 5, in Ton, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing, spreading and compacting crushed aggregate base of varying thickness, complete in place, as shown on the plans, and all incidentals, as directed by the Engineer.

6. **Payment for “Crushed Miscellaneous Base”** will be made at the contract unit price for Item No. 6, in Ton, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing, spreading and compacting crushed miscellaneous base of varying thickness, complete in place, as shown on the plans, and all incidentals, as directed by the Engineer.
7. **Payment for “Asphalt Concrete Pavement (Surface and Base Course)”** will be made at the contract unit price for Item No. 7, in Ton, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in construction of asphalt concrete pavement (Surface Course C2-PG 64-10 and Base Course B-PG 64-10), complete in place, as shown on the plans, including saw-cutting, removing of existing asphalt concrete pavement, off-haul, disposing, dump fees, traffic control, construction survey, field marking, compaction by rolling, installation of the redwood border, and all incidentals, as directed by the Engineer.
8. **Payment for “Asphalt Concrete (Leveling Course)”** will be made at the contract unit price for Item No. 8, per Ton, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in spreading, compacting, and constructing asphalt concrete pavement (D2-PG 64-10), complete in place, as shown on the plans, including field markings, construction survey, traffic control, crack sealing cracks one-fourth of an inch (1/4”) or greater in width, placing tack coat, and all incidentals, as directed by the Engineer.
9. **Payment for “Asphalt Rubber Hot Mix Pavement (ARHM)”** will be made at the contract unit price for Item No. 9, in Ton, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in constructing 1.5-2.0 inch thick asphalt concrete pavement (PG 64-16-GG-C), complete in place, as shown on the plans, including traffic control, field marking, placing tack coat, compaction by rolling, fire hydrant markers, and all incidentals, as directed by the Engineer.
10. **Payment for “Asphalt Rubber Aggregate Membrane (ARAM)”** will be made at the contract unit price for Item No. 10, in Square Yard, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in constructing asphalt rubber aggregate membrane (ARAM) pavement, complete in place, as shown on the plans, including traffic control, field marking, placing tack coat (if needed), compaction by rolling, furnishing and placement of rock dust blotter (if needed), and all incidentals, as directed by the Engineer.

Payment will be made at the contract unit prices for **Item Nos. 11 through 16**, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for performing all the work as described in the following Payment Items, complete in place, as shown on the plans, including field marking; construction survey; saw-cutting; removal and disposal of existing asphalt and Portland cement concrete pavements and concrete curbs; removal and disposal of pavement fabric, if any; placement and removal of temporary asphalt concrete as needed or directed; excavation; over-excavation; crushed miscellaneous base; sub-grade preparation and grading; compaction; forming; furnishing and application of epoxy where needed; curb markings; reflective fire hydrant markers; Portland cement concrete; cord (backer rod); sealant; finishing (texture as specified or directed in the field, including rotary finish); grooving for wheelchair ramps; replacing all pull boxes and meter boxes that have existing damage or are damaged during construction; steel plates and/or plywood paths, as required; adjusting various pull boxes and meter boxes to grade including adjustment of conduits, if necessary; finishing of the surface of any footing or foundation or base that may be exposed as a result of the new PCC pavement grade; re-laying existing brick or other decorative pavements; regrading to drain behind new improvement;

relocating street signs; removing and replacing grass, pavement and other materials necessary for forming and pave-out; filling voids with AC or 2-sack slurry; compaction; removing brick borders; relocating wooden fence behind property line; trimming trees and root shaving per the direction of the engineer in the field; trimming and/or removing shrubs; removing and replacing river rock to match elevation; disposal of excess excavated materials and all construction debris; maintaining access including ramping or plating driveways; removing AC or PCC scabs from existing AC or PCC pavement before joining the new construction; and all incidentals, as directed by the Engineer.

11. **Item No. 11 “Construct P.C.C. Curb”** consists of constructing Portland cement concrete curb including depressed curbs for driveways, in Linear Foot, using Class 560-C-3250 Portland cement concrete (high-early strength).
12. **Item No. 12 “Construct Integral P.C.C. Curb and Gutter”** consists of constructing Portland cement concrete integral curb and gutter including depressed curbs for curb ramps and driveways, in Linear Foot, using Class 560-C-3250 Portland cement concrete (high-early strength).
13. **Item No. 13 “Construct 4-Inch P.C.C. Pavement (Sidewalk, Walkway, Curb Ramps)”** consists of constructing 4-inch Portland cement concrete sidewalk, walkway, curb ramps including grooving for curb ramps, in Square Foot, using Class 520-C-2500 Portland cement concrete.
14. **Item No. 14 “Construct 5-Inch P.C.C. Pavement (Residential Driveway and Approach)”** consists of constructing 5-inch Portland cement concrete residential driveway and driveway approach, in Square Foot, using 560-C-3250 Portland cement concrete (high-early strength).
15. **Item No. 19 “Construct 6-Inch P.C.C. Pavement (Alley Apron, Commercial Driveway and Approach)”** consists of constructing 6-inch Portland cement concrete alley and commercial driveway and driveway approach, in Square Foot, using Class 560-C-3250 Portland cement concrete (high early strength).
16. **Item No. 16 “Construct 8-Inch P.C.C. Pavement (Local Depression, Cross Gutter)”** consists of constructing 8-inch Portland cement concrete local depression, cross gutter, and longitudinal gutter, in Square Foot, using Class 560-C-3250 Portland cement concrete (high early strength), cleaning the transverse joints, inserting a cord (backer rod) at uniform depth of 5/8” below the surface of pavement and sealing the joints with Dow Corning No. 888 Silicone Sealant or equal, light gray color to match concrete pavement.
17. **Payment for “Concrete Grinding”** will be made at the contract unit price for Item No. 17, per Linear Foot, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in grinding concrete sidewalks, walkways, driveways, and ramps, which are raised by 1/2–inch or less up to 12-inches wide, complete in place, as shown on the plans including dust control, vacuuming and disposal of grinding, dust and/or mud, and all incidentals, as directed by the Engineer.
18. **Payment for “Modify/Extend Existing Catch Basin Opening”** will be made at the contract unit price for Item No. 18, per Lump Sum, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in modifying existing catch basin per SPPWC Plan No. 314-4, complete in place, as shown on the plans, including field marking, coordinating for USA Dig Alert prior to digging, coordinating with Glendale Public Works Maintenance for marking storm drain and sewer main and laterals, potholing of existing utilities, construction survey, sawcutting, removal and disposal of existing asphalt and

Portland cement concrete pavement, concrete curb and gutter, excavation, forming, furnishing and placing concrete and reinforcing steel including dowels where necessary, manhole frame and cover (if necessary), steel steps (if necessary), catch basin face plate assembly and protection bar, finishing, disposal of all excess excavated material and construction debris, painting NPDES stencil, and all incidentals, as directed by the Engineer.

19. **Payment for “Reconstruct/Remodel Curb Drain”** will be made at the contract unit price for Item No. 19, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in reconstructing existing roof/curb drains from the curb to 5' behind the right-of-way, complete in place, as shown on the plans, including one twelve-inch length of cast iron pipe of a size required to match existing pipe (up to 4 inches I.D.), connection to existing pipe, outlet through curb, and all incidentals, as directed by the Engineer. Restoration of curb and sidewalk to the nearest score lines shall be paid for under the related bid items.
20. **Payment for “Remove Existing Pavement (AC/PCC/Brick Pavement or Landscaping)”** will be made at the contract unit price for Item No. 20, per Square Foot, which shall include all costs for furnishing all labor, tools, materials, and equipment, and for doing all the work involved in removing existing A.C./P.C.C./brick pavement or landscaping, complete in place, as shown on the plans, including saw-cutting, removing and hauling away pavement and/or landscaping, excess excavated material and construction debris, removing litter, debris and vegetation, grading, and all incidentals, as directed by the Engineer.
21. **Payment for “Regrade and Install Ground Cover/Grass Lawn to Match Existing”** will be made at the contract unit price for Item No. 21, per Square Foot, which shall include all costs for furnishing all labor, tools, materials, and equipment, and for doing all the work involved in installing ground cover/grass lawn, complete in place, as shown on the plans, including grading, soil preparation, 90-day maintenance period (watering, weeding, trash removal), furnishing plants/sod, installation of new (if necessary) or adjustment/extension of existing sprinkler system, and all incidentals, as directed by the Engineer.
22. **Payment for “Adjust/Replace Traffic Signal Pull Box and Cover”** will be made at the contract unit price for Item No. 22, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in replacing broken and/or adjusting the existing traffic signal pull box and cover to new finished grade, complete in place, as shown on plans, including excavation, conduit extension, pulling new conductor/wires (if necessary), saw cutting, removing and disposing of all construction debris, connecting to existing systems, and all incidentals, as directed by the Engineer.
23. **Payment for “Plant 24-Inch Box Tree (Various Types in Tree Well/Parkway)”** will be made at the contract unit price for Item No. 23, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in planting of trees, complete in place, as shown on the plans, including coordinating for USA Dig Alert and with Glendale Public Works Maintenance for utility marking including sewer laterals, excavation, tree stakes, planting mix, trees, 90-day maintenance period (watering, weeding, trash removal), and all incidentals, as directed by the Engineer.
24. **Payment for “Sawcut and Remove Existing P.C.C. Sidewalk and Expand Tree Well”** will be made at the contract unit price for Item No. 24, per Square Foot, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in expanding existing tree well, complete in place, as shown on the plans, including saw-cutting existing P.C.C. pavement, removing and hauling away

excess excavated material and construction debris, removing concrete, litter, debris and vegetation, and all incidentals, as directed by the Engineer.

25. **Payment for “Relocate Existing Bus Bench and Sign to Proposed Location”** will be made at the contract unit price for Item No. 25, per Lump Sum, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved relocating existing bus bench and sign to new proposed location at the westerly intersection of La Crescenta Avenue and Piedmont Avenue complete in place, and all incidentals, as directed by the Engineer. .
26. **Payment for “Install Cast-In-Place Detectable Warning Surface on ADA Curb Ramps”** will be made at the contract unit price for Item No. 26, in Square Foot, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in providing and installing cast-in-place detectable warning surface, complete in place, as shown on the plans, including fasteners, and all incidentals as directed by the Engineer. The installed tiles shall comply with the applicable sections of the Americans with Disabilities Act (ADA) requirements and Standard Plans for Public Works Construction (Current Edition). The tile material shall be an epoxy polymer composition with an ultraviolet stabilized coating, black color for residential streets (Federal Color No. 17038) and yellow color for collector and arterial roads (Federal Color No. 33538) unless otherwise specified on the plans or directed by the Engineer.
27. **Payment for “Relocate Existing Trash Receptacle to New Location”** will be made at the contract unit price for Item No. 27, per Each, which shall include all costs for furnishing all labor, materials, tools, equipment, and for doing all the work involved in relocating existing trash receptacle to new proposed location at the westerly intersection of La Crescenta Avenue and Piedmont Avenue complete in place, and all incidentals, as directed by the Engineer.
28. **Payment for “Adjust Manhole Frame and Cover Set”** will be made at the contract unit price for Item No. 28, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in adjusting existing water, electrical, storm drain, sanitary sewer manhole and cleanout frame and cover sets to the new finished surface grade, complete in place, as shown on the plans, including re-paving around adjusted manholes, and all incidentals, as directed by the Engineer.
29. **Payment for “Repair Existing Retaining/Slough Wall”** will be made at the contract unit price for Item No. 29, per Linear Foot, which shall include all costs for furnishing all labor, material, tools, and equipment, and for doing all work involved in repairing a slough wall, complete in place, as shown on the plans, including trench digging for wall base, compaction and leveling of base pad, furnishing and installing earth tone color “Key Legacy Stone” blocks or approved equal, furnishing and installing gravel backfill, removing and hauling away excess earth material, replacing existing irrigation lines and sprinklers (if necessary), and all incidentals, as directed by the Engineer.
30. **Payment for “Relocate Existing Sign and Post”** will be made at the contract unit price for Item No. 30, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in relocating the existing sign and post, complete in place, as shown on the plans, including removing the existing foundation, replacing the post (if necessary), restoration of disturbed improvements, and all incidentals, as directed by the Engineer.

31. **Payment for “Construct Parkway Drain (Inlet/Outlet) **”** will be made at the contract unit price for Item No. 31, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all work involved in furnishing and constructing parkway drain (inlet/outlet) per SPPWC Plan No. 151-3, complete in place, as shown on the plans, and all incidentals, as directed by the Engineer.
32. **Payment for “Remove Street Light Foundation”** will be made at the contract unit price for Item No. 32, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in removing and disposing of the existing street light foundation, restoration of disturbed improvements, coordinating with Glendale Water and Power Electric, complete in place, as shown on the plans, as required by Glendale Water & Power, and all incidentals, as directed by the Engineer.
33. **Payment for “Furnish and Install 6-Foot Diameter Inductive Traffic Loop Detector”** will be made at the contract unit price for Item No. 33, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and installing 6-foot diameter inductive traffic loop detectors, complete and operational in place, as shown on the plans, including core drilling or saw cutting, Caltrans Type 2 loop wire, glue sealant, furnishing new loop stub-outs and/or replacing existing stub-outs where required or necessary to accommodate the new loop wires, and all incidentals, as directed by the Engineer. The exact quantity and location of the loop detectors will be provided by the City of Glendale Traffic Section prior to the start of construction.
34. **Payment for “Furnish and Install 1.5-inch PVC Schedule 80 Loop Stub-Out Conduit”** will be made at the contract unit price for Item No. 34, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and installing 1.5-inch PVC Schedule 80 loop stub-out conduit, complete and operational in place, as shown on plans, including traffic control, and all incidentals, as directed by the Engineer.
35. **Payment for “Adjust/Replace Centerline Tie **”** will be made at the contract unit price for Item No. 35, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in replacing and/or adjusting the existing centerline tie to new finished grade, complete in place, as shown on plans, including excavation, saw cutting, removing and disposing of all construction debris, repaving, perpetuation and reestablishment of all survey markers including filing documents (corner records, tie sheets, etc.) with the County of Los Angeles, providing recordation documents, and all incidentals, as directed by the Engineer.
36. **Payment for “Adjust/Replace Property Corner **”** will be made at the contract unit price for Item No. 36, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in replacing and/or adjusting the existing property corner to new finished grade, complete in place, as shown on plans, including excavation, saw cutting, removing and disposing of all construction debris, repaving, perpetuation and reestablishment of all survey markers including filing documents (corner records, tie sheets, etc.) with the County of Los Angeles, providing recordation documents, and all incidentals, as directed by the Engineer.
37. **Payment for “Adjust/Replace Bench Mark **”** will be made at the contract unit price for Item No. 37, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in replacing and/or adjusting the existing bench mark to new finished grade, complete in place, as shown on plans, including excavation, saw cutting, removing and disposing of all construction debris,

repaving, perpetuation and reestablishment of all survey markers including filing documents (corner records, tie sheets, etc.) with the County of Los Angeles, providing recordation documents, and all incidentals, as directed by the Engineer.

38. **Payment for “Adjust/Replace Survey Well Monument **”** will be made at the contract unit price for Item No. 38, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in replacing and/or adjusting the existing survey well monument to new finished grade, complete in place, as shown on plans, including excavation, saw cutting, removing and disposing of all construction debris, repaving, perpetuation and reestablishment of all survey markers including filing documents (corner records, tie sheets, etc.) with the County of Los Angeles, providing recordation documents, and all incidentals, as directed by the Engineer.
39. **Payment for “Adjust GWP Water Valve to New Finished Grade”** will be made at the contract unit price for Item No. 39, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in adjusting GWP Water valve to new finished grade per GWP Standard Drawing 1590-Sheet 1, and 1589-A, Sheet 1 in Appendix F, complete in place, as shown on the plans, including vacuuming of debris in the valve box, repaving around the adjusted valves, temporary locators, permanent markers, valve shaft extensions, painting the valve caps (blue for main lines, yellow for hydrant laterals, and purple for recycled lines), and all incidentals, as directed by the Engineer.
40. **Payment for “Adjust GWP Recycled Water Valve to New Finished Grade”** will be made at the contract unit price for Item No. 40, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in adjusting GWP Recycled Water valve to new finished grade per GWP Standard Drawing RW-17, Sheet 1 and RW-18, Sheet 1 in Appendix F, complete in place, as shown on the plans, including vacuuming of debris in the valve box, repaving around the adjusted valves, temporary locators, permanent markers, valve shaft extensions, painting the valve caps (blue for main lines, yellow for hydrant laterals, and purple for recycled lines), and all incidentals, as directed by the Engineer.
41. **Payment for “Abandon Fire Hydrant Lateral and Valve”** will be made at the contract unit price for Item No. 41, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, removal of concrete thrust blocks, and for doing all the work involved in abandoning fire hydrant lateral and valve, salvaging fire hydrant head, removing existing tee, and installing new 8” spool and restrain new DIP spool to existing 8” CIP with Romac Alpha or Hymax Grip Couplings, and all incidentals, as directed by the Engineer. The Water Main Shall be shut down between 9:00 PM and 5:00 AM for a maximum of four hours. Contact GWP Water Engineering at (818) 548-2062 a minimum of three working days in advance to schedule shutdown. Contractor shall notify affected customers a minimum 48 hours in advance of shutdown. Contact GWP Water prior to construction at (818) 548-2062. Contractor is responsible of rescheduled work and renotifying affected customers. Only contractors with recent work experience on public water systems will be approved by GWP to perform this work.
42. **Payment for “Install New Fire Hydrant and Assembly”** will be made at the contract unit price for Item No. 42, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in installing new fire hydrant and assembly, as shown on plans and per GWP Standard Plan 4946-A, Sheet 2 in Appendix F, and as described in Section 11 “Detailed Specifications for Water Facilities Work” in the Special Conditions, and all incidentals, as directed by the Engineer. The Water Main Shall be shut down between 9:00 PM and 5:00 AM for a maximum of four hours. Contact GWP Water

Engineering at (818) 548-2062 a minimum of three working days in advance to schedule shutdown. Contractor shall notify affected customers a minimum 48 hours in advance of shutdown. Contact GWP Water prior to construction at (818) 548-2062. Contractor is responsible of rescheduled work and renotifying affected customers. Only contractors with recent work experience on public water systems will be approved by GWP to perform this work.

43. **Payment for “Adjust/Replace GWP Water Meter Box & Cover and Set to New Finished Grade”** will be made at the contract unit price for Item No. 43, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in replacing and/or adjusting the existing water meter box and cover to new finished grade, complete in place, as shown on the plans, per GWP Standard Plan 1660-A Sheet 1 & 2 in Appendix F, including removal and proper disposal of the existing water meter box and cover (if necessary), furnishing pipe of size and material to match existing pipe, new water meter box and cover (if necessary), restoration of disturbed improvements, and all incidentals, as directed by the Engineer.
44. **Payment for “Relocate Existing Water Meter and Service to Proposed Location”** will be made at the contract unit price for Item No. 44, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in relocation of existing water service with new fittings, valves, meter box, pipe etc. to proposed location per GWP Standard Drawing 6536-A, case #1 in Appendix F, as directed by the Engineer. The contractor is responsible to relocate customer side of the service as described in Section 11 “Detailed Specifications for Water Facilities Work” in the Special Conditions, and all incidentals, as directed by the Engineer. Expose corporation stop and contact GWP Water Engineering at 818-548-2062 to shutoff/turn-on corporation stop and remove/install meter. The water main cannot be shut down during business hours for commercial properties. Contact GWP water at 818-548-2062 a minimum three working days in advance to schedule shutdown. Each shutdown of the water system shall be for a maximum of four (4) hours between 9 AM and 3 PM. Contractor shall notify customers affected a minimum 48 hours in advance of shutdown. Contractor is responsible of renotifying affected customers if work is rescheduled. Only contractors with recent work experience on public water systems will be approved by GWP to perform this work.
45. **Payment for “Replace Existing GWP Water Valve Box and Cover Set with 2-Piece Cast Iron Slip Type Water Valve Box and Cover Set”** will be made at the contract unit price for Item No. 45, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in removing the existing valve box and cover set and installing a new 2-piece cast iron slip type water valve box and cover set to match new finished grade, complete in place, as shown on the plans, per GWP Standard Plan 6854-A, Sheet 1 In Appendix F, including furnishing a valve cover marked “WATER”, painting the valve caps (blue for main lines, yellow for hydrant laterals, and purple for recycled lines), installing valve marker on the curb as described in “Detailed Specifications for Water Facilities Work” in Special Conditions, and all incidentals, as directed by the Engineer.
46. **Payment for “Adjust CVWD Water Valve to New Finished Grade”** will be made at the contract unit price for Item No. 46, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in adjusting CVWD Water valve to new finished grade per CVWD Standard Drawing 30-01W in Appendix F, complete in place, as shown on the plans, including vacuuming of debris in the valve box, repaving around the adjusted valves, temporary locators, permanent markers, valve shaft

extensions, painting the valve caps (blue for main lines, yellow for hydrant laterals, and purple for recycled lines), and all incidentals, as directed by the Engineer.

47. **Payment for “Adjust/Replace CVWD Water Meter Box & Cover and Set to New Finished Grade”** will be made at the contract unit price for Item No. 47, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in replacing and/or adjusting the existing water meter box and cover to new finished grade, complete in place, as shown on the plans, per CVWD Standard Plan 10-0W and 10-02W in Appendix F, including removal and proper disposal of the existing water meter box and cover (if necessary), furnishing pipe of size and material to match existing pipe, new water meter box and cover (if necessary), restoration of disturbed improvements, and all incidentals, as directed by the Engineer.
48. **Payment for “Replace Existing CVWD Water Valve Box and Cover Set with 2-Piece Cast Iron Slip Type Water Valve Box and Cover Set”** will be made at the contract unit price for Item No. 48, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in removing the existing valve box and cover set and installing a new 2-piece cast iron slip type water valve box and cover set to match new finished grade, complete in place, as shown on the plans, per CVWD Standard Plan 30-01W In Appendix F, including furnishing a valve cover marked “WATER”, painting the valve caps (blue for main lines, yellow for hydrant laterals, and purple for recycled lines), installing valve marker on the curb as described in “Detailed Specifications for Water Facilities Work” in Special Conditions, and all incidentals, as directed by the Engineer.
49. **Payment for “Abandon Existing GWP Water Valve and Fill Void with Crushed Base”** will be made at the contract unit price for Item No. 49, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in abandoning in-place the existing conflicting gate valve connected to an abandoned water main. The work shall include setting the valve to the fully-open position, removal of valve sleeve, can and valve cap, filling void with crushed base or slurry, and all other incidentals, as directed by the Engineer.
50. **Payment for “Install New Water Valve on Existing Fire Line”** will be made at the contract unit price for Item No. 50, per Each, which shall include all costs for furnishing all labor, materials, tools, equipment, and for doing all the work involved in installing new water valve, per GWP Standard Plan 6772-A in Appendix F, and as described in Section 11 “Detailed Specification for Water Facilities Work” in the Special Conditions, and all incidentals, as directed by the Engineer. The Water Main Shall be shut down between 9:00 PM and 5:00 AM for a maximum of four hours. Contact GWP Water Engineering at (818) 548-2062 a minimum of three working days in advance to schedule shutdown. Contractor shall notify affected customers a minimum 48 hours in advance of shutdown. Contact GWP Water prior to construction at (818) 548-2062. Contractor is responsible of rescheduled work and renotifying affected customers. Only contractors with recent work experience on public water systems will be approved by GWP to perform this work.

Sewer Improvements

Plan No. 3-1572

Payment for **Item Nos. S1 through S22** will be made at the contract unit price bid as described in the following Payment Items, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for performing all the work involved in constructing high strength vitrified clay pipe (V.C.P.) sanitary sewer pipes,

sewer clay pipes, SDR35 polyvinyl chloride (PVC) sanitary sewer pipes with gasket push-on rubber joints, and manholes, including mainline wyes, complete in place, as shown on the plans, including traffic control, marking removal limits; saw-cutting, removing, hauling and disposing of existing asphalt and concrete pavement of varying thickness and concrete encasement, construction survey; excavation; **coordinating USA Dig Alert and with Glendale Public Works Maintenance Division for Storm Drain/Sewer markings, utility potholing, shoring**, removal and disposal of existing sewer pipes; debris and tree root removal; supporting and protecting existing utility lines per SPPWC Plan No. 224-3 for utilities with greater than 1.5-foot clearance from proposed pipe and per SPPWC Plan No. 225-3 for utilities with less than 1.5-foot clearance from proposed pipe; supporting existing water lines per GWP Standard Plan No 1668-A in Appendix "F", supporting street lights and traffic signal poles, if necessary; **sewer bypass**; pipe laying; connecting to existing or proposed manhole and pipe; pipe bedding $\frac{3}{4}$ " crushed rock; backfill; compaction of bedding and backfill; salvage of existing manhole frame and cover set (manhole frame and cover set to be delivered to the Wastewater Maintenance Services); complete connection of all existing and proposed inlets and outlets; removal of interfering portions of abandoned utility pipes within the sewer excavation (if any); sealing the end of all abandoned pipes from the manhole; **trench backfill with one-sack sand cement slurry mix**; **trench plating at end of each working day**, repair, replacement and restoration of any improvements damaged by construction; temporary protective fencing; maintaining access including ramping and plating of curb ramps, driveways and trenches (refer to the City of Glendale Excavation Permit Policy in Appendix B), furnishing and installing temporary asphalt concrete; temporary trench resurfacing including removal and proper disposal of the same prior to permanent resurfacing; permanent trench resurfacing per detail shown on the plans; disposal of all construction debris; **required sewer line testing**; **performing CCTV inspection of existing sewer line to verify existing lateral connection locations**; and **performing post-construction CCTV inspection of pipeline and submitting to the Engineer for review prior to placing of permanent trench resurfacing**, and all incidentals, as directed by the Engineer.

- S1. **Payment for "Remove Existing Manhole and Construct 4-Foot Diameter Precast Concrete Sewer Manhole"** will be made at the contract unit price for Item No. S1, per Each, which consists of removing existing sewer manhole as shown on plan and constructing 4-foot diameter precast concrete sewer manhole per SPPWC Standard Plan No. 200-4, including saw cutting, removing, and disposing interfering concrete/brick (plain or reinforced), and furnishing and placing concrete and reinforcing steel, manhole frame and cover, steps, and furnishing and installing epoxy liner to manhole shaft, shelf, and channels, including crack sealing prior to lining, cleaning surfaces to be lined prior to lining, debris removal and disposal. The removal and replacement of the existing concrete improvements if necessary (curb and gutter, sidewalk, driveway, bus pads, alley aprons) shall be paid for under **Payment Item Nos. 13 through 20** of the Bid Schedule.
- S2. **Payment for "Construct 4-Foot Diameter Precast Concrete Sewer Manhole"** will be made at the contract unit price for Item No. S2, per Each, which consists of constructing 4-foot diameter precast concrete sewer manhole per SPPWC Standard Plan No. 200-4, including saw cutting, removing, and disposing interfering concrete/brick (plain or reinforced), and furnishing and placing concrete and reinforcing steel, manhole frame and cover, steps, and furnishing and installing epoxy liner to manhole shaft, shelf, and channels, including crack sealing prior to lining, cleaning surfaces to be lined prior to lining, debris removal and disposal. The removal and replacement of the existing concrete improvements if necessary (curb and gutter, sidewalk, driveway, bus pads, alley aprons) shall be paid for under **Payment Item Nos. 13 through 20** of the Bid Schedule.

- S3. **Payment for “Construct 4-Foot Diameter Precast Concrete Drop Sewer Manhole”** will be made at the contract unit price for Item No. S3, per Each, which consists of constructing 4-foot diameter precast concrete drop sewer manhole per SPPWC Standard Plan No. 202-2, including saw cutting, removing, and disposing interfering concrete/brick (plain or reinforced), and furnishing and placing concrete and reinforcing steel, manhole frame and cover, steps, and furnishing and installing epoxy liner to manhole shaft, shelf, and channels, including crack sealing prior to lining, cleaning surfaces to be lined prior to lining, debris removal and disposal. The removal and replacement of the existing concrete improvements if necessary (curb and gutter, sidewalk, driveway, bus pads, alley aprons) shall be paid for under **Payment Item Nos. 13 through 20** of the Bid Schedule.
- S4. **Payment for “Remove Existing Manhole and Construct 4-Foot Diameter Precast Concrete Drop Sewer Manhole”** will be made at the contract unit price for Item No. S4, per Each, which consists of removing existing sewer manhole as shown on plan and constructing 4-foot diameter precast concrete drop sewer manhole per SPPWC Standard Plan No. 202-2, including saw cutting, removing, and disposing interfering concrete/brick (plain or reinforced), and furnishing and placing concrete and reinforcing steel, manhole frame and cover, steps, and furnishing and installing epoxy liner to manhole shaft, shelf, and channels, including crack sealing prior to lining, cleaning surfaces to be lined prior to lining, debris removal and disposal. The removal and replacement of the existing concrete improvements if necessary (curb and gutter, sidewalk, driveway, bus pads, alley aprons) shall be paid for under **Payment Item Nos. 13 through 20** of the Bid Schedule.
- S5. **Payment for “Remove Existing 8-Inch VCP and Construct 12-Inch PVC Sanitary Sewer Line”** will be made at the contract unit price for Item No. S5, per Linear Foot, which consists of removing existing 8-inch and constructing 12-inch diameter SDR35 polyvinyl chloride pipe with gasket push-on rubber joints. The removal and replacement of the existing concrete improvements if necessary (curb and gutter, sidewalk, driveway, bus pads, alley aprons) shall be paid for under **Payment Item Nos. 13 through 20** of the Bid Schedule.
- S6. **Payment for “Construct 12-Inch PVC Sanitary Sewer Line”** will be made at the contract unit price for Item No. S6, per Linear Foot, which consists of removing existing 8-inch and 12-inch diameter SDR35 polyvinyl chloride pipe with gasket push-on rubber joints. The removal and replacement of the existing concrete improvements if necessary (curb and gutter, sidewalk, driveway, bus pads, alley aprons) shall be paid for under **Payment Item Nos. 13 through 20** of the Bid Schedule.
- S7. **Payment for “Reconnect House Connection Lateral for 12-Inch PVC Mainline Sewer”** will be made at the contract unit price for Item No. S7, per Each, which consists of reconnecting house connection for 12-inch mainline sewer, including removal and disposal of existing house connection and reconnection to main line wye with polyvinyl chloride pipe of size to match the existing pipe but not less than 4-inch, and up to 2 feet away measured from the outside excavated wall trench, including capping of the sewer laterals.
- S8. **Payment for “Abandon Existing 8-Inch Inlet to Sewer Manhole”** will be made at the contract unit price for Item No S8, per Each, which consists of abandoning and sealing existing 8-inch inlet to sewer manhole per SPPWC Plan No. 381-2, as shown on the plans, including removal and disposal of existing connection and any concrete encasement, reinforcing steel (if necessary), forming, concrete, and finishing.
- S9. **Payment for “Remove, Salvage, and Reinstall Section of Existing Guardrail System”** will be made at the contract unit price for Item No. S9 per Lump Sum, which consists of removing existing guard rail system,

salvaging, and reinstalling after construction of proposed sewer line, as shown on the plans, including all incidentals.

- S10. Payment for “Remove, Salvage, and Reinstall Section of Existing 54-Inch RCP Storm Drain Line **”** will be made at the contract unit price for Item No S10, per Lump Sum, which consists of removing existing storm drain main line pipe/box, salvaging and reinstalling after construction of proposed sewer line, as shown on the plans, including supporting the existing pipe.
- S11. Payment for “Reconstruct Sewer Manhole Shelf (8”-12” Channel)”** will be made at the contract unit price for Item No. S11, per Each, which consists of reconstructing sewer manhole shelf with 8-inch to 12-inch main channel per SPPWC Plan No. 208-3 and as shown on the plans, including core drilling of existing manhole for a clear connection, #4 rebar dowels, removing and proper disposal of conflicting portions of existing manhole and channel, forming and concrete.
- S12. Payment for “Reconstruct Sewer Manhole Shaft, Shelf, and Channel (8” Channel)”** will be made at the contract unit price for Item No. S12, per Each, which consists of reconstructing sewer manhole shelf with 8-inch main channel per SPPWC Plan No. 208-3 and as shown on the plans, including core drilling of existing manhole for a clear connection, #4 rebar dowels, removing and proper disposal of conflicting portions of existing manhole and channel, forming and concrete.
- S13. Payment for “CCTV Inspection of Existing Storm Drain and/or Sanitary Sewer Line Before and After Sewer Construction **”** will be made at the contract unit price for Item No. S13, in Linear Foot, which consists of videotaping the existing storm drain pipe, and sanitary sewer pipe as shown on the plans perpendicular to new sewer construction, including storm drain/sewer manholes before and after sewer construction and submitting the tapes to the Engineer.
- S14. Payment for “Support Existing Utility”** will be made at the contract unit price for Item No S14, per Each, which consists of constructing permanent support for existing underground utilities per SPPWC Plan No. 224-3 and 225-3, as shown on the plans, including forming, reinforcing steel, concrete, and finishing.
- S15. Payment for “Support Existing Utility (Larger Than 24-Inches)”** will be made at the contract unit price for Item No S15, per Each, which consists of constructing permanent support for existing underground utilities per SPPWC Plan No. 224-3 and 225-3, as shown on the plans, including forming, reinforcing steel, concrete, and finishing.
- S16. Payment for “Install Sanitary Sewer Encasement **”** will be made at the contract unit price for Item No. S16, per LF, which consists of constructing concrete encasement for existing underground utility per LACDPW Standard Plan No. 2023-2, case II, as shown on the plans, including forming, concrete, and finishing.
- S17. Payment for “Furnish and Install Epoxy Liner to Manhole Shaft, Shelf, and Channels”** will be made at the contract unit price for Item No. S17, per Each, which consists of furnishing and installing Epoxy liner to manhole shaft, shelf, and channels, including crack sealing prior to lining, cleaning surfaces to be lined prior to lining, debris removal and disposal.
- S18. Payment for “Support Existing Water Line Per GWP Plan No. 1668-A **”** will be made at the contract unit price for Item No S18, per Each, which consists of constructing temporary support for existing water mains and

service lines per GWP Standard Drawing 1668-A Sheet 1 in Appendix F, as shown on the plans, including steel beam and supports.

- S19. Payment for “Reconstruct 8-Inch VCP Sanitary Sewer Main Line (Point Repair)”** will be made at the contract unit price for Item No. S9, per Linear Foot, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and laying 8-inch diameter vitrified clay pipe sanitary sewer, complete in place, as shown on the plans, including mainline wyes, where required, including marking of removal limits, saw-cutting, excavation, shoring of excavation, removal and disposal of existing main line sewer, including any concrete encasement, sewer bypass, bedding, backfilling, compaction of backfill, setting pipe, elevations, temporary trench resurfacing including the removal and proper disposal of the same prior to permanent trench resurfacing, trench plates (grinding pavement so plates are flush if required), permanent trench resurfacing, performing CCTV inspection of all pipeline point repairs and submitting the post-repair tapes to the Engineer for review prior to placing of permanent trench resurfacing, removal and replacement of conflicting asphalt and/or Portland cement concrete pavements, disposal of all construction debris, and all incidentals, as directed by the Engineer.
- S20. Payment for “Install Full CIPP Lining for 8-Inch Sanitary Sewer Main Line”** will be made at the contract unit price for Item No. S20, per Linear Foot, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and laying a cured-in-place, deformed/reformed, folded and reformed method of pipe lining for full length 8-inch vitrified clay pipe sanitary sewer line (manhole to manhole), complete in place, as shown on the plans, including field markings, opening all lateral connections, construction survey, traffic control, access walkways, sewer bypass, crack sealing to eliminate infiltration prior to lining; cleaning, routing, flushing, and video taping of the line prior to and after lining; debris and tree root removal; disposal of construction debris, and all incidentals, as directed by the Engineer.
- S21. Payment for “Install Partial CIPP Lining for 8-Inch Sanitary Sewer Main Line”** will be made at the contract unit price for Item No. S21, per Linear Foot, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and laying a cured-in-place pipe lining for sections of 8-inch vitrified clay pipe sanitary sewer line, complete in place, as shown on the plans, including field markings, opening all lateral connections, construction survey, traffic control, access walkways, sewer by-pass, crack sealing to eliminate infiltration prior to lining; cleaning, routing, flushing, and video taping of the line prior to and after lining; debris and tree root removal; disposal of construction debris, and all incidentals, as directed by the Engineer.
- S22. Payment for “Remodel Sewer House Connection **”** will be made at the contract unit price for Item No S22, per Each, which consists of remodeling existing sewer house connection for 12-inch mainline sewer, including removal and disposal of existing house connection and remodeling to mainline wye with polyvinyl chloride pipe of size to match up to private property line, including capping of sewer laterals per SPPWC Plan No. 223-3, as shown on the plans, and all incidentals, as directed by the Engineer.

Catch Basin Improvements

Plan No. 4-650

- G1. Payment for “Remove and Recycle Existing Catch Basin Grates”** will be made at the contract unit price for Item No. G1, per Each, which shall include all costs for furnishing all labor, materials, tools, and

equipment, and for doing all the work involved in removal and recycling of existing catch basin grates, coordinating with LACDPW for inspection, complete in place, as shown on the plans, including traffic control, removal, haul away, and recycle of storm drain grates, and all incidentals as directed by the Engineer.

- G2. **Payment for “Furnish and Install Bicycle Proof Catch Basin Grate”** will be made at the contract unit price for Item No. G2, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and installing bicycle friendly catch basin surface grates per Glendale Bike Grate plans, including hot dip galvanizing, verifying existing catch basin frame measurements, providing shop drawings for approval, providing traffic control, cleaning of existing frame from dirt and debris, coordinating with LACDPW for inspection, complete in place, as shown on the plans, and all incidentals, as directed by the Engineer.
- G3. **Payment for “Los Angeles County Flood Control Permit Fee Allowance”** will be made at the contract unit price for Item No. G3, per Allowance, which shall include all costs for furnishing all administrative work including labor, coordination, and doing for all the work involved in obtaining a Los Angeles County Flood Control Permit to remove and replace catch basin grates with bicycle friendly catch basin grates per Glendale Bike Grate detail, complete in place, as shown on the plans, and all incidentals, as directed by the Engineer. No additional mark-ups or charges will apply in obtaining this permit.

Traffic Striping, Pavement Markings, and Signs **Plan No. 49-247**

Payment will be made at the contract unit prices for **Item Nos. T1 through T38** which shall include all costs for furnishing all labor, materials, tools and equipment for doing all the work involved in the installation of thermoplastic striping, paint striping, pavement markings, pavement markers, curb markings and signs complete in place and operational per **Plan Nos. 1-3071 and 49-247** and as specified in the Standard Specifications and the Special Provisions and all incidentals.

- T1. Item No. T1, consists of installing Thermoplastic White Type IV (L) Pavement Marking Arrow per Caltrans Standard Plan No. A24A, per Each.
- T2. Item No. T2, consists of installing Thermoplastic White Type IV (R) Pavement Marking Arrow per Caltrans Standard Plan No. A24A, per Each.
- T3. Item No. T3, consists of installing Thermoplastic 8-Inch-Wide Solid Yellow Diagonals (Angled 30 to 45 Degrees) With 40' O.C. Spacing with Type D Two-Way Yellow R.P.M Per Caltrans Standard Plan No. A240D, per Each.
- T4. Item No. T4, consists of installing Caltrans Approved Preformed Thermoplastic White “Sharrow” With Green Background Pavement Share Lane Symbol per City of Glendale Placement Standards, per Each.
- T5. Item No. T5, consists of installing Thermoplastic 8-Foot High “Stop” Pavement Marking per Caltrans Standard Plan No. A24D, per Each.

- T6. Item No. T6, consists of installing Thermoplastic 6-Inch-Wide Solid White Bike Lane Line per Caltrans Standard Plan No. A20D, Detail 39, per Each.
- T7. Item No. T7, consists of installing Thermoplastic 6-Inch-Wide Skip White Bike Intersection Line per Caltrans Standard Plan No. A20D, Detail 39A, per Each.
- T8. Item No. T8, consists of installing Thermoplastic 6-Inch-Wide Yellow Two-Way Left-Turn Lane with Type D Two-Way Yellow R.P.M. per Caltrans Standard Plan No. A20B, Detail 32, per Each.
- T9. Item No. T9, consists of installing Thermoplastic 6-Inch-Wide Solid Double Yellow Centerline Separated by A 3-Inch-Wide Solid Black Stripe with Type D Two-Way Yellow R.P.M. per Caltrans Standard Plan No. A20A, Detail 22.
- T10. Item No. T10, consists of installing Thermoplastic 8-Inch-Wide Solid White Channelizing Line with Type G One-Way Clear R.P.M. per Caltrans Standard Plan No. A20D, Detail 38, per Each.
- T11. Item No. T11, consists of installing Thermoplastic 12-Inch-Wide White Limit Line per Caltrans Standard Plan No. A24E, per Linear Foot.
- T12. Item No. T12, consists of installing Thermoplastic Continental Crosswalk with 24-Inch-Wide Solid Yellow Longitudinal Lines Spaced 24-Inches Apart. Longitudinal Lines Shall be Parallel with the Travel Lane. Crosswalks Shall Have Twelve (12) Foot Outside Dimensions, per Square Foot.
- T13. Item No. T13, consists of removing Conflicting Striping and Pavement Markings by Wet Sandblasting, per Square Foot.
- T14. Item No. T14, consists of installing Thermoplastic 4-Inch-Wide Solid White Diagonal Lines (Angled 30 to 45 Degrees) as Shown on Plans, 20' O.C., per Linear Foot.
- T15. Item No. T15, consists of installing Thermoplastic 4-Inch-Wide Solid White Line, per Linear Foot.
- T16. Item No. T16, consists of installing Ride-A-Way Green Coating Bike Lane, per Square Foot.
- T17. Item No. T17, consists of installing White K-71 Bollards, per Each.
- T18. Item No. T18, consists of Installing Caltrans Approved Preformed Thermoplastic Green Bicycle Box, per Each.
- T19. Item No. T19, consists of installing Caltrans Approved Preformed Thermoplastic Bicycle Loop Detector Symbol, per Each.
- T20. Item No. T20, consists of installing Thermoplastic 8-Inch-Wide Solid Yellow Diagonal Lines (Angled 30 to 45 Degrees) as Shown on Plans, 20' O.C., per Linear Foot.
- T21. Item No. T21, consists of installing Thermoplastic 6-Inch-Wide Yellow Left Edge Line per Caltrans Standard Plan No. A20B, Detail 25, per Linear Foot.

- T22. Item No. T22, consists of installing Thermoplastic 6-Inch-Wide White Lane Line Extensions Through Intersections per Caltrans Standard Plan No. A20D, Detail 40, per Linear Foot.
- T23. Item No. T23, consists of installing Thermoplastic 6-Inch-Wide Yellow Lane Line Extensions Through Intersections per Caltrans Standard Plan No. A20D, Detail 40, per Linear Foot.
- T24. Item No. T24, consists of removing Conflicting Striping and Pavement Markings by Wet Sandblasting, per Linear Foot.
- T25. Item No. T25, consists of furnishing and installing 2" Galvanized Square Tubing Sign Pole, per Each.
- T26. Item No. T26, consists of furnishing and installing Sign to New Post per Plan, per Each.
- T27. Item No. T27, consists of relocating existing Pole and Sign per plan, per Each.
- T28. Item No. T28, consists of installing, extending and/or refurbishing painted red/blue/green/yellow/white curb marking, per Linear Foot.
- T29. Item No. T29, consists of installing Thermoplastic 6-Inch-Wide White Right Edge Line per Caltrans Standard Plan No. A20B, Detail 27B, per Linear Foot.
- T30. Item No. T30, consists of removing and salvaging existing street sign and post, per Each.
- T31. Item No. T31, consists of installing Caltrans Approved Preformed Thermoplastic White Bike Lane Symbol with Person Pavement Marking with Green Background, per Each.
- T32. Item No. T32, consists of installing Thermoplastic 6-Inch-Wide Solid White Lane Line with Type G One-Way Clear R.P.M., per Linear Foot.
- T33. Item No. T33, consists of installing Thermoplastic 6-Inch-Wide Skip White Line per Caltrans Standard Plan No. A20A, Detail 8, per Each.
- T34. Item No. T34, consists of installing Caltrans Approved Preformed Thermoplastic White Bike Lane Symbol Without Person Pavement Markings with Green Background, per Each.
- T35. Item No. T35, consists of installing Caltrans Approved Preformed Thermoplastic White Bike Lane Arrow Pavement Marking with Green Background, per Each.
- T36. Item No. T36, consists of Removing Existing Sign and Replacing with New Sign As indicated on Plan, Protect in Place the Existing Square Tubing Sign Pole, per Each.
- T37. Item No. T37, consists of Removing and Salvaging Existing Post, Relocating Existing Street Name Sign onto New Pole As Indicated on Plans, per Each.

- T38.** Item No. T38, consists of installing Thermoplastic 8-Inch-Wide White Lane Drop at Intersection Line with Type G One-Way Clear Retroreflective Pavement Markers per Caltrans Standard Plan No. A20C, Detail 37B, per Each.
- T39.** Item No. T39, consists of installing Thermoplastic 8-Feet High "Here" Pavement Marking per Caltrans Standard Plan No. A24D, per Each.
- T40.** Item No. T40, consists of installing Thermoplastic 8-Feet High "Wait" Pavement Marking per Caltrans Standard Plan No. A24D, per Each.
- T41.** Item No. T41, consists of installing Thermoplastic 8-Feet High "Keep" Pavement Marking per Caltrans Standard Plan No. A24E, per Each.
- T42.** Item No. T42, consists of installing Thermoplastic 8-Feet High "Clear" Pavement Marking per Caltrans Standard Plan No. A24E, per Each.

Traffic Signal Modifications **Plan Nos. 50-672 and 50-673**

- MRT1.** **Payment for "Furnish and Install Traffic Signal Modification on La Crescenta Avenue at Roselawn Avenue"** will be made at the contract unit price per Lump Sum for Item No. **MRT1**, which shall include all costs for furnishing all labor, materials, tools and equipment, including traffic control as required in the Special Provisions, complete in place and operational per **Plan No. 50-672** on La Crescenta Avenue at Roselawn Avenue, including removing/reinstalling and/or salvaging existing equipment and foundations, furnishing and installing new foundations, standards, vehicle mast arms, vehicle and pedestrian signal heads, luminaires, luminaire arms, pedestrian push buttons, internally illuminated street name signs, conduit installed by open trench and/or directional boring and/or pipe-jacking in asphalt concrete and Portland cement concrete, traffic signal pull boxes, wiring, traffic signal controller cabinet and assemblies, installing and removing temporary traffic signal standards, service cabinet, removing/reinstalling and/or salvaging existing equipment, potholing for utilities shown on the plan and/or marked by USA Dig Alert, trench and pothole backfill and resurfacing, conflict monitor, Vantage Next WDR Video Detection Camera and mounting hardware, Vantage Next CCU Unit 1U box, including NEXT-CCU-SHIPKIT, 2-Channel Video Detection Extension Modules, Remote Communication Server (Microsoft Surface Tablet), 1U Rack Mount Drawer 17" Tilt-Up LCD Monitor with 1 composite video, 1 VGA and 1 HDMI video input, VantageNext Dual Video Processor, SDLC2 2070 Controller cable assembly, Iteris AC Surge suppression panel assembly. Cat6 Siamese cable with 16 AWG ground wiring cables and other appurtenant hardware, setting up detection zones, #10 AWG green tracer wire, pull rope, 12-strand and 48-strand Single-Mode Fiber Optics (SMFO) cable (including furnishing all labor, materials [e.g. cable patch cords; cable slack, cable termination assemblies such as connectors, pigtails and couplers; etc.], equipment, testing, and other incidentals [e.g. splicing, capping unused fiber optic strands], as necessary to install the cable to ensure its satisfactory performance), 19-inch rack-mount 12-strand capacity fiber patch panel with rails (Part No. 5P230-OAB), 19-inch rack-mount surge protector unit (Model 550-190), Layer 2 Gigabit Ethernet Switch (See Special Provisions), electrical service connection fee and work per Glendale Water and Power Service Plan in Appendix "E", installation of thermoplastic striping, pavement markings, pavement markers, curb makings,

signs and all auxiliary equipment, as specified in the Caltrans Standard Plans and Specifications, the Special Provisions, and all incidentals, as directed by the Engineer.

- MRT2. Payment for "Furnish and Install Traffic Signal Modification on La Crescenta Avenue at Shirleyjean Street"** will be made at the contract unit price per Lump Sum for Item No. **MRT1**, which shall include all costs for furnishing all labor, materials, tools and equipment, including traffic control as required in the Special Provisions, complete in place and operational per **Plan No. 50-673** on La Crescenta Avenue at Shirleyjean Street, including removing/reinstalling and/or salvaging existing equipment and foundations, furnishing and installing new foundations, standards, vehicle mast arms, vehicle and pedestrian signal heads, luminaires, luminaire arms, pedestrian push buttons, internally illuminated street name signs, conduit installed by open trench and/or directional boring and/or pipe-jacking in asphalt concrete and Portland cement concrete, traffic signal pull boxes, wiring, traffic signal controller cabinet and assemblies, installing and removing temporary traffic signal standards, service cabinet, removing/reinstalling and/or salvaging existing equipment, potholing for utilities shown on the plan and/or marked by USA Dig Alert, trench and pothole backfill and resurfacing, conflict monitor, Vantage Next WDR Video Detection Camera and mounting hardware, Vantage Next CCU Unit 1U box, including NEXT-CCU-SHIPKIT, 2-Channel Video Detection Extension Modules, Remote Communication Server (Microsoft Surface Tablet), 1U Rack Mount Drawer 17" Tilt-Up LCD Monitor with 1 composite video, 1 VGA and 1 HDMI video input, VantageNext Dual Video Processor, SDLC2 2070 Controller cable assembly, Iteris AC Surge suppression panel assembly. Cat6 Siamese cable with 16 AWG ground wiring cables and other appurtenant hardware, setting up detection zones, #10 AWG green tracer wire, pull rope, 12-strand and 48-strand Single-Mode Fiber Optics (SMFO) cable (including furnishing all labor, materials [e.g. cable patch cords; cable slack, cable termination assemblies such as connectors, pigtails and couplers; etc.], equipment, testing, and other incidentals [e.g. splicing, capping unused fiber optic strands], as necessary to install the cable to ensure its satisfactory performance), 19-inch rack-mount 12-strand capacity fiber patch panel with rails (Part No. 5P230-OAB), 19-inch rack-mount surge protector unit (Model 550-190), Layer 2 Gigabit Ethernet Switch (See Special Provisions), electrical service connection fee and work per Glendale Water and Power Service Plan in Appendix "E", installation of thermoplastic striping, pavement markings, pavement markers, curb makings, signs and all auxiliary equipment, as specified in the Caltrans Standard Plans and Specifications, the Special Provisions, and all incidentals, as directed by the Engineer.

Traffic Signal Modifications, Traffic Signal Installation, Mid-Block Bike Crossing Signal Installation, and Pedestrian Hybrid Beacon Installation

Plan Nos. 50-638, 50-639, 50-648, 50-698, and 50-699

- MMT1. Payment for "Furnish and Install Mid-Block Bicycle Crossing Signal on La Crescenta Avenue Between Arlington Avenue and Las Palmas Avenue"** will be made at the contract unit price per Lump Sum for Item No. **MMT1**, which shall include all costs for furnishing all labor, materials, tools and equipment, including traffic control as required in the Special Provisions, complete in place and operational per **Plan No. 50-699** on La Crescenta Avenue between Arlington Avenue and Las Palmas Avenue, including removing/reinstalling and/or salvaging existing equipment and foundations, furnishing and installing new foundations, standards, vehicle mast arms, vehicle and bicycle signal heads, luminaires, luminaire arms, bicycle push buttons, internally illuminated street name signs, conduit installed by open trench and/or directional boring and/or pipe-jacking in asphalt concrete and Portland cement concrete, traffic signal pull boxes, wiring, traffic signal controller cabinet and assemblies, installing and removing temporary traffic signal standards, service cabinet, removing/reinstalling and/or salvaging existing equipment, potholing for

utilities shown on the plan and/or marked by USA Dig Alert, trench and pothole backfill and resurfacing, conflict monitor, Vantage Next CCU Unit 1U box, including NEXT-CCU-SHIPKIT, 2-Channel Video Detection Extension Modules, Remote Communication Server (Microsoft Surface Tablet), 1U Rack Mount Drawer 17" Tilt-Up LCD Monitor with 1 composite video, 1 VGA and 1 HDMI video input, VantageNext Dual Video Processor, SDLC2 2070 Controller cable assembly, Iteris AC Surge suppression panel assembly. Cat6 Siamese cable with 16 AWG ground wiring cables and other appurtenant hardware, setting up detection zones, #10 AWG green tracer wire, pull rope, 12-strand and 48-strand Single-Mode Fiber Optics (SMFO) cable (including furnishing all labor, materials [e.g. cable patch cords; cable slack, cable termination assemblies such as connectors, pigtails and couplers; etc.], equipment, testing, and other incidentals [e.g. splicing, capping unused fiber optic strands], as necessary to install the cable to ensure its satisfactory performance), 19-inch rack-mount 12-strand capacity fiber patch panel with rails (Part No. 5P230-OAB), 19-inch rack-mount surge protector unit (Model 550-190), Layer 2 Gigabit Ethernet Switch (See Special Provisions), electrical service connection fee and work per Glendale Water and Power Service Plan in Appendix "E", installation of thermoplastic striping, pavement markings, pavement markers, curb makings, signs and all auxiliary equipment, as specified in the Caltrans Standard Plans and Specifications, the Special Provisions, and all incidentals, as directed by the Engineer.

- MMT2. Payment for "Furnish and Install Traffic Signal on La Crescenta Avenue at Oakmont View Drive"** will be made at the contract unit price per Lump Sum for Item No. MMT2, which shall include all costs for furnishing all labor, materials, tools and equipment, including traffic control as required in the Special Provisions, complete in place and operational per **Plan No. 50-698** on La Crescenta Avenue at Oakmont View Drive, including removing/reinstalling and/or salvaging existing equipment and foundations, furnishing and installing new foundations, standards, vehicle mast arms, vehicle and pedestrian signal heads, luminaires, luminaire arms, pedestrian push buttons, internally illuminated street name signs, conduit installed by open trench and/or directional boring and/or pipe-jacking in asphalt concrete and Portland cement concrete, traffic signal pull boxes, wiring, traffic signal controller cabinet and assemblies, installing and removing temporary traffic signal standards, service cabinet, removing/reinstalling and/or salvaging existing equipment, potholing for utilities shown on the plan and/or marked by USA Dig Alert, trench and pothole backfill and resurfacing, conflict monitor, Vantage Next WDR Video Detection Camera and mounting hardware, Vantage Next CCU Unit 1U box, including NEXT-CCU-SHIPKIT, 2-Channel Video Detection Extension Modules, Remote Communication Server (Microsoft Surface Tablet), 1U Rack Mount Drawer 17" Tilt-Up LCD Monitor with 1 composite video, 1 VGA and 1 HDMI video input, VantageNext Dual Video Processor, SDLC2 2070 Controller cable assembly, Iteris AC Surge suppression panel assembly. Cat6 Siamese cable with 16 AWG ground wiring cables and other appurtenant hardware, setting up detection zones, #10 AWG green tracer wire, pull rope, 12-strand and 48-strand Single-Mode Fiber Optics (SMFO) cable (including furnishing all labor, materials [e.g. cable patch cords; cable slack, cable termination assemblies such as connectors, pigtails and couplers; etc.], equipment, testing, and other incidentals [e.g. splicing, capping unused fiber optic strands], as necessary to install the cable to ensure its satisfactory performance), 19-inch rack-mount 12-strand capacity fiber patch panel with rails (Part No. 5P230-OAB), 19-inch rack-mount surge protector unit (Model 550-190), Layer 2 Gigabit Ethernet Switch (See Special Provisions), electrical service connection fee and work per Glendale Water and Power Service Plan in Appendix "E", installation of thermoplastic striping, pavement markings, pavement markers, curb makings, signs and all auxiliary equipment, as specified in the Caltrans Standard Plans and Specifications, the Special Provisions, and all incidentals, as directed by the Engineer.

- MMT3. **Payment for "Furnish and Install Pedestrian Hybrid Beacon on La Crescenta Avenue at Piedmont Avenue"** will be made at the contract unit price per Lump Sum for Item No. MMT3, which shall include all costs for furnishing all labor, materials, tools and equipment, including traffic control as required in the Special Provisions, complete in place and operational per **Plan No. 50-648** on La Crescenta Avenue at Piedmont Avenue, including removing/reinstalling and/or salvaging existing equipment and foundations, furnishing and installing new pole standard and cabinet foundations, pole standards, vehicle mast arms, vehicle and pedestrian signal heads, luminaires, luminaire arms, IISNS, pedestrian push buttons, traffic signal controller cabinet and assemblies, service cabinet, electrical service connection fee and work per Glendale Water and Power Service Plan in Appendix "E", relocating pole mounted signs, striping, signing, and all auxiliary equipment, as specified in the Caltrans Standard Plans and Specifications, the Special Provisions, and all incidentals, as directed by the Engineer.
- MMT4. **Payment for "Furnish and Install Traffic Signal Modification on La Crescenta Avenue at Montrose Avenue"** will be made at the contract unit price per Lump Sum for Item No. MMT4, which shall include all costs for furnishing all labor, materials, tools and equipment, including traffic control as required in the Special Provisions, complete in place and operational per **Plan No. 50-638** on La Crescenta Avenue at Montrose Avenue, including installing Global Traffic Technologies Model M-722 Two-Way Opticom Detector, and furnishing and installing associated cables per conductor schedule, as specified in the Caltrans Standard Plans and Specifications, the Special Provisions, and all incidentals, as directed by the Engineer.
- MMT5. **Payment for "Furnish and Install Traffic Signal Modification on La Crescenta Avenue at Honolulu Avenue"** will be made at the contract unit price per Lump Sum for Item No. MMT5, which shall include all costs for furnishing all labor, materials, tools and equipment, including traffic control as required in the Special Provisions, complete in place and operational per **Plan No. 50-639** on La Crescenta Avenue at Honolulu Avenue, including coiling 50-feet of 12-Strand SMFO Cable in Pull Box, as specified in the Caltrans Standard Plans and Specifications, the Special Provisions, and all incidentals, as directed by the Engineer.

Additional Bid Alternate Items

Plan Nos. 4-649, 18-114, 49-247, and 70-113

- ABA1. **Payment for "Construct Drywell System"** will be made at the contract unit price for Item No. ABA1, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in designing, sizing, and constructing a drywell system complete in place, as shown on the plans, in accordance with the Drywell System and Catch Basin Detail, and Torrent Resources Maxwell Plus Drainage Detail and the modified Specifications in Appendix E (or approved equal), Percolation Rate testing and adherence during construction, furnishing and installing manholes with $\frac{3}{4}$ " diameter pick holes, furnishing and installing oil-based fluid absorbing pillows, constructing a curb opening catch basin with gratings per SPPWC Plan No. 302-4 and face plate assembly, constructing a local depression per SPPWC Plan No. 313-4, Case C, furnishing and installing 12" R.C.P. connector pipe, field marking, sawcutting, modifying catch basin and grate if necessary to accommodate existing utility lines, curb and gutter removal, pavement removal, construction of new curb integral with local depression, protecting existing utilities in place, restoration of asphalt pavement, concrete forming, excavation, backfilling, compaction of backfill, site protection and adherence to OSHA regulations, removal and disposal of construction debris, concrete finishing, coordination with Digalert and Glendale Public Works Maintenance for marking existing

underground utilities including sewer and storm drain mainlines and laterals, storm water pollution control, traffic control, site cleanup, and all incidentals, as directed by the Engineer.

- ABA2. Payment for “Bio-retention Area”** will be made at the contract unit price for Item No. **ABA2**, per Square Foot, which shall include all costs for furnishing all labor, materials, tools and equipment, and for doing all the work involved in constructing a bio-retention area as shown on **Plan No. 18-114**, complete in place, **including utility potholing to verify retention area, excavation, removal, and disposal of existing concrete pavement, asphalt concrete pavement**, and/or parkway for proposed bio-retention area, hauling and disposal, grading and compaction for new bio-retention area, geotextile liner, 6 mil black plastic liner, gravel, planting soil, concrete bio-retention walls up to 4-feet deep, curb cuts, curb openings, including forms and shoring as necessary, Rip-Rap, curb cuts, curb openings, protecting existing catch basin and local depression in place, if any, Alhambra Foundry cover with frame as applicable to opening size requirements, tack welding, street relief, concrete splash pad, washed pea gravel, river rock, drain rock, and all incidentals, as directed by the Engineer.
- ABA3. Payment for “Install New 1-Inch Water Service Lateral and Meter Box”** will be made at the contract unit price for Item No. **ABA3**, per Each, which shall include all costs for furnishing all labor, materials, tools, equipment, and for doing all the work involved in furnishing and installing new 1-Inch Water Meter Service and Meter Box, complete in place per GWP Standard Plan 1660-A in Appendix “F”, as shown on the plans and as described in Section 11 “Detailed Specifications for Water Facilities Work” in the Special Conditions, and all incidentals, as directed by the Engineer. Only contractor approved by GWP per Appendix “C” with experience working on public water systems will be allowed to perform this work. The Contractor shall submit work experience and references to GWP for review and approval before allowed to perform this work.
- ABA4. Payment for “Furnish and Install Metal Guard Railing and Access Gate around Bio-retention Area (Ht=2'-6”)** will be made at the contract unit price for Item No. **ABA4**, per Linear Foot, which shall include all costs for furnishing all labor, materials, tools, equipment and for doing all the work involved in furnishing and installing steel hand rail and gate, **hot dip galvanized after fabrication powder coated flat black**, complete in place, as shown on Plan 18-114, and all incidentals, as directed by the Engineer. Contractor shall provide shop drawings prior to manufacturing of guard rail.
- ABA5. Payment for “Class “A” Topsoil”** will be made at the contract unit price for Item No. **ABA5**, per Cubic Yard, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in placing Class “A” topsoil in planting areas, complete in place, as shown on the plans and details, including excavation, backfilling, compaction to make a grade suitable for planting, as specified in the Special Conditions and all incidentals, as directed by the Engineer.
- ABA6. Payment for “Soil Amendments”** will be made at the contract unit price for Item No. **ABA6**, per Cubic Yard, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in soil amendments for planting areas, complete in place, as shown on the plans and details, including excavation, backfilling, compaction, import of topsoil to make a grade suitable for planting, as specified in the Special Conditions and all incidentals, as directed by the Engineer.
- ABA7. Payment for “5 Gallon Shrubs”** will be made at the contract unit price for Item No. **ABA7**, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in planting 5 gallon shrubs, complete in place, as shown on the plans and details, including

excavation, backfilling, compaction, furnishing and placing 2" mulch around scrubs, import of dirt to make a grade suitable for planting, fertilizer pellets, **90 day maintenance and watering**, as specified in the Special Conditions and all incidentals, as directed by the Engineer.

ABA8. Payment for "1 Gallon Shrubs" will be made at the contract unit price for Item No. **ABA8**, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in planting 1 gallon shrubs, complete in place, as shown on the plans and details, including excavation, backfilling, compaction, furnishing and placing 2" mulch around scrubs, import of dirt to make a grade suitable for planting, fertilizer pellets, **90 day maintenance and watering**, as specified in the Special Conditions and all incidentals, as directed by the Engineer.

ABA9. Payment for "Groundcover Flats / Plugs" will be made at the contract unit price for Item No. **ABA9**, per Square Foot, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in planting the groundcover flats/plugs (36 per flat), complete in place, as shown on the plans and details, including excavation, backfilling, compaction, furnishing and placing 2" mulch around scrubs, import of dirt to make a grade suitable for planting, fertilizer pellets, **90 day maintenance and watering**, as specified in the Special Conditions and all incidentals, as directed by the Engineer.

ABA10. Payment for "Bio-retention Irrigation System" will be made at the contract unit price for Item No. **ABA10**, per Lump Sum, which shall include all costs for furnishing all labor, materials, tools and equipment for doing all the work involved in the installation of a fully functioning irrigation system, complete in place and operational per Plan No. 18-114, including Rainbird Dripline, Manifold-Flush Assembly, Dripline Air Relief Valve and Valve Box, 1-Inch Dripline Control Valve and Valve Box, Quick Coupler Valve and Valve Box, Gate Valve and Valve Box, Flow Sensor, Irrigation Controller 1-Inch Master Valve, Water Meter Connection, Backflow Assembly with Enclosure, Lateral Lines, Sleeving, coordinating with GWP inspection (48-hours advance notice required), and all auxiliary equipment, as specified in the GWP Standards and Standard Drawings, Special Conditions, and all incidentals, as directed by the Engineer.

ABA11. Payment for "Furnish and Install Creative Crosswalk" will be made at the contract unit price for Item No. **ABA11**, per Square Foot, which shall include all cost for furnishing all labor, materials, tools, and equipment, and for doing all work during evening hours involved in the installation of creative crosswalks per Plan No. 49-247, complete in place, as shown on the plans, including traffic control, wrapping valve covers in plastic prior to crosswalk painting, and after painting, removing plastic, cleaning and painting valve covers the color per the specifications, installing Thermoplastic Crosswalk Lines with 15-foot outside dimensions, furnishing and installing Traffic Patterns anti-skid preformed thermoplastic paint (non-reflective) as shown on the plans, protecting the painted coat until it has set, maintaining and controlling vehicular and pedestrian traffic, and all incidentals, as directed by the Engineer.

ABA12. Payment for "Furnish and Install Reflective Pavement" will be made at the contract unit price for Item No. **ABA12**, per Square Foot, which shall include all cost for furnishing all labor, materials, tools, and equipment, and for doing all work involved in the installation of reflective pavement per Plan No. 49-247, complete in place, as shown on the plans, including traffic control, wrapping valve covers in plastic prior to installing traffic rated reflective pavement, and after painting, removing plastic, cleaning and painting valve covers the color per the specifications, protecting the painted coat until it has set, maintaining and controlling vehicular and pedestrian traffic, and all incidentals, as directed by the Engineer.

- ABA13. Payment for “Furnish And Install Fiber Ready 3” Rigid PVC Schedule 80 Conduit With #10 AWG Green Tracer Wire And Pull Rope** will be made at the contract unit price for Item No. **ABA13**, per Linear Foot, which shall include traffic control as required in the Special Provisions, and all costs for furnishing all labor, materials, tools and equipment, and for doing all the work involved in furnishing and installing rigid high density Polyvinyl Chloride (PVC) Schedule 80 Fiber Ready conduit by open trench in asphalt concrete and Portland cement concrete including removing surface material, furnishing and installing fittings, bends, bushings, terminations, #10AWG green tracer wire, pull rope and backfilling, replacing surface material in kind with existing, complete in place and operational per **Plan No. 70-113** as specified in the Special Provisions and all incidentals, as directed by the Engineer. Unit price is based on a surface measurement. The unit price shall include additional conduit needed to install the conduit to the required depth as stated in the Special Provisions and all incidentals, as directed by the Engineer.
- ABA14. Payment for “Furnish And Install Optical Fiber Cable (48 SMFO) In Fiber Ready Conduit”** will be made at the contract unit price for Item No. **ABA14**, per Linear Foot, which shall include all costs for furnishing all labor, materials, tools and equipment, and for doing all the work involved in furnishing and installing 48 strand Single-Mode Fiber Optic (SMFO) cable in the newly installed Schedule 80 PVC Fiber Ready conduit, per **Plan No. 70-113**, and as specified in the Special Provisions and all incidentals, as directed by the Engineer. The work shall include furnishing all labor, materials (e.g. cable patch cords; cable slack, cable termination assemblies such as connectors, pigtails and couplers; etc.), equipment, testing, and other incidentals (e.g. splicing, capping unused fiber optic strands), as necessary to install the cable to ensure its satisfactory performance and all incidentals, as directed by the Engineer.
- ABA15. Payment for “Furnish And Install Optical Fiber Cable (12 SMFO) In Fiber Ready Conduit”** will be made at the contract unit price for Item No. **ABA15**, per Linear Foot, which shall include all costs for furnishing all labor, materials, tools and equipment, and for doing all the work involved in furnishing and installing 12 strand Single-Mode Fiber Optic (SMFO) cable in the newly installed Schedule 80 PVC Fiber Ready conduit, per **Plan No. 70-113**, and as specified in the Special Provisions and all incidentals, as directed by the Engineer. The work shall include furnishing all labor, materials (e.g. cable patch cords; cable slack, cable termination assemblies such as connectors, pigtails and couplers; etc.), equipment, testing, and other incidentals (e.g. splicing, capping unused fiber optic strands), as necessary to install the cable to ensure its satisfactory performance and all incidentals, as directed by the Engineer.
- ABA16. Payment for “Furnish and Install 48-Strand Capacity Air Tight Seal Fiber Splice Enclosure”** will be made at the contract unit price for Item No. **ABA16**, per Each, which shall include traffic control as required in the Special Provisions, and all costs for furnishing all labor, materials, tools and equipment, and for doing all the work involved in furnishing and installing an air tight seal fiber splice enclosure inside a Pull Box or a Splice Vault where splicing of fiber optic cables are required, fiber optic splicing as directed by the Engineer, and as specified in the Special Provisions. The work shall include furnishing all labor, fiber splicing, materials (e.g. cable patch cords, cable slack, cable termination assemblies such as connectors, pigtails and couplers, etc.), equipment (e.g. splice trays), testing to ensure satisfactory performance and all incidentals, as directed by the Engineer.
- ABA17. Payment for “Furnish and Install 19-Inch Rack-Mount 12-Strand Capacity Fiber Patch Panel with Rails”** will be made at the contract unit price for Item No. **ABA17**, per Each, which shall include all costs for furnishing all labor, materials, tools and equipment, and for doing all the work involved in furnishing and installing a Fiber Patch Panel (Leviton Model 5P230-OAB or Approved Equal), terminating fiber optic

strands, wiring/cables and other appurtenant hardware, and as specified in the Special Provisions and all incidentals. The work shall include furnishing all labor, fiber splicing, materials (cable patch cords, cable slack; cable termination assemblies such as connectors, pigtails and couplers, etc.), equipment, testing, documentation and other incidentals (e.g. retrofitting the cabinet and rack to fit the devices), as necessary to install and connect the FDU to ensure its satisfactory functionality and performance, in compliance with the Plans and Specifications, and all incidentals, as directed by the Engineer.

ABA18. Payment Item for “Furnish and Install Leviton 19-Inch Rack-Mount Surge Protection Power Unit” will be made at the contract unit price for Item No. **ABA18**, per Each, which shall include all costs for furnishing all labor, materials, tools and equipment, and for doing all the work involved in furnishing and installing a Surge Protector (Leviton Model 550-190 or Approved Equal), wiring/cables and other appurtenant hardware, as specified in the Special Provisions and all incidentals. The work shall include furnishing all labor, materials, equipment, testing, and other incidentals (e.g. retrofitting the cabinet and rack to fit the devices), as necessary to install and connect the Surge Protector to ensure its satisfactory functionality and performance, in compliance with the Plans and Specifications, and all incidentals, as directed by the Engineer.

ABA19. Payment for “Furnish And Install No. 6E Fiber Optic Pull Box” will be made at the contract unit price for Item No. **ABA19**, per Each, which shall include traffic control as required in the Special Provisions, and all costs for furnishing all labor, materials, tools and equipment, and for doing all the work involved in furnishing and installing a No. 6E pull box complete in place, including excavation, backfilling, placing gravel, sidewalk patching and all auxiliary equipment as specified in the Caltrans Standard Specifications and the Special Provisions, and all incidentals, as directed by the Engineer.

ABA20. Payment for “Furnish and Install Layer 2 Gigabit Ethernet Switch” will be made at the contract unit price for Item No. **ABA20**, per Each, which shall include all costs for furnishing and installing a fiber optic communications switch as specified in the Special Provisions to implement communications between the ITS field devices and the TMC using Internet Protocol (IP) and IEEE 802.3 compliant equipment. The IEEE 802.3 compliant equipment shall use IEEE 802.1q VLAN tagging to assign each ITS device to a virtual local area network. The contractor shall request the VLAN and IP configuration information a minimum of 45 calendar days prior to requiring it.

The contractor shall implement Rapid Spanning Tree Protocol (IEEE 802.1w) on all Ethernet switches within the network and shall demonstrate proper operation by creating breaks at different points within the network and verifying that the network re-converges in less than 60 seconds.

The contractor shall develop and submit to the Engineer a cutover plan to connect, configure, and integrate the new and existing network communication equipment identifying planned outages (system offline) associated with testing and integration as specified in the Special Provisions and all incidentals.

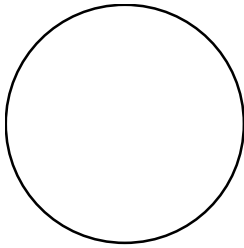
The contractor shall install the configured Ethernet Switch complete, fully operational, as specified in the Special Provisions and install all items required to provide a fully functional system including all connectors, patch cables, jumpers, adaptors, terminations, mounting brackets, configuration, programming, calibration, testing, documentation, warranty, and all other labor, materials, and incidental items required to provide complete and functional communications at each location.

- ABA21. **Payment for “Furnish And Install Pull Box Lid with “Fiber Optic” Inscription”** will be made at the contract unit price for Item No. ABA21, per Each, which shall all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and installing a pull box lid with the “Fiber Optic” inscription, complete in place, and all incidentals, as directed by the Engineer.
- ABA22. **Payment for “Terminate or Splice Fiber Strands”** will be made at the contract unit price for Item No. ABA22, per Each, which shall include all costs for furnishing all labor, materials, tools, and equipment, and for doing all the work involved in terminating or splice fiber strands, complete in place, and all incidentals, as directed by the Engineer.
- ABA23. **Payment for “Furnish and Install All Necessary Connectors, Cables, Wires, and Equipment to Provide Ethernet Communication”** will be made at the contract unit price for Item No. ABA23, per Each, furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and installing all necessary connectors, cables, wires, and equipment to provide ethernet connection, including testing, documentation, warrantee, and all other labors, materials, and incidental items required to provide complete and functional communications at each location.
- ABA24. **Payment for “Core Drill Existing Foundation to Install 3” PVC Schedule 80 Conduit from Controller Cabinet to Fiber Optic Pull Box”** will be made at the contract unit price for Item No. ABA24, per Each, furnishing all labor, materials, tools, and equipment, and for doing all the work involved in core drilling existing foundation to install 3” PVC Schedule 80 conduit from controller cabinet to fiber optic pull box, complete in place, and all incidentals, as directed by the Engineer.
- ABA25. **Payment for “Coil 50-Feet of 48-Strand SMFO Cable in Pull Box”** will be made at the contract unit price for Item No. ABA25, per Each, furnishing all labor, materials, tools, and equipment, and for doing all the work involved in furnishing and coiling 50-feet of 48-strand SMFO cable in pull box, complete in place, and all incidentals, as directed by the Engineer.

APPENDIX A – PUBLIC NOTIFICATION

Contents:

- 2-Week Door Hanger for Sewer Improvements
- 3-Day Door Hanger for Sewer Improvements
- 2-Week Door Hanger for PCC Improvements
- 3-Day Door Hanger for PCC Improvements
- 2-Week Door Hanger for AC Improvements
- 3-Day Door Hanger for AC Improvements
- 2-Week Door Hanger for Intersection Improvements
- 3-Day Door Hanger for Intersection Improvements
- Notice of Water Meter Relocation
- Project Sign
- Businesses Open During Construction Sign
- Temporary No Parking Sign and Posting Instruction



NOTICE OF CONSTRUCTION ACTIVITY

LA CRESCENTA AVENUE REHABILITATION PROJECT

2-WEEK NOTIFICATION

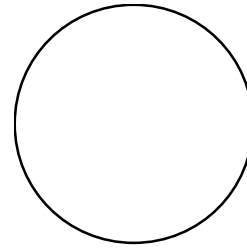
The City of Glendale's Public Works Department has retained our company to make **sewer main line capacity improvements** in your neighborhood.

While work is being completed, please remember:

- Access may be restricted between 7:00AM to 5:00PM. Street parking may not be allowed and signs will be posted accordingly at least 30 hours in advance of no parking enforcement.
- When access is restricted, detours will be set up to help you reach your destination. Parking will be available within a reasonable distance from your house/business.
- Traffic may be subject to delay.
- If driveway closure becomes necessary, you will be notified in advance. The closure time will be kept to minimum.
- If work occurs on trash collection day on your street, trash will be picked-up as normal.
- Please restrict drainage into your sewer service line during construction.
- Some construction operations may cause considerable noise, vibration, and dust.

It is anticipated that the entire work will be completed within _____ day(s) and hope that it does not cause undue hardships.

We appreciate your cooperation and understanding while we work to improve your City.



City of Glendale Public Works Project Hotline (818) 548-3945



LA CRESCENTA AVENUE REHABILITATION PROJECT

2-WEEK NOTICE OF CONSTRUCTION ACTIVITY

DATE(S): _____

TIME: 7:00AM to 5:00PM

CONTRACTOR'S NAME

Address

City, State, Zip Code

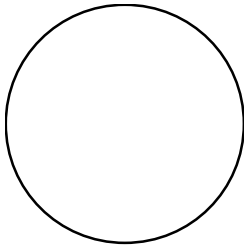
(XXX) XXX - XXXX

Glendale's Public Works Department is committed to working with you to help you through the construction period. Every effort will be made to minimize any inconvenience to you. Your cooperation with construction crews and patience with any brief traffic or access delays will be appreciated.



For Project Information Visit:

If you have any questions or concerns, please call Rustom Tavitian, Project Manager, of the Engineering Division at: (818) 548-3945 ext. 8326.



NOTICE OF CONSTRUCTION ACTIVITY

LA CRESCENTA AVENUE REHABILITATION PROJECT

3-DAY NOTIFICATION

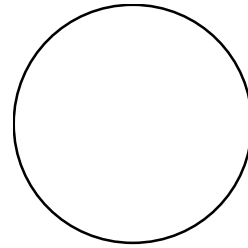
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LA CRESCENTA AVENUE REHABILITATION PROJECT

3-DAY

NOTICE OF CONSTRUCTION ACTIVITY

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CONTRACTOR'S NAME

Address

City, State, Zip Code

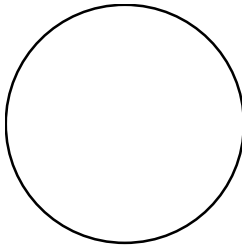
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2-WEEK NOTIFICATION

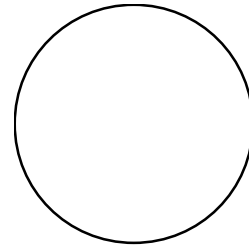
The City of Glendale's Public Works Department has retained our company to make concrete improvements in your neighborhood (sidewalk, driveway, curb, gutter, etc.).

While work is being completed, please remember:

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City of Glendale Public Works Project Hotline (818) 548-3945



LA CRESCENTA AVENUE REHABILITATION PROJECT

2-WEEK NOTICE OF CONSTRUCTION ACTIVITY

DATE(S): _____

TIME: 7:00AM to 5:00PM

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Address

City, State, Zip Code

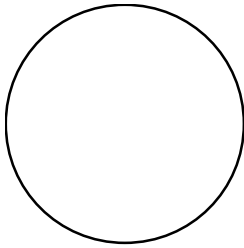
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NOTICE OF CONSTRUCTION ACTIVITY

LA CRESCENTA AVENUE REHABILITATION PROJECT

3-DAY NOTIFICATION

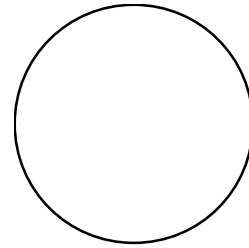
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LA CRESCENTA AVENUE REHABILITATION PROJECT

3-DAY

NOTICE OF CONSTRUCTION ACTIVITY

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City, State, Zip Code

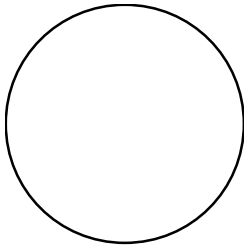
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2-WEEK NOTIFICATION

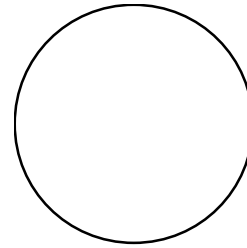
The City of Glendale's Public Works Department has retained our company to make asphalt concrete improvements in your neighborhood (grinding and resurfacing of roadway, utility adjustments, etc.).

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City of Glendale Public Works Project Hotline (818) 548-3945



LA CRESCENTA AVENUE REHABILITATION PROJECT

2-WEEK NOTICE OF CONSTRUCTION ACTIVITY

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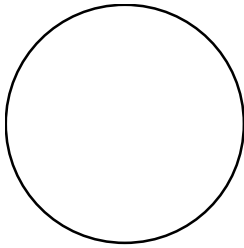
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NOTICE OF CONSTRUCTION ACTIVITY

LA CRESCENTA AVENUE REHABILITATION PROJECT

3-DAY NOTIFICATION

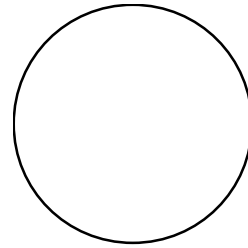
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City of Glendale Public Works Project Hotline (818) 548-3945



LA CRESCENTA AVENUE REHABILITATION PROJECT

3-DAY

NOTICE OF CONSTRUCTION ACTIVITY

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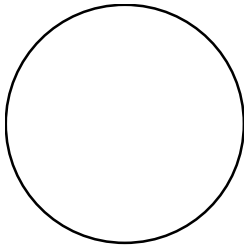
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NOTICE OF CONSTRUCTION ACTIVITY

LA CRESCENTA AVENUE REHABILITATION PROJECT

2-WEEK NOTIFICATION

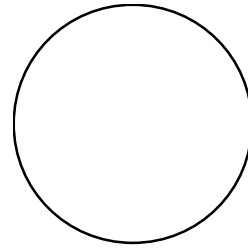
The City of Glendale's Public Works Department has retained our company to make **street intersection improvements** in your neighborhood (curb realignment, installation of stop signs and crosswalks, etc.).

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City of Glendale Public Works Project Hotline (818) 548-3945



LA CRESCENTA AVENUE REHABILITATION PROJECT

2-WEEK NOTICE OF CONSTRUCTION ACTIVITY

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TIME: 7:00AM to 5:00PM

CONTRACTOR'S NAME

Address

City, State, Zip Code

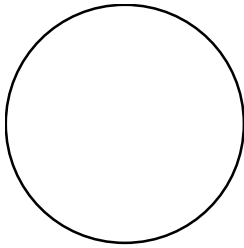
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NOTICE OF CONSTRUCTION ACTIVITY

LA CRESCENTA AVENUE REHABILITATION PROJECT

3-DAY NOTIFICATION

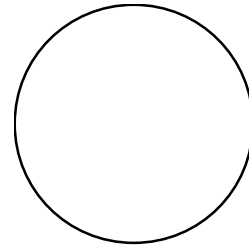
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LA CRESCENTA AVENUE REHABILITATION PROJECT

3-DAY

NOTICE OF CONSTRUCTION ACTIVITY

DATE(S): _____

TIME: 7:00AM to 5:00PM

CONTRACTOR'S NAME

Address

City, State, Zip Code

(XXX) XXX - XXXX

Glendale's Public Works Department is committed to working with you to help you through the construction period. Every effort will be made to minimize any inconvenience to you. Your cooperation with construction crews and patience with any brief traffic or access delays will be appreciated.



For Project Information Visit:

If you have any questions or concerns, please call Ruston Tavitian, Project Manager, of the Engineering Division at: (818) 548-3945 ext. 8326.

PUBLIC NOTICE

YOUR WATER SERVICE METER IS BEING RELOCATED

SUBCONTRACTOR AND CONTRACTOR HAVE BEEN CONTRACTED BY THE CITY OF GLENDALE TO PERFORM WATER METER RELOCATIONS AS PART OF THE COMMUNITY BEAUTIFICATION PROJECT. WATER METER RELOCATION IN FRONT OF YOUR PROPERTY HAS BEEN SCHEDULED FOR:

DATE: _____

TIME: _____

WE WILL REQUIRE THAT YOUR WATER SERVICE BE **TEMPORARILY INTERRUPTED FOR APPROXIMATELY X HOURS** TO ALLOW PROPER INSTALLATION OF THE WATER METER. DURING THIS TIME YOUR HOME/BUSINESS WILL NOT HAVE A WATER SOURCE. IF THIS CREATES AN UNDUE HARDSHIP, PLEASE NOTIFY US IMMEDIATELY SO THAT ALTERNATIVES CAN BE ARRANGED TO ACCOMMODATE YOUR SPECIFIC NEEDS.

DURING THIS TIME, TRAFFIC MAY BE RESTRICTED IN THE AREA OF THE CONSTRUCTION. TRAFFIC CONTROL WILL BE SET-UP TO PROVIDE A WORKSPACE FOR PERSONNEL AND TO ENSURE THEIR SAFETY. **PARKING RESTRICTIONS WILL BE POSTED** INDICATING THAT NO PARKING WILL BE ALLOWED. PLEASE MAKE SURE YOU REMOVE YOUR VEHICLE FROM THE AREA BY THE INDICATED TIME TO AVOID HAVING IT BLOCKED BY OUR EQUIPMENT.

WE WILL DO ALL WE CAN TO MINIMIZE NOISE AND OTHER INCONVENIENCES TO YOU DURING THIS WORK AND APPRECIATE YOUR ASSISTANCE DURING RELOCATION OF YOUR WATER METER.

IF YOU HAVE QUESTIONS, PLEASE CONTACT:

XXXX, SUBCONTRACTOR
XXX-XXX-XXXX

SUBCONTRACTOR'S

LOGO

XXXX, SUBCONTRACTOR
XXX-XXX-XXXX

CONTRACTOR'S

LOGO

XXXX, CONTRACTOR
XXX-XXX-XXXX

THANK YOU FOR YOUR COOPERATION ON THIS PROJECT





Under Construction!

Another City Council Approved Public Works Project

La Crescenta Avenue Rehabilitation Project

Start Date:

Expected Completion Date:

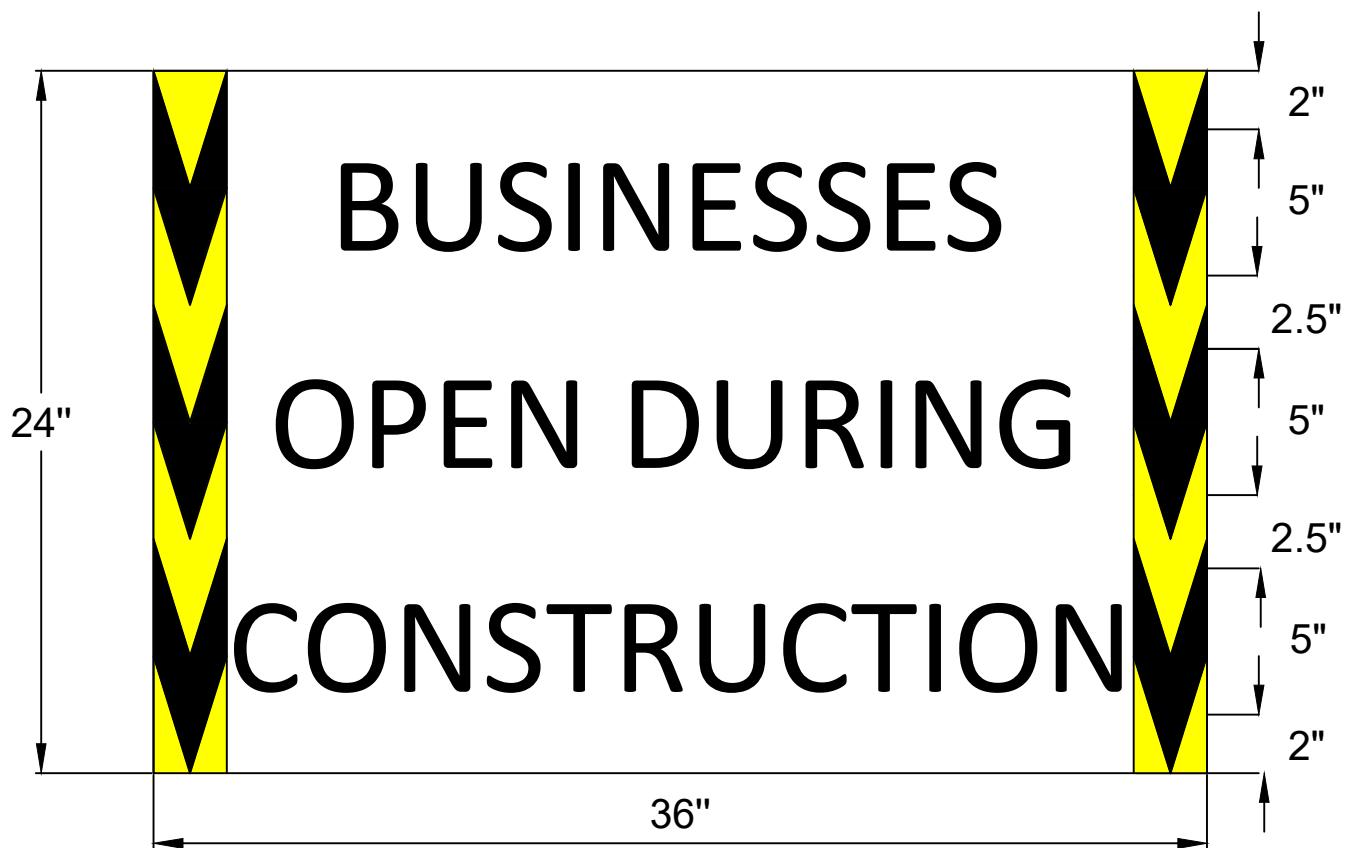
We apologize for any inconvenience and appreciate your patience.

Contractor:

Contractor Phone#:



Questions? Please call:
(818)548-3945 or scan
this QR code



2'(24") X 3'(36") Project Sign - Black Letters on White Background

CITY OF GLENDALE
INSTALLATION OF “TEMPORARY NO PARKING” SIGN GUIDELINES

1. Use of “Temporary No Parking” signs must be approved by the City of Glendale – Engineering Division, 633 E. Broadway, Room 205. Signs shall not be duplicated or reproduced except with the authorization of the City of Glendale Public Works Division. If duplicated, the signs should have its original color, size (11in x 17in), and paper thickness (90lbs index cover or 110lbs card stock).
2. It is the responsibility of the applicant to clearly mark all “Temporary No Parking” signs in **Black or Blue Ink or marker** (1/4” min. thickness) with all information regarding applicable dates, times, exact physical address or block number where parking will be prohibited, the “Reason” for the posting, the “Issuing Agency” information as well as the posting date and time on each sign at the time of posting.
3. Spacing for the “Temporary No Parking” signs shall be approximately thirty five (35) feet apart. In areas with parking meters, each applicable meter post shall have a separate sign. These signs shall be attached to the parking meter pole only. Posting signs on the meter heads is not permitted.
4. The “Temporary No Parking” signs shall be affixed to posts, street light poles, trees, delineators, or barricades. **These signs shall be posted no less than three (3) feet high and no more than five and a half (5.5) feet high**, which allows the driver of a standard size automobile to clearly observe the signs. Only plastic band, string, rope, zip ties, or other similar type of fastener shall be used. The use of nails, tape, glue, staples and other adhesives is prohibited. The “Temporary No Parking” signs must be posted so that the sign is flat and legible.
5. In areas where there are no poles, light standards or trees, “Temporary No Parking” signs shall be displayed by securing the signs on barricades or delineators to be provided by the Applicant/Contractor installing the signs. Signs must be placed within 3’ behind the curb or roadway.
6. All posting of “Temporary No Parking” signs shall be completed 30 hours prior to the start time indicated on the “Temporary No Parking” signs. **Upon completion of the posting of the signs, the Applicant/Contractor MUST notify the Glendale Police Traffic Bureau at (818) 548-3131 in order to verify the correct posting of the signs. Police verification shall occur Monday through Friday from 8:00 am to 3:00 pm.** No Police verification is available on Saturdays, Sundays, or City holidays.
7. Police enforcement of the “Temporary No Parking” signs shall occur no sooner than 24 hours after the approval of the posted signs by the Glendale Police Traffic Bureau.
8. “Temporary No Parking” signs shall only be valid for a period of seven (7) consecutive days. Additional days will require the posting of new signs, verification, and approval by the Glendale Police Traffic Bureau.
9. Any “Temporary No Parking” sign used for construction purposes shall only be posted for the hours from Monday-Friday 7:00 am to 7:00 pm as defined in Section 8.36.080 Glendale Municipal Code. Any deviation in work hours must be approved in writing by the Director of Public Works prior to posting.
10. The Applicant/Contractor shall be responsible for assuring that the signs remain posted and are legible. In addition, it is the Applicant/Contractor’s responsibility to remove all signs and posting materials immediately after the expiration of the posted time.
11. “Temporary No Parking” signs may not be moved from their original location, nor be re-used by eliminating, adding to, or altering any of the dates, times, reasons, or other information originally entered on the signs. **If corrections need to be made to signs, new signs need to be used to rewrite all required information; do not re-use previous signs.** Any changes made to these signs will void all enforcement for the area posted.
12. The City of Glendale reserves the right to require removal or to remove any posted “Temporary No Parking” signs without notice.
13. A completed sample of a “Temporary No Parking” sign is attached for guidance.

PROHIBITION ONLY DURING WORKING HOURS

**TOW-AWAY
TEMPORARY**

NO PARKING

DATE(S) TIME(S)

1/1/15 to 1/5/15 7AM-5PM

LOCATION: . . .

REASON: . . .

ISSUING AGENCY: DPW - Eng

DATE POSTED: . . . TIME: . . .

BY ORDER OF GLENDALE POLICE DEPARTMENT
CITY OF GLENDALE 10.28.180 GMC/22651 M CVC

PROHIBITION INCLUDING OVERNIGHT

**TOW-AWAY
TEMPORARY**

NO PARKING

DATE(S) TIME(S)

1/1/15 7AM
TO
1/5/15 5PM

LOCATION: . . .

REASON: . . .

ISSUING AGENCY: DPW - Eng

DATE POSTED: . . . TIME: . . .

BY ORDER OF GLENDALE POLICE DEPARTMENT
CITY OF GLENDALE 10.28.180 GMC/22651 M CVC

TOW-AWAY

TEMPORARY

NO PARKING

DATE(S)

TIME(S)

LOCATION:_____

REASON:_____

ISSUING AGENCY:_____

DATE POSTED:_____ **TIME:**_____

BY ORDER OF GLENDALE POLICE DEPARTMENT
CITY OF GLENDALE 10.28.180 GMC/22651 M CVC

APPENDIX B

CITY OF GLENDALE

EXCAVATION PERMIT POLICY

City of Glendale
Public Works Department

EXCAVATION PERMIT POLICY

A. Introduction

City of Glendale, Public Works Engineering Section is responsible for the issuance of all permits for any work in the public right of way.

The applicant must comply with all provisions of Chapter 12.08.040 of the Glendale Municipal Code and amendments thereto and Standard Specification for Public Works Construction, current edition, whether or not such provisions are herein specified. No other work shall be done under this permit unless specifically set forth herein.

Permits to excavate in the public right of way aid in controlling the location and quality of all types of installations. In addition, permits aid to protecting the general public from potential safety hazards as well preserving the life of City streets.

Typical installations include, but are not limited to:

1. public utilities, telecommunications, cable and their service connections
2. sewer systems
3. storm drain systems
4. fiber optic conduit
5. traffic and lighting systems
6. landscaping and irrigation
7. exploratory excavations, made to locate existing installations or verify certain conditions.

For the purposes of this Policy, "Permittee" refers to any individual or entity performing an excavation, utility cut and/or trench resurfacing project, including private contractors, City-hired contractors and City personnel.

B. Purpose and Objective

The objective of this Policy is to:

1. Promote the safety of the Permittee and the general public;
2. Inform the Permittee of City's policies, procedures and requirements regarding excavations;
3. Protection of existing underground facilities;
4. Protect public rights-of-way from undue and accelerated degradation caused by excavations;
5. Notify the Permittee of the City's time, place and manner regulations on access to the right-of-way.

C. Types of Permits

Excavation permits are classified as follows:

1. **A-Permits** are for the repair or replacement of existing installations or exploratory excavations. Under this permit, no new (additional) facility will occupy the right-of-way. Only replacements of existing facilities in the same location are permitted.
2. **B-Permits** are for "minor" installations such as service connections from the various utilities to public or private property. Spot excavations such as tree planting, single street light installations and other items that pose little or no interference with existing or proposed installations are also

- permitted.
3. **C-Permits** are for major installations such as main line utility installations or replacements; sewers, storm drain, street lighting or traffic signal systems; and, other installations involving more than service to a single property.
 4. **Blanket Permits** apply to (1) isolated excavations three feet by five feet or less for repairing underground facilities and exploratory potholes; (2) replacement of existing service facilities; (3) repairing or replacement of existing vaults; and (4) adjusting vault covers to a new grade. For specific information regarding Blanket Permits, please refer to the document entitled "Blanket Excavation Permit."

D. Permit Processing Time

The City's goal is to issue excavation permits in the shortest time possible, without compromising the public safety, City's interests and integrity of existing facilities. Permittees can help facilitate this goal by following the procedures outlined in this Policy. Upon approval of insurance certificates, liability limits, and endorsements by the City Attorney's Office or Risk Manager and noting that special circumstances may delay meeting this time objective, permits are **estimated** to be issued within the following time periods.

A-Permits	One to two days with approved insurance certificates.
B-Permits	Four working days with approved insurance certificates.
C-Permits	Seven to fourteen working days with approved insurance certificates.

E. Procedure for Processing Permits

Applicants are required to submit 2 sets of detailed drawings of the exact location of the excavation and complete an excavation permit application in the Permit Service Center (MSB, Room 101).

Applicants are required to pay a non-refundable fee to cover the cost of processing and inspection for their Excavation A & B type permits. Excavation C type Permits require a non-refundable fee plus computed charges for services provided by city personnel, including inspection. Additionally, a refundable cash deposit, or a maintenance bond or performance bond, as deemed necessary and appropriate by the City Attorney's Office or Risk manager is necessary, to secure the obligations under the excavation permit. Copies of Excavation Permit Fees are available at the Public Works Engineering counter.

Applicant must submit a Certificate of General Liability Insurance with wet signatures to Public Works Engineering (MSB, Room 204), as per City of Glendale guidelines. Insurance Certificates and Endorsements are approved by the City Attorney's Office or Risk Manager before the issuance of the excavation permit.

The applicant must have a current State Contract License and City Business License on file with Building and Safety when the permit is issued.

The applicant must notify Underground Service Alert of Southern California (USA-SC), 48 hours in advance and have the ticket number available when the permit is issued.

When the application is ready for processing, it will be forwarded to Public Works Engineering to review for potential conflicts with existing or proposed sewers, storm drains or special substructures which are not field-marked by USA-SC. If warranted, other City divisions, such as Public Service, Water and Electric, Traffic and Transportation, may review the permit, plans, and/or sketches. Engineering personnel will compile all comments received from reviewing divisions and Public Works Sections.

Permittees who are granted C-Permits will be **required** to post appropriate signage notifying the public of the

impending construction. Contractors/Utilities shall install two 4' x 5' billboard signs; one at the beginning and the other at the end of each project location at least two weeks prior to the start of construction. Each billboard shall contain the project name and description, the approximate dates when construction will be in progress, the name and phone number of the owner of the project and other wording that may be required by the office of the City Engineer. A copy of a billboard sample is available at the Engineering public counter. The billboards shall comply with all applicable laws and be approved by the office of the City Engineer as to form, contents, letter sizing and overall dimensions prior to installation in the field.

In addition, the Permittee will be **required** to mail a letter of notification to all affected residents and businesses in the area surrounding the project, in advance of the start of construction, informing them about the project, its duration, and any potential and foreseeable inconveniences, detours and interruptions that may be encountered as a result of the project. All letters must be pre-approved by the Director of Public Works prior to mailing.

Permittees may contact Public Works Engineering Department for excavation permit application status.

F. Permit Term

The Excavation Permit shall be effective for sixty days from the date of issuance. Prior to the expiration date, the Permittee may apply to the City Engineer for a single thirty day permit extension. A non-refundable processing fee will apply.

G. Protection of Underground Facilities

An excavation shall not be performed until the requirements of City of Glendale Ordinance No. 4841 for pre-marking of facilities, in accordance with Article 2 (Government Code Chapter 3.1, Division 5) are met. Emergency excavations are exempt from this requirement.

An excavation shall not be performed until Permittee receives a "ticket number" from USA-SC. USA-SC requires notification a minimum of 48 hours prior to the beginning of excavation to verify the location of pipelines containing hazardous substances.

In addition, the Permittee is responsible for thoroughly researching the records to determine if other non-hazardous substance lines are present in the area in which the Permittee intends to excavate. The Permittee must notify the owners of such lines 48 hours prior to excavating, in order to allow utility owners to identify and determine the alignment of their lines. Immediately prior to excavating, the Permittee shall arrange with the utility owners to locate or expose their facilities.

When placing markings on the pavement or other right-of-way areas to indicate the location of underground facilities, contractors and/or utility companies are required to use a temporary water-based marking chalk ("Aervoe" brand or approved equal) with a visibility life not to exceed three (3) weeks). It will be the Permittee's responsibility to ensure the complete removal of all pavement markings remaining upon completion of the permitted work. If the Permittee fails to properly and completely remove all pavement markings, the City will effect the removal and deduct from the special deposit for the cost of removal, as determined by the City Engineer.

H. Traffic Requirements

If no special traffic provisions are required, one 12-foot lane of traffic **must** be maintained in each direction. Permittee shall furnish and place all advance warning signs and other flag control devices required by the City Engineer. All advance warning signs shall be constructed and placed in conformance with the current requirements as specified in *The Work Area Traffic Control Handbook (WATCH Manual)*, published by the *American Public Works Association*.

Adequate advance warning barricades must be maintained and traffic must be routed safely around open excavations and obstructions. Excavations adjacent to, or across traveled lanes must be backfilled, compacted and temporarily or permanently paved before the end of each working day or protected pursuant to this Policy in accordance with approved City materials and standards.

The Permittee shall place and maintain barricades and warning lights at each end of the excavation until the excavation is entirely backfilled and surfaced.

Traffic shall not be detoured across double yellow lines, raised or painted medians, or left turn and two-way left turn lanes without prior approval of the City Engineer.

No traffic markings may be obliterated and/or removed without prior approval from the City Engineer. All markings that are eliminated must be replaced by the Permittee to the satisfaction of the City Engineer. If the Permittee fails to replace the traffic marking, it will be replaced by the City and deducted from the special deposit for both direct and indirect costs, as determined by the Engineer.

I. No Parking Signs

Permittee may post temporary "No Parking" signs.

All such "No Parking" signs must clearly identify the applicable dates and times of the temporary no parking, the reason for the posting, and the posting dates and times. Only signs approved by the Public Works Department may be used for such posting. Samples of such signs may be obtained through the Public Works Department, Traffic and Transportation Section located at 633 East Broadway, Room 300. Signs shall not be duplicated or reproduced except with the authorization of the Public Works Department.

"No Parking" signs shall be posted on posts, poles, street light standards, trees or barricades. Signs shall be spaced approximately fifty (50) feet apart. In areas with parking meters, each applicable meter post shall have a separate sign. Signs shall not be taped or glued to the meter head, street light standards, or poles. String, rope, bands or tape may be used.

"No Parking" signs shall not be nailed to any tree. A band, string, rope or other type of fastener shall be used to ensure that trees are not injured or damaged.

In areas where there are no poles, lighting standards or trees, "No Parking" signs shall be displayed by placing the signs on standard Type I barricades. Barricades are to be provided by Permittee.

All posting of "No Parking" signs shall be completed **30 hours** prior to the effective time of the prohibition. Upon completion of the posting, the Permittee shall notify the Police Department at (818)548-3130 or (818)548-4840. The Permittee shall also contact the Traffic and Transportation Section at (818) 548-3960.

The Permittee shall be responsible for assuring that the signs remain posted and legible. Removal of "No Parking" signs and posting materials shall be removed by the Permittee immediately after the expiration of the posted time. "No Parking" signs may **not** be reused by eliminating, adding to, or altering any of the dates, times, reasons or other information originally entered on the sign. The Public Works Department reserves the right to require the removal of any posting without notice.

Postings shall only be valid in areas where parking is allowed, unless special designations are clearly noted on a permit or other written permission to post.

For any construction in the traveled way which results in traffic flow restrictions, the Permittee must at all times provide access for emergency vehicles and residents. In the event Permittee is not able to provide access for emergency vehicles, Permittee shall notify the Fire Department at (818) 548-4822 and the Police Department at (818) 548-3131.

J. Installation of New or Relocated Underground Facilities

The following **minimum** depths of cover below existing, finished, or proposed gutter grade shall be required for all underground pipeline within the roadway:

1. 24 inches for service pipelines.
2. 30 inches for all other pipelines.

K. Excavation Site Safety

Unless backfilled, excavations shall be adequately and safely protected at all times with one or more of the following: steel plate, wooden planking or plywood, approved fencing, barricades or watch persons.

All work shall be in conformance with all applicable safety laws. For information regarding construction safety order, contact the local office of the State of California, Department of Industrial Relations, Division of Industrial Safety.

All bridging must be approved by the City Engineer. If steel plates are used, the minimum surface bearing width shall be 12" on each side of the excavation and the following minimum provisions shall apply for legal loads.

<u>Trench Width</u>	<u>Minimum Plate Thickness</u>
0"- 18"	3 / 4"
24"-36"	1"
48"	1-1/4"

For spans greater than 4 feet, a structural design shall be prepared by a California registered Civil Engineer.

Steel plate bridging shall be installed to operate with minimum noise. Temporary paving with cold asphalt concrete shall be used to feather the edges of the plates. Bridging shall be secured against displacement by using adjustable cleats, shims, or other devices. Surface of the steel plate shall be roughened, taped or coated to provide a non-skid surface for safety.

As required by the City Engineer, steel plate bridging shall be installed using either Method 1 or 2.

1. Method 1 - For Arterial and Collector Streets:

For steel plate bridging exceeding 4 consecutive working days, or speeds 35 mph or greater, the pavement shall be cold planed to a depth equal to the thickness of the plate, and to a width and length equal to the dimensions of the plate.

2. Method 2 - For all other streets and alleys:

Steel plates shall be attached to the roadway by a minimum of 2 dowels pre-drilled into the corners of the plate and drilled a minimum of 2" into the pavement. Each subsequent plate is doweled, butted and tacked to prevent displacement. When the steel plate(s) are removed, the dowel holes shall be backfilled with asphalt concrete mix, concrete slurry or equivalent slurry approved by the

City Engineer.

All costs for inspection shall be borne by the Permittee.

Modification of the above requirements and/or additional requirements may be made in the field, with approval from the City Engineer or his/her designee.

L. Trench / Excavation Resurfacing

Upon issuance of an excavation permit, all work shall be done in accordance with Glendale Standard Plan No. 25-153, Glendale Municipal Code, Chapter 12.08, and Glendale Excavation Permit requirements, where applicable. The General notes to Standard Plan 25-153, are as follows:

All work shall be done in accordance with the *Standard Specifications for Public Works Construction* (latest Edition), including supplements and City of Glendale Additions and Amendments.

All pavement removals shall be made to clean straight lines saw cut to a minimum of 1.5 inches deep. If normal cut line is less than three feet from previous cut lines, or less than three feet from concrete expansion joints and edges, the existing pavement shall be removed to said cut lines, joints and edges or as directed by the City Engineer or his/her designee. Pavement saw cuts shall not extend beyond the boundaries for that section of pavement to be removed.

Over-cutting of pavement removals will not be accepted.

During trenching, excavation and sub-grade preparation, the Permittee shall take all necessary steps to insure the protection of all improvements, whether public or private, including utilities and their service connections, from any damage that could occur due to its operation.

Backfill and densification shall be done in conformance with Section 30-6-1.3 of the *Standard Specifications*, except as follows:

Excavation backfill shall be compacted to a minimum of 90 percent relative compaction.

All City arterial and collector streets require one sack sand slurry backfill.

When pavement is to be placed directly on sub-grade material, the top 6 inches of sub-grade material shall be compacted to a relative compaction of 95 percent.

Temporary resurfacing shall be placed at the Permittee's expense, unless otherwise specified by the City Engineer. It shall be placed level with the existing pavement on compacted excavation backfill and shall be a minimum of 2 inches thick maintained free of depressions.

Permanent resurfacing shall be done at Permittee's expense and no longer than **one week** after backfilling of excavations has been completed. **For asphalt concrete (AC) pavement, a 12-inch wide strip of pavement shall be saw cut, cold-planed or a combination of both, on all sides of the excavation, in accordance with the City of Glendale Excavation Permit.** All cuts shall be clean and straight. The contact surfaces of existing pavement, manhole frames and shafts and concrete surfaces shall be given a tack coat before permanent asphalt excavation resurfacing is placed. All work shall be guaranteed from failure for one year after completion of project. In the case of excavation resurfacing by utility companies, the work shall be guaranteed for the life of the street.

Case I and II permanent resurfacing shall consist of an AC surface course of Type C2-PG 64-10 or Type D2-PG 64-10, as determined by the City Engineer, 1-½ inch thick placed on an asphalt concrete base course of Type B-PG 64-10. Where the original asphalt pavement thickness is six inches or less, the replacement thickness shall be a minimum of one inch greater than the original thickness, up to a maximum of six inches. If the thickness of the original asphalt is six inches or more, then the replacement thickness shall be to the same thickness as the original asphalt, or as directed by the City Engineer.

After the final paving, all joint edges shall be sealed with tack coat to the satisfaction of the City Engineer.

In the event the Permittee fails to comply with any of the above-stated requirements, the Permittee will have (10) working days from the date of notification to bring the project into full compliance with the stated policy requirements. In the event that the Permittee fails to comply with said requirements, the Public Works Department may complete, or cause the work to be completed, in order to bring the project into compliance. Compensation of costs for the work administered by the Public Works Department will then be billed to the Permittee, as determined by the Director of Public Works. If the Permittee fails to contest or pay for the amount billed, then City will reserves the right to deduct said costs from the special deposit.

Trenches/Excavation final capping, five (5') feet wide, or wider, shall be machine paved.

Final paving less than five feet wide shall require a spreader box method to ensure a smooth grade. Paving will be in accordance with the Public Works Department requirements at the time of the excavation repair.

M. Moratorium Streets

1. Three Year Moratorium on Resurfaced Public Rights-of-Way

Excavations will be prohibited for a minimum of three years (3) after any public street, alley, sidewalk or other public place that has been newly constructed, re-constructed, re-surfaced or replaced in part or whole. The moratorium will be in effect beginning from the completion of such construction and remain in effect a minimum of three years (3) from said completion.

2. One Year Moratorium on Slurried Public Rights-of -Way

Excavations will be prohibited for a minimum of one year (1) after any public street, alley or other public place that has been newly slurried. The moratorium will be in effect beginning from the completion of such construction and remain in effect a minimum of one year (1) from said completion.

N. Permanent Utility Location Markings

In the event that a utility, municipal or private corporation, or any other agency or contractor desires to install a permanent location indicator for any of their equipment, appurtenances and/or substructures, the location, type of marking device, and method of installation shall be approved by the Director of Public Works prior to any installation. In no case shall the utility or contractor identify the location by painting the street, curb, gutter or sidewalk, or chiseling, chipping or grading the street, curb, gutter or sidewalk.

In the event that any firm or agency fails to abide by the conditions of this section, the illegal marking must be removed by that firm or agency within five days of notification from the Director of Public Works. Failure to remove the illegal marking within the required time will result in the City removing or causing the removal of the markings. The costs will then be billed to the offending firm or agency.

APPENDIX C

PERMITS



GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

Division of Drinking Water

May 12, 2023

Mr. Sarkis Oganessian, PE
City of Glendale Water and Power
Deputy Director of Public Works/City Engineer
141 North Glendale Ave
Level 4, Administration Section
Glendale, CA 91206-4496

Dear Mr. Oganessian:

SYSTEM NO. 1910043 – MAIN SEPARATION WAIVER APPROVAL – CITY OF GLENDALE WATER AND POWER – LA CRESCENTA SEWER

The State Water Resources Control Board's Division of Drinking Water (Division) has reviewed the enclosed Waterworks Standards Main Separation Waiver Request and corresponding plans (Waiver Request) for the La Crescenta main replacements. The Waiver Request was submitted to the Division by City of Glendale Water and Power (GWP) by email on March 27, 2023. The project area has 6 to 12-inch domestic watermain of Ductile Iron and Cast Iron material buried in the ground.

Due to the constricted space and existing structures, some portions of the upgraded mains will need to be installed at distances from the existing utility lines that are less than those required by Section 64572, Water Main Separation of the California Waterworks Standards.

Section 64572, Water Main Separation of the California Waterworks Standards, requires new supply lines to be constructed at least 10 feet horizontally from and 1 foot vertically above any parallel pipelines conveying sewage and hazardous fluids such as oil, and at least 4 feet horizontally from, and 1 foot vertically above, any parallel pipeline conveying storm drainage. When crossing non-potable pipelines, the new supply lines must be constructed no less than 45 degrees to and at least 1 foot above that pipeline. No connection joints should be made in the new supply line within 8 horizontal feet of the non-potable pipeline.

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

However, Section 64551.100 of the California Waterworks Standards allows a water system to propose an alternative to a requirement in the standards, if the water system can demonstrate to the Division that the proposed alternative would provide at least the same level of protection to public health and obtain a written approval from the Division.

GWP's Waiver Request identifies three locations where the proposed sewer main will not meet the Waterworks Standards requirements. The sewer main is crossing the existing 6 to 12-inch Ductile Iron and Cast Iron watermain at 9, 28 and 44 degrees. The GWP's proposal is to construct the 12-inch sewer main with polyvinylchloride (PVC) pipe per AWWA C900 utilizing gasket push-on rubber joints.

The Division finds this proposal acceptable and approves it as proposed. However, during construction of the new water mains, if the horizontal or vertical separation is less than what is approved here, GWP shall inform the Division to determine if further review will be necessary. If you have any questions, please contact Amy Kaur at (818) 551-2064 or myself at (818) 551-2016.

Sincerely

Chi Diep

Digitally signed
by Chi Diep
Date: 2023.05.12
13:41:12 -07'00'

Chi Diep, P.E.
District Engineer
Metropolitan District

Cc: Kevin Runzer, City of Glendale (via email)
Rustom Tavitian, City of Glendale (via email)

Enclosure:

La Crescenta Sewer Mainline Waiver Application



**COUNTY OF LOS ANGELES
PUBLIC WORKS**

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803

PERMIT TYPE: Flood
PERMIT CLASS/SUBCLASS: Construction
FINALED:

PERMIT#: FCDP2023000216
PERMIT STATUS: Issued
Page 1 of 8
ISSUE DATE: 09/29/2023
BY: Corey Mayne
PERMIT OFFICE: PO2
23757 W. Valencia Blvd
Valencia, CA 91355
(661) 222-2948
(661) 222-2952 Fax

APPLICANT Owner/Applicant City of Glendale Rustom Tavitian	ADDRESS 633 E Broadway #Room 205 Glendale, CA 91206	Business: (818)937-8326 email: rtavitian@glendaleca.gov
LOCATION: Multiple locations per plans. Reference intersection: La Crescenta Ave. and Honolulu Ave., City of Glendale FLOOD FACILITY NAME: Miscellaneous Transfer Drain (MTD) 590		PROJECT/WORK ORDER NO.

INSPECTION REQUIRED

CALL PERMIT OFFICE AT LEAST ONE (1) WORKING DAY BEFORE STARTING WORK UNDER THIS PERMIT. FAILURE TO DO SO IS CAUSE FOR REVOCATION OF THIS PERMIT. THIS PERMIT IS VOID IF WORK IS NOT STARTED BY 03/27/2024

PROJECT DESCRIPTION: To authorize the work described below affecting the subject facility in accordance with the approved plans. PROJECT: City of Glendale - Bicycle Friendly Catch Basin Grate Replacements WORK DESCRIPTION: Remove existing catch basin grates and replace with bicycle friendly grates, per Std. Plan S-342-4.
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PROJECT CONDITIONS: <ol style="list-style-type: none">1. No work is allowed until the County reviews and approves contractor's insurance documents including addition insured endorsement.2. A pre-construction meeting is required before starting work under this permit. Permittee/Contractor must contact Permit Office indicated on the permit.3. Permittee shall provide a minimum 48 hour advanced notice to all adjacent property owners or occupants within a 100 foot radius of the project site. The notice shall be written in the form of a letter, doorhanger, or flyer; and provide sufficient information regarding the project including the scope of work, schedule of work, working hour and a human contact to handle questions. Evidence of such notice must be produced upon demand by any District representative. Permittee must also notify the following at least 2 business days before taking action on this permit: Stormwater Maintenance Division - Hansen Yard (West) - (818) 896-05944. Permittee must provide a schedule of activities, including duration, to avoid any potential conflicts with District maintenance activities in the area5. This permit shall not be exercised during inclement weather or when the 5-day forecast predicts rain. No activities will be allowed during storm events6. Unless otherwise indicated in this permit, all work authorized by this permit shall conform to the latest editions of
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the Standard Plans For Public Works Construction (SPPWC) and Standard Specifications for Public Work Construction (Greenbook).

7. Issuance of this permit shall not be construed as an obligation on the part of the District to assume responsibility for any damages incurred to the permittee's improvements in the event of storm drain and/or channel failure or flooding from rain storms.
8. Upon satisfactory completion of construction, the District will assume operation and maintenance of the modified LACFCD facilities.
9. During the period of operations conducted under the permit, Permittee shall maintain in effect an insurance policy (minimum limit of \$2 million) naming the District/County as additional insured with respect to these operations. Expiration or cancellation of the insurance policy shall constitute revocation of this permit.
10. Additional Attachment(s):
FCDP2023000216 Approved Plans
Standard Plan S-342-4 - Bicycle Safe Grating

Attachments: Los Angeles County Flood Permit Standard Provisions, Best Management Practices(BMPs)

FEE NAME	FEE CODE	AMOUNT
Permit Issuance	01246307	\$161.00
TOTAL FEES:		\$161.00

Performance of work activity under this permit is tantamount to agreeing to the following terms:

1. This Permit authorizes Permittee to perform the scope of work described above, at the location described above, subject to the provisions and conditions contained in this Permit and any attachments hereto.
2. Permittee shall comply with the provisions of Chapter 19 of the Los Angeles County Flood Control District Code. In addition, for work in the unincorporated territory of the County of Los Angeles, Permittee shall also comply with the provisions of the Flood Control Channels Ordinance (Chapter 20.94 of Title 20, Los Angeles County Code) and the County of Los Angeles Highway Permit Ordinance (Division 1 of Title 16, Los Angeles County Code).
3. **INSPECTION REQUIRED** - Contact the Permit Office indicated on the Permit at least one (1) working day before starting any work. Failure to do so may result in this permit being suspended or revoked.
4. Compliance with Section 8771 of the State of California Business and Professions Code for the preservation and/or perpetuation of existing land survey monuments.
5. Permittee shall comply with the provisions of Chapter 21 of the Los Angeles County Flood Control District Code, and the Best Management Practices (BMPs) Attachment. In addition, for work in the unincorporated territory of the County of Los Angeles, Permittee shall also comply with the provisions of Chapter 12.80, of Title 12, Los Angeles County Code.
6. This permit must be made available for inspection at the work site upon request by a County or District representative, or law enforcement official.
7. This permit will expire if the work is not commenced within 180 days from the date of permit issuance.
8. Upon completion of work, contact the Permit Office indicated in this Permit no later than the next working day. Failure to do so may result in additional fees assessed.
9. This Permit is revocable by the District if the District determines that the public interest and welfare require such revocation and shall be deemed void if the Permittee is not in compliance with Section 3800 of the Labor Code.

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT STANDARD PERMIT PROVISIONS

1. This permit is valid only for the purpose specified herein. No change of purpose as outlined in application or drawings submitted with application is permitted except upon written permission of the Chief Engineer or his representative.
2. Activities and uses authorized under this permit are subject to any instructions of the Chief Engineer or his representative. **ALL INSTRUCTIONS MUST BE STRICTLY OBSERVED.**
3. Permittee shall be responsible for notifying their contractor and all subcontractors of the provisions of this permit.
4. Permittee (including its contractors and subcontractors) shall indemnify, defend (with counsel reasonably satisfactory to District and the County of Los Angeles), and hold harmless District and the County of Los Angeles and their elected and appointed officers, employees and agents, from and against any and all claims, expenses (including court costs and reasonable attorney and expert witness fees) demands, liabilities, losses, or causes of action of whatsoever nature or character, for injury, illness or death or loss of, damage to or destruction of property which arises out of, or is in any way connected to, the activities of Permittee described in this Permit.

This indemnification shall survive in its entirety the termination or revocation of this Permit, and shall remain in full force and effect in perpetuity, unless agreed to otherwise in writing by the District.

5. Permittee shall protect all District facilities where the proposed work comes in close proximity to the District facilities. Any damage caused to Flood Control structures by reason of exercise of this permit shall be repaired, at the permittee's sole expense, to the satisfaction of the District. Should the permittee neglect to promptly make repairs, the District may perform such work or have others perform the work, and the permittee agrees to reimburse the District for all costs of the work so performed upon receipt of a statement thereof.
6. Any structure or portions thereof or plantings placed on District rights of way or which affect District structures must be removed, revised, and/or relocated by permittee without cost to the District, or any other public agency the District shall so designate, should future activities or policy so require.
7. Unless authorized by this permit, permittee shall not prune, deface, destroy or remove any tree or landscaping growing or to grow upon the District right of way.
8. This permit is valid only to the extent of District jurisdiction. Acquisition of permits required by other affected agencies and consent of underlying fee owner(s) of District easement lands are the responsibility of the permittee. **NOTHING CONTAINED IN THIS PERMIT SHALL BE CONSTRUED AS A RELINQUISHMENT OF ANY RIGHTS NOW HELD BY THE DISTRICT.**
9. This permit is subject to all prior unexpired permits, agreements, easements, privileges, or other rights, whether recorded or unrecorded, in the area specified by this permit. Permittee shall make his own arrangements with holders of such prior rights.
10. Ingress and egress shall be at locations approved by the District's representative.
11. Permittee shall keep the District's right of way clear of obstructions for through access at all times and shall not interfere with the activities of the District's representative. Permittee shall be prepared to remove all material or equipment upon notice to accommodate District's operation and maintenance needs.

12. Permittee shall not use District's right of way for the temporary or permanent storage of excavated materials, rock, sand, cement, or other material, or any equipment, except as specifically noted.
13. Unless otherwise specified herein, this permit may be revoked or canceled at any time by the Chief Engineer or his representative when required for District purposes.
14. Upon written notice of cancellation or revocation of this permit for any cause whatsoever, permittee shall restore District right of way and structures to their condition prior to the issuance of the permit and then shall vacate District property. Should permittee neglect to restore the premises or structures to a condition satisfactory to the Chief Engineer or his representative, the District may perform such work or have others perform the work, and the permittee agrees to reimburse the District for all costs of the work so performed upon receipt of a statement thereof.
15. Permittee will be subject to fines from the California Regional Water Quality Control Board, the California Department of Fish and Wildlife, and the United States Coast Guard for any water pollution resulting from these activities.
16. In the event of a District employee work stoppage, the Chief Engineer or his representative reserves the right to suspend all activity authorized under this permit which requires inspection by the District. Activity authorized by the permit shall not resume until District approval to do so is given.
17. Unless otherwise specifically provided, all costs incurred by permittee as a result of the conditions of the permit or exercise by District of any right, authority, or reservation contained therein shall be the sole responsibility of and shall be borne entirely by the permittee.

Best Management Practices (BMPs)

Attachment

The Los Angeles County Department of Public Works (LACDPW) requires Permittees and their contractors to implement a program to effectively control water pollution during all Permit construction projects.

This project shall conform with the requirements of the following County Code and Permits:

- Los Angeles Regional Water Quality Control Board Order No. R4-2021-0105, NPDES Permit No. CAS 004004, Waste Discharge Requirements And National Pollutant Discharge Elimination System (NPDES) Permit For Municipal Separate Storm Sewer System (MS4) Discharges Within The Coastal Watersheds Of Los Angeles And Ventura Counties
- NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ amended by 2010-0014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002)

The Permittee or Authorized Representative and their contractors shall know and fully comply with the applicable provisions of these permits and Federal, State and local regulations that govern the Permittee or Authorized Representative's operations and the storm water discharges from the project site.

In order to ensure a minimum level of water quality control, the Permittee or Authorized Representative and their contractors shall effectively implement and maintain appropriate Best

- Management Practices (BMPs) shown in Table 1. In addition, the Permittee or Authorized Representative and their contractors shall comply with the following requirements:
- Sediments shall not be discharged to the storm drain system or receiving waters. Sediments generated on the construction site shall be retained.
- No construction-related materials: waste, spills, or residue shall be discharged from the project site to streets, drainage facilities, receiving waters, or adjacent property by wind or runoff.
- Non-storm water runoff from equipment, vehicle washing, or any other activity shall be contained within the project site using appropriate BMPs.
- Erosion from slopes and channels shall be prevented.
- Minimize grading during the wet season (October 15 through April 15). All erosion susceptible slopes shall be covered, planted, or protected in any way that prevents sediment discharge from the project site.

BMPs shall conform to the requirements in the LACDPW Construction Division's "Construction Site Best Management Practices (BMPs) Manual," and addenda thereto issued up to and including, the date of issuance of the Permit for the project. Copies of the Manual are available for download at:

Year-Round Implementation Requirements

The Permittee or Authorized Representative and their contractors shall have an effective program for implementing, inspecting, and maintaining water pollution control practices for wind erosion control, tracking control, non-storm water control, and waste management and materials pollution control.

Soil stabilization and sediment control practices shall be provided throughout the rainy season, defined as between October 15 and April 15, and whenever the National Weather Service predicts rain within 24 hours. The National Weather Service weather forecast shall be monitored and used by the Permittee on a daily basis.

The non-rainy season shall be defined as all days outside the defined rainy season. Disturbed soil areas within the project shall be protected in conformance with the requirements in the Construction Site BMP Manual with sediment controls implemented prior to a predicted rain event.

Maintenance and Inspection

The Permittee or Authorized Representative and their contractors shall be responsible throughout the duration of the project for installing, constructing, inspecting, maintaining, removing and disposing of the BMPs. Unless otherwise directed by LACDPW, the Permittee or Authorized Representative and their contractors are responsible for BMP implementation and maintenance throughout any temporary suspension of work. The Permittee or Authorized Representative shall reimburse LACDPW for the full costs of cleaning or repairing of storm drain, water course, or channel which may be necessary due to ineffective implementation of BMPs.

The project site shall be inspected by the Permittee or Authorized Representative or their contractors a minimum of once every week or at least once for projects that last only one week or less.

Report of Non-Permitted Discharge and Enforcement

If the Permittee or Authorized Representative or their contractors identify any non-permitted discharge into the storm drain system or receiving waters in a manner causing, or potentially causing, a condition of pollution, or if the project receives a written notice or order from any regulatory agency, the Permittee or Authorized Representative or their contractors shall immediately inform LACDPW Construction Division Permits Section by calling the assigned Field Office. The Permittee or Authorized Representative or their contractors shall submit a written report (see attached Notice of Non-Permitted Discharge) to the LACDPW within 5 days of the discharge event, notice or order.

The Permittee or Authorized Representative and their contractors are subject to enforcement action by Chapter 12.80 of the Los Angeles County Code that states, *corporation, municipality or district or any officer or agent of any firm, corporation, municipality or district violating any provision of this chapter shall be guilty of a misdemeanor. Such violation shall be punishable by a fine of not more than \$1,000 or by imprisonment in the county jail for a period not to exceed six months, or by both fine and imprisonment. Each day during any portion of which such violation is committed, continued or permitted shall constitute a separate offense and shall be punishable as such (Ord. 98-0021§1(part), 1998).*

In addition, the Permittee or Authorized Representative and their contractors are subject to enforcement action by the State Water Resources Control Board (SWRCB), Environmental Protection Agency, private citizens and citizen groups. The Permittee or Authorized

Representative and their contractors shall be responsible for the costs and for liabilities imposed by law as a result of the Permittee or Authorized Representative or their contractor's failure to

comply. Costs and liabilities include, but are not limited to, fines, penalties and damages whether assessed against LACDPW or the Permittee or Authorized Representative or their contractors, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act.

Table 1 Construction Site BMPs		
ID	BMP Name	Minimum Requirement⁽¹⁾
Temporary Soil Stabilization		
SS-1	Scheduling	X ⁽²⁾
SS-2	Preservation of Existing Vegetation	X ⁽²⁾
SS-3	Hydraulic Mulch ⁽³⁾	
SS-4	Hydroseeding ⁽³⁾	
SS-5	Soil Binders ⁽³⁾	
SS-6	Straw Mulch ⁽³⁾	
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats ⁽³⁾	
SS-8	Wood Mulching	
SS-9	Earth Dikes/Drainage Swales & Ditches	
SS-10	Outlet Protection/Velocity Dissipation Devices	
SS-11	Slope Drains	
SS-12	Streambank Stabilization	
Temporary Sediment Control		
SC-1	Silt Fence ⁽⁴⁾	
SC-2	Desilting Basin	
SC-3	Sediment Trap	
SC-4	Check Dam	
SC-5	Fiber Rolls ⁽⁴⁾	
SC-6	Gravel Bag Berm ⁽⁴⁾	
SC-7	Street Sweeping and Vacuuming	X ⁽²⁾
SC-8	Sandbag Barrier ⁽⁴⁾	
SC-9	Straw Bale Barrier ⁽⁴⁾	
SC-10	Storm Drain Protection	X ⁽²⁾
Wind Erosion Control		
WE-1	Wind Erosion Control	X ⁽²⁾
Tracking Control		
TC-1	Stabilized Construction Entrance/Exit	
TC-2	Stabilized Construction Roadway	
TC-3	Entrance/Outlet Tire Wash	

Table 1 (continued) Construction Site BMPs		
ID	BMP Name	Minimum Requirement ⁽¹⁾
Non-Storm Water Management		
NS-1	Water Conservation Practices	
NS-2	Dewatering Operations ⁽⁵⁾	
NS-3	Paving and Grinding Operations	
NS-4	Temporary Stream Crossing	
NS-5	Clear Water Diversion	
NS-6	Illicit Connection/Illegal Discharge Detection and Reporting	X ⁽²⁾
NS-7	Potable Water/Irrigation	
NS-8	Vehicle Equipment Cleaning	X ⁽²⁾
NS-9	Vehicle Equipment Fueling	X ⁽²⁾
NS-10	Vehicle Equipment Maintenance	X ⁽²⁾
NS-11	Pile Driving Operations	
NS-12	Concrete Curing	
NS-13	Material and Equipment Use Over Water	
NS-14	Concrete Finishing	
NS-15	Structure Demolition/Removal Over or Adjacent to Waters	
NS-16	Temporary Batch Plant	
Waste Management and Material Pollution Control		
WM-1	Material Delivery	X ⁽²⁾
WM-2	Material Use	X ⁽²⁾
WM-3	Stockpile Management	
WM-4	Spill Prevention and Control	X ⁽²⁾
WM-5	Solid Waste Management	X ⁽²⁾
WM-6	Hazardous Waste Management	
WM-7	Contaminated Soil Management	
WM-8	Concrete Waste Management	
WM-9	Sanitary/Septic Waste Management	X ⁽²⁾
WM-10	Liquid Waste Management	

(1) Additional BMPs may be required based on actual field condition, Contractor operations, or construction operations.

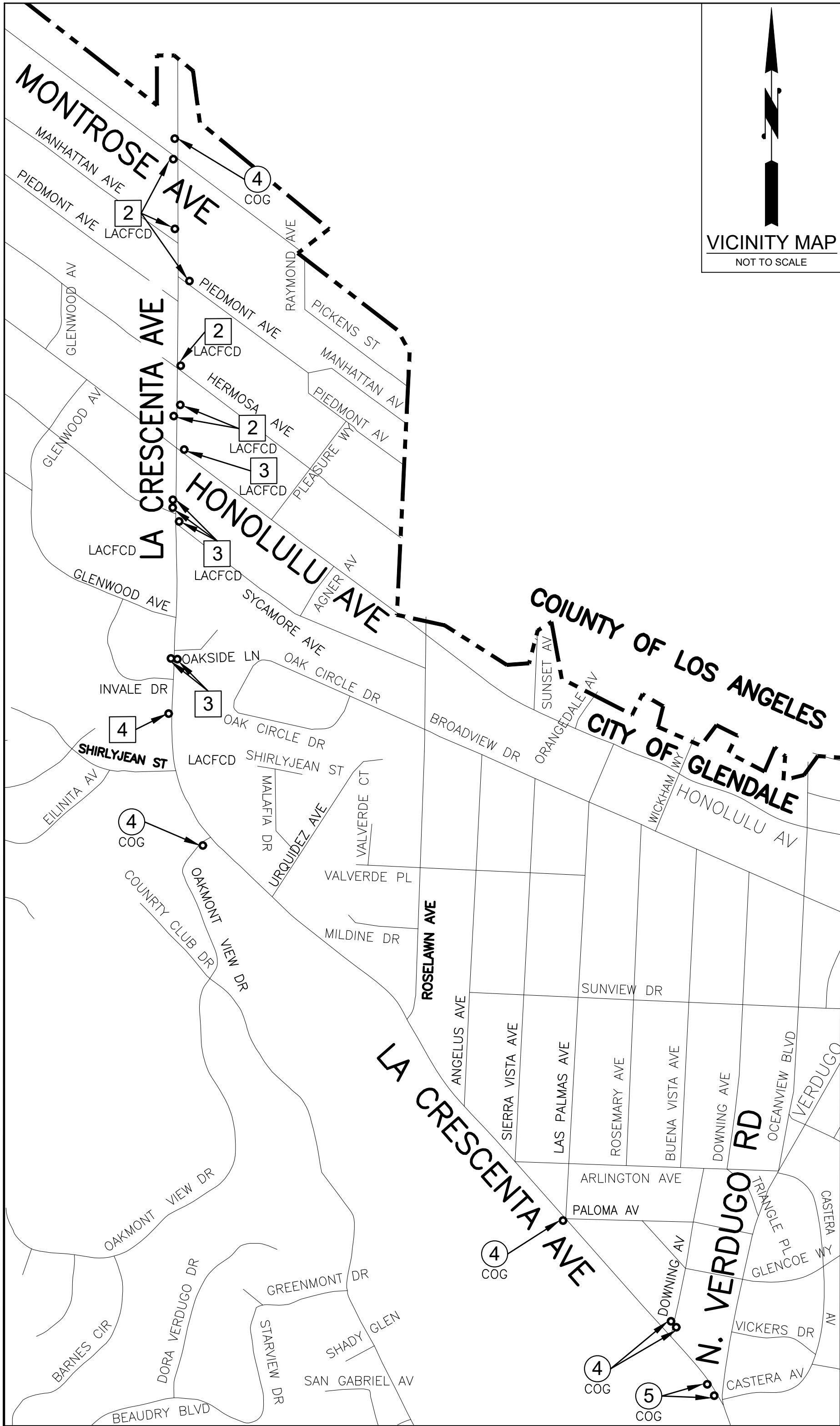
(2) Not all minimum requirements may be applicable to every project. Applicability to a specific project shall be verified by the Permittee or Authorized Representative and their Contractor.

(3) The Permittee or Authorized Representative and their Contractors shall select one of the identified soil stabilization BMPs or a combination thereof.

(4) The Permittee or Authorized Representative and their Contractors shall select one of the identified sediment control barrier BMPs or a combination thereof.

(5) Dewatering BMPs are required for discharging accumulated precipitation (rain and snow melt) and for potential contact with groundwater during

INSTALLATION OF BICYCLE FRIENDLY CATCH BASIN SURFACE GRATES ON LA CRESCENTA AVENUE



VICINITY MAP
NOT TO SCALE

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT BICYCLE FRIENDLY CATCH BASIN SURFACE GRATES REPLACEMENT SCHEDULE

LOCATION NO.	DESCRIPTION	SHEET NO.	ID NO.	NO. OF PANELS
1	SW LA CRESCENTA ON MONTROSE	SHEET 2	ID: 1741245	2 EA
2	NW LA CRESCENTA AT MANHATTAN	SHEET 2	ID: 1741244	8 EA
3	NE LA CRESCENTA AT PIEDMONT	SHEET 2	ID: 1741256	1 EA
4	NE LA CRESCENTA AT HERMOSA	SHEET 2	ID: 1741254	1 EA
5	E LA CRESCENTA B/W HERMOSA AND HONOLULU	SHEET 2	ID: 1741252	2 EA
6	W LA CRESCENTA B/W HERMOSA AND HONOLULU	SHEET 2	ID: 1741238	1 EA
7	NE LA CRESCENTA ON HONOLULU	SHEET 3	ID: 1741250	8 EA
8	W LA CRESCENTA B/W HONOLULU AND SYCAMORE	SHEET 3	ID: 1741237	8 EA
9	NW LA CRESCENTA AT SYCAMORE	SHEET 3	ID: 1741236	8 EA
10	NE LA CRESCENTA AT SYCAMORE	SHEET 3	ID: 1742024	8 EA
11	W LA CRESCENTA B/W GLENWOOD AND INVALE	SHEET 3	ID: 1742026	8 EA
12	E LA CRESCENTA B/W OAKSIDE AND INVALE	SHEET 3	ID: 1742025	8 EA
13	W LA CRESCENTA B/W INVALE AND SHIRLYJEAN	SHEET 4	ID: 1742028	8 EA

TOTAL: 71 EA

CITY OF GLENDALE BICYCLE FRIENDLY CATCH BASIN SURFACE GRATES REPLACEMENT SCHEDULE

LOCATION NO.	DESCRIPTION	SHEET NO.	ID NO.	NO. OF PANELS
14	NW LA CRESCENTA AT MONTROSE	SHEET 4	ID: 1741247	1 EA
15	SE LA CRESCENTA ON OAKMONT VIEW DR	SHEET 4	ID: 1742019	1 EA
16	W LA CRESCENTA B/W ARLINGTON AND LAS PALMAS	SHEET 4	ID: 1797270	8 EA
17	NE LA CRESCENTA ON DOWNING	SHEET 4	ID: 1797247	1 EA
18	SE LA CRESCENTA ON DOWNING	SHEET 4	ID: 1797267	1 EA
19	W LA CRESCENTA AT VERDUGO	SHEET 5	ID: 1797235	8 EA
20	W LA CRESCENTA AT VERDUGO	SHEET 5	ID: 1797236	8 EA

TOTAL: 28 EA

GENERAL NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (2021 EDITION), STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (2012 EDITION), CITY OF GLENDALE AMENDMENTS TO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND APPLICABLE STANDARD PLANS AND SPECIFICATIONS NO. 3829.
- UTILITIES ARE SHOWN ACCORDING TO RECORDS IN THE OFFICE OF THE CITY ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF ALL UTILITIES AND THEIR SERVICE CONNECTIONS.
- PERFORMED EXPANSION JOINTS 1/4" THICK SHALL BE PLACED IN CONCRETE CURB, GUTTER AND SIDEWALK, AT THE BEGINNING AND END OF ALL CURVES, AT THE TOP OF "X" OF DRIVEWAYS AND WHEELCHAIR RAMPS AND AT UNIFORM INTERVALS NOT TO EXCEED 25 FT.
- EXISTING UTILITIES SHALL BE MAINTAINED IN PLACE BY THE CONTRACTOR, UNLESS OTHERWISE NOTED IN PLANS.
- THE CONTRACTOR SHALL REMOVE THE EXISTING PAVEMENT, CURB, GUTTER, AND SIDEWALK WHERE NEW IMPROVEMENTS ARE REQUIRED.
- NO CONSTRUCTION MATERIALS OR DEBRIS SHALL BE STORED WITHIN THE TREE WELL OF ANY CITY STREET TREE.
- IN GENERAL, THE CONTRACTOR SHOULD TAKE SUCH STEPS AS NECESSARY TO PROTECT ROOTS, BARK, TRUNK, BRANCHES AND LEAVES FROM INJURY DURING CONSTRUCTION.
- SURFACE PLANE AND PAVEMENT REMOVAL AREAS AND LOCATIONS ARE SUBJECT TO ADJUSTMENT TO MAXIMIZE REMOVAL OF DETERIORATED A.C. PAVEMENT.
- PRIOR TO POURING CONCRETE ADJACENT TO EXISTING CURB, THE CURB SHALL BE PREPARED BY REMOVING CONCRETE REMNANTS, DIRT AND ASPHALT, TO INSURE GOOD CONTACT WITH EXISTING CONCRETE.
- UNDERGROUND UTILITIES ARE SHOWN SCHEMATICALLY ON THE PLANS. THE CONTRACTOR SHALL OBTAIN FROM THE RESPECTIVE OWNERS THE EXACT LOCATION OF THESE UTILITIES PRIOR TO ANY EXCAVATION WORK. LOCATION OF UTILITIES WITHIN THE PROJECT ARE ON FILE IN THE CITY ENGINEER'S OFFICE FOR REFERENCE. THE CONTRACTOR SHALL ALSO NOTE THAT FIELD MARKINGS MADE BY VARIOUS UTILITIES USING UNDERGROUND SERVICE ALERT (USA) SHALL BE CONSIDERED AS IDENTIFIED UTILITIES EVEN WHEN THEY ARE NOT SHOWN ON PLANS.
- THE CONTRACTOR SHALL NOTIFY RESIDENTIAL PROPERTY OWNERS 72 HOURS AND BUSINESS ESTABLISHMENTS 96 HOURS PRIOR TO ANY CLOSURE OF THEIR EXISTING DRIVEWAYS.
- ALL TREES SHALL REMAIN IN PLACE AND SHALL BE ADEQUATELY PROTECTED DURING CONSTRUCTION UNLESS OTHERWISE SPECIFIED IN PLANS.
- ALL CONCRETE REMOVALS SHALL BE MADE TO A CLEAN SAWCUT LINE PER STANDARD SPECIFICATIONS.
- ASPHALT CONCRETE PAVEMENT SHALL BE CONSTRUCTED JOINING GUTTER WITH 1/4" LIP.
- THE COMPLETED ASPHALT/ASPHALT RUBBER HOT MIX PAVEMENT SHALL BE THOROUGHLY COMPACTED TO BE FREE FROM BUMPS, DEPRESSION OR IRREGULARITIES. ANY RIDGES, INDENTATIONS OR OTHER OBJECTIONABLE MARKS LEFT ON THE SURFACE OF THE NEW PAVEMENT SHALL BE ELIMINATED BY ROLLER OR OTHER MEANS.
- ALL NEW PCC PAVEMENT (SIDEWALKS, DRIVEWAYS, CROSS GUTTERS, BUS PADS, ETC.) SHALL HAVE WEAKENED PLANE JOINTS OR SCORELINES THAT MATCH EXISTING ADJACENT PATTERNS. AT LOCATIONS WHERE THERE ARE NO SIDEWALKS, THE WEAKENED PLANE JOINTS OR SCORELINES SHALL BE CONSTRUCTED AT REGULAR 5.0 FT INTERVALS IN ACCORDANCE WITH APWA STANDARD PLANS.
- ALL EXISTING ELECTRICAL FACILITIES SHALL BE PROTECTED IN PLACE DURING CONSTRUCTION, UNLESS OTHERWISE NOTED ON THE PLANS. GWP ELECTRICAL PULL BOXES, MANHOLES, VAULTS, AND VENTS WILL BE ADJUSTED TO GRADE BY THE CONTRACTOR WITH GWP SAFETY CREW PRESENT. POWER POLES WILL BE RELOCATED BY GWP. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE REQUIRED WORK. ANY ELECTRICAL FACILITY DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL GIVE 48 HOURS ADVANCED NOTIFICATION TO GWP.
- ALL EXISTING STREET LIGHT FACILITIES (PULL BOXES, STREET LIGHT POLES, CONDUITS, ETC.) SHALL BE PROTECTED IN PLACE AND BE ACCESSIBLE TO GWP PERSONNEL AT ALL TIMES, UNLESS OTHERWISE NOTED ON THE PLANS. RELOCATION AND ADJUSTMENT OF ANY EXISTING STREET LIGHT SYSTEM IN CONFLICT WITH THE PROJECT WILL BE AT THE PROJECT'S EXPENSE. RELOCATION AND ADJUSTMENT OF ANY STREET LIGHT SYSTEM WILL BE DONE BY THE CONTRACTOR IN ACCORDANCE WITH THE PLANS APPROVED BY GWP STREET LIGHT ENGINEERING. ALL CONNECTIONS, SPLICES AND WIRING OF THE SYSTEM SHALL BE DONE BY GWP. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE REQUIRED WORK. PLEASE CALL GWP STREET LIGHT ENGINEERING AT (818) 548-4877 FOR MORE INFORMATION. ANY STREET LIGHT FACILITY DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL GIVE 48 HOURS ADVANCED NOTIFICATION TO GWP.

WATER POLLUTION CONTROL GENERAL NOTES

- THIS PROJECT WILL REQUIRE THE IMPLEMENTATION OF BEST MANAGEMENT PRACTICES (BMPs) NECESSARY TO MEET MINIMUM WATER QUALITY PROTECTION REQUIREMENTS AS SPECIFIED IN SECTION 2.16 IN THE SPECIAL PROVISIONS OF THE PROJECT SPECIFICATIONS. ADDITIONAL REQUIREMENTS ARE SPECIFIED IN PART 4, SECTION E-DEVELOPMENT CONSTRUCTION PROGRAM OF THE "MUNICIPAL STORM WATER AND URBAN RUNOFF DISCHARGES PERMIT" (ORDER #01-182).
- THE CONTRACTOR (INCLUDING ALL SUBCONTRACTORS) IS DIRECTED TO IMPLEMENT BMPs IN CONJUNCTION WITH ALL ACTIVITIES AND OPERATIONS. THE CONTRACTOR SHALL MAINTAIN COPIES OF BMP FACT SHEETS (GUIDANCE PAPER) AT THE PROJECT SITE, AND SHALL EMPHASIZE TO WORKERS/EMPLOYEES THE PRACTICES CONTAINED ON EACH FACT SHEET DURING CONSTRUCTION MEETINGS AND CONSTRUCTION OPERATIONS.
- THE FOLLOWING BMPs WERE SELECTED FROM THE CALIFORNIA STORM WATER BEST MANAGEMENT PRACTICE HANDBOOK, CONSTRUCTION VOLUME (www.cabmp.com) AND SHALL APPLY TO THIS PROJECT:

SITE PLANNING CONSIDERATION
PRESERVATION OF EXISTING VEGETATION (EC-2)

CONSTRUCTION PRACTICES
STABILIZED CONSTRUCTION ENTRANCE (TC-1)
SPILL PREVENTION AND CONTROL (WM-04)
DUST CONTROL/WIND EROSION CONTROL (WE-1)
STORM DRAIN INLET PROTECTION (SE-10)

VEHICLE & EQUIPMENT MANAGEMENT
VEHICLE & EQUIPMENT CLEANING (NS-08)
VEHICLE & EQUIPMENT MAINTENANCE (NS-10)

MATERIAL MANAGEMENT
SOLID WASTE MANAGEMENT (WM-05)
CONCRETE WASTE MANAGEMENT (WM-08)
SANITARY/SEPTIC WASTE MANAGEMENT (WM-09)

CITY OF GLENDALE STANDARD PLANS

FRAME AND GRATING FOR CATCH BASINS (BICYCLE SAFE)

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

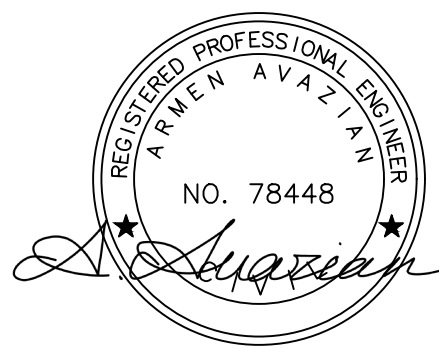
CURB AND GUTTER
CURB AND OPENING CATCH BASIN WITH GRATING(S) AND DEBRIS SKIMMER
CATCH BASIN REINFORCEMENT
CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR
FRAME AND GRATING FOR CATCH BASINS
CATCH BASIN MANHOLE FRAME AND COVER
LOCAL DEPRESSIONS AT CATCH BASINS

120-2
301-3
309-2
310-3
311-3
312-4
313-3

LEGEND

- CATCH BASIN LOCATION
- SHEET NO. (COG)
- SHEET NO. (LACFCD)
- CITY BOUNDARY

NOTE: THIS DRAWING IS ATTACHED TO AND MADE PART OF PERMIT NO. **FCDP2023000216**. ANY DEVIATION FROM THE ATTACHED DRAWING WITHOUT WRITTEN AUTHORIZATION FROM THIS DEPARTMENT WILL VOID THIS PERMIT.



ADOPTED AND APPROVED BY THE
COUNCIL OF THE CITY OF GLENDALE
THIS ____ DAY OF _____, 2023.

CITY CLERK, CITY OF GLENDALE

REV. NO.	REVISION DESCRIPTION	REV. DATE	REV. BY
1			
2			
3			

DIGALERT



DIAL TOLL FREE
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AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

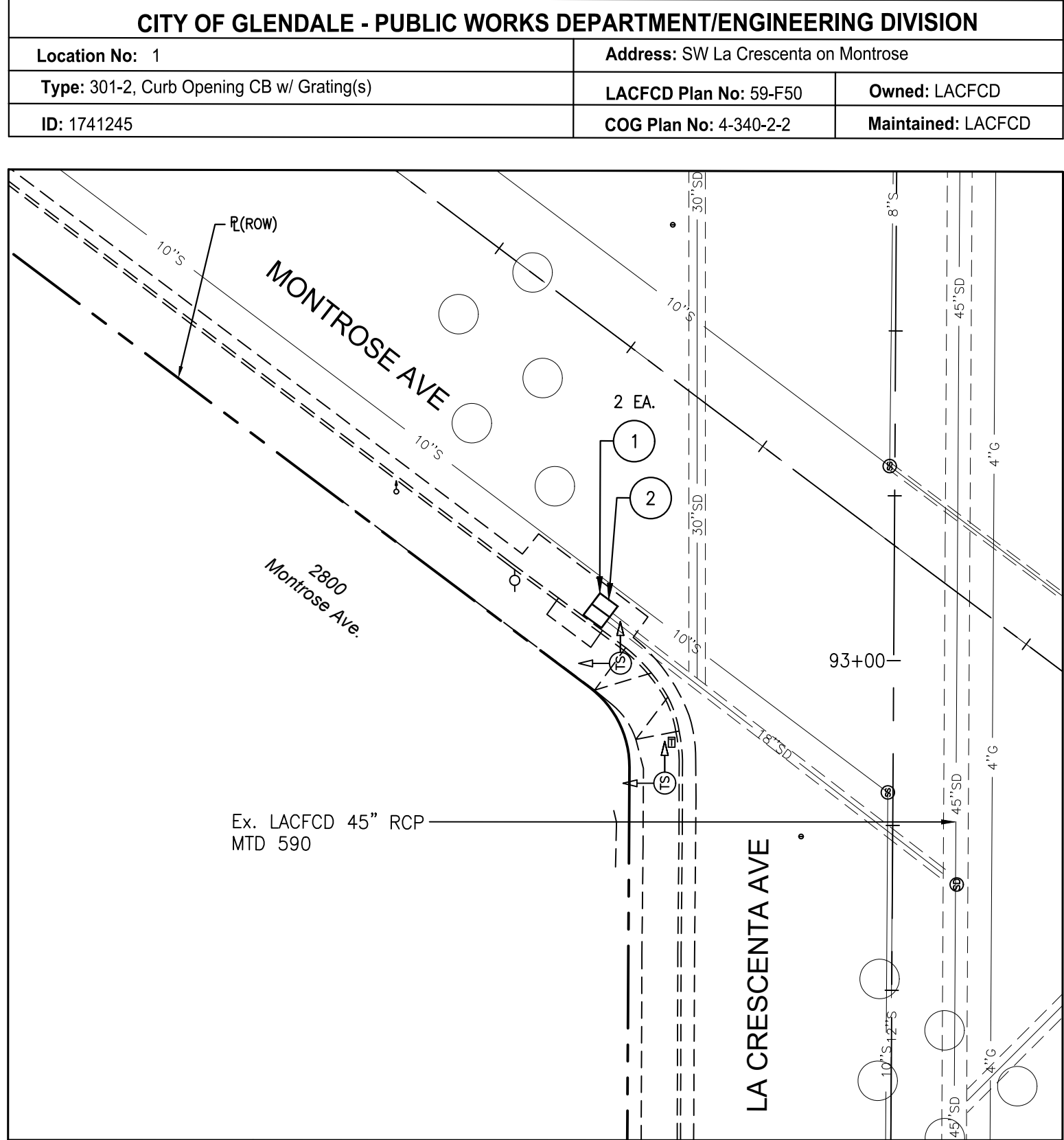
PUBLIC WORKS DEPARTMENT		ENGINEERING DIVISION	
CITY OF GLENDALE CALIFORNIA			
INSTALLATION OF BICYCLE FRIENDLY CATCH BASIN SURFACE GRATES ON LA CRESCENTA AVENUE			
REVIEWED	_____	APPROVED	_____
	PRINCIPAL CIVIL ENGINEER		PRINCIPAL TRAFFIC ENGINEER
APPROVED	_____	APPROVED	_____
	DEPUTY DIRECTOR OF PUBLIC WORKS/CITY ENGINEER		DIRECTOR OF PUBLIC WORKS
APPROVED	_____		
	GLENDALE WATER AND POWER GENERAL MANAGER		
DESIGN BY:	AArakelian	SCALE: AS SHOWN SPEC NO. 3829	PLAN NO. 4-650 SHEET 1 OF 5 SHEETS
DRAWN BY:	AArakelian	FILE NAME: c:\data\engineering\design\projects\2019 r\la crescenta avenue rehabilitation project\2. design\2.3 drawings\p. working drawings\4-650 installation of bicycle friendly cb grates.dgn	
DATE:	April 2023		
CHECKED BY:	RTavittian/AAvazian		

CONSTRUCTION NOTES

- 1—REMOVE EXISTING CATCH BASIN GRATES AND INSTALL NEW BICYCLE FRIENDLY GRATES PER CITY OF LOS ANGELES STANDARD PLAN NO S-342-4.
- 2—REMOVE AND SALVAGE EXISTING WELDED STEEL ANGLE.

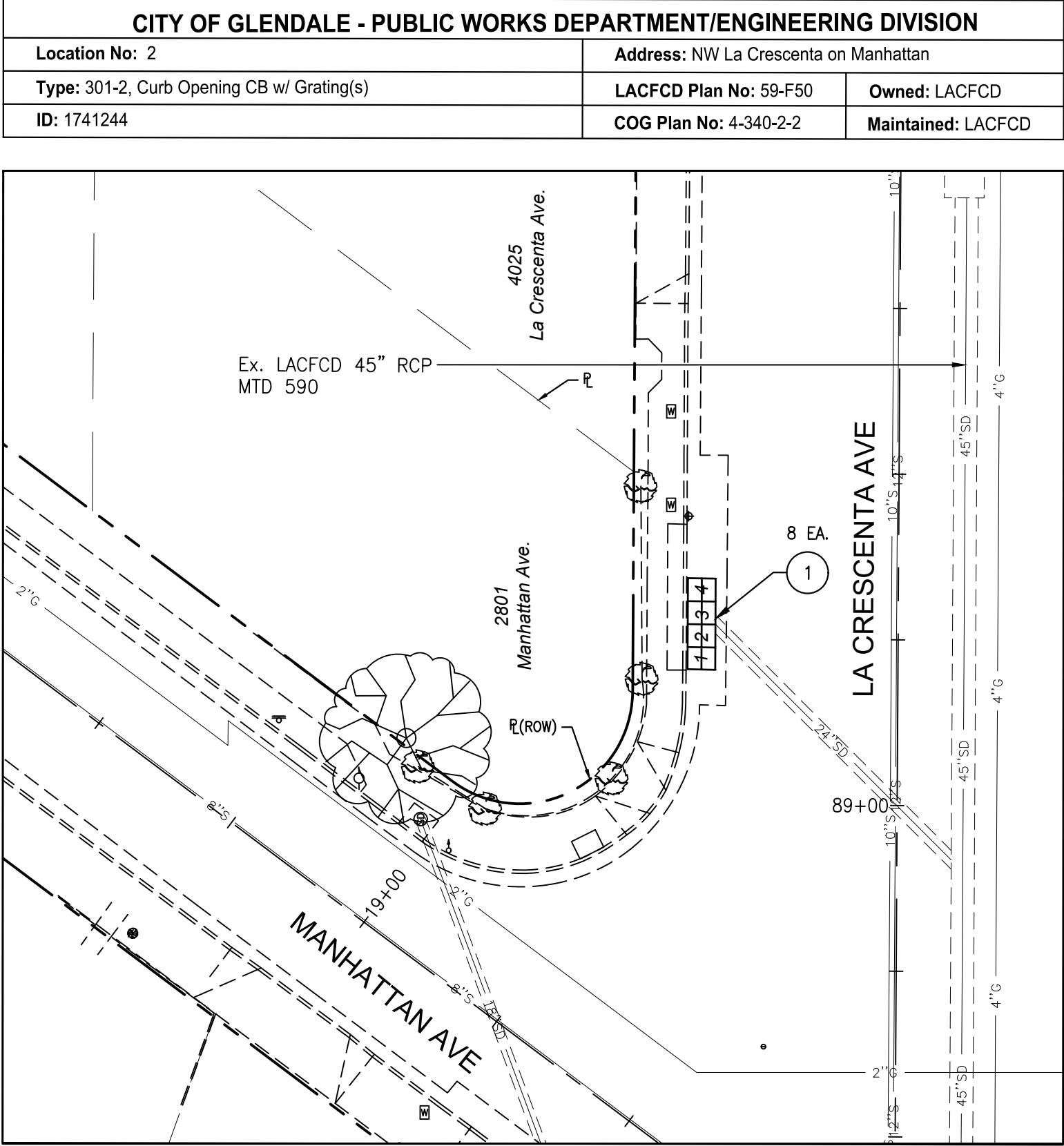
NOTE:

CONTRACTOR TO VERIFY DIMENSIONS AND SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL.



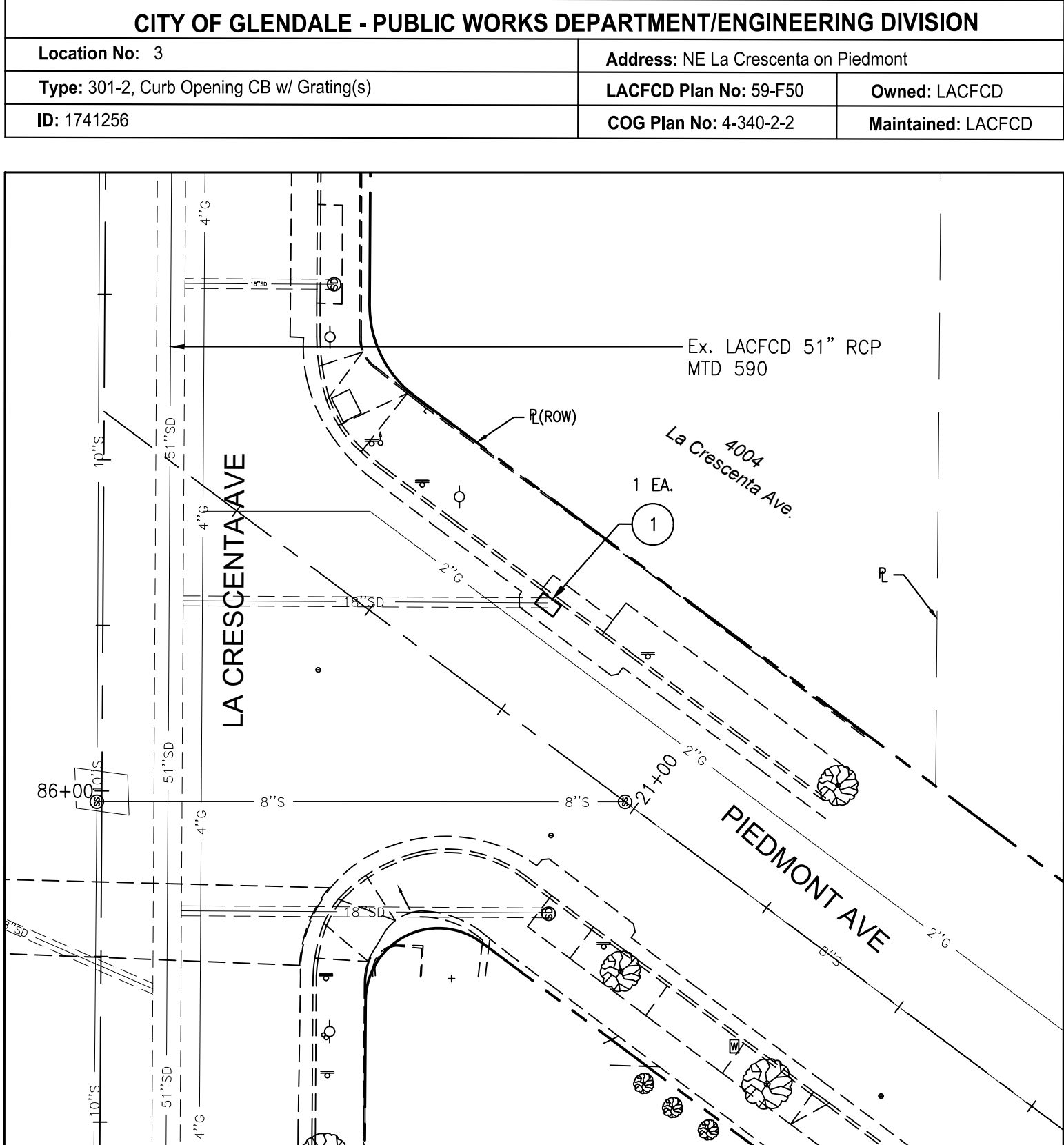
CATCH BASIN OWNED AND MAINTAINED BY COUNTY OF L.A. FLOOD CONTROL DISTRICT

EXHIBIT 1



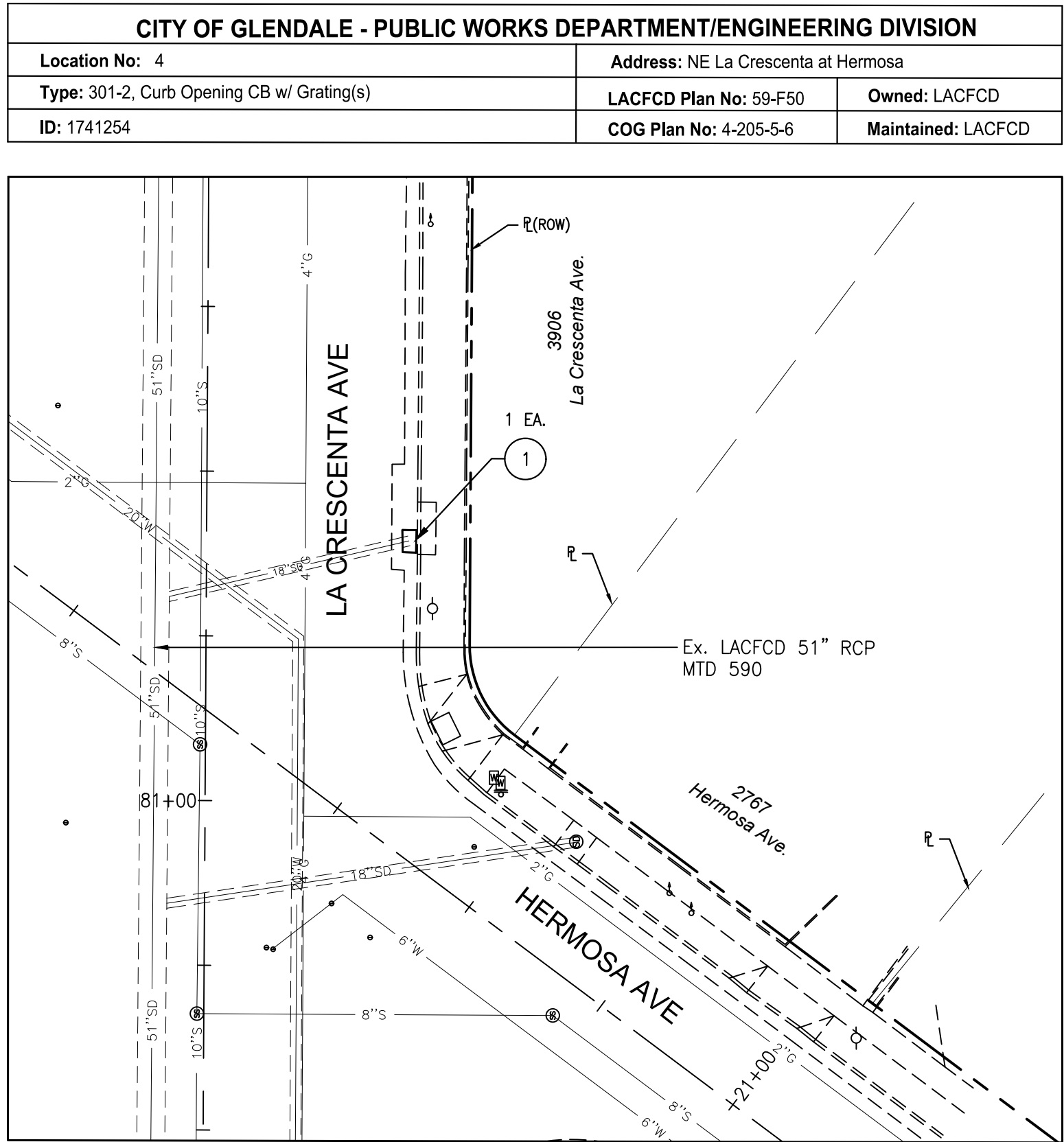
CATCH BASIN OWNED AND MAINTAINED BY COUNTY OF L.A. FLOOD CONTROL DISTRICT

EXHIBIT 2



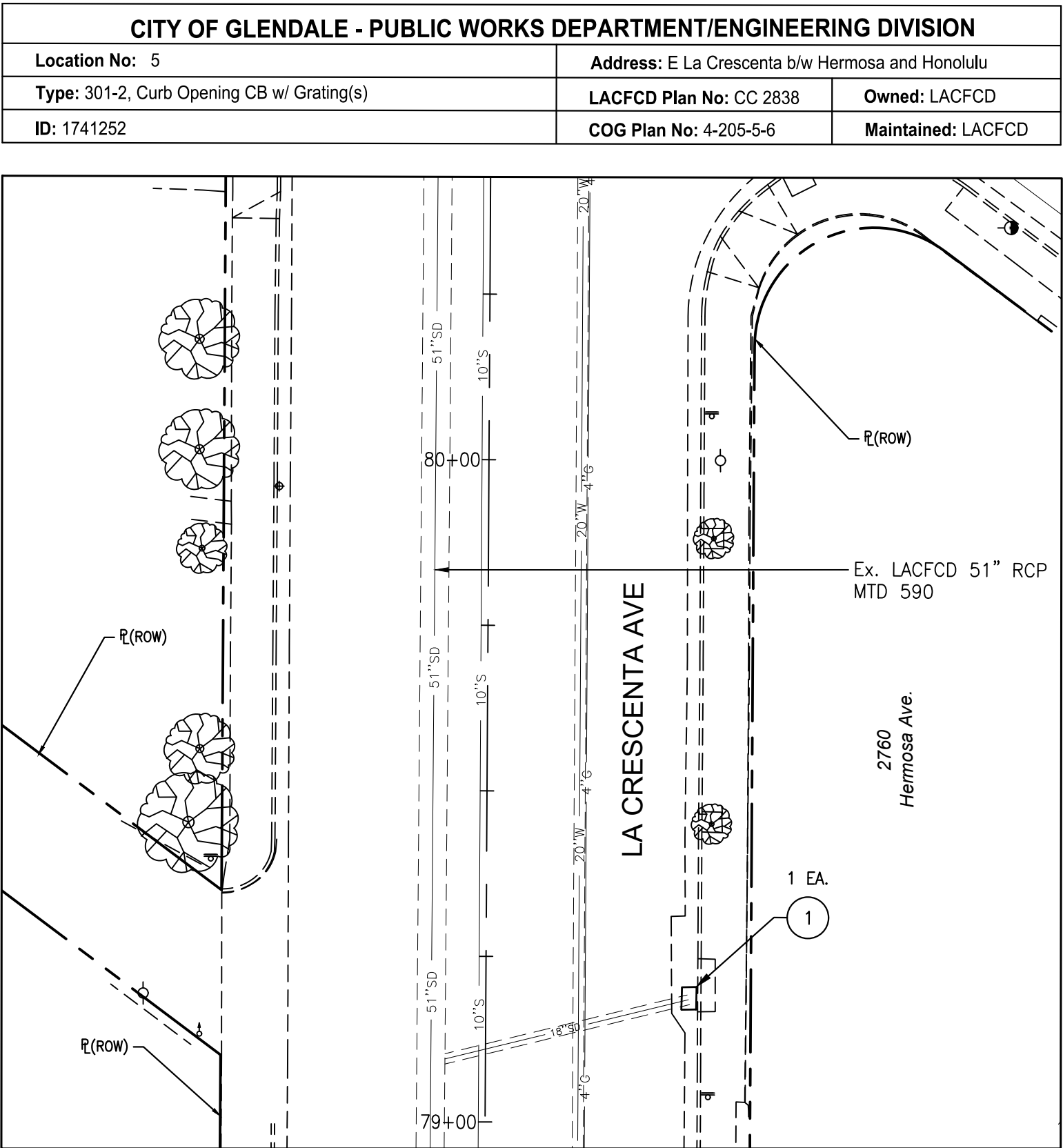
CATCH BASIN OWNED AND MAINTAINED BY COUNTY OF L.A. FLOOD CONTROL DISTRICT

EXHIBIT 3



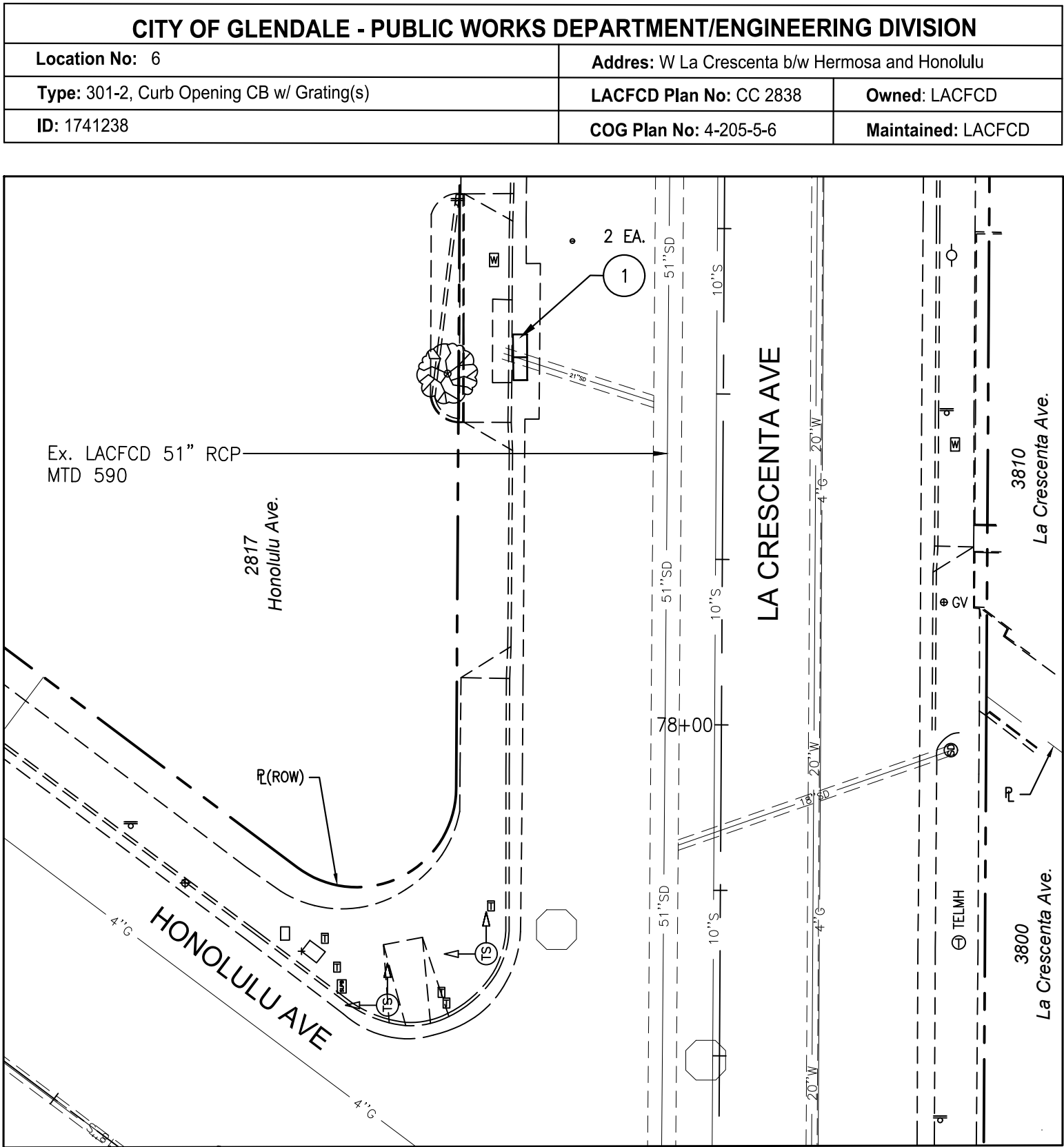
CATCH BASIN OWNED AND MAINTAINED BY COUNTY OF L.A. FLOOD CONTROL DISTRICT

EXHIBIT 4



CATCH BASIN OWNED AND MAINTAINED BY COUNTY OF L.A. FLOOD CONTROL DISTRICT

EXHIBIT 5



CATCH BASIN OWNED AND MAINTAINED BY COUNTY OF L.A. FLOOD CONTROL DISTRICT

EXHIBIT 6

NOTE: THIS DRAWING IS ATTACHED TO AND MADE PART OF PERMIT NO. FCDP2023000216. ANY DEVIATION FROM THE ATTACHED DRAWING WITHOUT WRITTEN AUTHORIZATION FROM THIS DEPARTMENT WILL VOID THIS PERMIT.

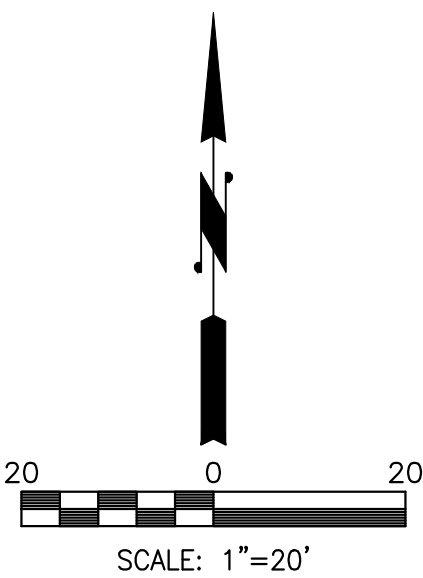


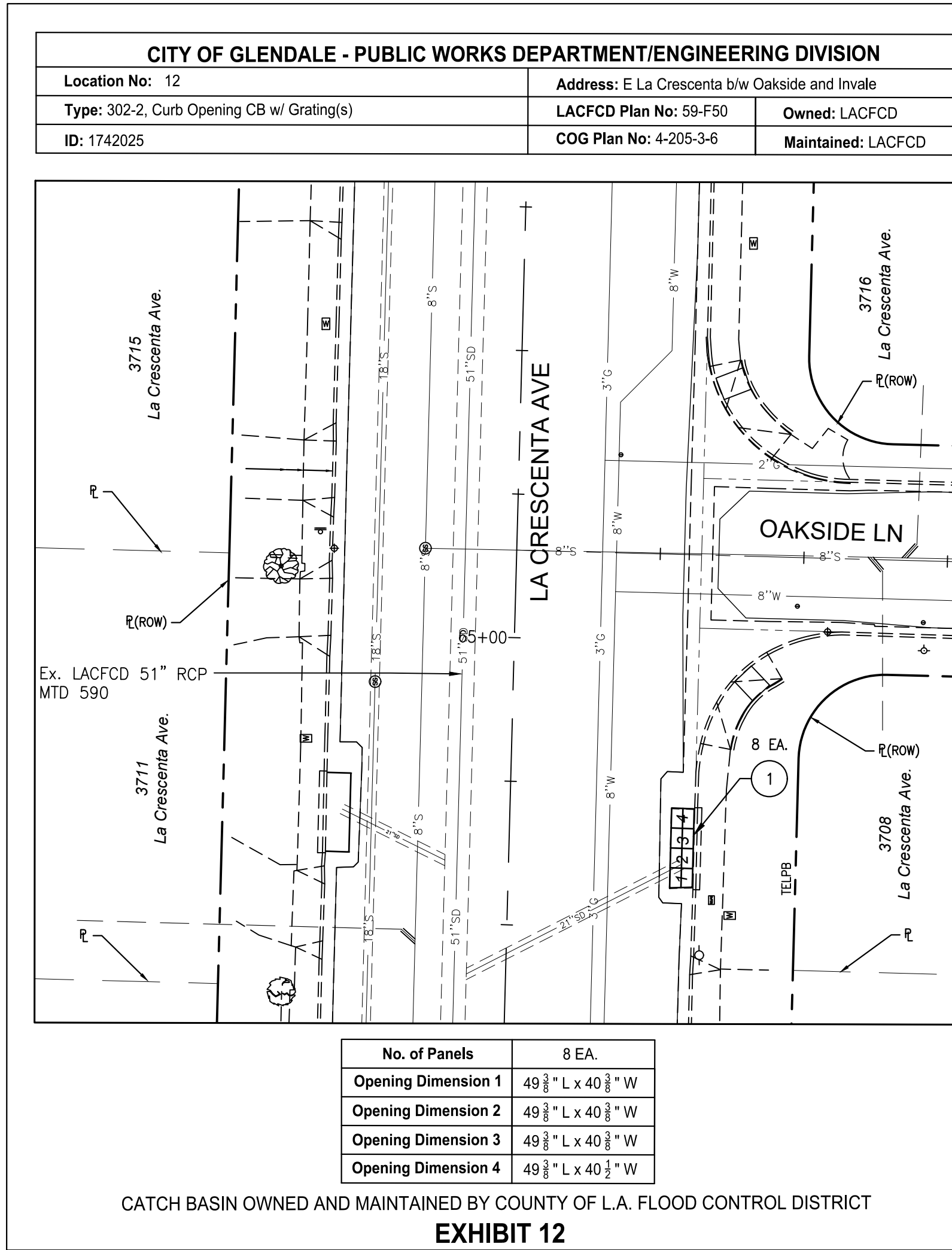
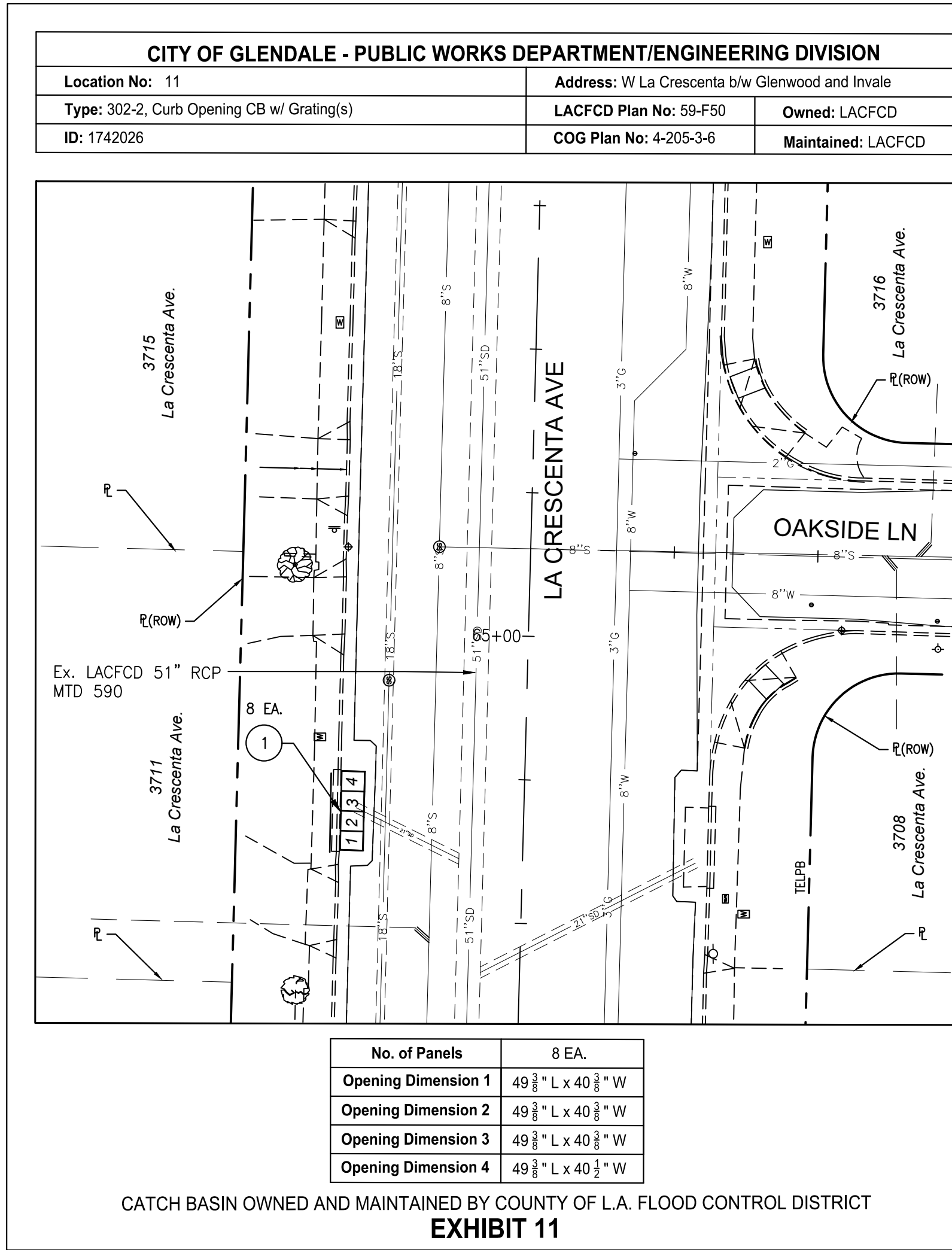
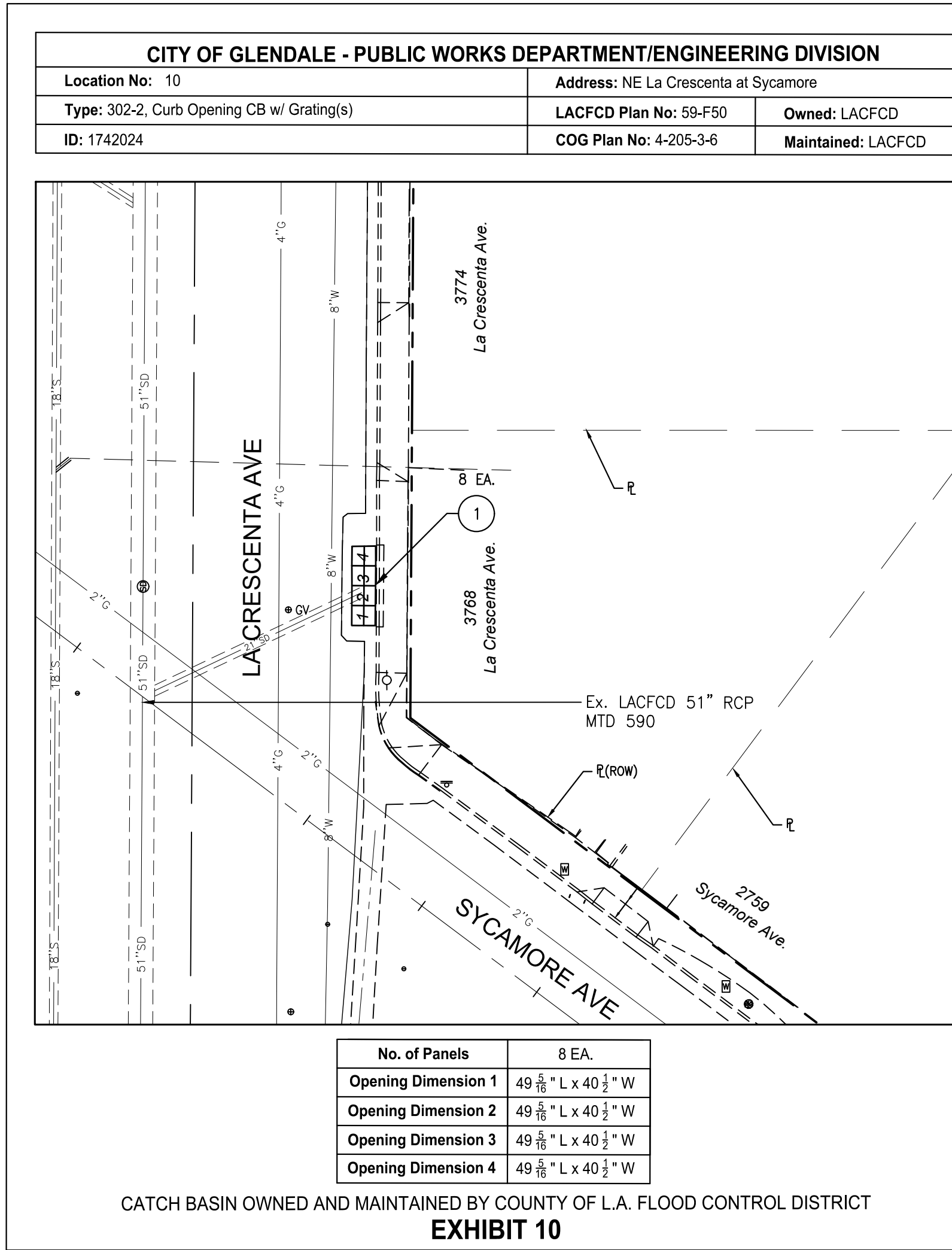
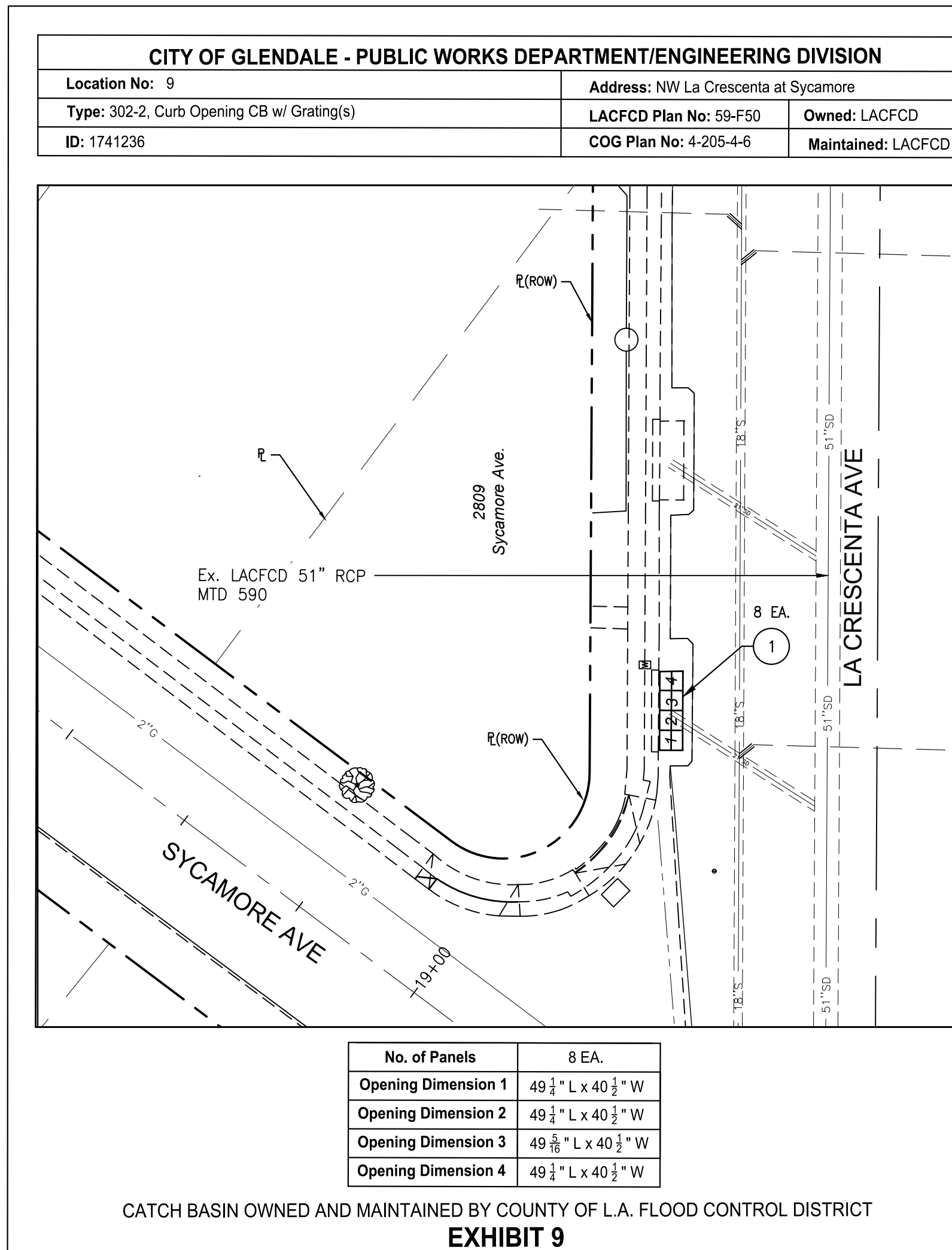
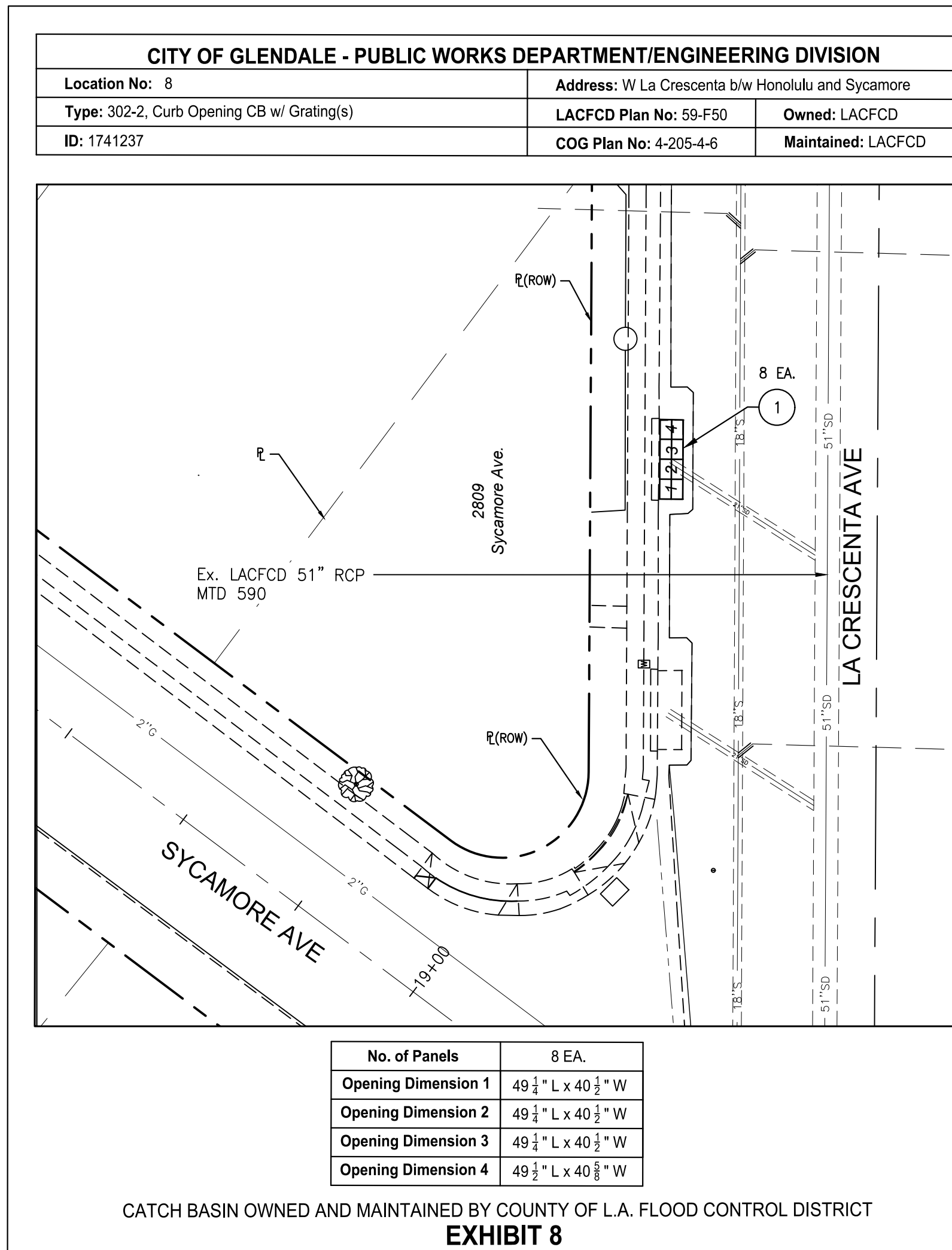
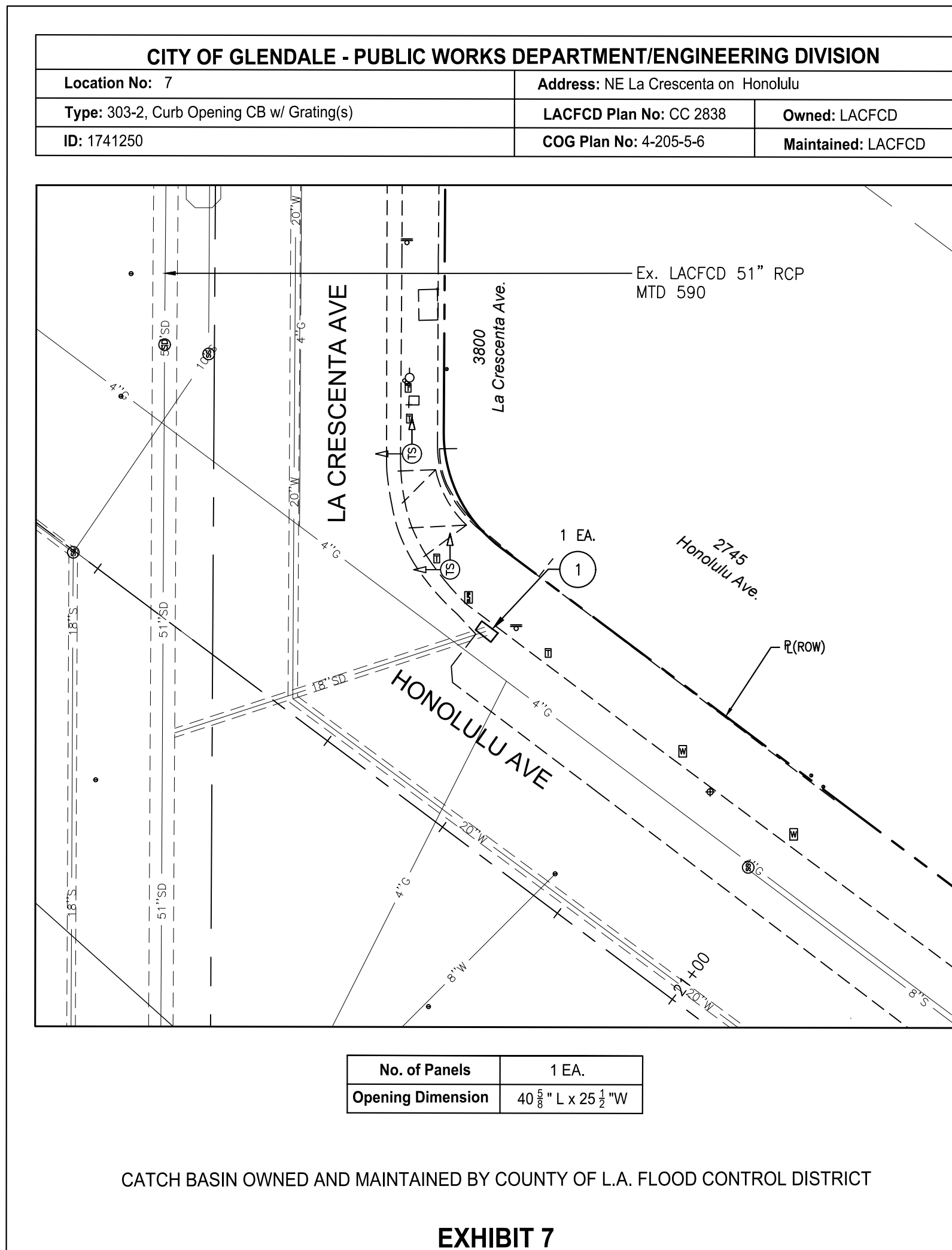
INSTALLATION OF BICYCLE FRIENDLY CATCH BASIN SURFACE GRATES ON LA CRESCENTA AVENUE

REV. NO.	REVISION DESCRIPTION	REV. DATE	REV. BY
1			
2			
3			

PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
CITY OF GLENDALE
CALIFORNIA

PLAN NO.
4-650
SHEET 2 OF 5 SHEETS





CONSTRUCTION NOTES

- 1—REMOVE EXISTING CATCH BASIN GRATES AND INSTALL NEW BICYCLE FRIENDLY GRATES PER CITY OF LOS ANGELES STANDARD PLAN NO S-342-4.
- 2—REMOVE AND SALVAGE EXISTING WELDED STEEL ANGLE.

NOTE:

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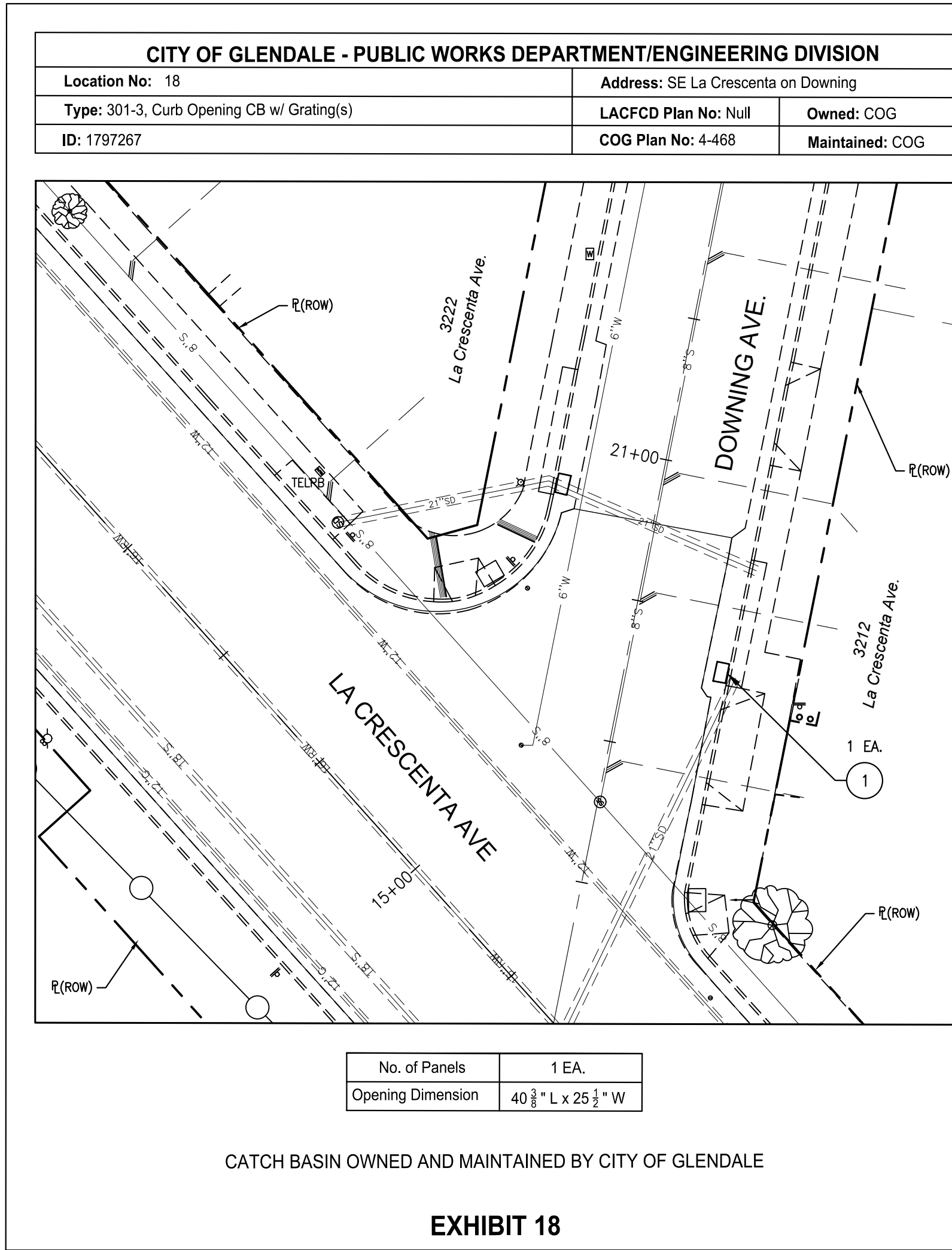
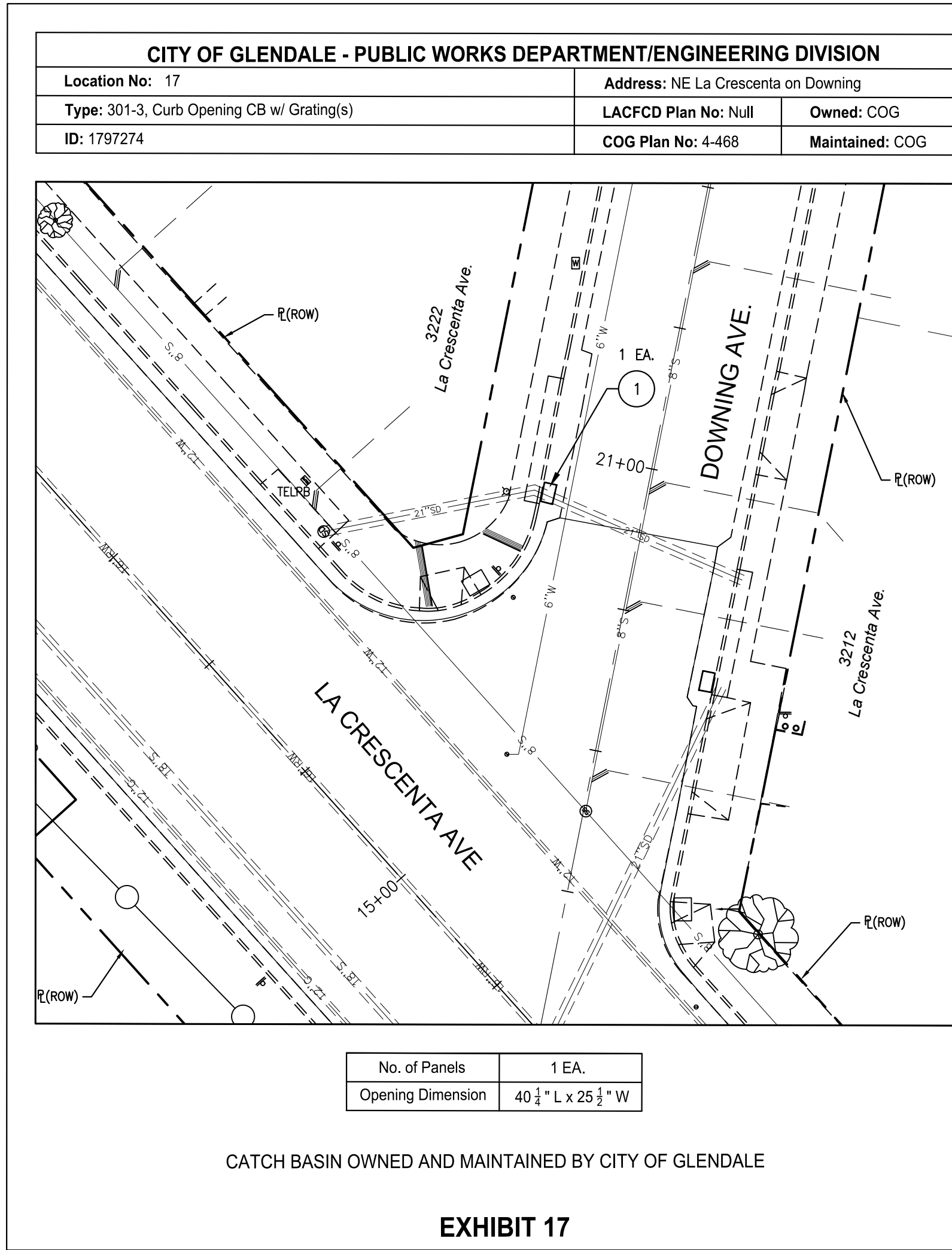
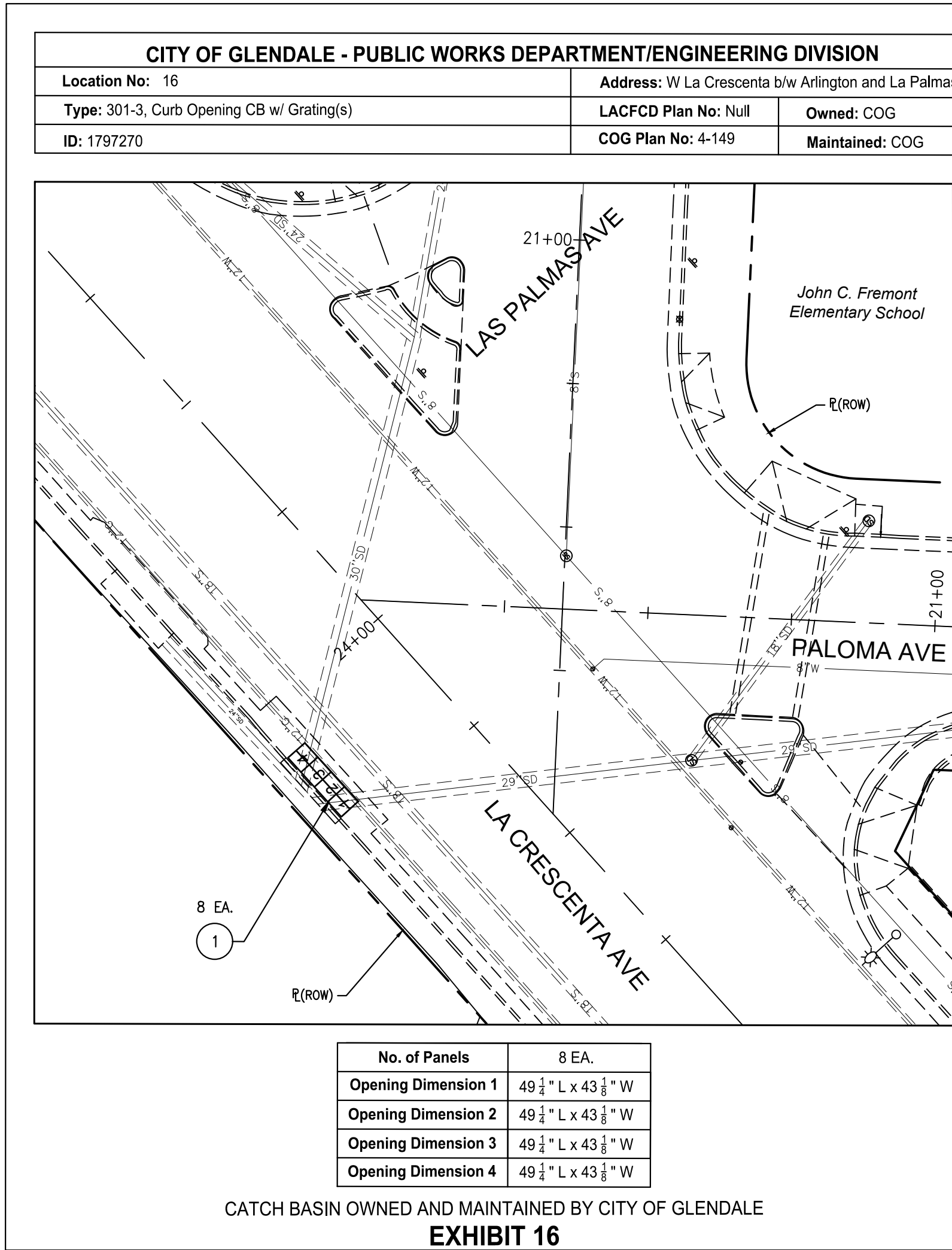
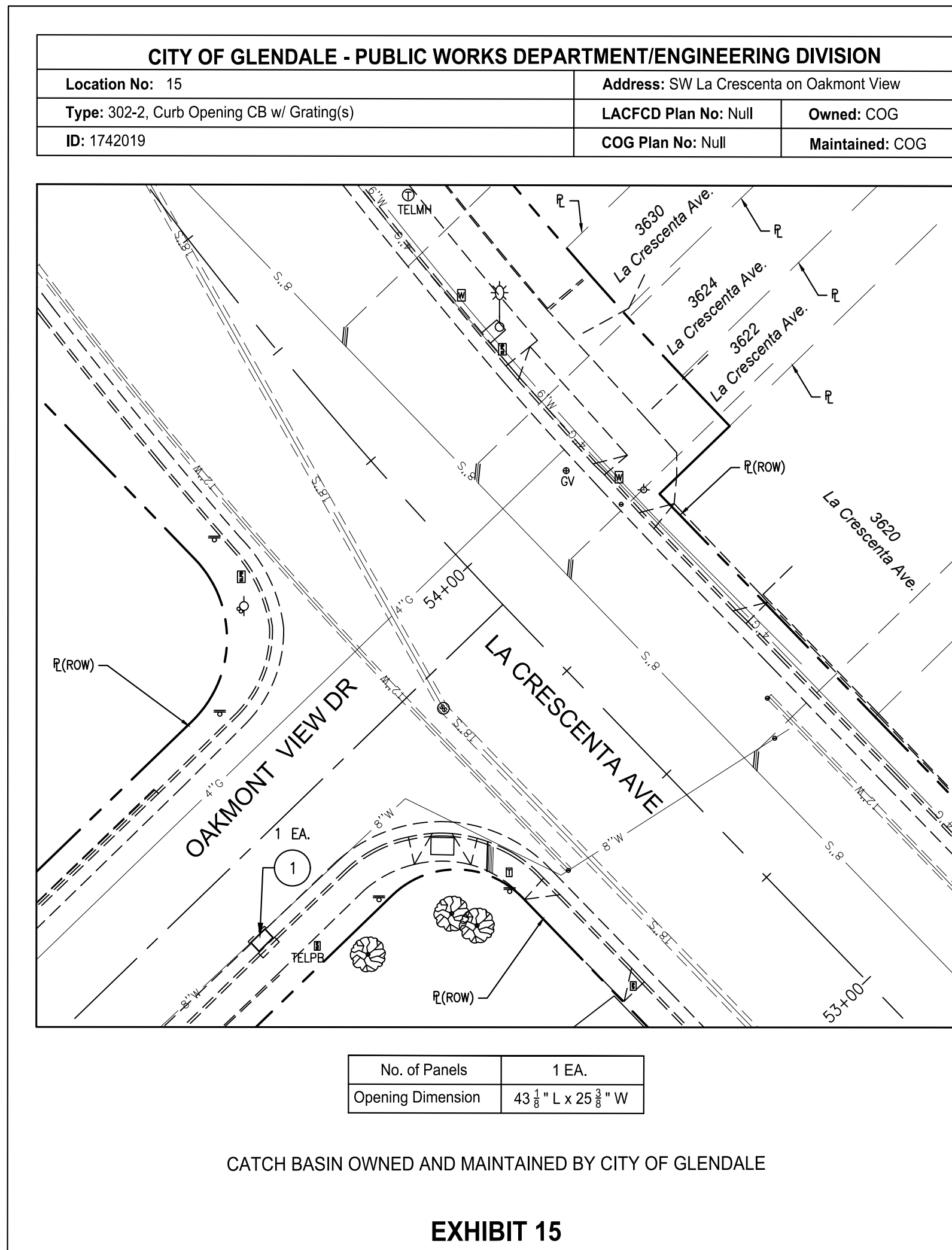
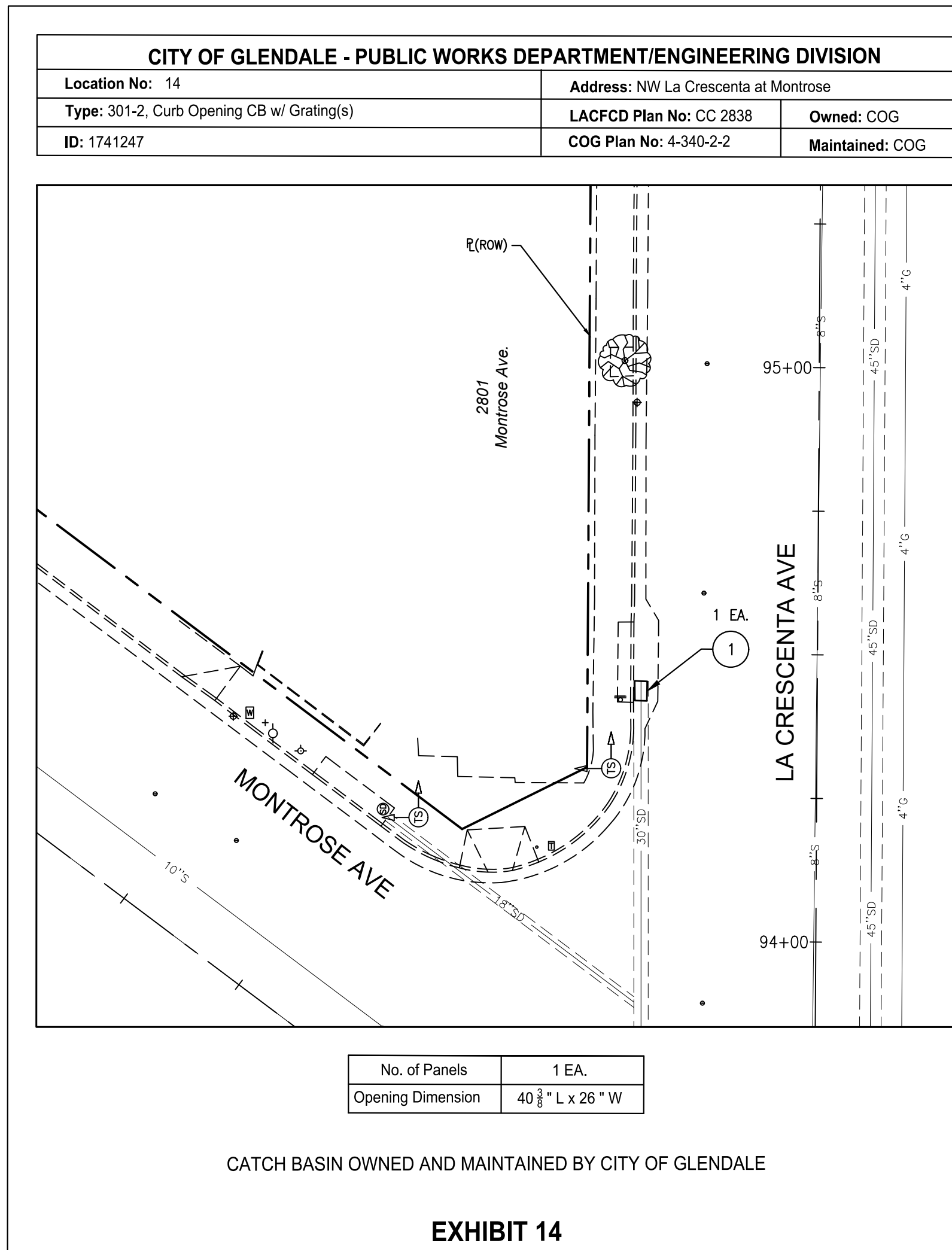
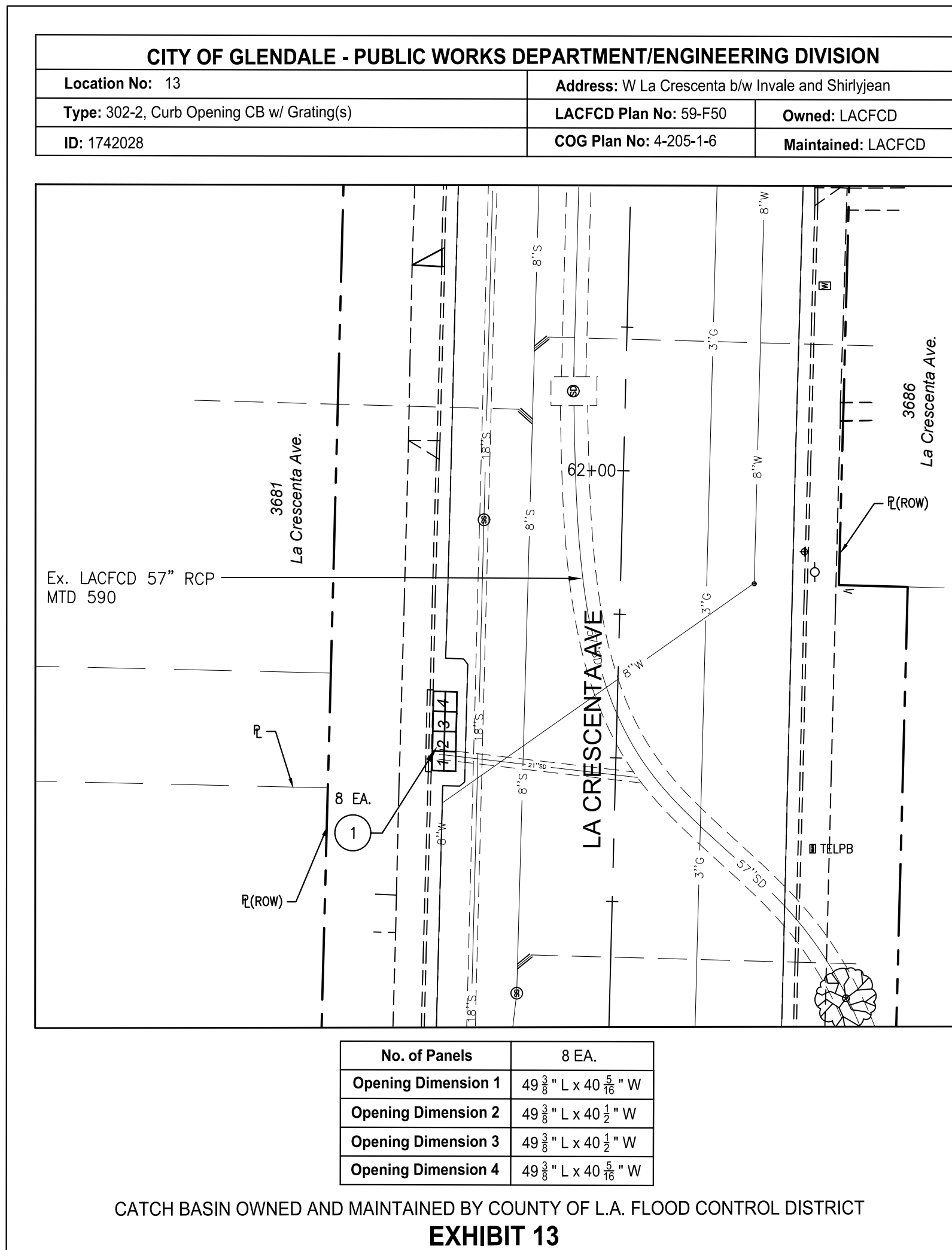
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INSTALLATION OF BICYCLE FRIENDLY CATCH BASIN SURFACE GRATES ON LA CRESCENTA AVENUE

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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
CITY OF GLENDALE
CALIFORNIA

**PLAN NO.
4-650**
SHEET 3 OF 5 SHEETS



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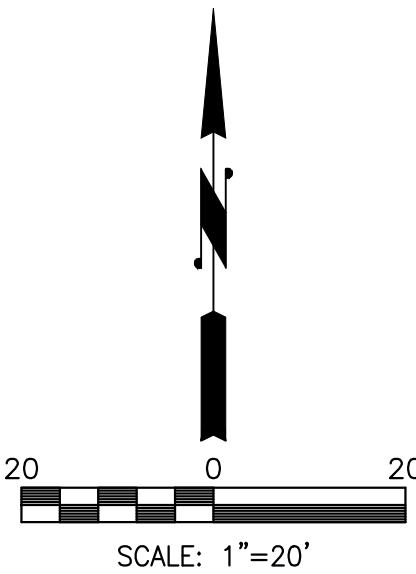


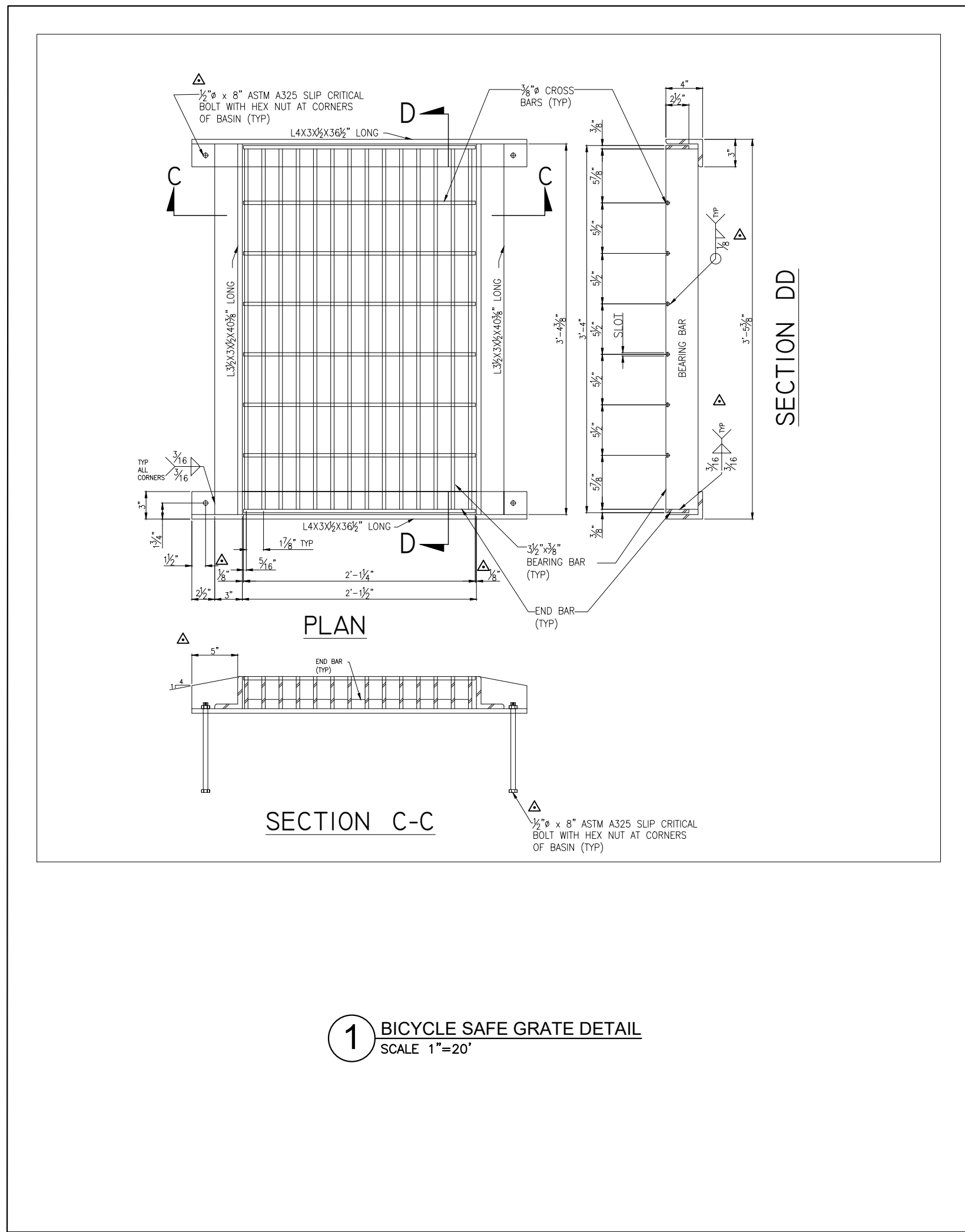
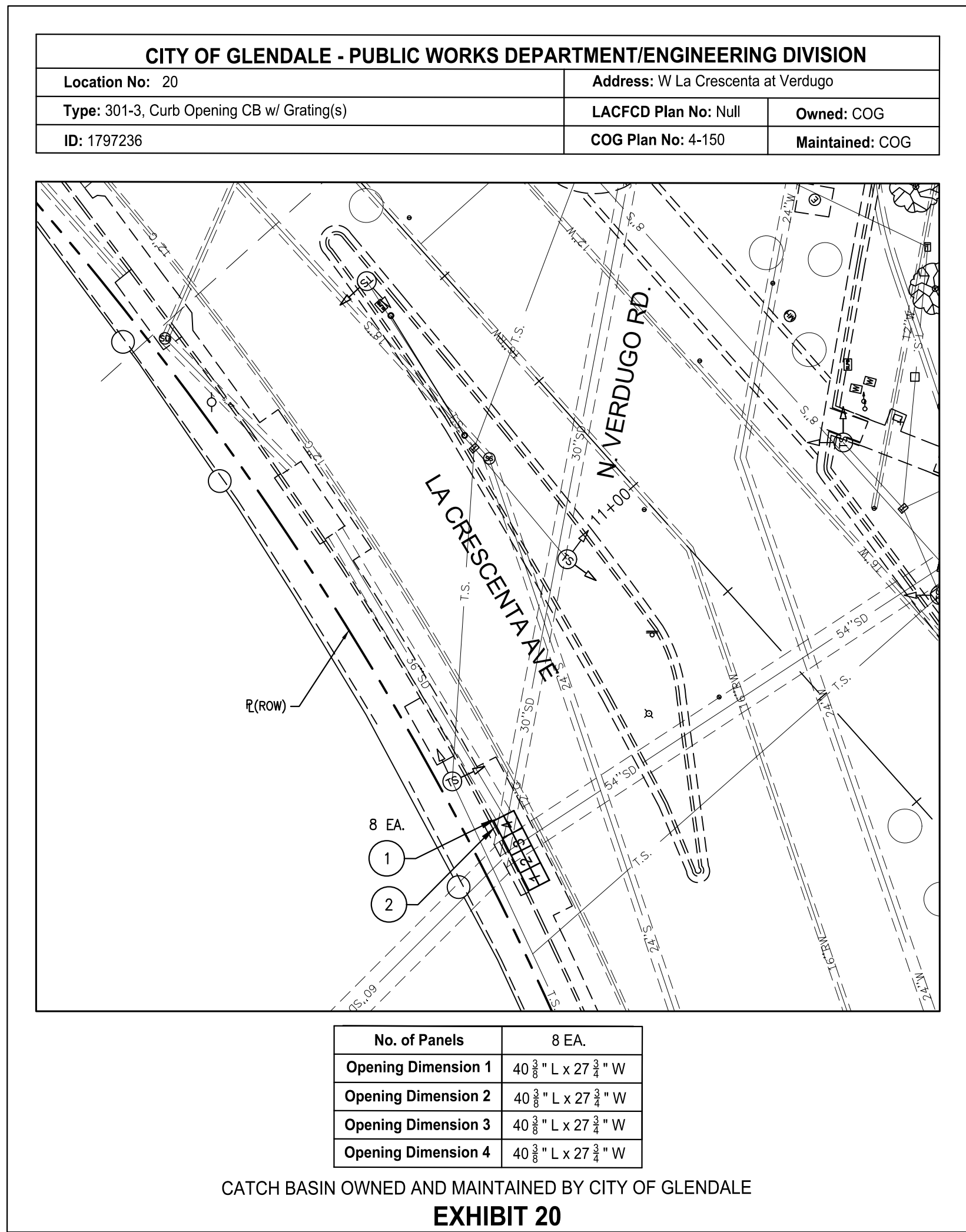
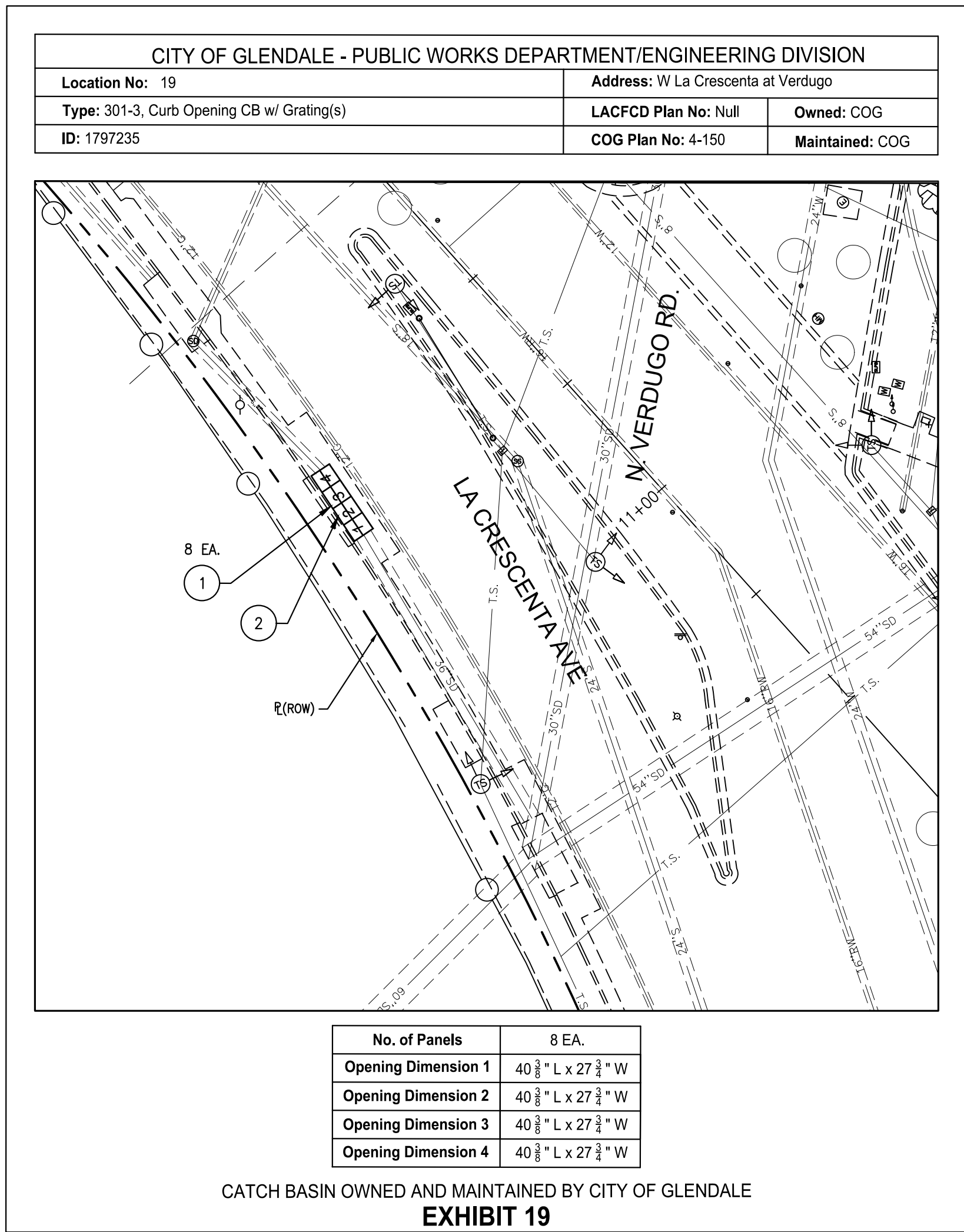
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REV. NO.	REVISION DESCRIPTION	REV. DATE	REV. BY
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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
CITY OF GLENDALE
CALIFORNIA

PLAN NO.
4-650
SHEET 4 OF 5 SHEETS





CONSTRUCTION NOTES

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REGISTERED PROFESSIONAL ENGINEER
ARMEN AVAZIAN
NO. 76448
CIVIL

INSTALLATION OF BICYCLE FRIENDLY CATCH BASIN
SURFACE GRATES ON LA CRESCENTA AVENUE

REV. NO.	REVISION DESCRIPTION	REV. DATE	REV. BY
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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
CITY OF GLENDALE
CALIFORNIA

PLAN NO.
4-650

SHEET 5 OF 5 SHEETS

20

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20

SCALE: 1"=20'

APPENDIX D

GEOTECHNICAL REPORT



2883 East Spring Street
Suite 300
Long Beach CA 90806

Tel 562.426.3355
Fax 562.426.6424

January 4, 2024
Project No. 230773.1

Mr. Rustom Tavitian
Civil Engineer II
City of Glendale
Department of Public Works
633 E. Broadway Room 205
Glendale, CA 91206
Email: rtavitian@glendaleca.gov
Tel: (818) 937-8326

Subject: Percolation and Laboratory Testing
Proposed Distributed Drywell System
Preliminary Testing on La Crescenta near Shirleyjean St. and Paloma Ave.
Glendale, CA

Dear Mr. Tavitian:

Twining, Inc. (Twining) is pleased to submit the results of our field percolation testing and laboratory testing for the proposed Distributed Drywell System on La Crescenta Avenue in Glendale, California. The preliminary percolation tests were performed on La Crescenta Avenue. B-1 was located approximately 210 feet north of Shirleyjean Street and B-2 was located approximately 190 feet south of Paloma Avenue. The locations of B-1 and B-2 are shown on the attached Figures 1A and 1B – Site Plan and Percolation Test Location Map, respectively.

Percolation Testing

Two soil borings were advanced for percolation testing to provide data for the proposed Distributed Drywell System. After the existing asphalt was cored, borings B-1 and B-2 were advanced to 50 feet below the existing ground surface. The materials encountered consisted of 5 to 8 inches of asphalt concrete with approximately 6 to 7 inches of aggregate base underneath. The soils beneath the aggregate base consisted of poorly graded sand with silt to silty sand to the depth of exploration. The materials were generally medium dense to very dense. Detailed logs of the borings are attached at the end of this report.

At the completion of drilling, perforated PVC pipe was installed, and percolation tests performed according to the requirements of Los Angeles County. Immediately upon completion of the percolation testing, the hole was backfilled with neat cement and the surface repaired with Quikset concrete dyed black to match existing conditions.

The percolation rates are summarized below:

Infiltration Rate with a Reduction Factor of 3

Location	Depth (feet)	Infiltration Rate (in/hour)
B-1	50.0	1.11
B-2	50.0	0.13

The results of the testing are attached below.



2883 East Spring Street
Suite 300
Long Beach CA 90806

Tel 562.426.3355
Fax 562.426.6424

Geotechnical Laboratory Testing

Samples obtained from the exploratory borings will be transported to our Long Beach laboratory for observation and testing. Laboratory tests were performed by Twining on selected samples obtained from the borings to aid in the classification of the subsurface soils. The laboratory tests included the following:

- Laboratory Moisture Content and Density Tests; and
- #200 Wash

The results of the testing are attached at the end of this report.

CLOSURE

Twining, Inc. is pleased to have this opportunity to assist in this project. Should you have any questions or comments, please contact the undersigned at your convenience. We can be reached at (562) 426-3355.

Respectfully submitted,
TWINING, INC.



Paul Soltis, RCE 56140, GE 2606
Vice President, Geotechnical Engineering



Doug Crayton
Staff Engineer

Attachment(s): Site Plan and Percolation Test Location Map
 Percolation Test Results
 Field Exploration
 Laboratory Testing



LEGEND

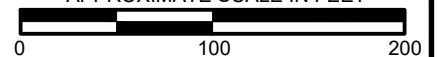


APPROXIMATE LOCATION OF
PERCOLATION TEST BY TWINING
TOTAL DEPTH IN FEET



REFERENCE: GOOGLE (2023)

APPROXIMATE SCALE IN FEET



SITE PLAN AND PERCOLATION TEST LOCATION MAP

LA CRESCENTA DISTRIBUTED DRYWELL
LA CRESCENTA AVENUE
GLENDALE, CALIFORNIA

PROJECT NO.
230773.1

REPORT DATE
January 2024

FIGURE 1A



LEGEND



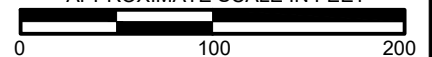
B-2
TD=50'

APPROXIMATE LOCATION OF
PERCOLATION TEST BY TWINING
TOTAL DEPTH IN FEET



REFERENCE: GOOGLE (2023)

APPROXIMATE SCALE IN FEET



SITE PLAN AND PERCOLATION TEST LOCATION MAP

LA CRESCENTA DISTRIBUTED DRYWELL
LA CRESCENTA AVENUE
GLENDALE, CALIFORNIA

PROJECT NO.
230773.1

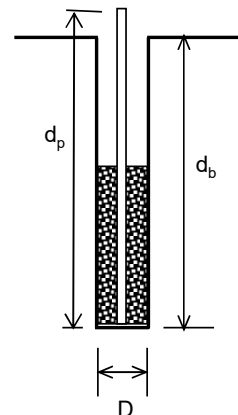
REPORT DATE
January 2024

FIGURE 1B

BORING PERCOLATION FIELD Log

Project No.: 230773.1
Project Name: Glendale Distributed Drywell

Boring No.: B-1
Diameter of Boring (D): 8.0 inches
Depth of Boring (d_b): 50.0 feet = 600 inches
Diameter of Perc. Pipe : 3.0 inches
Length of Pipe (d_p) : 50.0 feet = 600 inches



PRE-SOAK

Date: 12/18/2023
Start Time: 11:59 AM
Elapsed Time: 30.00 minutes
Water Remaining: No

REDUCTION FACTOR

Reduction Factor 3.00

PERCOLATION TEST

Test Date: 12/18/2023

Test Performer: AB

Calculated by: DHC

Reading Number	Initial Time T_i	Final Time T_f	Elapsed Time ΔT (min)	Initial depth to water surface dw_i (inches)	Final depth to water surface dw_f (inches)	Initial height of water column d_i (inches)	Drop of water column Δd (inches)	Water height drop rate $k_i = \Delta d / \Delta T$ (inch/hr)	Surface area factor S_f	Raw Percolation Rate $k = k_i / S_f$ (inch/hr)
1	1:05 PM	1:15 PM	10	236.6	352.9	363.4	116.3	697.68	153.6	4.54
2	1:18 PM	1:28 PM	10	231.6	322.7	368.4	91.1	546.48	162.4	3.36
3	1:31 PM	1:41 PM	10	231.6	320.4	368.4	88.8	532.80	163.0	3.27
4	1:43 PM	1:53 PM	10	232.8	322.6	367.2	89.8	538.56	162.2	3.32
5	1:55 PM	2:05 PM	10	237.6	327.0	362.4	89.4	536.40	159.9	3.36
6	2:07 PM	2:17 PM	10	232.8	321.4	367.2	88.6	531.36	162.5	3.27

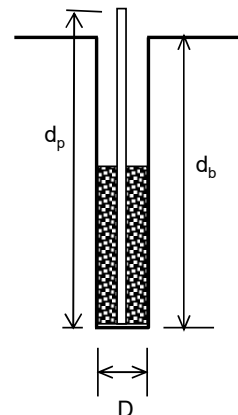
Measured Percolation Rate k_{measured} (inch/hr) = 3.32

Design Infiltration rate (inch/hr) = $k_{\text{measured}} / \text{RF}$ = 1.11

BORING PERCOLATION FIELD Log

Project No.: 230773.1
Project Name: Glendale Distributed Drywell

Boring No.: B-2
Diameter of Boring (D): 8.0 inches
Depth of Boring (d_b): 50.0 feet = 600 inches
Diameter of Perc. Pipe : 3.0 inches
Length of Pipe (d_p) : 50.0 feet = 600 inches

**PRE-SOAK**

Date: 12/28/2023
Start Time: 11:12 AM
Elapsed Time: 30.00 minutes
Water Remaining: No

REDUCTION FACTOR

Reduction Factor 3.00

PERCOLATION TEST

Test Date: 12/28/2023

Test Performer: AB

Calculated by: DHC

Reading Number	Initial Time T_i	Final Time T_f	Elapsed Time ΔT (min)	Initial depth to water surface dw_i (inches)	Final depth to water surface dw_f (inches)	Initial height of water column d_i (inches)	Drop of water column Δd (inches)	Water height drop rate $k_i = \Delta d / \Delta T$ (inch/hr)	Surface area factor S_f	Raw Percolation Rate $k = k_i / S_f$ (inch/hr)
1	12:22 PM	12:32 PM	10	357.6	379.3	242.4	21.7	130.32	116.8	1.12
2	12:34 PM	12:44 PM	10	358.8	372.7	241.2	13.9	83.52	118.1	0.71
3	12:47 PM	12:56 PM	9	278.4	297.4	321.6	19.0	126.40	157.1	0.80
4	12:59 PM	1:09 PM	10	288.5	298.8	311.5	10.3	61.92	154.2	0.40
5	1:10 PM	1:20 PM	10	277.2	286.9	322.8	9.7	58.32	160.0	0.36
6	1:22 PM	1:32 PM	10	284.5	294.7	315.5	10.2	61.20	156.2	0.39
7	1:32 PM	1:42 PM	10	282.0	292.4	318.0	10.4	62.64	157.4	0.40

Measured Percolation Rate k_{measured} (inch/hr) = 0.38

Design Infiltration rate (inch/hr) = $k_{\text{measured}} / \text{RF}$ = 0.13

Reference: LA County Guidelines For Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration, GS200.1, dated 06/30/21
City of Los Angeles, Board of Public Works, Development BMP Handbook, Part B Planning Activities, 5th edition

UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
				SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
			HIGHLY ORGANIC SOILS		

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

COARSE-GRAINED SOILS

Relative Density	SPT (blows/ft)	Relative Density (%)	Consistency	SPT (blows/ft)
Very Loose	<4	0 - 15	Very Soft	<2
Loose	4 - 10	15 - 35	Soft	2 - 4
Medium Dense	10 - 30	35 - 65	Medium Stiff	4 - 8
Dense	30 - 50	65 - 85	Stiff	8 - 15
Very Dense	>50	85 - 100	Very Stiff	15 - 30
			Hard	>30

NOTE: SPT blow counts based on 140 lb. hammer falling 30 inches

FINE-GRAINED SOILS

Sample Symbol	Sample Type	Description
	SPT	1.4 in I.D., 2.0 in. O.D. driven sampler
	California Modified	2.4 in. I.D., 3.0 in. O.D. driven sampler
	Bulk	Retrieved from soil cuttings
	Thin-Walled Tube	Pitcher or Shelby Tube

LABORATORY TESTING ABBREVIATIONS

ATT	Atterberg Limits
C	Consolidation
CORR	Corrosivity Series
DS	Direct Shear
EI	Expansion Index
GS	Grain Size Distribution
K	Permeability
MAX	Moisture/Density (Modified Proctor)
O	Organic Content
RV	Resistance Value
SE	Sand Equivalent
SG	Specific Gravity
TX	Triaxial Compression
UC	Unconfined Compression



TWINING

EXPLANATION FOR LOG OF BORINGS

La Crescenta Distributed Drywell
La Crescenta at Shirleyjean St and Paloma Ave
Glendale, California

PROJECT NO.
230773.1

REPORT DATE
January 2024

FIGURE A-1

DATE DRILLED 12/18/2023 LOGGED BY AB BORING NO. B-1
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8" HSA DRILLER Baja Drilling SURFACE ELEVATION (ft.) 1188 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES Bulk Driven	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
									Approximately 8 inches of asphalt over approximately 6 inches of base
								SM	ARTIFICIAL FILL: Silty SAND; grayish brown; slightly moist; fine to medium sand; some 3-4" angular gravel
1183	5		49					SP-SM	Poorly graded SAND with silt; dense; grayish brown; fine to medium sand; trace gravel; slightly moist
1178	10		37	2.0				SP-SM	ALLUVIUM: Poorly graded SAND; grayish brown; dry to slightly moist; with some 1" gravel; with some reddish/orange sand
								SP-SM	-- same; medium dense
1173	15		41			#200		SP-SM	-- same; dense
1168	20		41	3.4	111.0			SP-SM	-- same; medium dense
									-- harder drilling
1163	25		49			#200		SP-SM	-- same; dense; becomes light brown; increased moisture
1158	30		50 for 1"						-- no recovery
1153	35								



TWINING

LOG OF BORING

La Crescenta Distributed Drywell
 La Crescenta at Shirleyjean St and Paloma Ave
 Glendale, California

PROJECT NO.
230773.1

REPORT DATE
January 2024

FIGURE A - 2

DATE DRILLED 12/18/2023 LOGGED BY AB BORING NO. B-1
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8" HSA DRILLER Baja Drilling SURFACE ELEVATION (ft.) 1188 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES Bulk Driven	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
			17			#200		SM	Silty SAND; medium dense; reddish brown; slightly moist
1148	40	X	48	11.0	119.3			SM	-- same; dense; moist; fine sand; trace gravel
1143	45		80			#200		SP-SM	Poorly graded SAND with silt; very dense; reddish brown; moist; fine sand; trace gravel
1138	50	X	28/50 for 6"	8.5	109.7			SM	Silty SAND; very dense; reddish brown; moist; fine sand
1133	55								Total Depth = 50.0 feet Backfilled on 12/18/2023 Converted to percolation test at end of drilling. Backfilled with neat cement grout. Surface patched with PCC. Groundwater not encountered.
1128	60								
1123	65								
1118	70								

BORING LOG 230773.1 - LA CRESCENTA DISTRIBUTED DRYWELL.GPJ TWINING LABS.GDT 1/3/24



TWINING

LOG OF BORING

La Crescenta Distributed Drywell
 La Crescenta at Shirleyjean St and Paloma Ave
 Glendale, California

PROJECT NO.
230773.1

REPORT DATE
January 2024

FIGURE A - 2

DATE DRILLED	12/28/2023	LOGGED BY	AB	BORING NO.	B-2
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	8" HSA	DRILLER	Baja Drilling	SURFACE ELEVATION (ft.)	1095 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES Bulk Driven	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
									Approximately 5 inches of asphalt over approximately 7 inches of base
								SM	ARTIFICIAL FILL: Silty SAND; dark brown; slightly moist; fine sand; trace fine gravel
1090	5		16	4.3	114.0			SM SM	ALLUVIUM: Silty SAND; light brown to brown; slightly moist; trace fine gravel; fine sand -- same; medium dense
1085	10		13			#200		SM	-- same; medium dense
1080	15		28	4.0	112.9			SM	-- same; medium dense; increase in fine sand
1075	20		25			#200		SM	-- same; medium dense; light brown; slightly moist; fine sand
1070	25		50 for 4"	3.0				SM	-- difficult drilling -- same; dry to slightly moist; disturbed sample
1065	30		50 for 6"					SM	-- same; very dense
1060	35								

BORING LOG 230773.1 - LA CRESCENTA DISTRIBUTED DRYWELL.GPJ TWINING LABS.GDT 1/3/24



LOG OF BORING

La Crescenta Distributed Drywell
La Crescenta at Shirleyjean St and Paloma Ave
Glendale, California

PROJECT NO.
230773.1

REPORT DATE
January 2024

FIGURE A - 3

DATE DRILLED	12/28/2023	LOGGED BY	AB	BORING NO.	B-2
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	8" HSA	DRILLER	Baja Drilling	SURFACE ELEVATION (ft.)	1095 + (MSL)

[illegible]

TWINING

LOG OF BORING

La Crescenta Distributed Drywell
La Crescenta at Shirleyjean St and Paloma Ave
Glendale, California

PROJECT NO.
230773.1

REPORT DATE
January 2024

FIGURE A - 3



2883 East Spring Street
Suite 300
Long Beach CA 90806

Tel 562.426.3355
Fax 562.426.6424

LABORATORY TESTING



2883 East Spring Street
Suite 300
Long Beach CA 90806

Tel 562.426.3355
Fax 562.426.6424

Laboratory Testing

Laboratory Moisture Content and Density Tests

The moisture content and dry densities of selected driven samples obtained from the exploratory borings were evaluated in general accordance with the latest version of ASTM D2937. The results are shown on the boring logs in Appendix A.

No. 200 Wash Sieve

The amount of fines passing the No. 200 sieve was evaluated in accordance with ASTM D1140. The results are presented in Table 1.

Table 1 - Number 200 Wash Results

Boring No.	Depth (feet)	Percent Passing #200
B-1	15	5.2
B-1	25	8.5
B-1	35	15.5
B-1	45	8.8
B-2	10	25.5
B-2	20	12.3
B-2	40	11.2
B-2	48.5	23.9

APPENDIX E

ELECTRIC SERVICE SPOTS

CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

PEDESTAL

JOB ADDRESS 2805 1/4 PIEDMONT AVE
SERVICE TYPE: RECON _____ NEW 1-COM (L-2A)
PROJECT NUMBER _____ E14879
SERVICE FEE _____ \$3,940.00

SERVICE SPOT DATE 12/22/2023
SERVICE PLANNER MSPARKS/AH
RUSTOM TAVITIAN, TRAFFIC DEPT
OWNER NAME _____

OWNER PHONE 818-937-8326
OWNER EMAIL rtavitian@glendaleca.gov

OTHER CONTACT - ELEC / GEN CONTR / ARCH _____

OTHER PHONE _____

OTHER EMAIL _____

OLD SERVICE NONE

NEW SERVICE 100A AIC: 10,000

NOTES SERVICE TYPE: CROSS-WALK

ALL SUBSTRUCTURE WORK DEPICTED ON THIS

SPOT DRAWING MUST BE COMPLETED BY GWP

AT CUSTOMER'S EXPENSE. TO REQUEST COSTS

AND SCHEDULING OF THIS WORK, CONTACT THE
GWP ENGINEERING SECTION AT 818-548-3923.

REQUIREMENTS FOR 120/240V, 1PH, 3W SERVICES:

1. All pedestal locations in public right-of-way shall be approved by Public Works.
 2. An excavation permit is required to work in public right-of-way.
 3. Before you dig, call Dig-Alert at 811.
 4. Pull boxes and pedestals must be a minimum of 5' from driveways and utility poles.
 5. A 3'x3' clear and level working space is required in front and back of pedestal.
 6. Service connection will not be made until customer:
 - a. Pays GWP service fee in full at the Water & Electrical Services counter at 141 N. Glendale Ave, Suite 420, Glendale, CA 91206, (818) 548-3921.
 - b. Requests meter lock ring removal, if applicable, by calling (818) 548-2122. Note: GWP service fee receipt number & electrical permit number are required.
 - c. Contractor submits the contractor's Inspection Release Letter to the GWP Construction Inspector.
 - d. Requests a final GWP inspection by calling (818) 548-3920.
 - e. After GWP receives inspection releases from both the contractor and the GWP Construction Inspector, allow 7-10 working days for GWP to install the final electric service cable connection.
- ☒ Submit manufacture's specifications of pedestal to the GWP Electrical Service Planner for approval prior to purchase.
- ☐ Submit electrical load calculations prepared per NEC by a licensed electrician or a registered electrical engineer to the GWP Electrical Service Planner.

**CONTACT THE GWP CONSTRUCTION INSPECTOR AT (818) 548-3920
48 HOURS IN ADVANCE FOR A PRE-CONSTRUCTION MEETING REGARDING:**

PEDESTAL, PAD, LABELING, ETC

**CONTACT THE GWP CONSTRUCTION
INSPECTOR, AT 818-548-3920 AT LEAST 48
HOURS IN ADVANCE FOR A
PRE-CONSTRUCTION MEETING
REGARDING INSTALLATION OF
PEDESTAL AND INTERCEPTION OF
GWP-INSTALLED CONDUIT.**

FOR GWP USE ONLY

POA P#28917-A (PIEDMONT AV N/S 75' W/o LA CRESCENTA AV)

TRANSF# 009379 & 009380, 50kVA, 160/29 = 5.5

APPROVED ESC 12-22-23

SHEET 1 OF 2

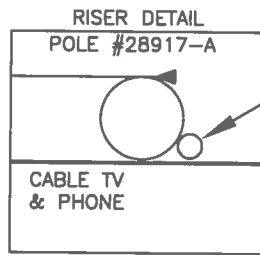
CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

JOB ADDRESS 2805 1/4 PIEDMONT AVE

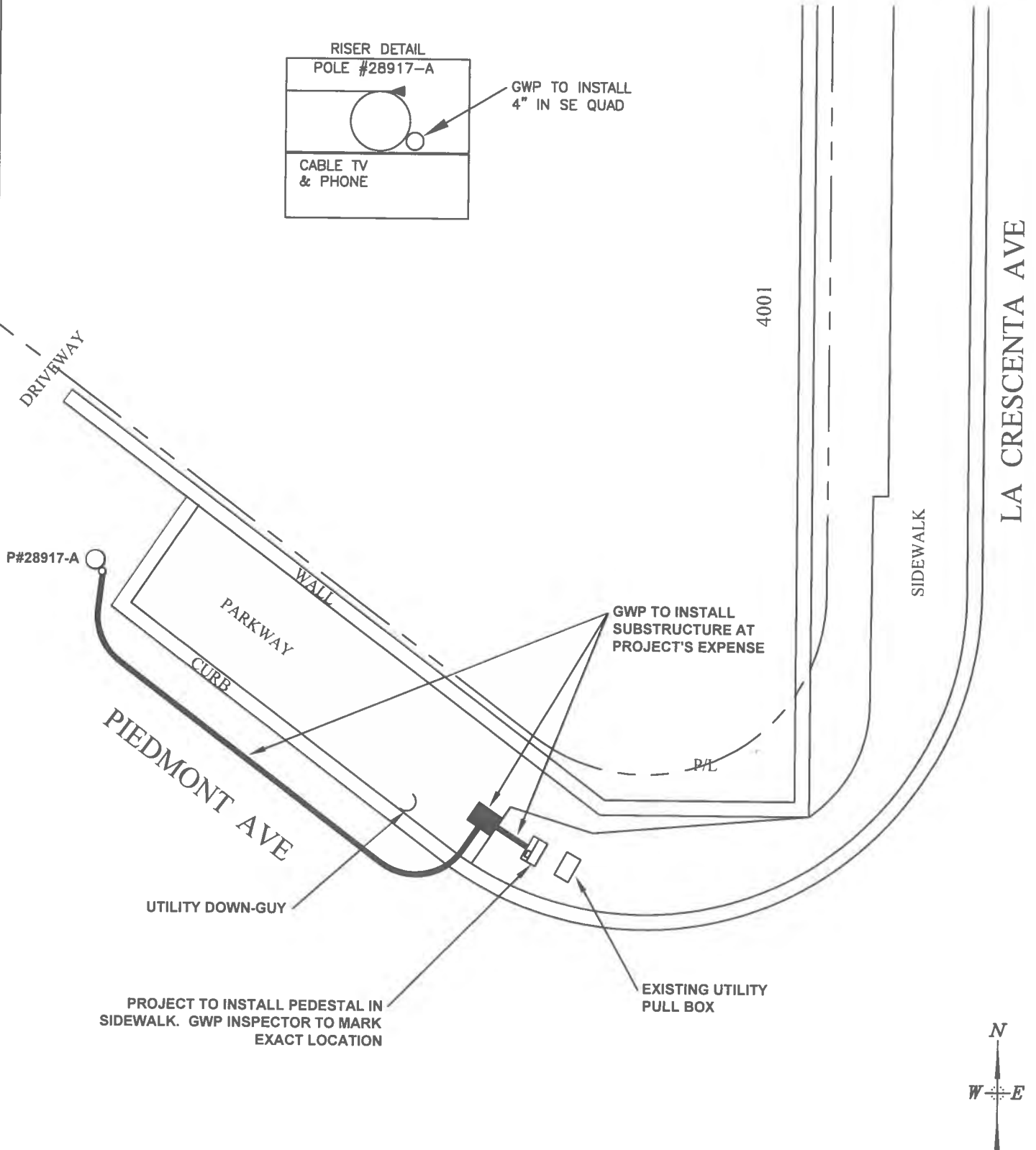
SERVICE SPOT DATE 12/22/2023

SERVICE PLANNER MSPARKS/AH

OFFICE (818) 548-3921, FAX (818) 240-4754



GWP TO INSTALL
4" IN SE QUAD



CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

PEDESTAL

JOB ADDRESS **3340 1/4 LA CRESCENTA AVE.**
 SERVICE TYPE: RECON _____ NEW **1-COM (L-2A)**
 PROJECT NUMBER **E14879 & E14867**
 SERVICE FEE **\$3,940.00 + (\$644.00 DISTRIBUTION) + (\$215.00 SPOT FEE) = \$4,799.00**

- Fees subject to change 180 days from service spot date
- If a revision of this Spot is requested, a non-refundable fee will apply
- Spot drawing is valid for two years from Spot date
- Do not discard existing meter(s) # **NONE**

REQUIREMENTS FOR 120/240V, 1PH, 3W SERVICES:

1. All pedestal locations in public right-of-way shall be approved by Public Works.
2. An excavation permit is required to work in public right-of-way.
3. Before you dig, call Dig-Alert at 811.
4. Pull boxes and pedestals must be a minimum of 5' from driveways and utility poles.
5. A 3'x3' clear and level working space is required in front and back of pedestal.
6. Service connection will not be made until customer:
 - a. Pays GWP service fee in full at the Water & Electrical Services counter at 141 N. Glendale Ave, Suite 420, Glendale, CA 91206, (818) 548-3921.
 - b. Requests meter lock ring removal, if applicable, by calling (818) 548-2122. Note: GWP service fee receipt number & electrical permit number are required.
 - c. Contractor submits the contractor's Inspection Release Letter to the GWP Construction Inspector.
 - d. Requests a final GWP inspection by calling (818) 548-3920.
 - e. After GWP receives inspection releases from both the contractor and the GWP Construction Inspector, allow 7-10 working days for GWP to install the final electric service cable connection.
- ☒ Submit manufacture's specifications of pedestal to the GWP Electrical Service Planner for approval prior to purchase.
- ☒ Submit electrical load calculations prepared per NEC by a licensed electrician or a registered electrical engineer to the GWP Electrical Service Planner.

**CONTACT THE GWP CONSTRUCTION INSPECTOR AT (818) 548-3920
48 HOURS IN ADVANCE FOR A PRE-CONSTRUCTION MEETING REGARDING:**

PEDESTAL, PULL BOX(ES), CONDUITS, ETC

SERVICE SPOT DATE **3-14-23**
 SERVICE PLANNER **JP / NR**
GWP - RUSTOM TAVITIAN
 OWNER NAME _____
 OWNER PHONE **818-937-8326**
 OWNER EMAIL **rtavitian@glendaleca.gov**

OTHER CONTACT - ELEC / GEN CONTR / ARCH

OTHER PHONE _____

OTHER EMAIL _____

OLD SERVICE **NONE**

NEW SERVICE **100A** AIC: **10,000**

NOTES **SERVICE TYPE: IRRIGATION**

**FEE ABOVE DOES NOT INCLUDE
WORK DONE BY GWP IN PUBLIC
RIGHT-OF-WAY. PLEASE CONTACT
GWP ENGINEERING DEPT. AT
(818)548-3923 FOR COST ESTIMATE.**

**CONTACT THE GWP CONSTRUCTION
INSPECTOR, AT 818-548-3920 AT LEAST 48
HOURS IN ADVANCE FOR A
PRE-CONSTRUCTION MEETING
REGARDING INSTALLATION OF CONDUIT,
PULL BOX, AND/OR PEDESTAL.**

FOR GWP USE ONLY

POA **P#25011-A (LA CRESCENTA AV S/S 205' E/o ARLINGTON AV)**

TRANSF# **8151a, 25kVA,**

APPROVED **VMP 03.30.2023**

SHEET **1** OF **2**

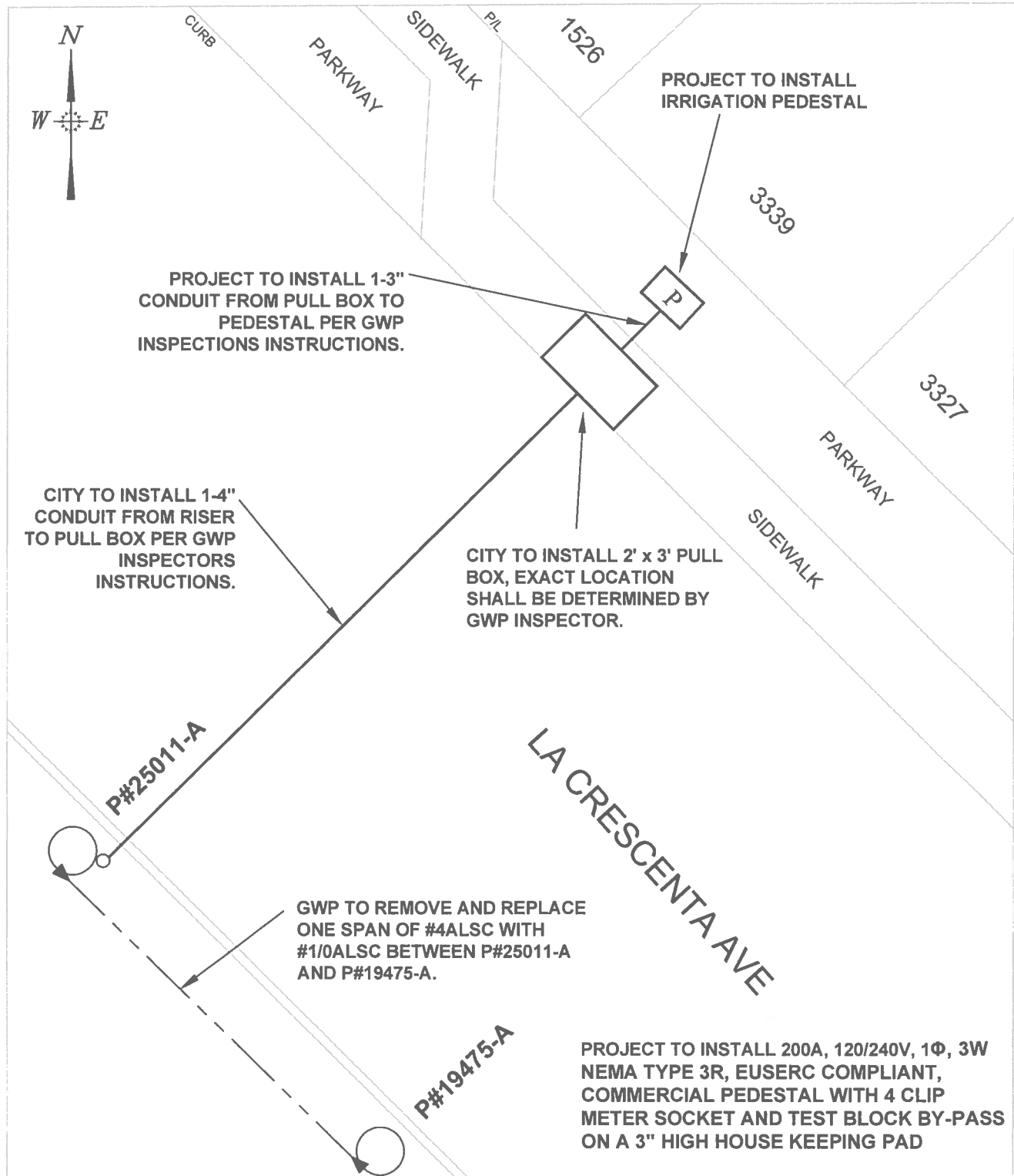
CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

JOB ADDRESS 3340 1/4 LA CRESCENTA AVE.

SERVICE SPOT DATE 3-14-23

SERVICE PLANNER JP / NR

OFFICE (818) 548-3921, FAX (818) 240-4754



CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

JOB ADDRESS 3463 1/4 ROSELAWN AVE
 SERVICE TYPE: RECON _____ NEW 1COM(L2A)
 PROJECT NUMBER E14879
 SERVICE FEE ~~\$3906.00 + \$1230.00 + \$91.00 = \$5227.00~~

SERVICE SPOT DATE 6/24/2020
 RECEIPT# _____ DATE PAID _____
 SERVICE PLANNER BERND
 OFFICE (818) 548-3921, FAX (818) 240-4754
MARC DAVID GLENDALE TRAFFIC DIVISION
 OWNER / ELEC / GEN CONTR / ARCH
 PHONE # (818) 548-3945
 FAX # _____
 OTHER # _____

- Fees subject to change 180 days from service spot date
- If a revision of this spot is requested, a \$65.00 non-refundable fee will apply
- Service spot is valid for two years from service spot date
- Do not discard existing meter(s) # **UN-METERED TRAFFIC CONTROLLER**

REQUIREMENTS FOR 120/240V, 1PH, 3W SERVICES:

1. All pedestal locations in public right-of-way to be approved by Public Works.
2. An excavation permit is require to work in public right-of-way.
3. Before you dig, call USA Dig-Alert at 811.
4. Pull boxes and pedestals must be a minimum of 5' from drive ways and power poles.
5. A 3'x3" clear and level working space is required in front and back of pedestals.
6. Service connection will not be made until customer:
 - a. Pays GWP service fee in full at 141 N. Glendale Ave, 4th level, Glendale, CA 91206. Water & Electrical Services counter, (818) 548-3921.
 - b. Obtains electrical permit, if applicable, at 633 E. Broadway, Permit Services Center, Room 101, (818) 548-3200.
 - c. Requests meter lock ring removal, if applicable, by calling (818) 548-2122. Note: GWP service fee receipt number & electrical permit number are required.
 - d. Contractor submits the contractor's Inspection Release Letter to the GWP Construction Inspector.
 - e. Requests a final GWP inspection by calling (818) 548-3920.
 - f. After GWP receives inspection releases from both the contractor and the GWP Construction Inspector, allow 7-10 working days for GWP to install the final electric service cable connection.

- ☒ Submit manufacture's specifications of pedestal for approval to the GWP Electrical Service Planner.
- ☐ Submit electrical load calculations prepared per NEC by a licensed electrician or a registered electrical engineer to the GWP Electrical Service Planner.

**CONTACT THE GWP CONSTRUCTION INSPECTOR AT (818) 548-3920,
48 HOURS IN ADVANCE FOR A PRE-CONSTRUCTION MEETING**

REGARDING: ~~CONDUITS, PULL BOXES, PEDESTAL AND RISER POLE LOCATIONS.~~

\$3,940.00 + \$1,321.00 (\$1.08 x 1,223') = \$5,261.00

**SUBSTRUCTURE IN PUBLIC RIGHT-OF-WAY
TO BE INSTALLED BY GWP AT PROJECT'S
EXPENSE. CONTACT GWP ENGINEERING AT
818-548-3923 TO REQUEST COSTS AND
SCHEDULING OF WORK.**

**ALL LOCATIONS IN PUBLIC RIGHT OF WAY MUST BE APPROVED BY
PUBLIC WORKS.**

BEFORE YOU DIG CALL DIG ALERT @811

AN EXCAVATION PERMIT IS REQUIRED TO WORK IN THE PUBLIC RIGHT OF WAY.

POA P31343A

FOR GWP USE ONLY

"E" Permit Signed By/Date _____

LA CRESCENTA AV S/S OPP W/L/o ROSELAWN AV EXT D

S.O. # _____ B&S Release Date _____

Transf # 008269, 25kVA, 35/3 = 12

S.O. By _____ Date S.O. to UOC _____

☐ Customer ☐ Tampering ☐ Upload ☐ Harris ☐ Service Memo ☐ Insp

APPROVED Clay SHEET 1 OF 2

6/25/20

CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

JOB ADDRESS 3463 1/4 ROSELAWN AVE

SERVICE SPOT DATE 6/24/2020

SERVICE PLANNER BERND

OFFICE (818) 548-3921, FAX (818) 240-4754



OLD UN-METERED PEDESTAL
POSSIBLY FED BY P19028A

SIDEWALK
PARKWAY

**** CONTRACTOR TO INSTALL
100A 120/240V, 1Ø, 3W, EUSERC
COMPLIANT PEDESTAL WITH
A 4 CLIP METER SOCKET ON A
3" HIGH HOUSEKEEPING PAD.**

**GWP
* CONTRACTOR TO INSTALL
1-3" CONDUIT**

**GWP
** CONTRACTOR TO INSTALL
17"X 30"X 24" PULL BOX.
LID TO BE INSCRIBED
ELECTRIC**

ROSELAWN AVE

NO BORING ALLOWED

**** LOCATION OF PEDESTAL, CONDUIT(S),
AND PULL BOX(ES) TO BE DETERMINED
BY GWP INSPECTOR DURING
PRE - CONSTRUCTION MEETING**

*** CONDUIT SHALL BE RGC OR SCH80 PVC**

**GWP
* CONTRACTOR TO INSTALL
1-4" CONDUIT**

LA CRESCENTA AVE

**GWP
** CONTRACTOR TO INSTALL
17"X 30"X 24" PULL BOX.
LID TO BE INSCRIBED ELECTRIC**

**GWP
CONTRACTOR TO INSTALL
1-4" RGC SWEEP**

**GWP
* CONTRACTOR TO INSTALL
1-4" CONDUIT**

**GWP
** CONTRACTOR TO INSTALL
17"X 30"X 24" PULL BOX.
LID TO BE INSCRIBED ELECTRIC**

**GWP
* CONTRACTOR TO INSTALL
1-4" CONDUIT**

P31343A

6/25/20

APPROVED

Clay

SHEET 2 OF 2

CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

JOB ADDRESS **3654 1/4 LA CRESCENTA AVE**
SERVICE TYPE: RECON NEW **1COM(L2A)**
PROJECT NUMBER **E14873**
SERVICE FEE ~~\$1,566.00~~ **\$1,579.00**

SERVICE SPOT DATE **6/24/2020**
RECEIPT# _____ DATE PAID _____
SERVICE PLANNER **BERND**

OFFICE (818) 548-3921, FAX (818) 240-4754
MARC DAVID GLENDALE TRAFFIC DIVISION

~~OWNER~~ ELEC / GEN CONTR / ARCH

PHONE # **(818) 548-3945**

FAX # _____

OTHER # **MDAVID@GLENDALECA.GOV**

Old Service _____ New Service **100A**

Service Type **UG TRAFFIC PEDESTAL**

Planner's Notes _____

SPOT REVISED 3/29/23. ECC

**SUBSTRUCTURE IN PUBLIC RIGHT-OF-WAY
TO BE INSTALLED BY GWP AT PROJECT'S
EXPENSE. CONTACT GWP ENGINEERING AT
818-548-3923 TO REQUEST COSTS AND
SCHEDULING OF WORK.**

- Fees subject to change 180 days from service spot date
- If a revision of this spot is requested, a \$65.00 non-refundable fee will apply
- Service spot is valid for two years from service spot date
- Do not discard existing meter(s) # **N/A**

REQUIREMENTS FOR 120/240V, 1PH, 3W SERVICES:

1. All pedestal locations in public right-of-way to be approved by Public Works.
2. An excavation permit is require to work in public right-of-way.
3. Before you dig, call USA Dig-Alert at 811.
4. Pull boxes and pedestals must be a minimum of 5' from drive ways and power poles.
5. A 3'x3" clear and level working space is required in front and back of pedestals.
6. Service connection will not be made until customer:
 - a. Pays GWP service fee in full at 141 N. Glendale Ave, 4th level, Glendale, CA 91206. Water & Electrical Services counter, (818) 548-3921.
 - b. Obtains electrical permit, if applicable, at 633 E. Broadway, Permit Services Center, Room 101, (818) 548-3200.
 - c. Requests meter lock ring removal, if applicable, by calling (818) 548-2122. Note: GWP service fee receipt number & electrical permit number are required.
 - d. Contractor submits the contractor's Inspection Release Letter to the GWP Construction Inspector.
 - e. Requests a final GWP inspection by calling (818) 548-3920.
 - f. After GWP receives inspection releases from both the contractor and the GWP Construction Inspector, allow 7-10 working days for GWP to install the final electric service cable connection.

☒ Submit manufacture's specifications of pedestal for approval to the GWP Electrical Service Planner.

☐ Submit electrical load calculations prepared per NEC by a licensed electrician or a registered electrical engineer to the GWP Electrical Service Planner.

**CONTACT THE GWP CONSTRUCTION INSPECTOR AT (818) 548-3920,
48 HOURS IN ADVANCE FOR A PRE-CONSTRUCTION MEETING
REGARDING: ~~ENTERING ENERGIZE PULL BOX AND~~ PEDESTAL LOCATION.**

**ALL LOCATIONS IN PUBLIC RIGHT OF WAY MUST BE APPROVED BY
PUBLIC WORKS.**

BEFORE YOU DIG CALL DIG ALERT @811

AN EXCAVATION PERMIT IS REQUIRED TO WORK IN THE PUBLIC RIGHT OF WAY.

POA **P22852A**

FOR GWP USE ONLY

"E" Permit Signed By/Date _____

LA CRESCENTA AV E/S 12' N/o SHIRLYJEAN ST

S.O. # _____ B&S Release Date _____

Transf # **008680, 50kVA, 70/12 = 5.8**

S.O. By _____ Date S.O. to UOC _____

☐ Customer ☐ Tampering ☐ Upload ☐ Harris ☐ Service Memo ☐ Insp

APPROVED Clay SHEET **1** OF **2**

6/25/20

CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

JOB ADDRESS 3654 1/4 LA CRESCENTA AVE

SERVICE SPOT DATE 6/24/2020

SERVICE PLANNER BERND

OFFICE (818) 548-3921, FAX (818) 240-4754

WARNING

BREAKING INTO AN ENERGIZED VAULT, PULL-BOX, OR CONDUIT REQUIRES THE PRESENCE OF A GWP SAFETY PERSON. TO COORDINATE THIS WORK, CONTACT THE GWP CONSTRUCTION INSPECTOR AT (818) 548-3920, 48 HOURS IN ADVANCE OF BREAKING INTO AN ENERGIZED VAULT, PULL-BOX, OR CONDUIT.

* CONDUIT SHALL BE RGC OR SCH80 PVC

** LOCATION OF PEDESTAL, CONDUIT(S), AND PULL BOX(ES) TO BE DETERMINED BY GWP INSPECTOR DURING PRE - CONSTRUCTION MEETING

NO BORING ALLOWED

EXISTING 17" X 30" X 24" PULL BOX

* ~~CONTRACTOR~~ ^{GWP} CONTRACTOR TO INTERCEPT EXISTING 17" x 30" X 24" PULL BOX AND INSTALL 1-3" CONDUIT TO NEW TRAFFIC PEDESTAL SEE WARNING

EXISTING AT&T PEDESTAL
3656 LA CRESCENTA AVE

* * CONTRACTOR TO INSTALL 100A 120/240V, 1Ø, 3W, EUSERC COMPLIANT PEDESTAL WITH A 4 CLIP METER SOCKET ON A 3" HIGH HOUSEKEEPING PAD.

SHIRLEYJEAN ST

LA CRESCENTA AVE

PARKWAY
P22852A
SIDEWALK



DRIVEWAY

6/25/20

CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

PEDESTAL

JOB ADDRESS 3615 1/4 LA CRESCENTA AVE
SERVICE TYPE: RECON _____ NEW 1-COM (L-2A)
PROJECT NUMBER _____ 14879
SERVICE FEE _____ \$3,940.00

SERVICE SPOT DATE 01/08/2024
SERVICE PLANNER MSPARKS/AH
RUSTOM TAVITIAN, TRAFFIC DEPARTMENT
OWNER NAME _____

OWNER PHONE 818-937-8326
OWNER EMAIL rtavitian@glendaleca.gov

OTHER CONTACT - ELEC / GEN CONTR / ARCH _____

OTHER PHONE _____

OTHER EMAIL _____

OLD SERVICE NONE

NEW SERVICE 100A AIC: 10,000

NOTES SERVICE TYPE: TRAFFIC SIGNAL

ALL SUBSTRUCTURE WORK DEPICTED ON THIS
SPOT DRAWING MUST BE COMPLETED BY GWP
AT CUSTOMER'S EXPENSE. TO REQUEST COSTS

AND SCHEDULING OF THIS WORK, CONTACT THE
GWP ENGINEERING SECTION AT 818-548-3923.

REQUIREMENTS FOR 120/240V, 1PH, 3W SERVICES:

1. All pedestal locations in public right-of-way shall be approved by Public Works.
 2. An excavation permit is required to work in public right-of-way.
 3. Before you dig, call Dig-Alert at 811.
 4. Pull boxes and pedestals must be a minimum of 5' from driveways and utility poles.
 5. A 3'x3' clear and level working space is required in front and back of pedestal.
 6. Service connection will not be made until customer:
 - a. Pays GWP service fee in full at the Water & Electrical Services counter at 141 N. Glendale Ave, Suite 420, Glendale, CA 91206, (818) 548-3921.
 - b. Requests meter lock ring removal, if applicable, by calling (818) 548-2122. Note: GWP service fee receipt number & electrical permit number are required.
 - c. Contractor submits the contractor's Inspection Release Letter to the GWP Construction Inspector.
 - d. Requests a final GWP inspection by calling (818) 548-3920.
 - e. After GWP receives inspection releases from both the contractor and the GWP Construction Inspector, allow 7-10 working days for GWP to install the final electric service cable connection.
- ☒ Submit manufacture's specifications of pedestal to the GWP Electrical Service Planner for approval prior to purchase.
- ☐ Submit electrical load calculations prepared per NEC by a licensed electrician or a registered electrical engineer to the GWP Electrical Service Planner.

CONTACT THE GWP CONSTRUCTION INSPECTOR AT (818) 548-3920
48 HOURS IN ADVANCE FOR A PRE-CONSTRUCTION MEETING REGARDING:

PEDESTAL, PAD, LABELING, ETC

CONTACT THE GWP CONSTRUCTION
INSPECTOR, AT 818-548-3920 AT LEAST 48
HOURS IN ADVANCE FOR A
PRE-CONSTRUCTION MEETING
REGARDING INSTALLATION OF
PEDESTAL AND INTERCEPTION OF
GWP-INSTALLED CONDUIT.

FOR GWP USE ONLY

POA P#19486-A (LA CRESCENTA AV S/S 295' W/o URQUIDEZ AV.)

TRANSF# 009378, 50kVA, 80/2 = 40

APPROVED 6 cc 1-8-24

SHEET 1 OF 2

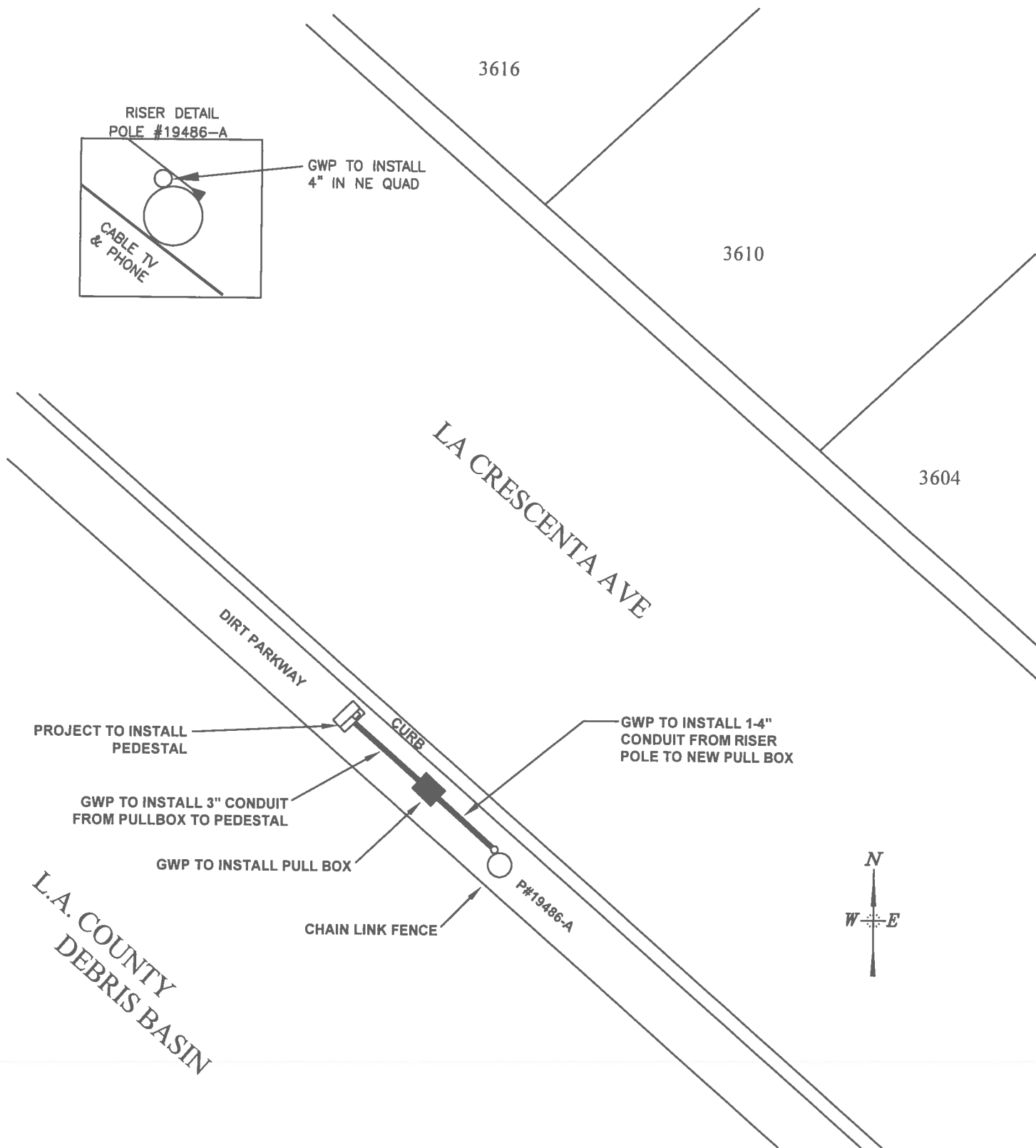
CITY OF GLENDALE WATER & POWER DEPT.
ELECTRIC SERVICE SPOT

JOB ADDRESS 3615 1/4 LA CRESCENTA AVE

SERVICE SPOT DATE 01/08/2024

SERVICE PLANNER MSPARKS/AH

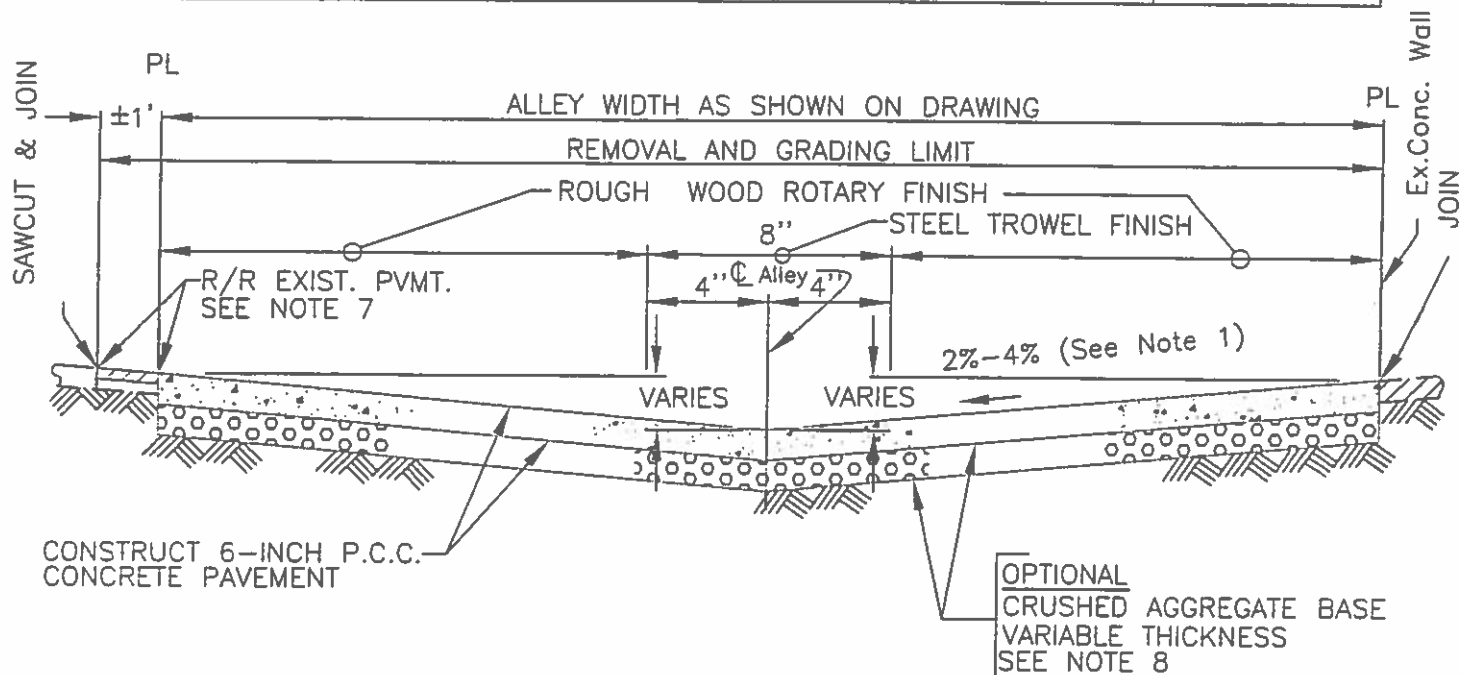
OFFICE (818) 548-3921, FAX (818) 240-4754



APPENDIX F

STANDARD DRAWINGS

CITY OF GLENDALE — ENGINEERING SECTION — PUBLIC WORKS DIVISION		
JOB TITLE: ALLEY RECONSTRUCTION PROGRAM	JOB No.	SHEET NO.
TYPICAL SECTION "A"	DESIGNED BY:	DATE:
	CHECKED BY:	



TYPICAL SECTION
NOT TO SCALE

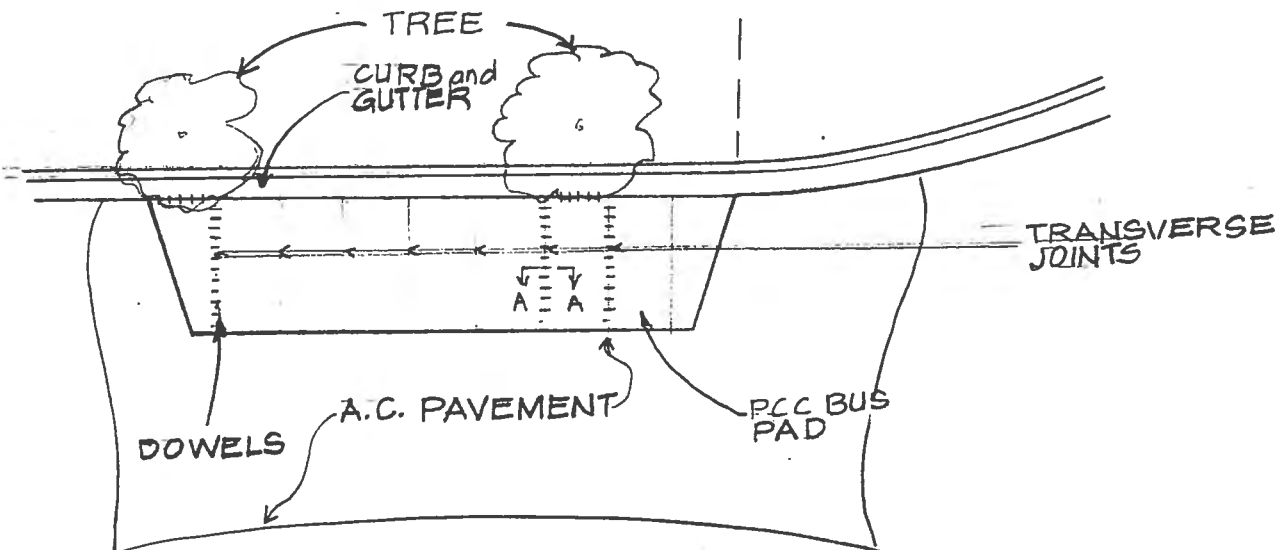
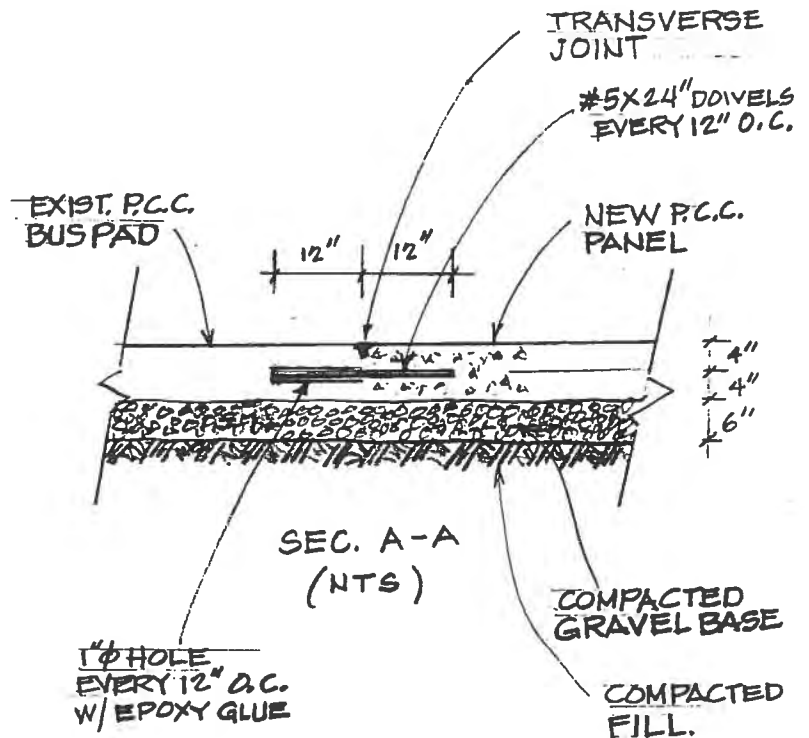
CONCRETE ALLEY NOTES

1. IF THE CROSS-SLOPE OF THE ALLEY EXCEEDS 4%, THE CONTRACTOR SHALL REQUEST FOR THE ENGINEER'S APPROVAL BEFORE FINAL GRADING, COMPACTING AND CONCRETE POURING.
2. DEEP SCORE JOINTS (1" DEEP AND 1/4" WIDE) SHALL BE CONSTRUCTED, PERPENDICULAR TO THE ALLEY AND PRIOR TO FINISHING, AT POWER POLES, MANHOLES, METER BOXES, AND UTILITY VAULTS.
3. TRANSVERSE WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED AT 7' INTERVALS, (NO ZIP STRIPS).
4. TWO LONGITUDINAL WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED IN ALL ALLEYS. THESE JOINTS SHALL BE PLACED AT 3' ON EACH SIDE OF CENTERLINE.
5. WEAKENED PLANE JOINT SHALL BE SAW CUT 1" DEEP AND 1/4" WIDE.
6. A CORD (BACKER ROD) SHALL BE INSERTED IN THE TRANSVERSE AND LONGITUDINAL JOINTS AT A UNIFORM DEPTH OF 5/8" BELOW THE SURFACE OF PAVEMENT. THE JOINTS SHALL BE SEALED WITH DOW CORNING NO. 888 SILICONE SEALANT OR EQUAL, LIGHT GRAY COLOR TO MATCH CONCRETE PAVEMENT.
7. WHERE DESIGNATED BY THE ENGINEER, PORTIONS OF EXISTING PAVEMENT SHALL BE REMOVED AND RECONSTRUCTED WITH 2" A.C. OR 6" P.C.C. PVMT.
8. WHERE DESIGNATED BY THE ENGINEER, UNDESIRABLE SUBGRADE MATERIAL SHALL BE REMOVED AND REPLACED WITH CRUSHED AGGREGATE BASE.
9. AT ALL LOCATIONS WHERE P.C.C. PAVEMENT WILL BE ABUTTING AGAINST EXISTING CONCRETE STRUCTURES (I.E. FACE OF THE EDGE OF GUTTER AND CURB) AN EPOXY "SIKADUR 32, HI-MOD OR EQUAL" SHALL BE APPLIED ON THESE SURFACES PRIOR TO POURING OF THE CONCRETE.

BUS PAD REPAIR:

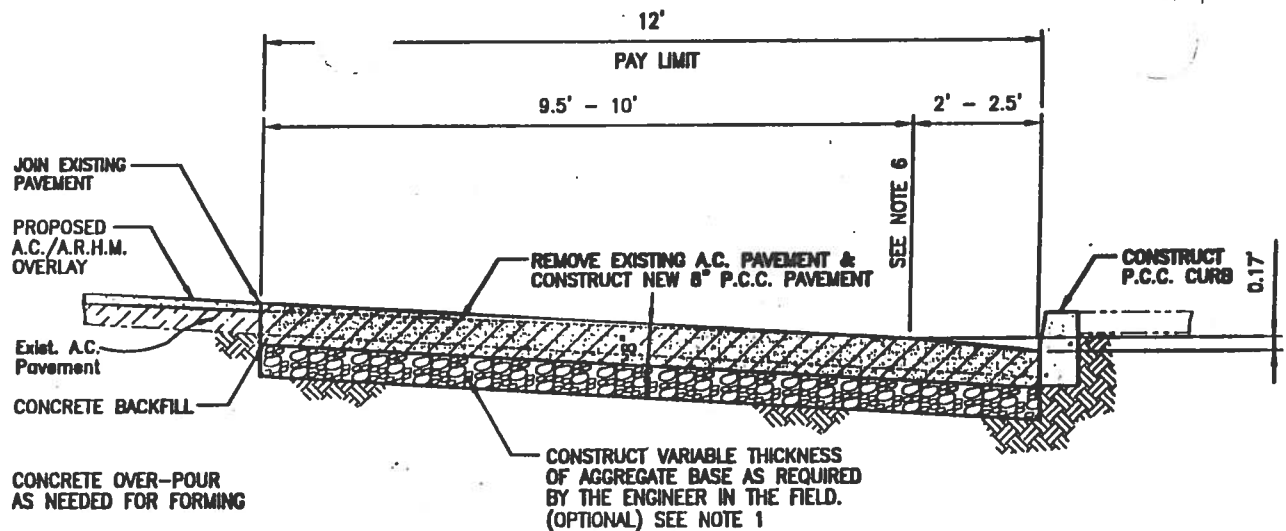
1. SAW- CUT P.C.C. PAVEMENT FROM SCORE LINE TO SCORE LINE. (TRANSVERSE JOINTS), REMOVE CONCRETE TO THE FULL WIDTH OF THE BUS PAD AND THE SCORE LINE CUTS.
2. AFTER UNDERGROUND REPAIR IS COMPLETED, BACK FILL AND COMPACT THE SOIL TO 95% COMPACTION USING THE SAME SOIL. IF CLAY IS ENCOUNTERED, REPLACE IT WITH GOOD IMPORTED SOIL TO THE SATISFACTION OF THE CITY ENGINEER.
3. REPLACE AGGREGATE BASE AND COMPACT IT TO 95% COMPACTION, MAINTAIN 6" THICKNESS.
4. DRILL 1" DIA. TRANSVERSE HOLES 12" DEEP EVERY 12" O.C. ON THE EXISTING BUS PAD AND GUTTER AND INSTALL #5 X 24" DOWELS SEE DWGS FOR DETAILS.
5. POUR CONCRETE USING CLASS 565-C-3250 HIGH EARLY STRENGTH.
6. RE-ESTABLISH TRANSVERSE JOINTS SIMILAR TO EXISTING, MAKING SAW CUT 2" DEEP AND 1/4" WIDE AND THE NEW SURFACE OF CONCRETE PAVEMENT SHALL HAVE A ROUGH SPONGE FINISH TO MATCH THE EXISTING SURFACE.
7. A CORD (BACKER ROD) SHALL BE INSERTED IN THE NEW TRANSVERSE JOINT AT A UNIFORM DEPTH OF 5/8" BELOW THE SURFACE OF THE PAVEMENT AND THE JOINTS, SEALED WITH DOW- CORNING 888 SILICONE SEALANT OR EQUAL, LIGHT GRAY COLOR TO MATCH CONCRETE PAVEMENT.

NOTE: ITEM # 4 WILL BE DONE ONLY ON A CERTAIN FIELD CONDITON, TO THE DISCRETION OF THE INSPECTOR.

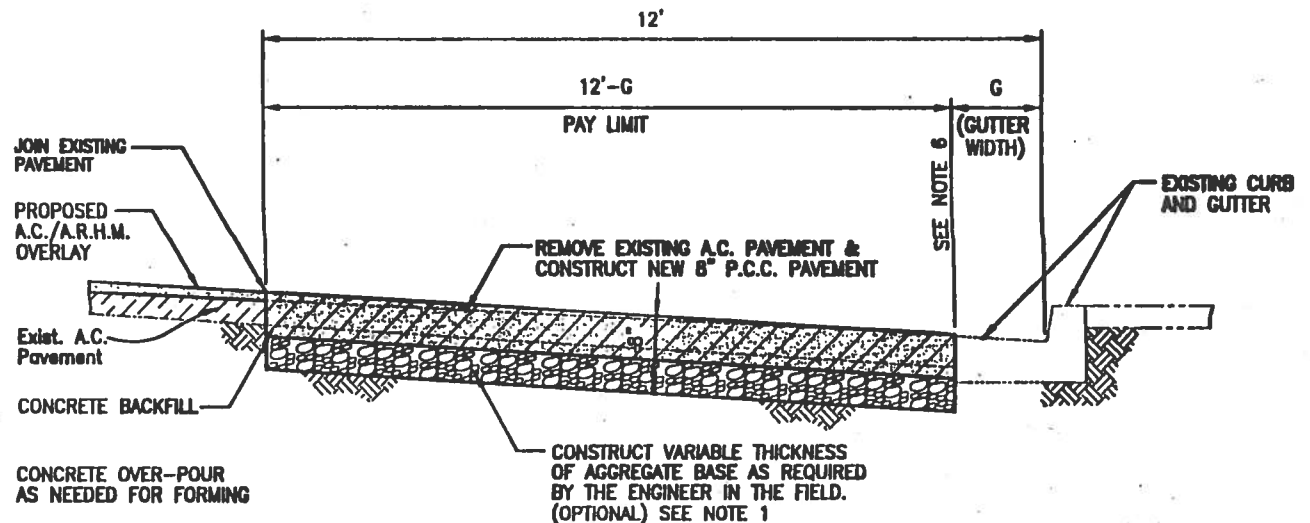


BUS PAD NOTES:

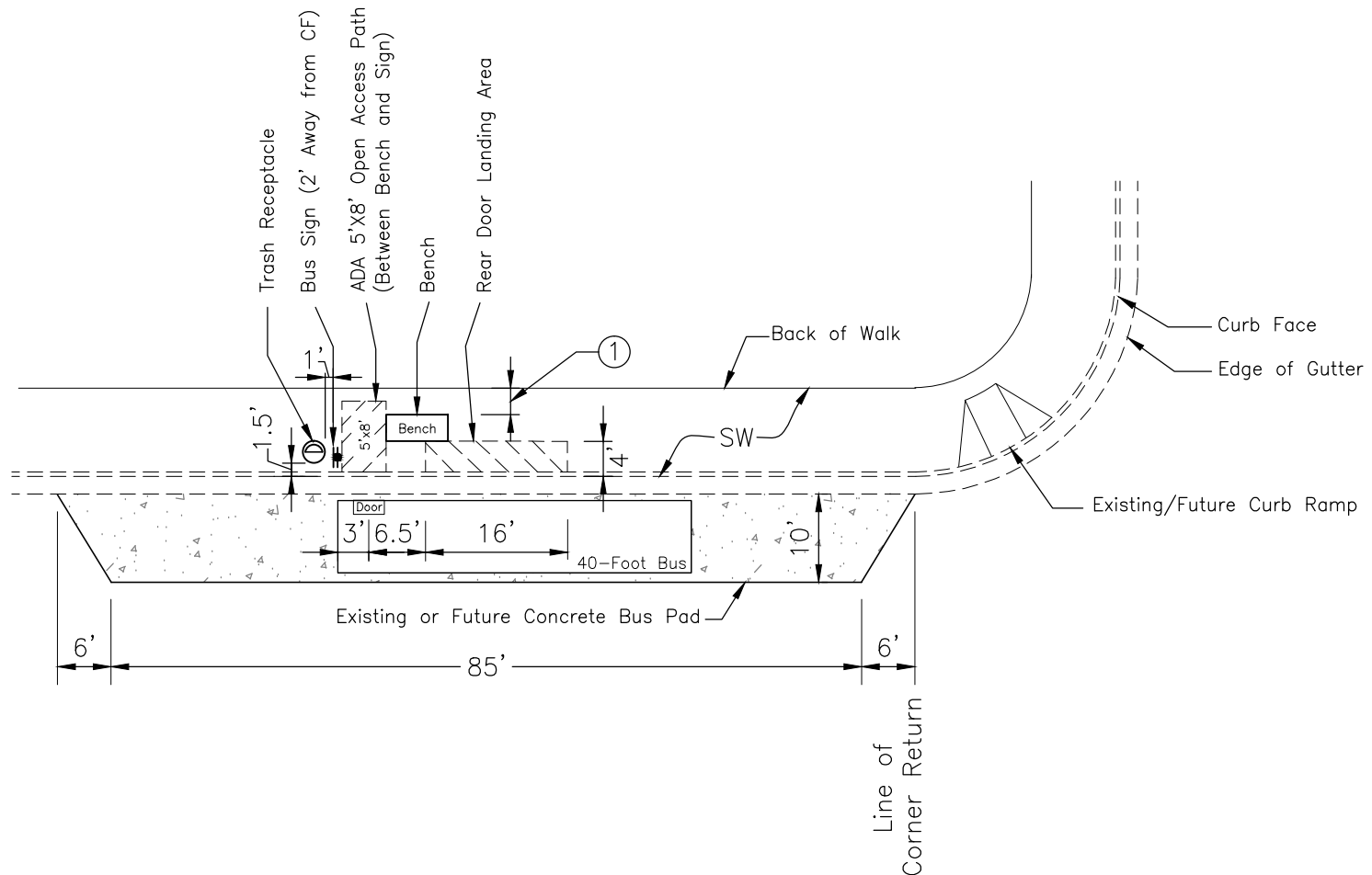
1. WHERE DESIGNATED BY THE ENGINEER IN THE FIELD, UNDESIRABLE SUBGRADE MATERIAL SHALL BE REMOVED AND REPLACED WITH AGGREGATE BASE.
2. TRANSVERSE WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED @ 7-FT INTERVAL.
3. THE SURFACE OF CONCRETE PAVEMENT SHALL HAVE A ROUGH SPONGE FINISH.
4. THE CONTRACTOR HAS THE OPTION OF CONSTRUCTING THE CONCRETE OVER-POUR MONOLITHIC WITH THE 8" P.C.C. BUS PAD.
5. THE CURB SHALL BE CONSTRUCTED MONOLITHIC WITH THE 8" P.C.C. BUS PAD.
6. CONSTRUCT SCORELINE TO MATCH ADJOINING EXIST. GUTTER WIDTH, OR 2-FT.
7. WEAKENED PLANE JOINT SHALL BE SAW CUT 2" DEEP AND 1/4" WIDE.
8. A CORD (BACKER ROD) SHALL BE INSERTED IN THE TRANSVERSE JOINTS AT A UNIFORM DEPTH OF 5/8" BELOW THE SURFACE OF THE PAVEMENT AND THE JOINTS SEALED WITH DOW-CORNING 888 SILICONE SEALANT OR EQUAL, LIGHT GRAY COLOR TO MATCH CONCRETE PAVEMENT.



 **BUS PAD DETAIL WITHOUT EXISTING GUTTER**
NOT TO SCALE



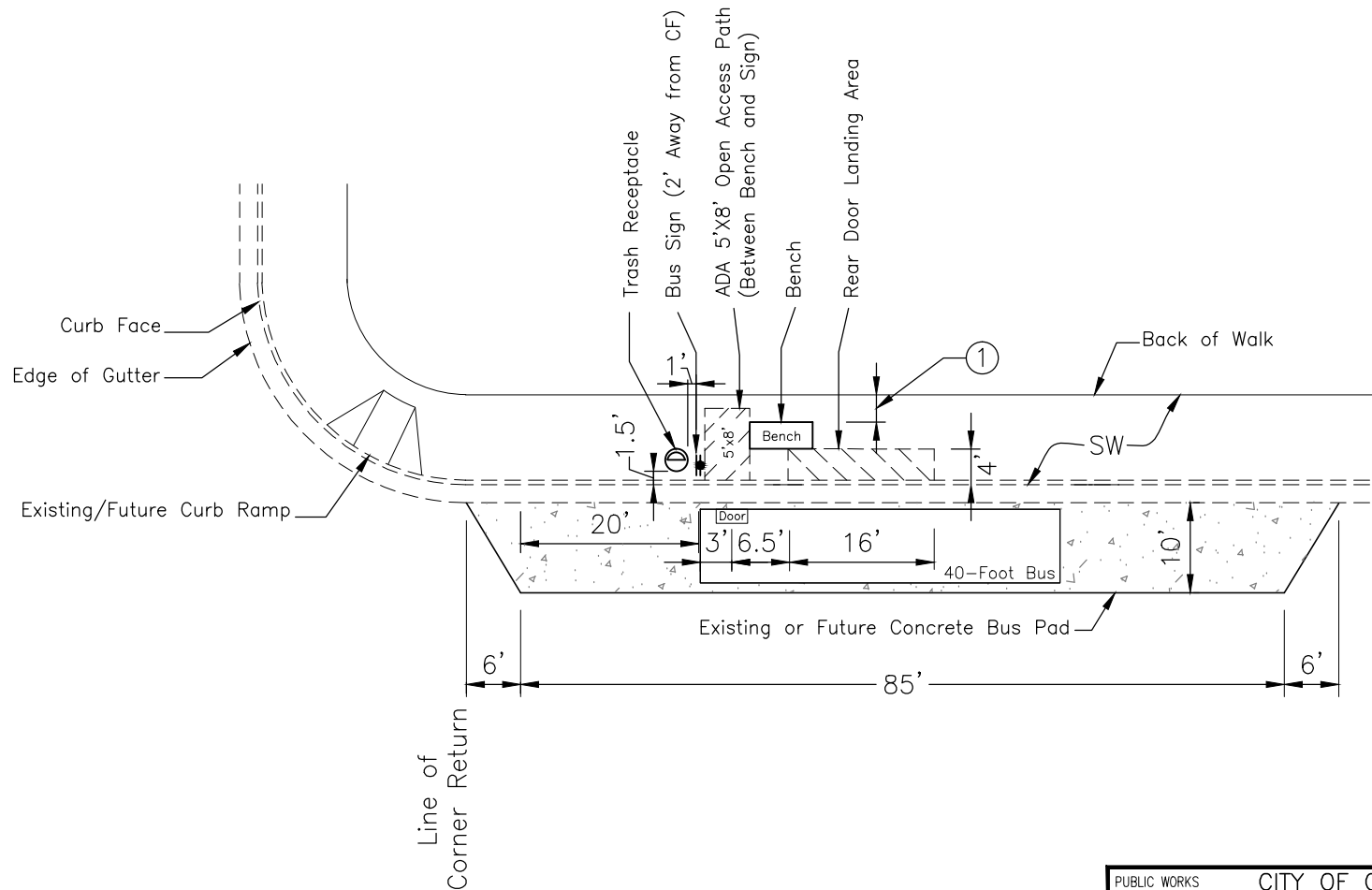
 **BUS PAD DETAIL WITH EXISTING GUTTER**
NOT TO SCALE



NOTES:

- ①—Minimum 3' Clearance Between Bench and Back of Walk

PUBLIC WORKS DEPARTMENT	CITY OF GLENDALE CALIFORNIA	ENGINEERING DIVISION
GLENDALE "BEELINE" TYPICAL SIGN/FURNITURE LAYOUT (BENCH ONLY) FOR FAR-SIDE BUS STOPS		
DRAWN BY: A. MEGERDICHIAN UPDATED: DECEMBER 9, 2013 CHECKED BY: KATHRYN ENGEL	SCALE: 1"=20'	SHEET 1 OF 2

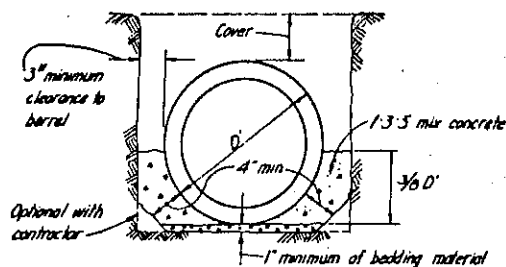


NOTES:

- ①—Minimum 3' Clearance Between Bench and Back of Walk

PUBLIC WORKS DEPARTMENT	CITY OF GLENDALE CALIFORNIA	ENGINEERING DIVISION
GLENDALE "BEELINE" TYPICAL SIGN/FURNITURE LAYOUT (BENCH ONLY) FOR NEAR-SIDE BUS STOPS		
DRAWN BY: A. MEGERDICHIAN UPDATED: DECEMBER 9, 2013 CHECKED BY: KATHRYN ENGEL	SCALE: 1"=20'	SHEET 2 OF 2

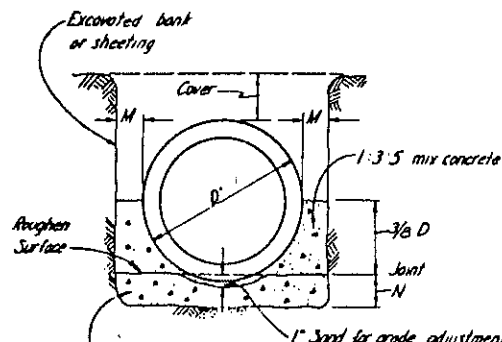
CASE I



CASE I BEDDING (Load Factor 2.1)

shall be used where specified on plans or where required as an alternative to Case II or Case III Bedding as provided hereon. Case IV Bedding shall be used instead of Case I against sheeting or unstable trench sides if so required by the Engineer.

CASE IV



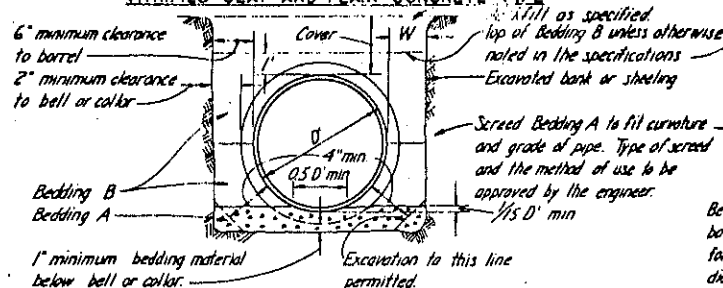
For concrete mix see specifications. Concrete shall be 12 hours old before pipe is laid. "M" and "N" shall be specified on the plans or by the engineer.

CASE IV BEDDING (Load Factor 3.0)

Where required by the engineer as an alternative to Case I or Case II to meet conditions arising during construction.

CASE II

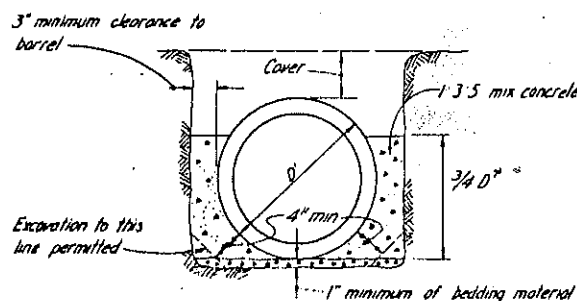
VITRIFIED CLAY AND PLAIN CONCRETE PIPE



CASE II BEDDING & BACKFILL AROUND PIPE (Load Factor 1.8)

- "W" of springing line shall not be less than 6" for any depth of trench. This dimension may include the thickness of any sheeting.
- Where cover is 8' or less, "W" measured at top of pipe may be any dimension greater than 6".
- Where cover is greater than 8', "W" measured at top of pipe shall not be greater than 8' unless the contractor at his own expense provides Case I bedding or stronger pipe. The stated 8' includes the thickness of any sheeting.

CASE V

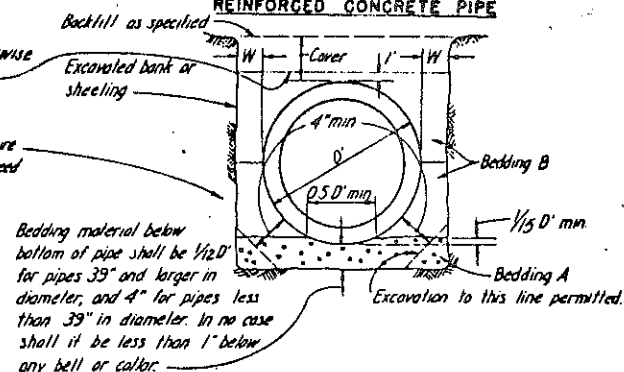


CASE V BEDDING (Load Factor 2.7)

shall be used where specified on the plans. Case IV Bedding shall be used instead of Case V against sheeting or unstable trench walls if so required by the Engineer.

CASE III

REINFORCED CONCRETE PIPE



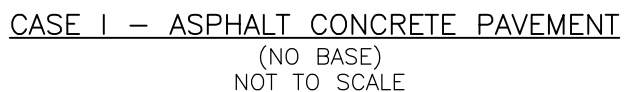
CASE III BEDDING & BACKFILL AROUND PIPE (Load Factor 1.8)

- "W" of springing line shall not be less than the following: 6" for pipe 60" or less in diameter, 10" for pipe 63" to 36" inclusive in diameter, and 12" for pipe larger than 36" in diameter. These dimensions may include the thickness of any sheeting.
- Where cover is 10' or less, "W" measured at the top of pipe may be any dimension greater than the above specified minimum unless otherwise specified on the project drawings.
- Where cover is greater than 10', "W" measured at the top of the pipe shall not be greater than 10' for pipe 36" in diameter or less, or 12' for pipe over 36" in diameter unless the contractor at his own expense provides Case I bedding or stronger pipe. These dimensions include the thickness of any sheeting.

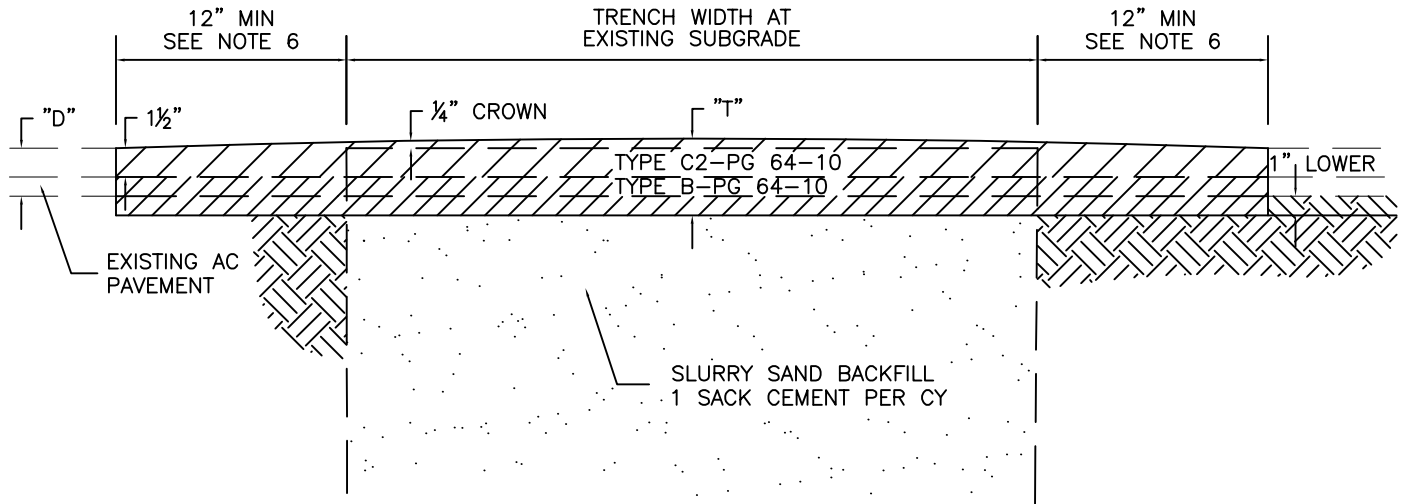
NOTES:

- Use Case III for R.C.P. and Case II for vitrified clay and plain concrete pipe unless otherwise specified or shown on the project drawings.
- Bedding A shall be composed of sand, No. 3 or No. 4 crushed rock or gravel, or other granular material as may be specified or otherwise approved by the engineer. The maximum size rock or gravel shall be No. 3 for pipe 27" in diameter and larger, and No. 4 for pipe smaller than 27" in diameter.
- Bedding B shall be composed of sand or other granular material as may be specified or otherwise approved by the engineer and shall be completed prior to placing balance of backfill.
- Concrete backfill, where called for as follows or where specified on the project drawings, shall be 1:3:5 mix concrete poured wall to wall of trench from top of Bedding A to a minimum depth of 4" over top of pipe. Concrete backfill shall be used on pipes 12" through 21" in diameter with a cover of 2' or less and on pipes 24" through 36" in diameter with a cover of 1' or less.
- Bedding B shall contain no rocks larger than 4" in greatest dimension. Where rocks are included in the bedding, "nesting" thereof will not be permitted.

REVISIONS			PUBLIC WORKS DIVISION CITY OF GLENDALE	ENGINEERING SECTION CALIFORNIA
NO.	DATE	DESCRIPTION		
			PIPE BEDDING IN TRENCHES	
SUBMITTED:			APPROVED:	STANDARD PLAN 25-115
To: 10/6/62				
3 Dec 63				

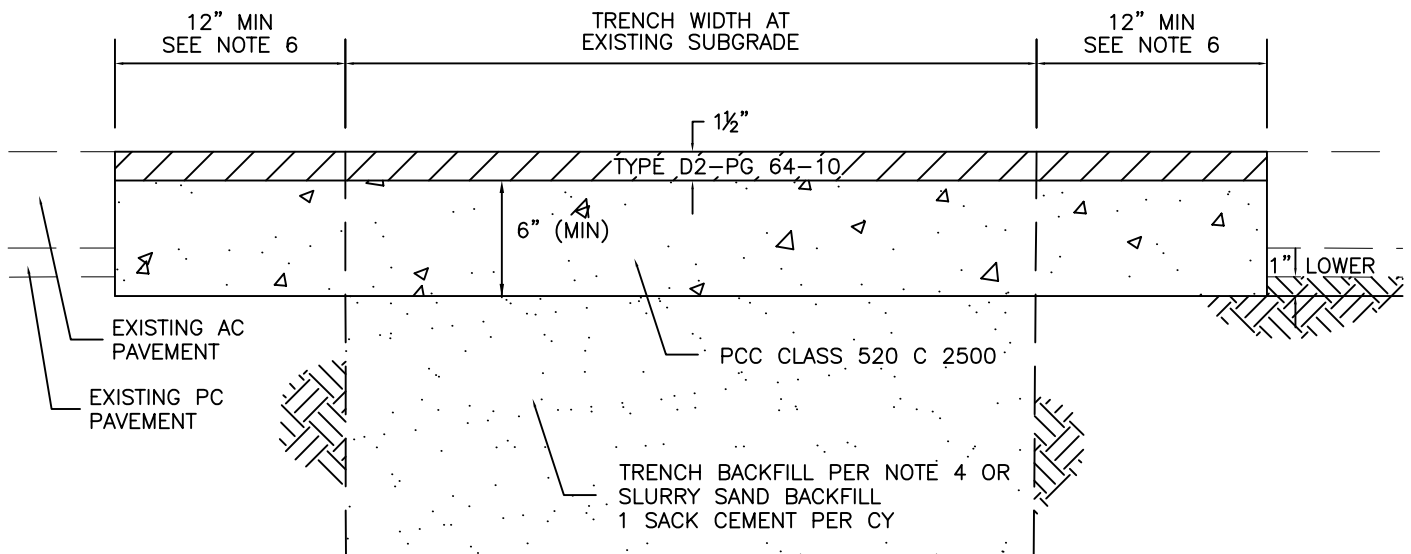


REVISIONS PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION CITY OF GLENDALE, CALIFORNIA		
BY	DATE	DESCRIPTION
		TRENCH RESURFACING SUBMITTED: _____ ACTING SURVEY SUPERVISOR APPROVED: _____ CITY ENGINEER
STANDARD PLAN 25-153 SHEET 1 OF 4		



CASE III - ASPHALT CONCRETE PAVEMENT

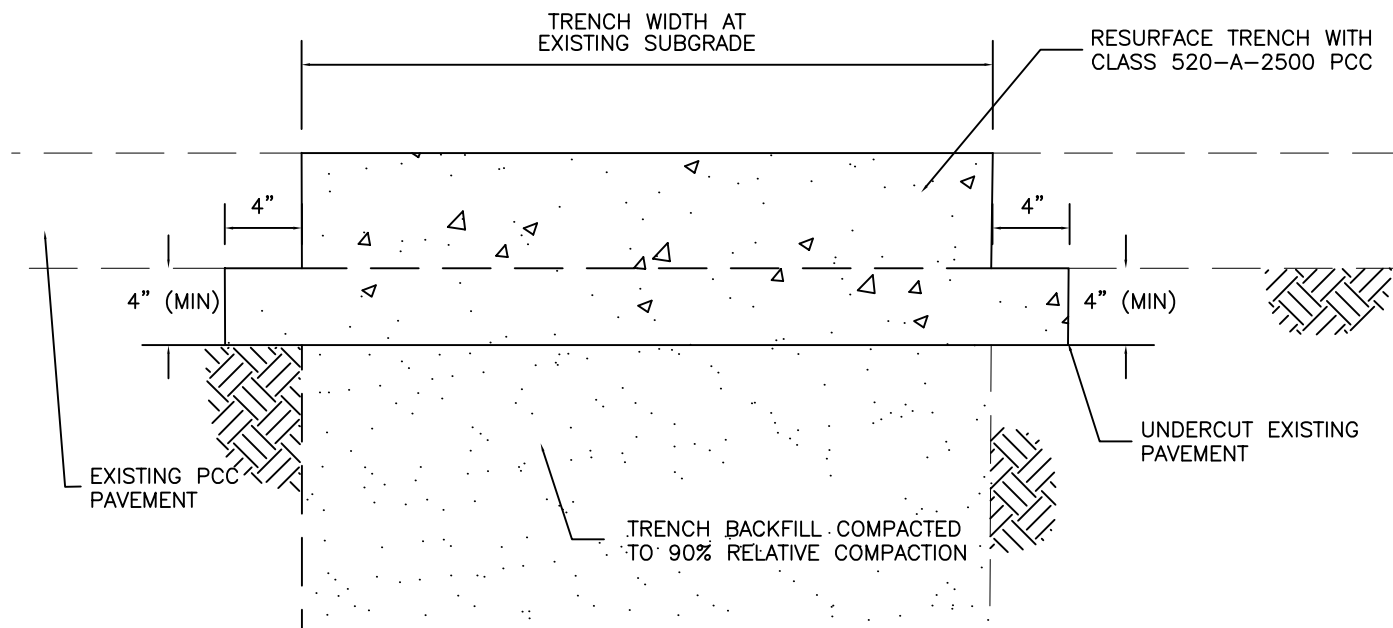
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NOT TO SCALE



CASE IV - ASPHALT CONCRETE PAVEMENT

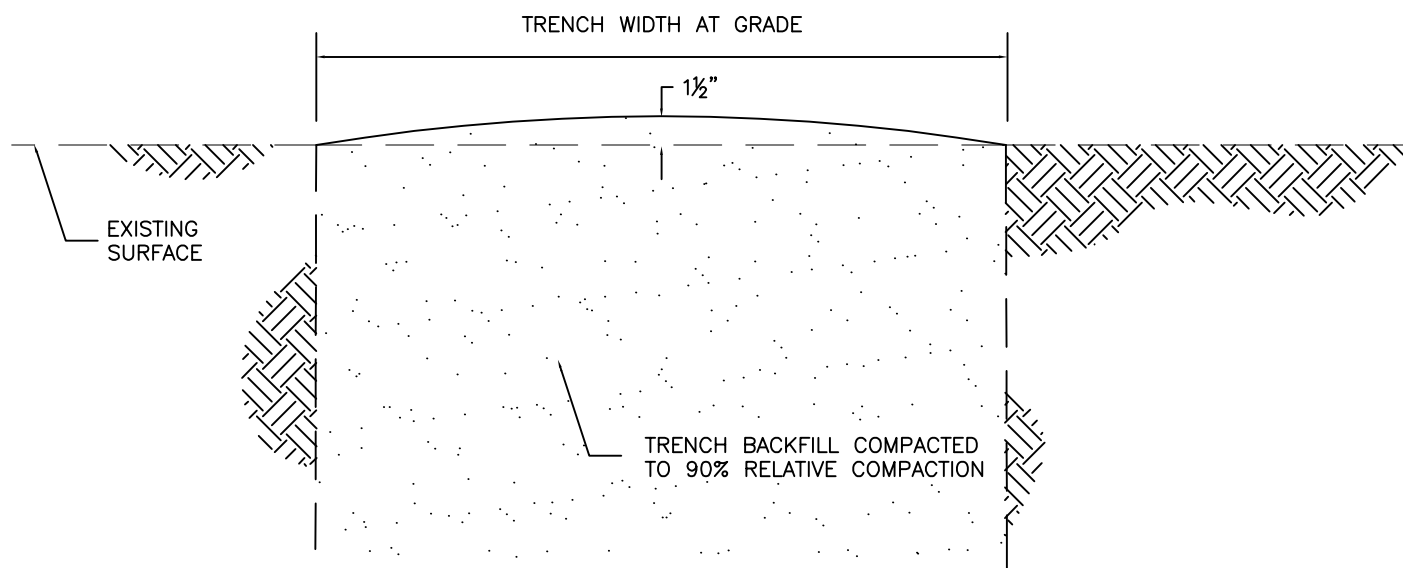
(NO BASE)
NOT TO SCALE

REVISIONS			PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION CITY OF GLENDALE, CALIFORNIA	
BY	DATE	DESCRIPTION		
			TRENCH RESURFACING	
SUBMITTED:			ACTING SURVEY SUPERVISOR	STANDARD PLAN 25-153 SHEET 2 OF 4
APPROVED:			CITY ENGINEER	



CASE I – ASPHALT CONCRETE PAVEMENT

(NO BASE)
NOT TO SCALE



CASE II – ASPHALT CONCRETE PAVEMENT

(NO BASE)
NOT TO SCALE

REVISIONS			PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION CITY OF GLENDALE, CALIFORNIA	
BY	DATE	DESCRIPTION		
			TRENCH RESURFACING	
			SUBMITTED: _____ ACTING SURVEY SUPERVISOR	STANDARD PLAN 25-153 SHEET 3 OF 4
			APPROVED: _____ CITY ENGINEER	

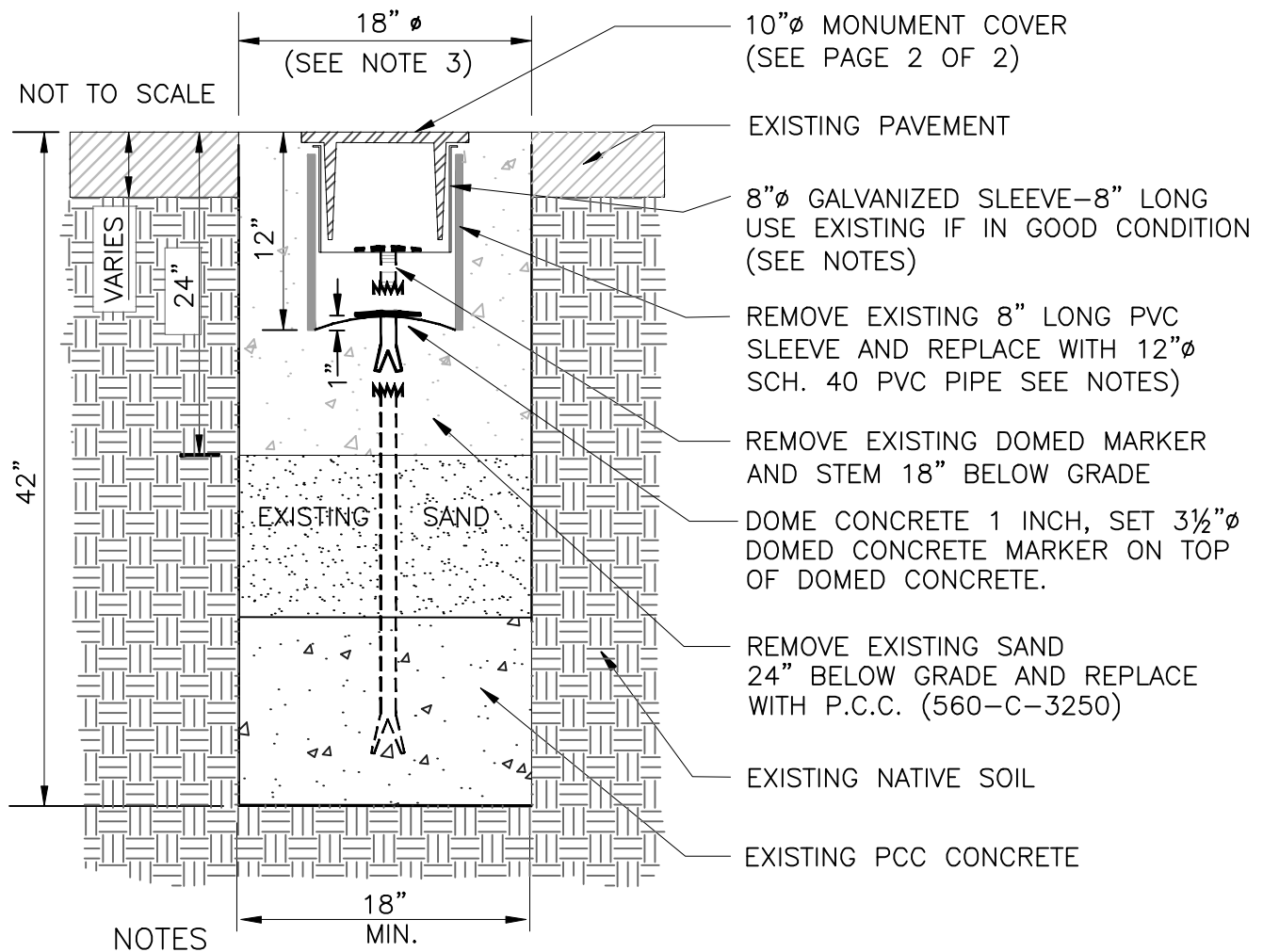
GENERAL NOTES

1. All work shall be done in accordance with the Standard Plans and Specifications for Public Works Construction (Latest Edition), including supplements and City of Glendale Additions and Amendments.
2. All pavement removals shall be made to clean straight lines saw cut to a minimum of 1 ½ inches deep.

If normal cut line is less than three (3) feet from previous cut lines, or less than three (3) feet from concrete expansion joints and edges, the existing pavement shall be removed to said cut lines, joints and edges or as directed by the Engineer

3. During trench excavation and subgrade preparation, the contractor shall take all necessary steps to ensure the protection of all improvements, public or private, including utilities and their services, from any damage that could occur due to his operations.
4. Backfill and densification shall be done in conformance with Section 306–1.3 of the Standard Specifications, except as follows:
 - (A) Trench backfill shall be densified to a minimum of 90 percent relative compaction.
 - (B) When pavement is to be placed directly on subgrade material, the top 6 inches of subgrade material shall be compacted to a relative compaction of 95 percent.
5. Temporary trench resurfacing shall be placed at the contractor's expense, unless otherwise specified by the Engineer. It shall be placed level with the existing pavement on compacted trench backfill and shall be a minimum of two (2) inches thick maintained free of depressions.
6. Permanent resurfacing shall be done no later than one (1) week after backfilling of trenches has been completed, and only after settlement has taken place and the fill surface has dried. For AC Pavement, a 12–inch wide strip of pavement shall be saw cut and removed in both sides of the trench. All cuts shall be clean and straight.
7. Case I & II permanent trench resurfacing shall consists of asphalt concrete surface course Type C2–PG 64–10 or D2–PG 64–10 1 ½ thick placed on an asphalt concrete base Type B–PG 64–10. Where the original asphalt pavement thickness "D" is six (6) inches or less, the replacement thickness "T" shall be a minimum of one (1) inch greater than "D" up to a maximum of six (6) inches. Where the original asphalt thickness is six (6) inches or more, the replacement thickness shall be to the same thickness or as directed by the Engineer.
8. After the final paving, all the joint edges shall be sealed with tack coat to the satisfaction of the Engineer.

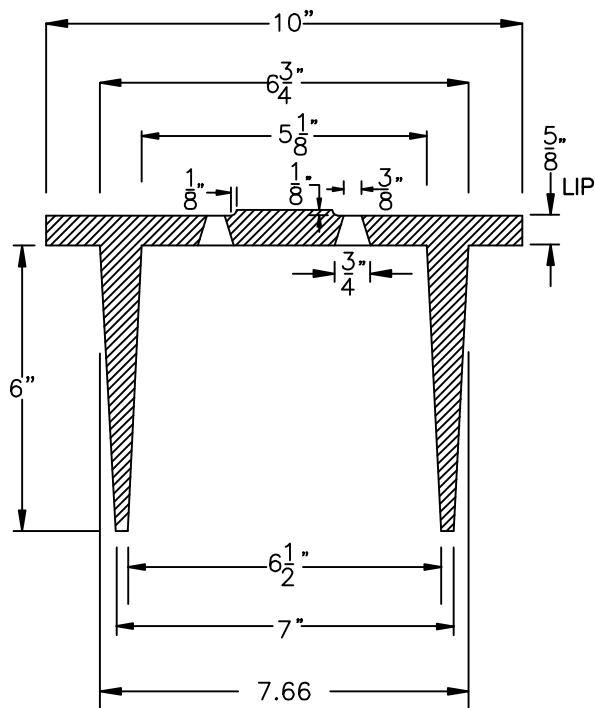
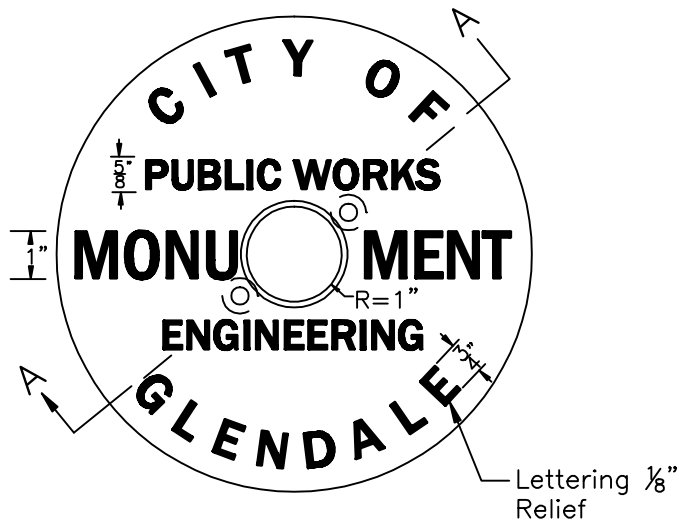
REVISIONS			PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION CITY OF GLENDALE, CALIFORNIA	
BY	DATE	DESCRIPTION		
			TRENCH RESURFACING	
			SUBMITTED: _____ ACTING SURVEY SUPERVISOR	STANDARD PLAN 25-153
			APPROVED: _____ CITY ENGINEER	SHEET 4 OF 4



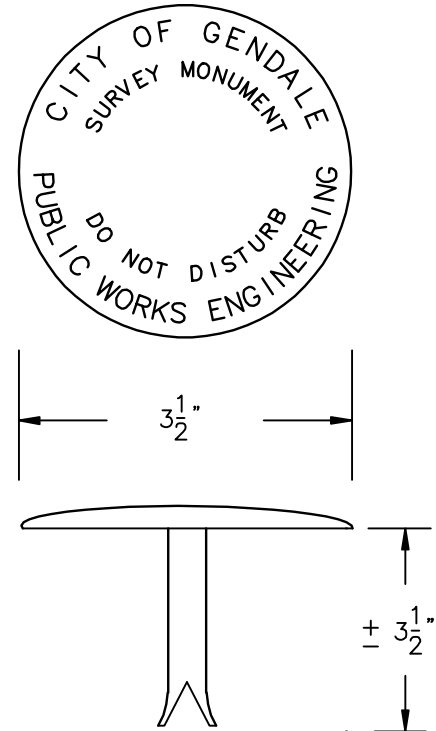
1. IN CASES WHERE THE CONTRACTOR IS UNABLE TO PLACE THE MONUMENT, SUCH AS CONFLICTS WITH UNDERGROUND UTILITIES, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR REVIEW, CONFIRMATION, AND APPROVAL OF THE OMISSION.
2. NOTIFY U.S.A. TO MARK UTILITIES 48 HOURS PRIOR TO EXCAVATION.
3. PAVEMENT SHALL BE CORE-DRILLED WITH AN 18" ϕ DIAMOND BIT. JACK HAMMERING OF PAVEMENT WILL NOT BE PERMITTED.
4. 3 1/2" ϕ DOMED CONCRETE MARKER (BERNTSEN C35D), 8" ϕ GALVANIZED SLEEVE, 8" ϕ SCH. 40 PVC PIPE AND 10" ϕ MONUMENT COVER SHALL BE SUPPLIED BY THE CONTRACTOR.
5. 3 1/2" ϕ DOMED CONCRETE MARKER SHALL BE SET/ADJUSTED WITH A TOLERANCE OF $\pm 1/2$ " OFF THE CENTERLINE POINT AND SET ON TOP OF 1" DOMED CONCRETE.
6. SURVEY WELL MONUMENT COVERS SHALL BE ADJUSTED FLUSH TO NEW FINISHED PAVEMENT SURFACE.
7. CITY OF GLENDALE SURVEY SECTION SHALL BE NOTIFIED FIVE (5) WORKING DAYS PRIOR TO CONTRACTOR INSTALLING SURVEY WELL MONUMENT.
8. AFTER CONTRACTOR HAS INSTALLED SURVEY WELL MONUMENT, CITY OF GLENDALE SURVEY SECTION WILL CHISEL PUNCH THE DOMED CONCRETE MARKER.
9. REFER TO THE STANDARD PLAN 25-154 PAGE 2 OF 2 FOR DETAIL ON MONUMENT COVER AND MARKER.

REVISIONS			PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION CITY OF GLENDALE, CALIFORNIA	
BY	DATE	DESCRIPTION		
MEP	1/11	Updated		
			SURVEY WELL MONUMENT	
1/11 SUBMITTED:			M.P. SURVEY SUPERVISOR	STANDARD PLAN 25-155 SHEET 1 OF 1
1/11 APPROVED:			R.G. CITY ENGINEER	

MONUMENT COVER



DOMED CONCRETE MARKER



1) BERNTSEN C35D 3 1/2" DOMED CONCRETE MARKER (ALUMINUM) OR EQUIVALENT.

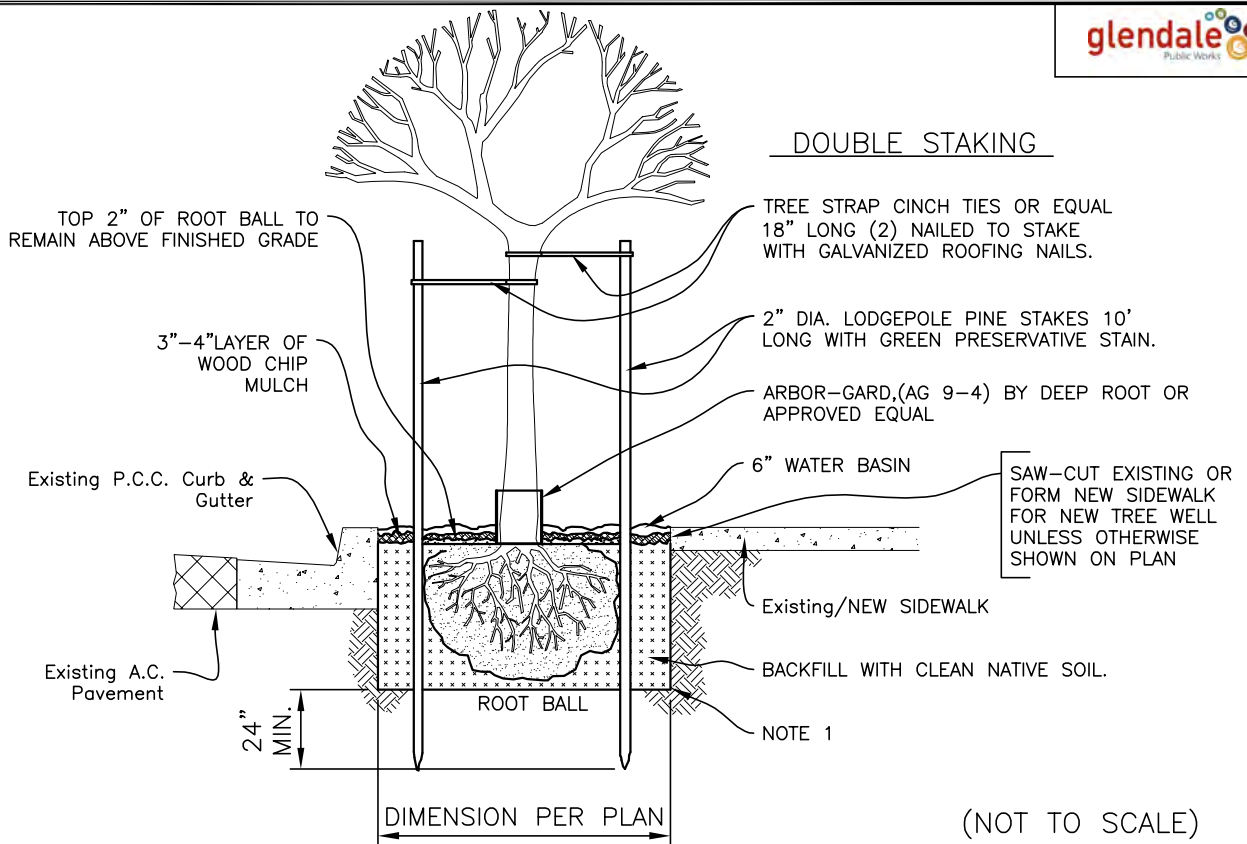
2) LETTERING MUST BE THE SAME IN FONT AND SIZE. ARRANGEMENT MUST BE AS SHOWN.

3) MARKERS OTHER THAN BERNTSEN ARE SUBJECT TO APPROVAL BY THE CITY ENGINEER.

REVISIONS			PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION CITY OF GLENDALE, CALIFORNIA	
BY	DATE	DESCRIPTION		
KCC	11/03	DIM & NOTES (DRAFTING)		
RJR	11/04	COVER & NOTES (DRAFTING)		
RJR	02/05	DIM & NOTES		
RJR	02/06	NEW DESIGN		
WGP	3/08	UPDATE		
MEP	1/11	UPDATE		
			1/11 SUBMITTED:	M.P. ACTING SURVEY SUPERVISOR
			1/11 APPROVED:	R.G. CITY ENGINEER

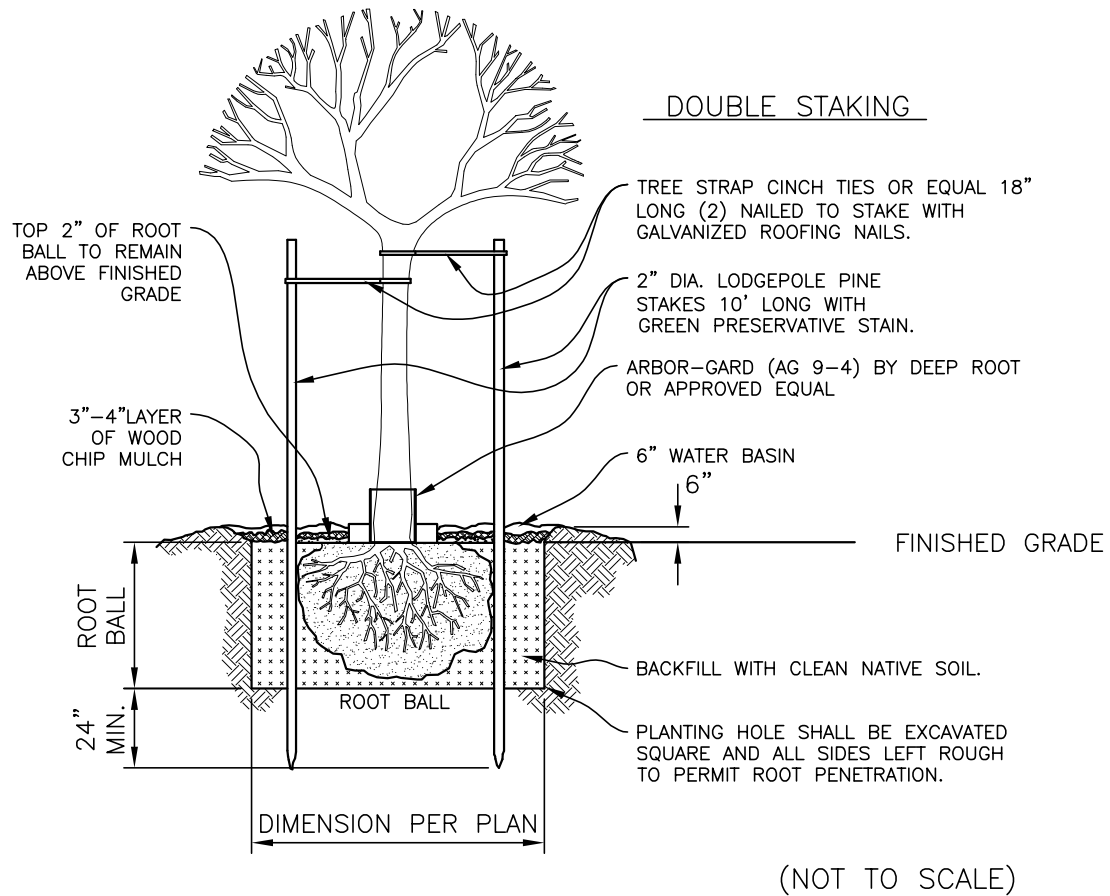
SURVEY WELL MONUMENT

STANDARD PLAN
25-155
SHEET 2 OF 2

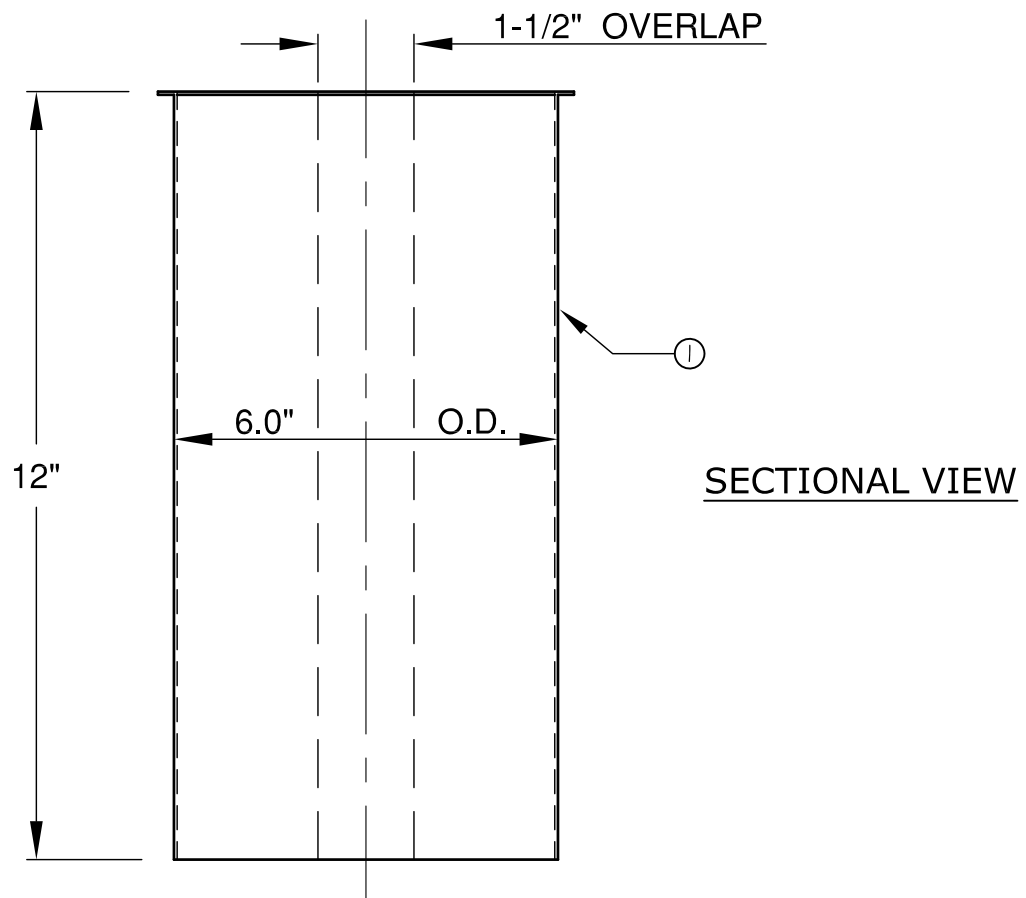
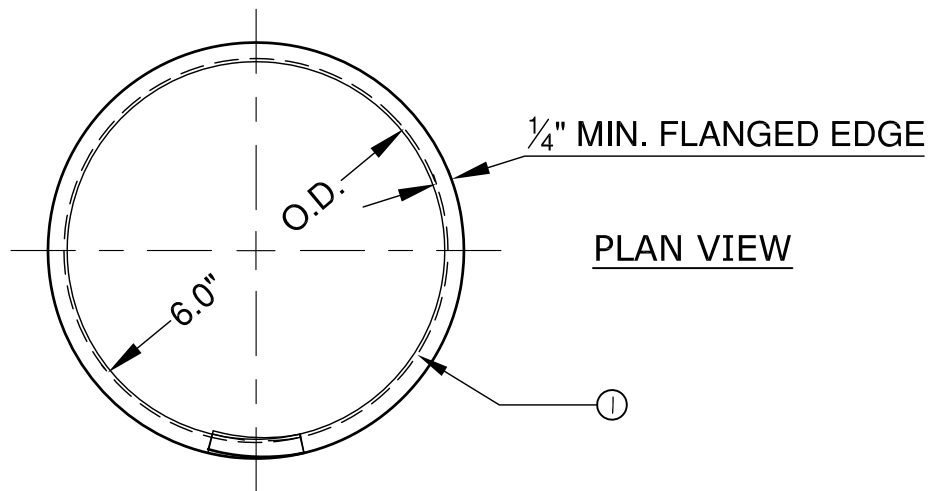


TREE PLANTING NOTES:

1. DIG THE DIAMETER OF THE PLANTING HOLE AT LEAST TWO (2) TIMES WIDER THAN THAT OF THE ROOT WALL.
2. DEPTH OF THE PLANTING HOLE SHALL BE ENOUGH TO ALLOW FOR THE TOP TWO (2") INCHES OF THE ROOT CROWN TO REMAIN ABOVE THE FINISHED GRADE.
3. TAMP DOWN THE BASE OF THE HOLE TO ALLOW THE TREE TO STAND STRAIGHT AND TO AVOID THE POTENTIAL OF THE TREE SETTLING BELOW THE GRADE.
4. POUND TWO (2) LODGE POLE PINE TEN (10') FOOT LONG STAKES TO A DEPTH OF TWENTY FOUR (24") INCHES BELOW BOTTOM OF THE PLANTING HOLE ENSURING THAT THE TOP OF THE STAKE IS SLIGHTLY BELOW THE LOWEST LATERAL LIMBS OF THE CANOPY.
5. ATTACH A MINIMUM OF TWO (2) CINCH TIES TO TIE THE TREE TO THE STAKES, LEAVING THE TIES LOOSE ENOUGH AROUND THE TRUNK TO ALLOW THE TREE TO SWAY SLIGHTLY.
6. SCARIFY OR SCRAPE THE SIDES OF THE PLANTING HOLE.
7. BACKFILL THE PLANTING HOLE WITH CLEAN, NATIVE SOIL NO HIGHER THAN HALFWAY UP THE ROOTBALL. SLIGHTLY TAMP THE SOIL TO REMOVE AIR POCKETS, BUT BE SURE NOT TO COMPACT THE SOIL TOO MUCH.
8. COMPLETE THE BACKFILLING TO THE FINISHED GRADE. ONCE AGAIN, TAMP THE SOIL SLIGHTLY TO REMOVE THE AIR POCKETS.
9. FORM A WATERING BASIN OUT OF BACKFILL MATERIAL, APPROXIMATELY SIX (6") INCHES HIGH. THE BASIN SHALL BE INSTALLED FOUR (4") INCHES OUTSIDE OF AND AROUND THE EDGE OF THE PLANTING HOLE.
10. REMOVE ALL NURSERY STAKES, TIES AND RIBBONS FROM THE TREES.
11. INSTALL A THREE (3") TO FOUR (4") INCH LAYER OF CITY APPROVED CHIP MULCH WITHIN THE PLANTING BASIN OF THE TREE. A SPACE OF THREE (3") INCHES SHALL BE LEFT BETWEEN THE TREE'S STEM AND THE MULCH LAYER TO ALLOW AIRFLOW AND TO RESTRICT MOISTURE FROM REMAINING STATIC AROUND THE BASE OF THE TRUNK.
12. GIVE THE NEW TREES AN INITIAL DEEP WATERING.
13. ALL SPECIMEN PLANT MATERIALS, SHRUBS AND LAWN SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE INSTALLATION.
14. ALL TREES SHALL BE GUARANTEED FOR (1) YEAR. UPON COMPLETION OF WORK APPROVED BY THE CITY OF GLENDALE, THE CONTRACTOR SHALL PERFORM MAINTENANCE FOR THE FIRST 90 DAYS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND STAKING ALL SEWER, ELECTRICAL, WATER MAIN LINES, AND UTILITIES PRIOR TO PLANTING. THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR ANY COSTS INCURRED DUE TO DAMAGE AND REPLACEMENT OF SAID UTILITIES.
16. THE CONTRACTOR SHALL EXERCISE CARE WHILE DIGGING AROUND NEWLY PLANTED AND EXISTING TREES.



FOR TREE PLANTING NOTES SEE SHEET NO. 1



DETAIL	DESCRIPTION
①	ADJUSTABLE SLEEVE FOR VALVE BOX, MATERIAL TO BE 18 GAGE (0.049") GALVANIZED SHEET METAL 12" HIGH

GLENDALE WATER & POWER
 CITY OF GLENDALE
 CALIFORNIA

ADJUSTABLE SLEEVE
 FOR WATER VALVE BOX

APPROVED

07/14/2016

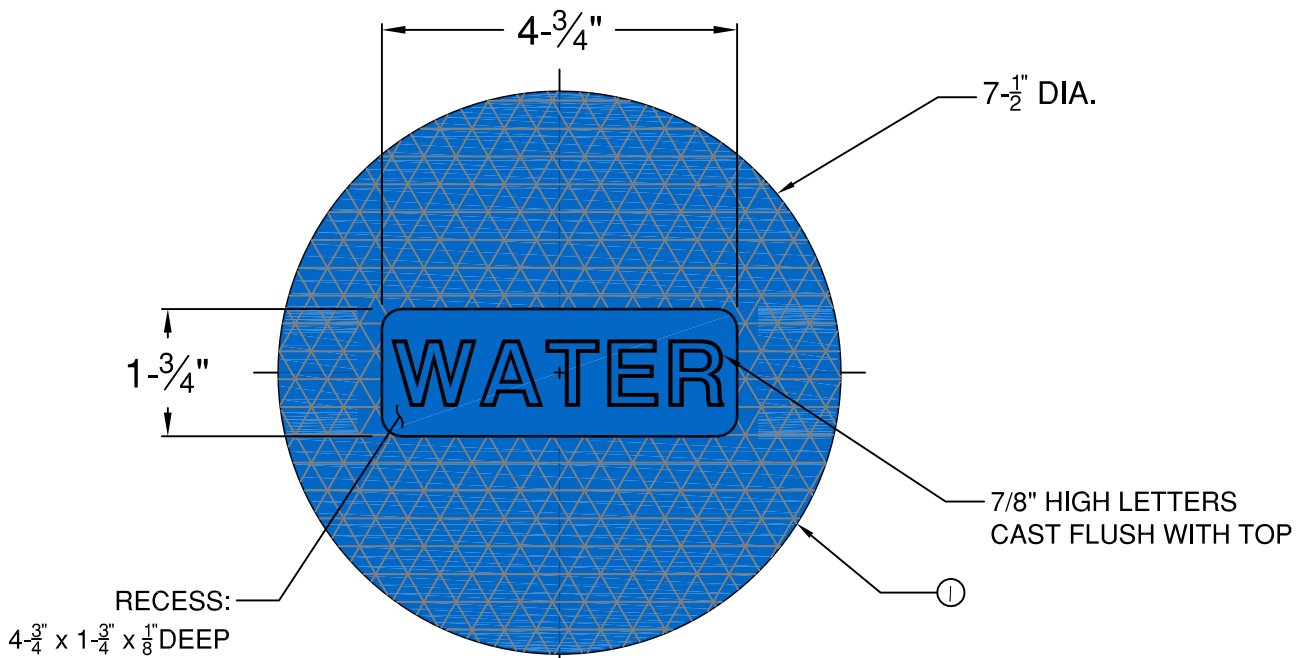
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
 GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: KR
 D: KR
 C: KR

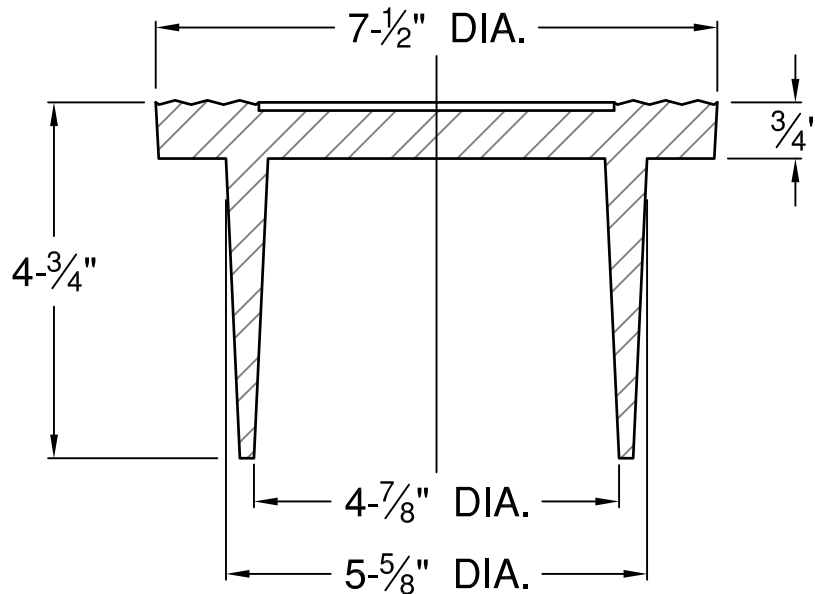
SCALE: NONE
 DATE: 07/14/2016
 APP: GT

SHEET No. 1 OF 1

1588-A



PLAN VIEW



SECTIONAL VIEW

DETAIL	DESCRIPTION
①	VALVE BOX COVER, TRAFFIC RATED, LONG BEACH IRON WORKS LB 513E, SOUTHBAY FOUNDRY B-6030, OR EQUAL

REQUIRED MANUFACTURER'S SPECS

MATERIAL = GREY CAST IRON, ASTM A48, CLASS 30B

FACTORY FINISH = DIPPED IN BLACK BITUMINOUS PAINT

FIELD APPLIED FINISH = BLUE PAINT

LOAD RATING = MEETS H-20 WHEEL LOAD REQUIREMENTS

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**WATER VALVE
BOX COVER**

APPROVED

07/13/2016

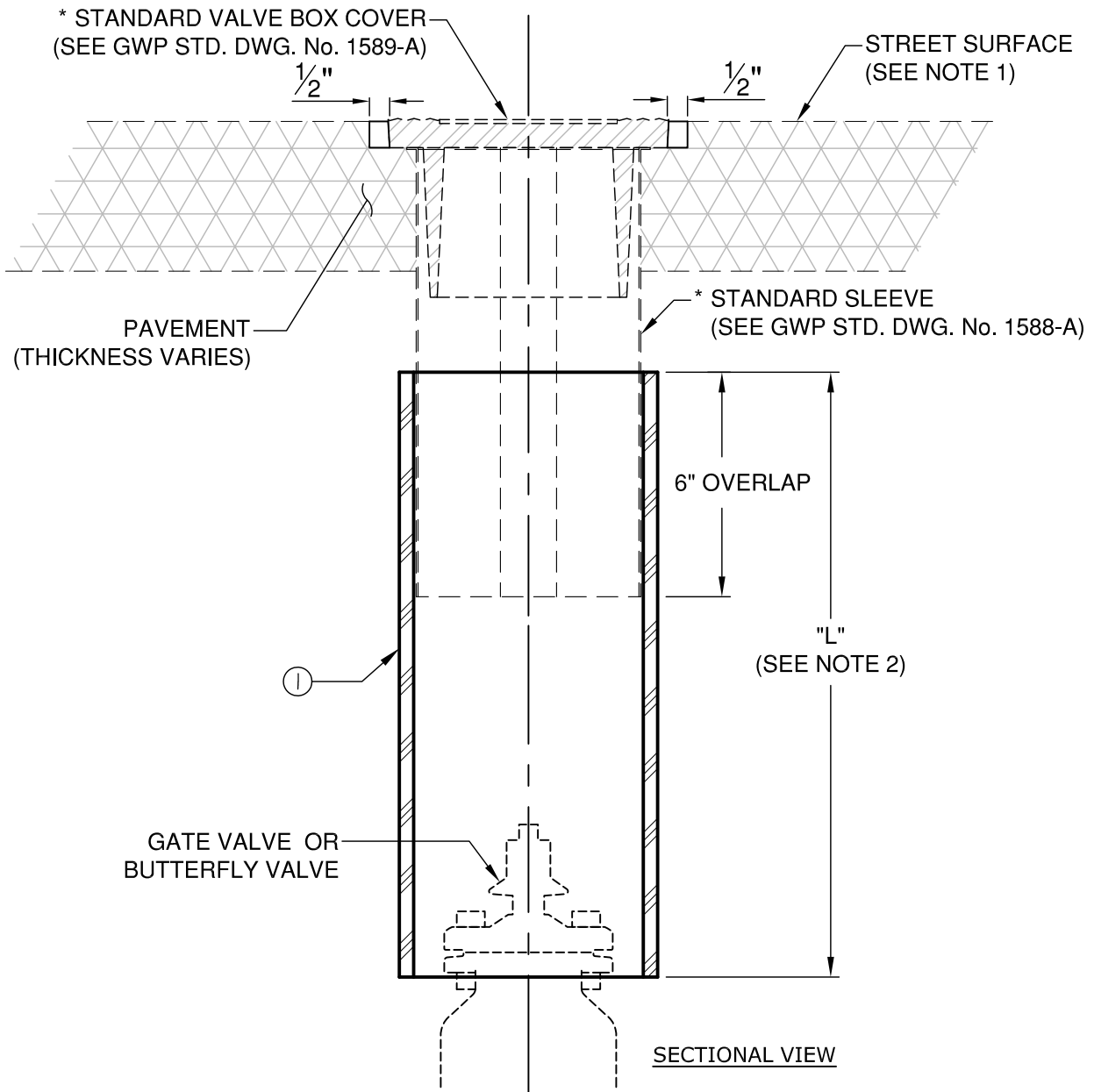
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB
D: KR
C: KR

SCALE: NONE
DATE: 07/13/2016
APP: GT

SHEET No. 1 OF 1

1589-A



DETAIL	DESCRIPTION
①	6" C-900 PVC, DR-18, LENGTH VARIES

* ACCOMPANYING GWP STD. DWG. No.'s 1588-A & 1589-A

NOTES

1. WHEN VALVE BOX IS IN A DIRT AREA, CONTRACTOR TO CONSTRUCT 2' x 2' x 4" CONCRETE PAD AROUND VALVE CAN.
2. LENGTHS TO BE DETERMINED IN FIELD.

GLENDALÉ WATER & POWER
CITY OF GLENDALÉ
CALIFORNIA

STANDARD WATER
VALVE BOX

APPROVED

07/14/2016

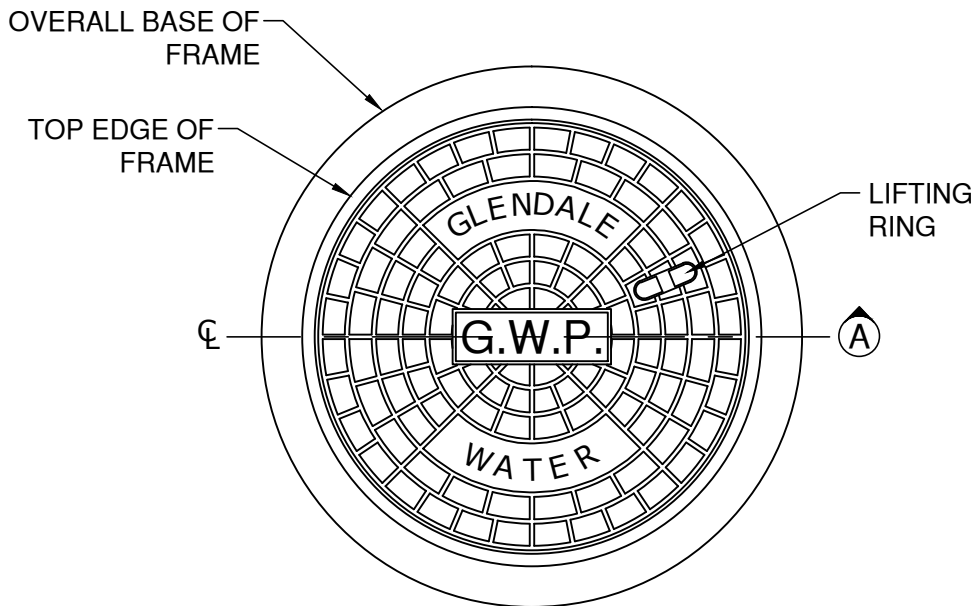
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALÉ WATER AND POWER - WATER DEPARTMENT

DES: KR
D: KR
C: KR

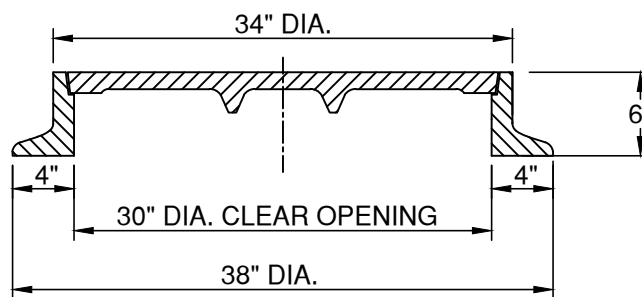
SCALE: NONE
DATE: 07/14/2016
APP: GT

SHEET No. 1 OF 1

1590-A



PLAN



SECTION A

NOTES

1. MANHOLE FRAME & COVER MODELS SHALL BE TRAFFIC-RATED AND CONFORM TO ALHAMBRA FOUNDRY'S #A-1252B, LONG BEACH IRONWORKS' LB-1252, OR SOUTHBAY FOUNDRY'S SBF 1252-6, AND DISPLAY THE DESIGNATED LETTERING PICTURED ABOVE.

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**MANHOLE FRAME AND COVER -
30" CLEAR OPENING**

APPROVED

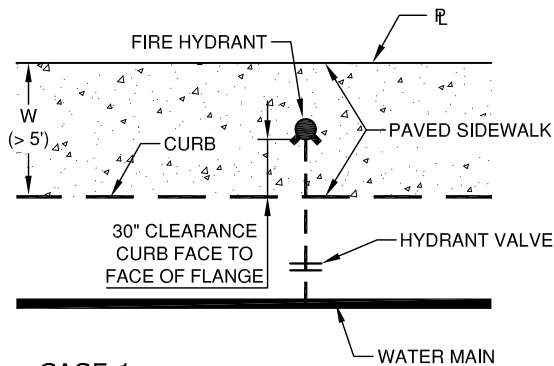
12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: FCK/LB SCALE: NONE
D: FCK/LG/GR
C: GT DATE: 09/12/13
APP:

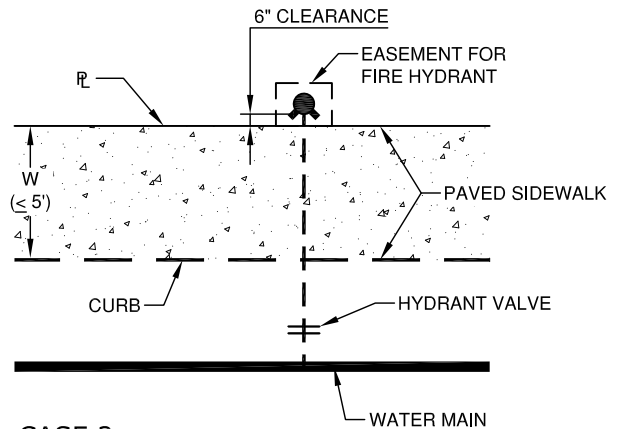
SHEET No. 1 OF 1

1651-A



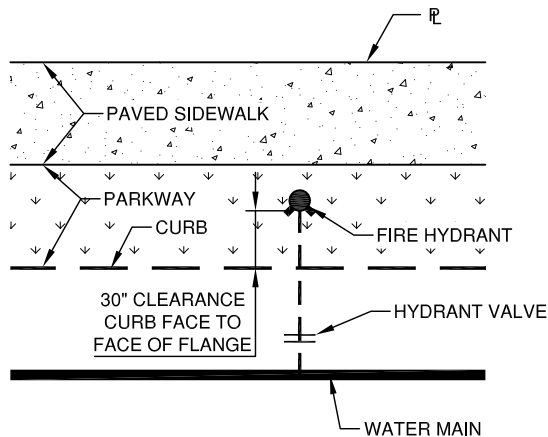
CASE 1

"W" IS GREATER THAN 5 FEET WIDE AND NO PARKWAY EXISTS



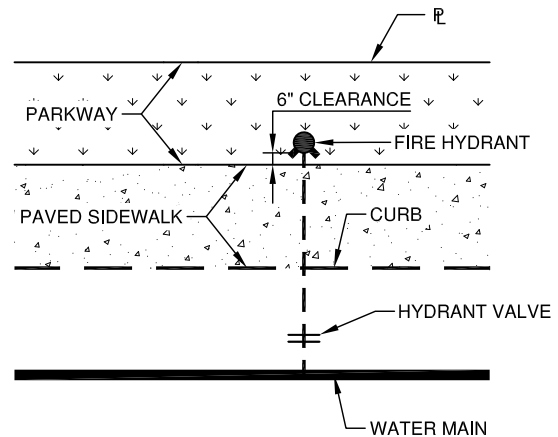
CASE 2

"W" IS EQUAL TO OR LESS THAN 5 FEET WIDE AND NO PARKWAY EXISTS. IF NO EASEMENT IS AVAILABLE, CONSULT GLENDALE WATER & POWER - WATER ENGINEER.



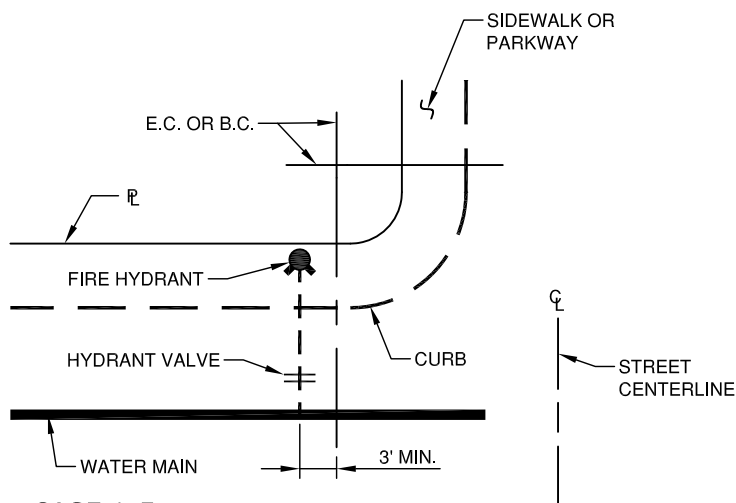
CASE 3

PARKWAY ADJACENT TO CURB



CASE 4

SIDEWALK ADJACENT TO CURB WITH PARKWAY EXISTING



CASE 1-5

HYDRANT SETTING AT TYPICAL STREET INTERSECTION

LEGEND	
PL	PROPERTY LINE
W	WIDTH
CL	CENTER LINE
Hydrant & Valve	FIRE HYDRANT & VALVE

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**STANDARD FIRE HYDRANT
SETTING LOCATIONS**

APPROVED

[Signature]

07/20/2016

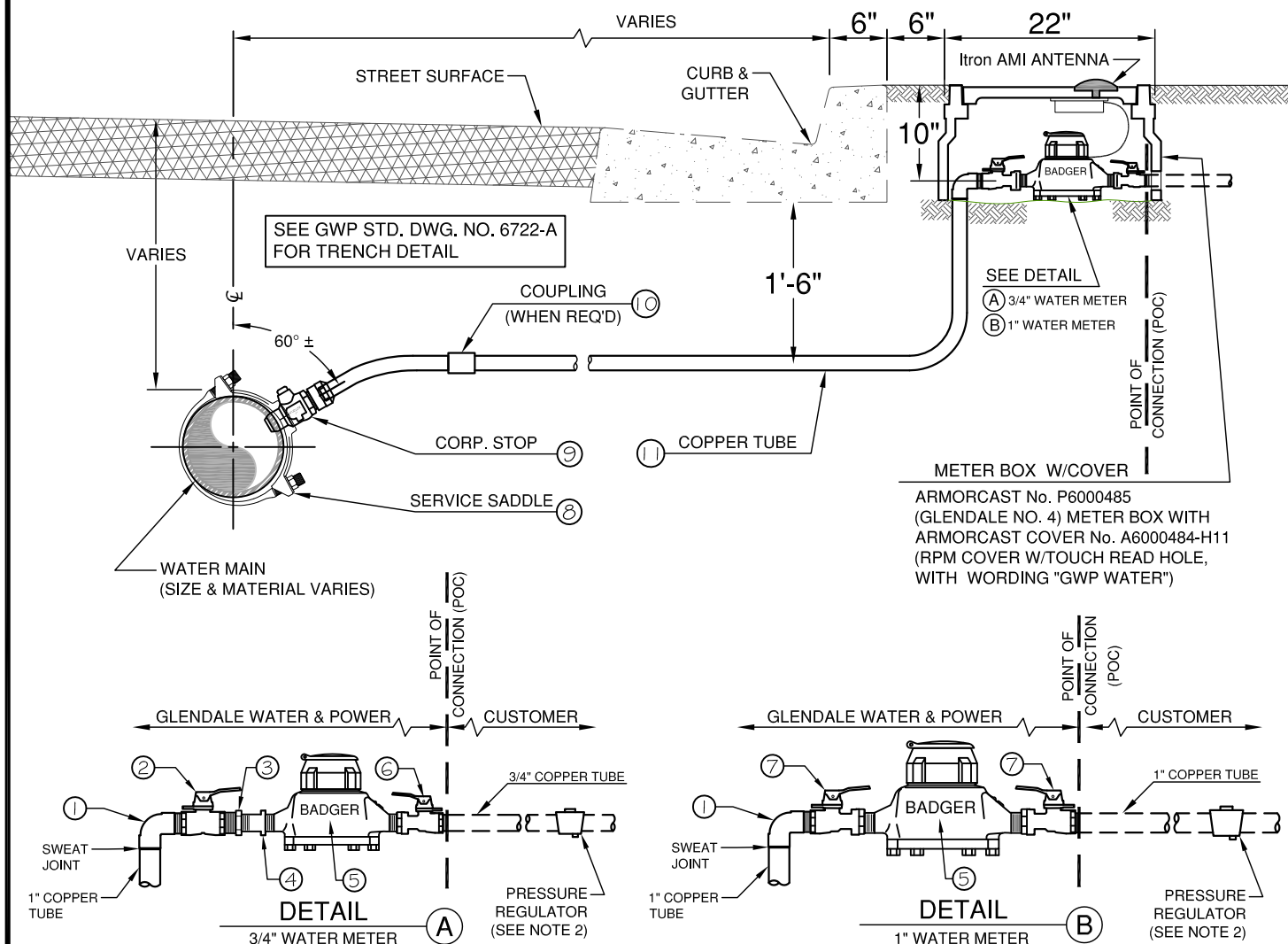
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB
D: GR
C: KR

SCALE: NONE
DATE: 07/20/2016
APP: GT

SHEET No. 1 OF 1

1655-A



DETAIL	DESCRIPTION
①	ELBOW, 1" x 90° CAST BRONZE (C.T. x M.I.P., OR PROPRESS)
②	METER VALVE, 1" CAST BRONZE BALL VALVE (F.I.P. x F.I.P.)
③	BUSHING ADAPTOR, 1" X 3/4" BRASS, M.I.P. x F.I.P. (ONLY FOR 3/4" METER)
④	STRAIGHT METER COUPLING, 3/4" BRONZE, 2-1/2" LENGTH, M.I.P. x SWIVEL NUT (ONLY FOR 3/4" METER)
⑤	WATER METER, M.I.P. x M.I.P., FURNISHED BY GLENDALE WATER AND POWER (EITHER 3/4" OR 1" AS SPECIFIED)
⑥	METER VALVE, 3/4" CAST BRONZE BALL VALVE (F.I.P. x SWIVEL NUT)
⑦	METER VALVE, 1" CAST BRONZE BALL VALVE (F.I.P. x SWIVEL NUT)
⑧	SERVICE SADDLE (SIZED TO MAIN), 1" TAP, MALLEABLE IRON, DOUBLE-STRAP TYPE
⑨	CORPORATION STOP, 1" CAST BRONZE, (AWWA TAPER THREAD x COMPRESSION CONNECTION)
⑩	COUPLING (C.T. x C.T., OR PROPRESS), 1" ROLLED STOP SOLDER TYPE
⑪	COPPER TUBE, 1" I.D., ANNEALED, TYPE K SOFT DRAWN, IN 60-FOOT COILS

♦ CAST BRONZE OR WROUGHT COPPER. ALL COPPER TUBE FITTINGS ARE SWEAT JOINTS, OR PROPRESS.

NOTES

- CONTRACTOR TO SUPPLY ALL MATERIALS EXCEPT WATER METER.
- THE CUSTOMER SHALL INSTALL AN APPROVED PRESSURE REGULATOR, IF REQUIRED. TECHNICAL ASSISTANCE WILL BE PROVIDED BY THE CITY.
- SEE GWP SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS AND PRODUCTS.

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**STANDARD WATER METER &
SERVICE ASSEMBLY FOR
3/4" & 1" SIZES**

APPROVED

[Signature]

07/14/2016

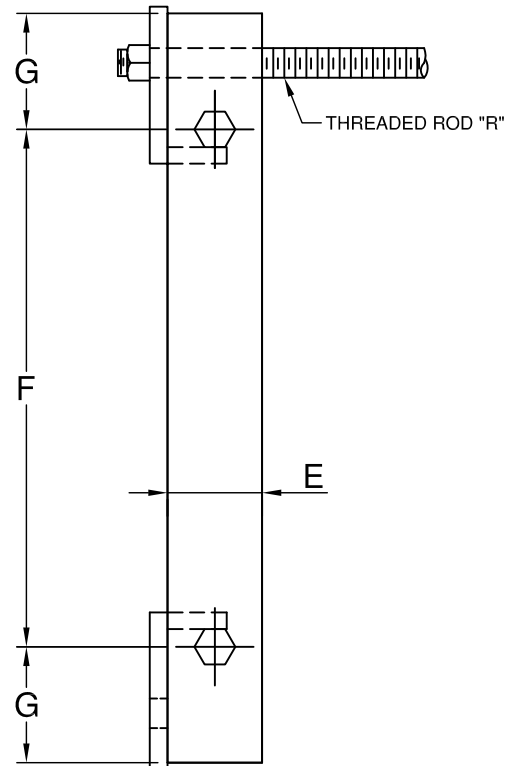
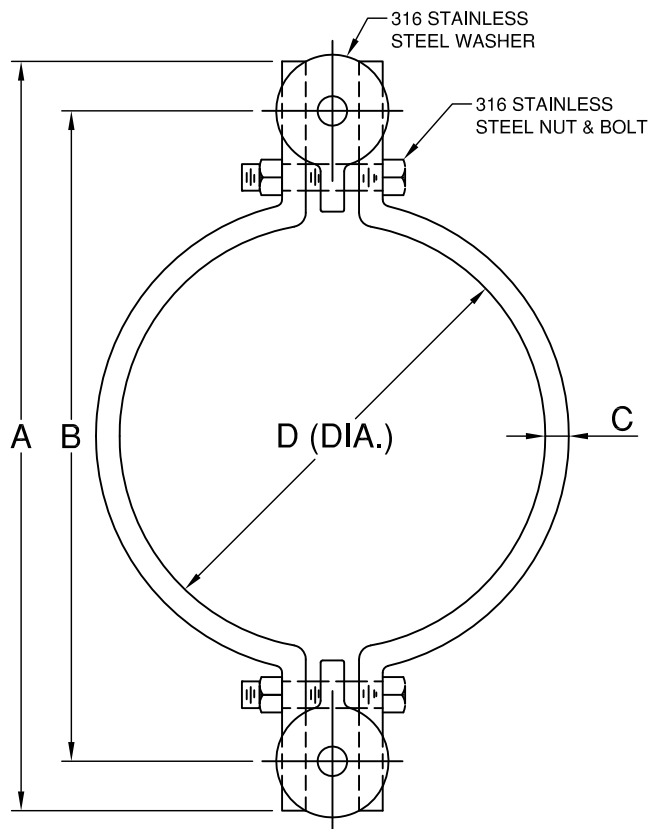
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: KR SCALE: NONE
D: HT DATE: 07/14/2016
C: KR APP: GT

SHEET No. 1 OF 2

1660-A

1660-A



BOLT SIZE (INCHES)	"R" ROD DIA. (INCHES)	NOMINAL PIPE SIZE (INCHES)	DIMENSIONS - INCHES						
			A	B	C	D	E	F	G
$\frac{5}{8} \times 3 \frac{1}{2}$	$\frac{5}{8}$	4"	$12 \frac{1}{8}$	$10 \frac{1}{8}$	$\frac{1}{2}$	5	2	$8 \frac{3}{8}$	$1 \frac{7}{8}$
$\frac{5}{8} \times 3 \frac{1}{2}$	$\frac{5}{8}$	6"	$14 \frac{3}{8}$	$12 \frac{1}{16}$	$\frac{1}{2}$	$7 \frac{1}{16}$	2	$9 \frac{5}{8}$	$2 \frac{3}{8}$
$\frac{5}{8} \times 3 \frac{1}{2}$	$\frac{3}{4}$	8"	$16 \frac{5}{8}$	$14 \frac{3}{8}$	$\frac{1}{2}$	$9 \frac{3}{16}$	2	$11 \frac{3}{4}$	$2 \frac{7}{16}$
$\frac{5}{8} \times 3 \frac{1}{2}$	$\frac{3}{4}$	10"	$18 \frac{7}{8}$	$16 \frac{9}{16}$	$\frac{1}{2}$	$11 \frac{3}{8}$	2		
$\frac{5}{8} \times 4 \frac{1}{2}$	$\frac{3}{4}$	12"	$21 \frac{1}{4}$	$18 \frac{13}{16}$	$\frac{1}{2}$	$13 \frac{1}{2}$	2	$16 \frac{1}{2}$	$2 \frac{3}{8}$
$\frac{7}{8} \times 4$	1	14"			$\frac{3}{4}$		3		
$1 \times 4 \frac{1}{4}$	$1 \frac{1}{8}$	16"	28		$\frac{3}{4}$	$17 \frac{2}{5}$	4		
$1 \frac{1}{4} \times 5$	$1 \frac{1}{4}$	18"	31		$\frac{3}{4}$	$19 \frac{1}{2}$	4		
$1 \frac{1}{4} \times 5 \frac{1}{2}$	$1 \frac{3}{8}$	20"	35		$\frac{3}{4}$	$21 \frac{3}{5}$	$4 \frac{1}{2}$		
$1 \frac{1}{2} \times 6 \frac{1}{2}$	$1 \frac{1}{2}$	24"	38		$\frac{3}{4}$	$25 \frac{8}{10}$	5		

GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA

STANDARD PIPE CLAMP SET

APPROVED

07/14/2016

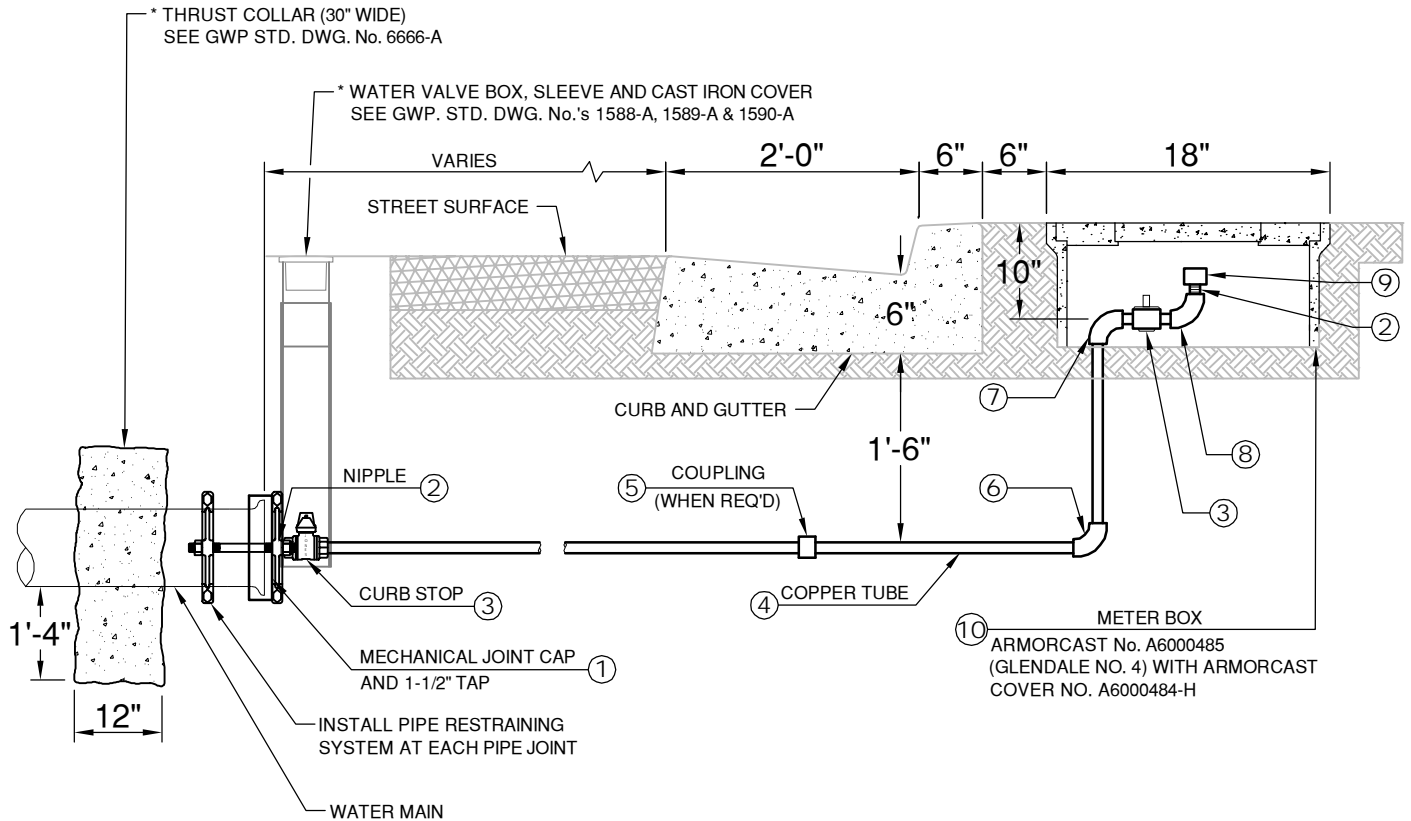
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: LB
D: LG
C: GT

SCALE: NONE
DATE: 07/14/2016
APP:

SHEET No. 1 OF 1

1667-A



DETAIL	REQ'D	DESCRIPTION
①	1	M.J. CAP , TYTON GASKET, CAST IRON WITH SET SCREWS & 1-1/2" TAPPED OUTLET, MEGALUG GLAND
②	2	1-1/2" BRASS NIPPLE
③	2	CURB STOP, F.I.P x F.I.P., 1-1/2" BRONZE, BALL VALVE (JONES OR FORD) OR APPROVED EQUAL
④	VAR.	COPPER TUBE, 1-1/2" I.D. TYPE K SOFT DRAWN, 20' LENGTHS
⑤	VAR.	COUPLING, C.T. x C.T., 1-1/2" ROLLED STOP SOLDER TYPE
⑥	1	ELBOW, C.T. x C.T., 1-1/2" x 90° CAST BRONZE
⑦	1	ELBOW, C.T. x M.I.P., 1-1/2" x 90° CAST BRONZE
⑧	1	ELBOW, M.I.P. x F.I.P., 1-1/2" x 90° CAST BRONZE
⑨	1	CAP, 1½" CAST BRONZE
⑩	1	METER BOX

* ACCOMPANYING GWP. STD. DWG. No.'s 1588-A, 1589-A, 1590-A & 6666-A

GLENDALÉ WATER & POWER
CITY OF GLENDALÉ
CALIFORNIA

STANDARD 1-1/2"
BLOWOFF ASSEMBLY

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALÉ WATER AND POWER - WATER DEPARTMENT

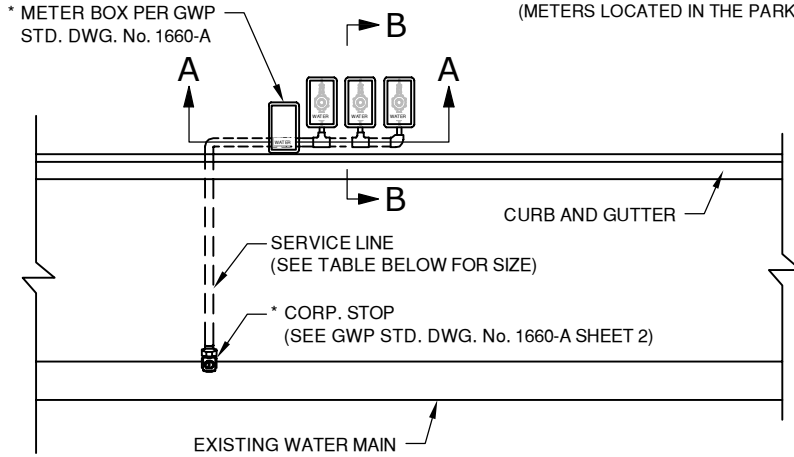
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D: DL/LC/LG
C: CT

SCALE: NONE
DATE: 08/14/13
APP:

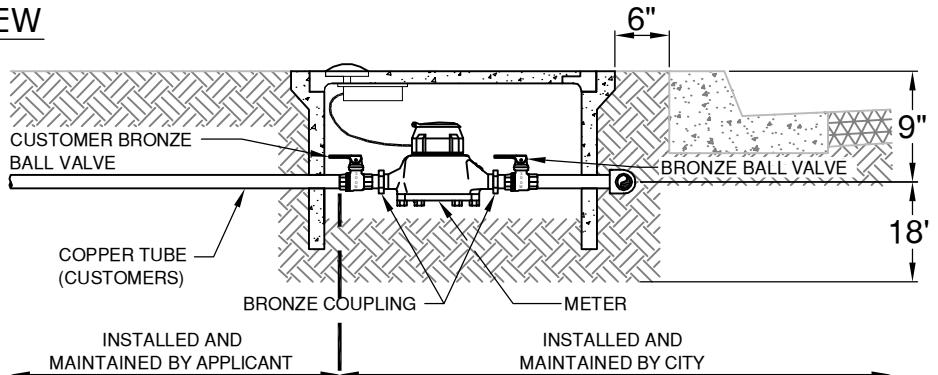
SHEET No. 1 OF 1

3282-A

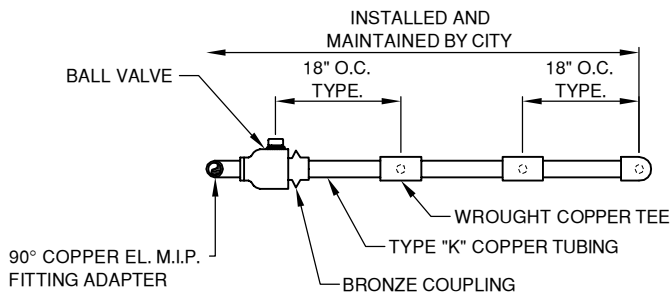
SITUATION A
(METERS LOCATED IN THE PARKWAY)



PLAN VIEW



SECTION B-B



SECTION A-A

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS SEE GWP STD. DWG. No. 1660-A SHEET 2.
2. ALL PIPING TO BE TYPE "K" COPPER TUBING.
3. WATER LINES SHALL BE PLUMBED IN A NUMERICAL OR ALPHABETICAL SEQUENCE WHICH CORRESPONDS TO DWELLING UNIT SEQUENCE. THE METER SHALL BE LABELED TO INDICATE CONDOMINIUM UNIT NUMBER.
4. MAXIMUM OF 4 METER BOXES ARE ALLOWED IN THE PARKWAY.

* ACCOMPANYING GWP STD. DWG. No. 1660-A

TABLE FOR SERVICE LINE SIZE	
NUMBER OF 1" METERS	SERVICE LINE SIZE
1	1"
2	1-1/2"
3-5	2"

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**MANIFOLD WATER SERVICE
TYPE - A (IN THE PARKWAY)**

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

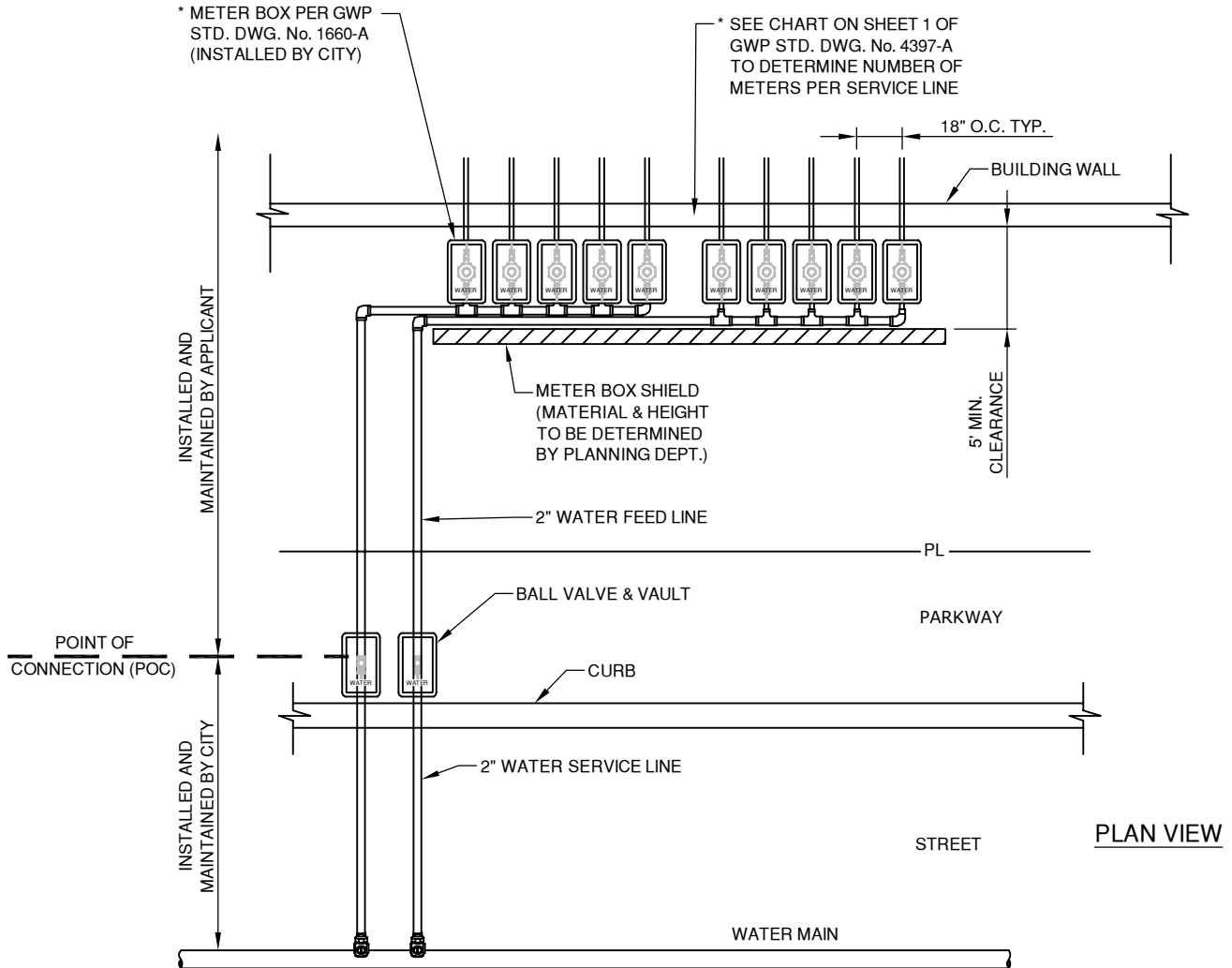
DES: LB/AR
D: LG
C: GT

SCALE: NONE
DATE: 09/19/13
APP:

SHEET No. 1 OF 3

4397-A

SITUATION B
(METERS LOCATED OUTSIDE OF STRUCTURE)



NOTES

1. FOR ADDITIONAL NOTES AND DETAILS SEE GWP STD. DWG. 1660-A SHEET 2.
2. ALL PIPING TO BE TYPE "K" COPPER TUBING.
3. WATER LINES SHALL BE PLUMBED IN A NUMERICAL OR ALPHABETICAL SEQUENCE WHICH CORRESPONDS TO DWELLING UNIT SEQUENCE. THE METER SHALL BE LABELED TO INDICATE CONDOMINIUM UNIT NUMBER.
4. WATER METER, WATER METER BOX AND BALL VALVE TO BE FURNISHED BY CITY AT APPLICANT'S EXPENSE.

* ACCOMPANY WITH GWP STD. DWG. No.'s 1660-A & 4397-A

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**MANIFOLD WATER SERVICE
TYPE - B
METERS LOCATED OUTSIDE OF STRUCTURE**

APPROVED

12/04/2014

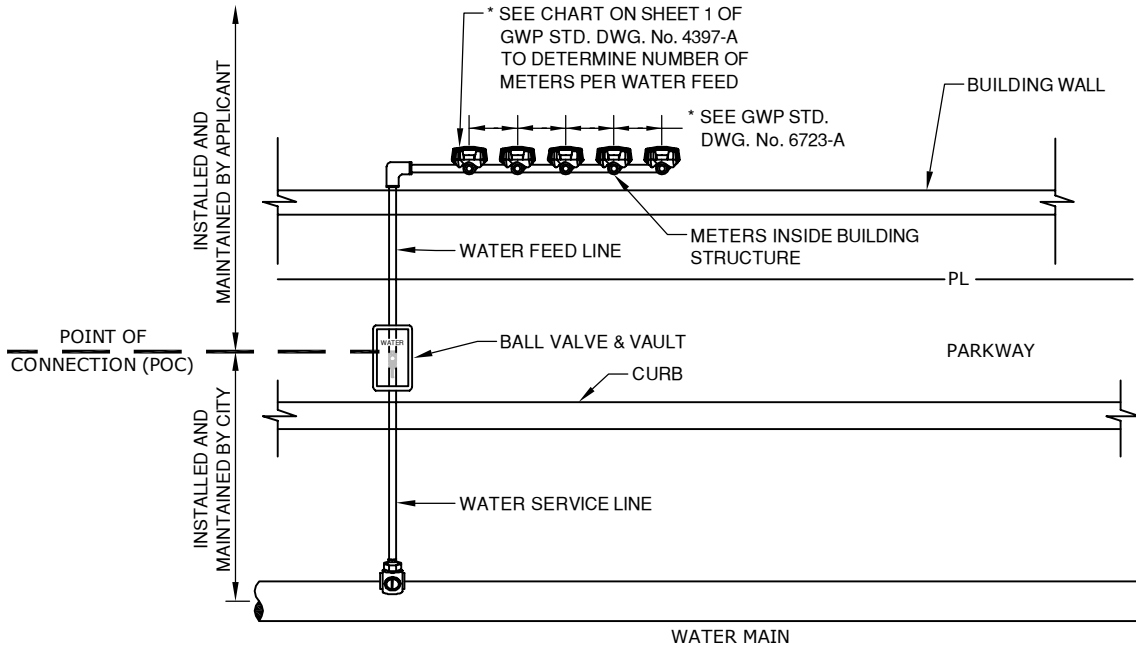
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: JDP/LB SCALE: NONE
D: LG
C: GT DATE: 09/05/13
APP:

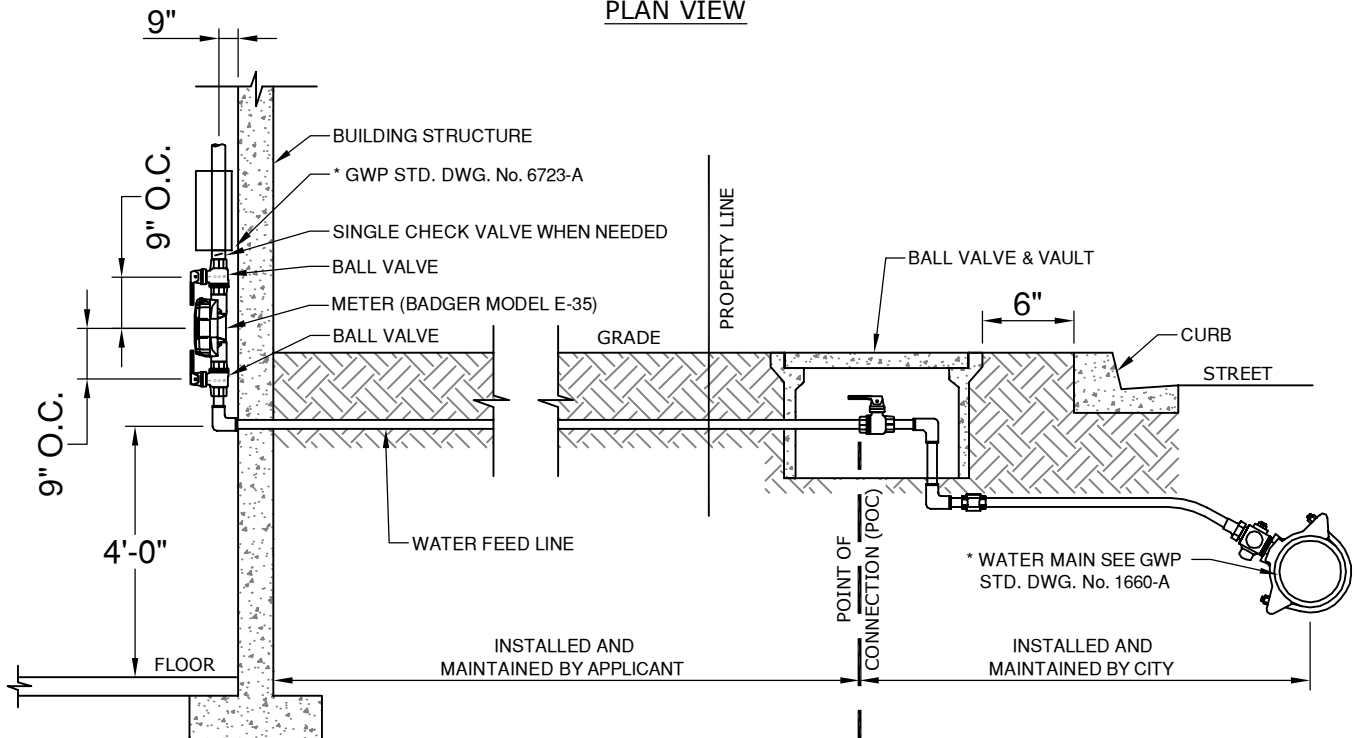
SHEET No. 2 OF 3

4397-A

SITUATION C
(METERS LOCATED INSIDE OF BUILDING STRUCTURE)



PLAN VIEW



ELEVATION VIEW

ACCOMPANYING GWP STD. DWG. No.'s 1660-A, 4397-A & 6723-A

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**MANIFOLD WATER SERVICE
TYPE - C
METERS LOCATED IN BUILDING STRUCTURE
PLACED VERTICALLY**

APPROVED

12/04/2014

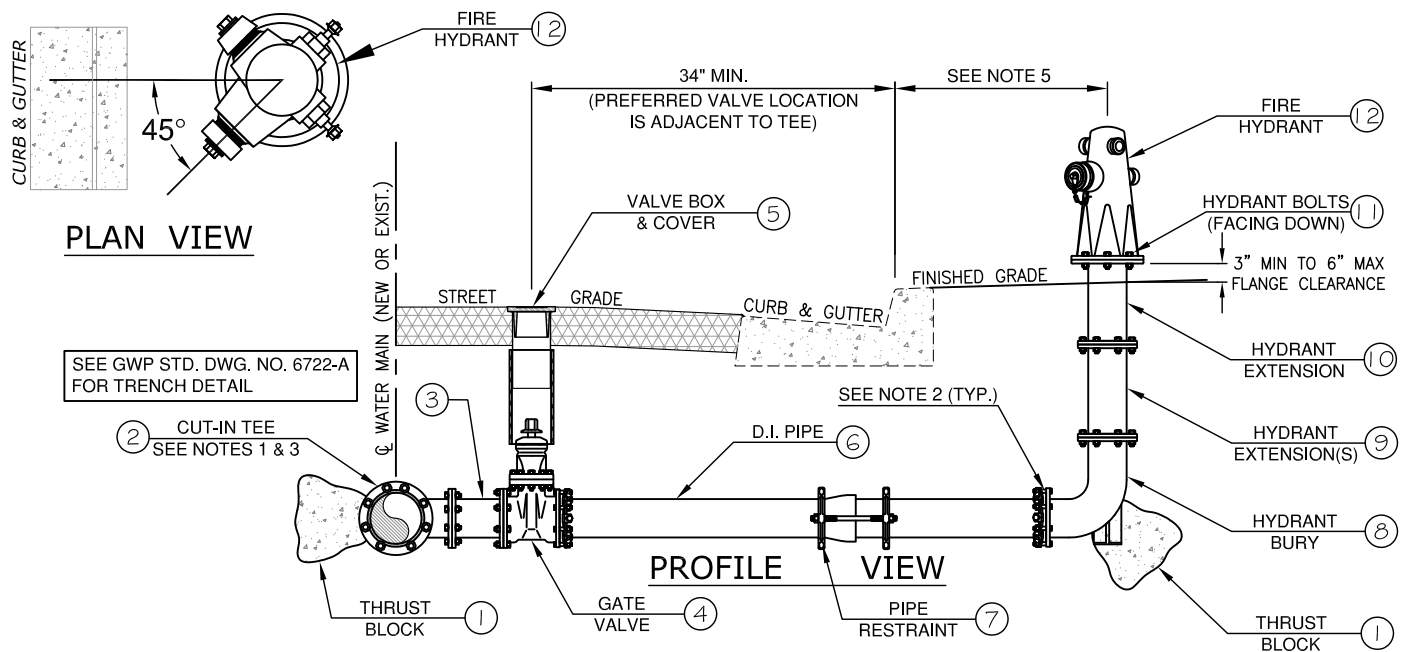
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB
D: LG
C: GT

SCALE: NONE
DATE: 09/05/13
APP:

SHEET No. 3 OF 3

4397-A



DETAIL	DESCRIPTION
①	CONSTRUCT CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH (*SEE GWP STD. DWG. No. 6083-A)
②	CUT EXIST. MAIN (OR INSTALL NEW MAIN), INSTALL D.I. TEE (M.J. x M.J. x FLG.) & RESTRAIN WITH MEGALUG GLANDS, INSTALL PIPE NIPPLES, AND RESTRAINED COUPLINGS (SEE SPECIFICATIONS FOR ACCEPTABLE TYPES) ON MAIN.
③	6" CLASS 350 D.I. SPOOL (OR REDUCER) WHEN REQUIRED
④	6" GATE VALVE (FLG. x M.J., RESILIENT WEDGE TYPE WITH MEGALUG GLAND)
⑤	VALVE BOX & COVER (*SEE GWP STD. DWG. NOS. 1588-A, 1589-A, & 1590-A)
⑥	6" CLASS 350 D.I. PIPE (WITH ALL JOINTS RESTRAINED)
⑦	INSTALL PIPE RESTRAINING SYSTEM AT EACH PIPE JOINT, USE EBAA MEGALUG® RESTRAINT HARNESS FOR D.I. PIPE.
⑧	6" F-2450 MECHANICAL JOINT BURY (CLOW HYDRANT BURY OR APPROVED EQUAL), (FLG. x M.J.)
⑨	6" HYDRANT EXTENSION, CLASS 350 D.I., (FLG. x FLG.), AS REQUIRED (NON BREAK-OFF TYPE)
⑩	6" HYDRANT EXTENSION FLG.xFLG. (BREAK-OFF OR NON BREAK-OFF TYPE), SEE TABLE BELOW WHICH TYPE IS APPLICABLE.
⑪	INSTALL 6 FIRE HYDRANT BOLTS WITH NUTS: 5/8" - 11 UNC X 3" HEX BOLT, T-316 STAINLESS STEEL PER ASTM F-593, WITH T-316 STAINLESS STEEL HEX NUT PER ASTM F-594. SEE "SPECIAL CONDITIONS" TABLE BELOW FOR DETERMINING WHICH TYPE (BREAK-OFF BOLT OR SOLID BOLT) TO USE.
⑫	FIRE HYDRANT HEAD (6" WET BARREL-JONES J-3700, CLOW 2050, SIZE AS SPECIFIED BY FIRE DEPARTMENT) 2.5"x4" OR 2.5"x4"x4" WITH 1-3/4" PENTAGONAL NUTS & BRONZE CAP

* ACCOMPANY WITH GWP STD. DWG. Nos. 1588-A, 1589-A, 1590-A, 1655-A, 6083-A, 6722-A

NOTES

- CUT-IN TEE SHALL BE THE SAME SIZE AS THE MAIN LINE PIPE.
- JOINTS SHALL BE MECHANICAL TYPE, RESTRAINED WITH *MEGALUG® SERIES MECHANICAL JOINT RESTRAINT FOR D.I. PIPE.*
- TO CONNECT PIPE WITH DIFFERENT OUTSIDE DIAMETERS, USE *SMITH BLAIR 441 TRANSITION COUPLING* (POTHOLE TO GET O.D. FIRST).
- SEE GWP SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS AND PRODUCTS.
- REFER TO GWP STD. DWG. No. 1655-A FOR APPROXIMATE SITING LOCATION. EXACT LOCATION TO BE DETERMINED BY GWP WATER ENGINEERING.

SPECIAL CONDITIONS

	HARDSCAPE	LANDSCAPE	200 PSI AND ABOVE
SPOOL	SOLID	BREAK-OFF	SOLID
BOLTS	BREAK-OFF	SOLID	SOLID

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**NEW FIRE HYDRANT ASSEMBLY
USING CUT-IN TEE
ON MAIN LINE**

APPROVED

07/20/2016

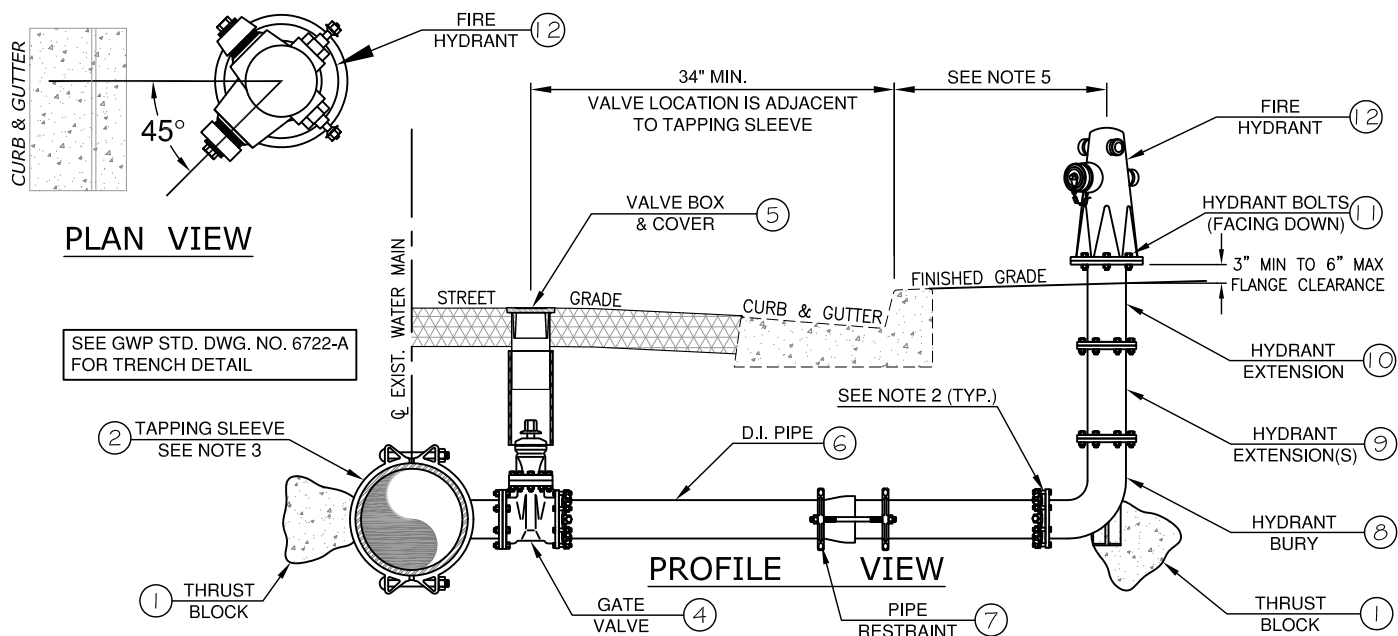
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: KR
D: KR
C: KR

SCALE: NONE
DATE: 07/20/2016
APP: GT

SHEET No. 1 OF 2

4946-A



DETAIL	DESCRIPTION
①	CONSTRUCT CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH (*SEE GWP STD. DWG. No. 6083-A)
②	TAPPING SLEEVE SHALL BE SMITH-BLAIR G22 OR APPROVED EQUAL
③	NOT USED
④	6" GATE VALVE (FLG. x M.J., RESILIENT WEDGE TYPE WITH MEGALUG GLAND)
⑤	VALVE BOX & COVER (*SEE GWP STD. DWG. NOS. 1588-A, 1589-A, & 1590-A)
⑥	6" CLASS 350 D.I. PIPE (WITH ALL JOINTS RESTRAINED)
⑦	INSTALL PIPE RESTRAINING SYSTEM AT EACH PIPE JOINT, USE EBAA MEGALUG® RESTRAINT HARNESS FOR D.I. PIPE.
⑧	6" F-2450 MECHANICAL JOINT BURY (CLOW HYDRANT BURY OR APPROVED EQUAL), (FLG. x M.J.)
⑨	6" HYDRANT EXTENSION, CLASS 350 D.I., (FLG. x FLG.), AS REQUIRED (NON BREAK-OFF TYPE)
⑩	6" HYDRANT EXTENSION FLG.xFLG. (BREAK-OFF OR NON BREAK-OFF TYPE), SEE TABLE BELOW WHICH TYPE IS APPLICABLE.
⑪	INSTALL 6 FIRE HYDRANT BOLTS WITH NUTS: 5/8" - 11 UNC X 3" HEX BOLT, T-316 STAINLESS STEEL PER ASTM F-593, WITH T-316 STAINLESS STEEL HEX NUT PER ASTM F-594. SEE "SPECIAL CONDITIONS" TABLE BELOW FOR DETERMINING WHICH TYPE (BREAK-OFF BOLT OR SOLID BOLT) TO USE.
⑫	FIRE HYDRANT HEAD (6" WET BARREL-JONES J-3700, CLOW 2050, SIZE AS SPECIFIED BY FIRE DEPARTMENT) 2.5"x4" OR 2.5"x4"x4" WITH 1-3/4" PENTAGONAL NUTS & BRONZE CAP

* ACCOMPANY WITH GWP STD. DWG. Nos. 1588-A, 1589-A, 1590-A, 1655-A, 6083-A, 6722-A

NOTES

- TAPPING SLEEVE SHALL BE THE SAME SIZE AS THE MAIN LINE PIPE.
- JOINTS SHALL BE MECHANICAL TYPE, RESTRAINED WITH *MEGALUG® SERIES MECHANICAL JOINT RESTRAINT FOR D.I. PIPE.*
- SIZE-ON-SIZE TAPPING OF WATER MAIN IS NOT ALLOWED
- SEE GWP SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS AND PRODUCTS.
- REFER TO GWP STD. DWG. No. 1655-A FOR APPROXIMATE SITING LOCATION. EXACT LOCATION TO BE DETERMINED BY GWP WATER ENGINEERING.
- ALL HYDRANT BOLTS SHALL BE INSTALLED FACING DOWNWARD.

SPECIAL CONDITIONS

	HARDSCAPE	LANDSCAPE	200 PSI AND ABOVE
SPOOL	SOLID	BREAK-OFF	SOLID
BOLTS	BREAK-OFF	SOLID	SOLID

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**NEW FIRE HYDRANT ASSEMBLY
USING TAPPING SLEEVE
ON EXISTING MAIN LINE**

APPROVED

07/20/2016

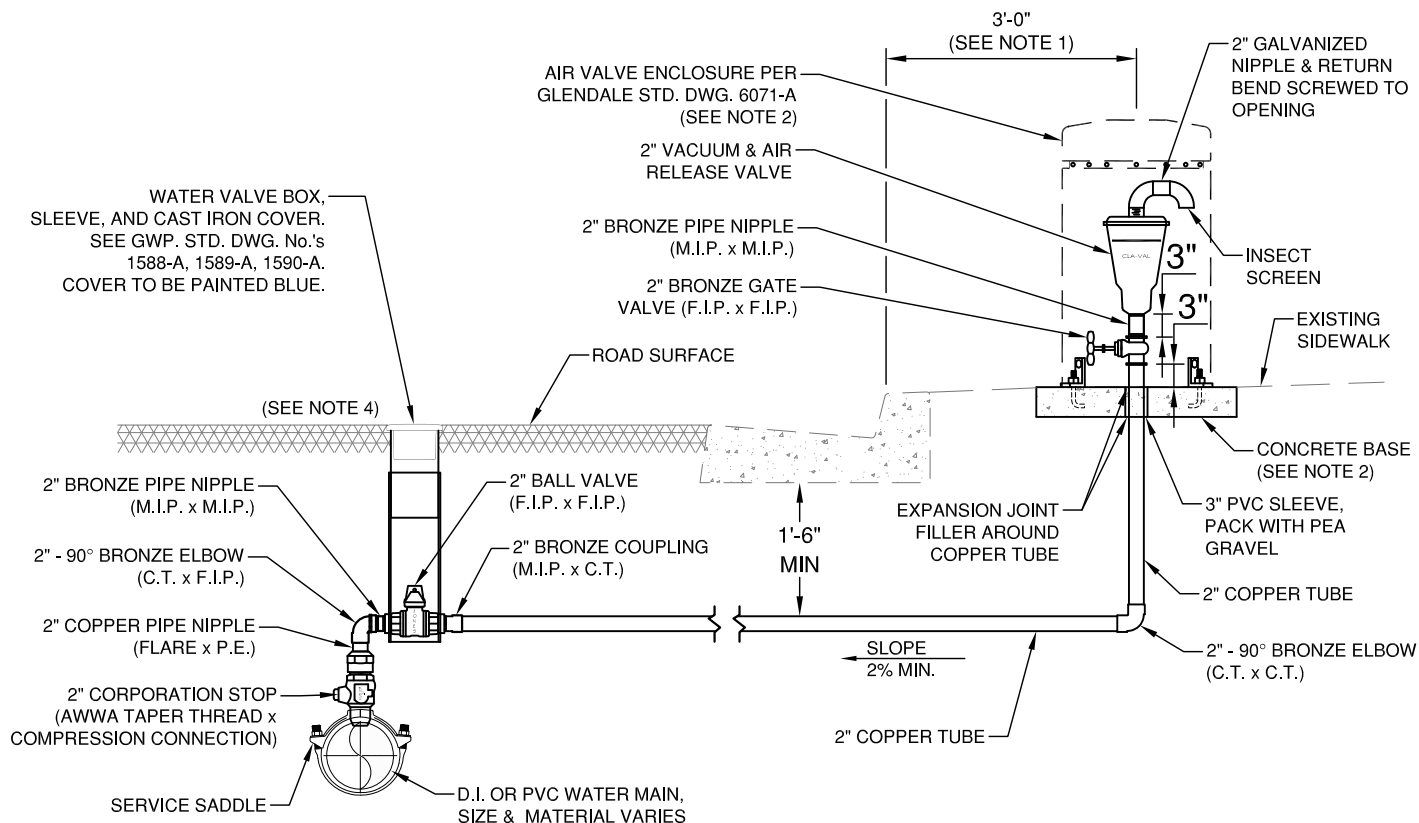
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: KR
D: KR
C: KR

SCALE: NONE
DATE: 07/20/2016
APP: GT

SHEET No. 2 OF 2

4946-A



NOTES

1. EXACT LOCATION OF AIR RELEASE VALVE AND ENCLOSURE TO BE DETERMINED BY THE ENGINEER.
2. FOR ENCLOSURE DETAIL & CONCRETE BASE, SEE GWP STD. DWG. NO. 6071-A.
3. SEE GWP SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS AND PRODUCTS.
4. REFER TO GWP STD DWG NO. 6722-A FOR STANDARD TRENCH DETAIL.

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**2" VACUUM & AIR RELEASE
VALVE ASSEMBLY FOR
D.I. OR PVC PIPES**

APPROVED

07/21/2016

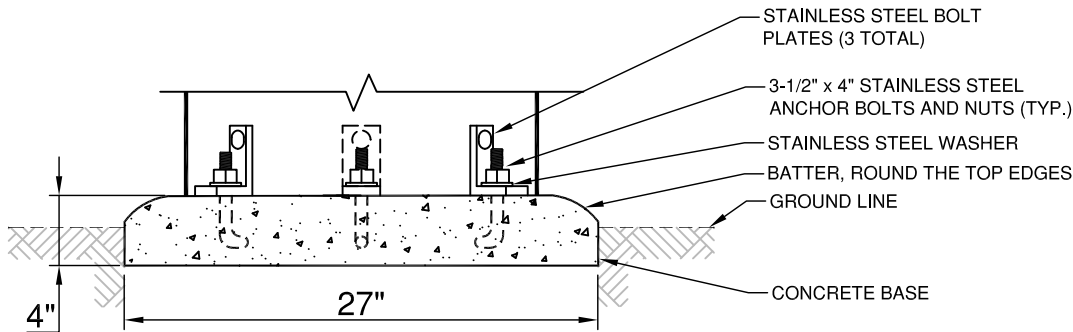
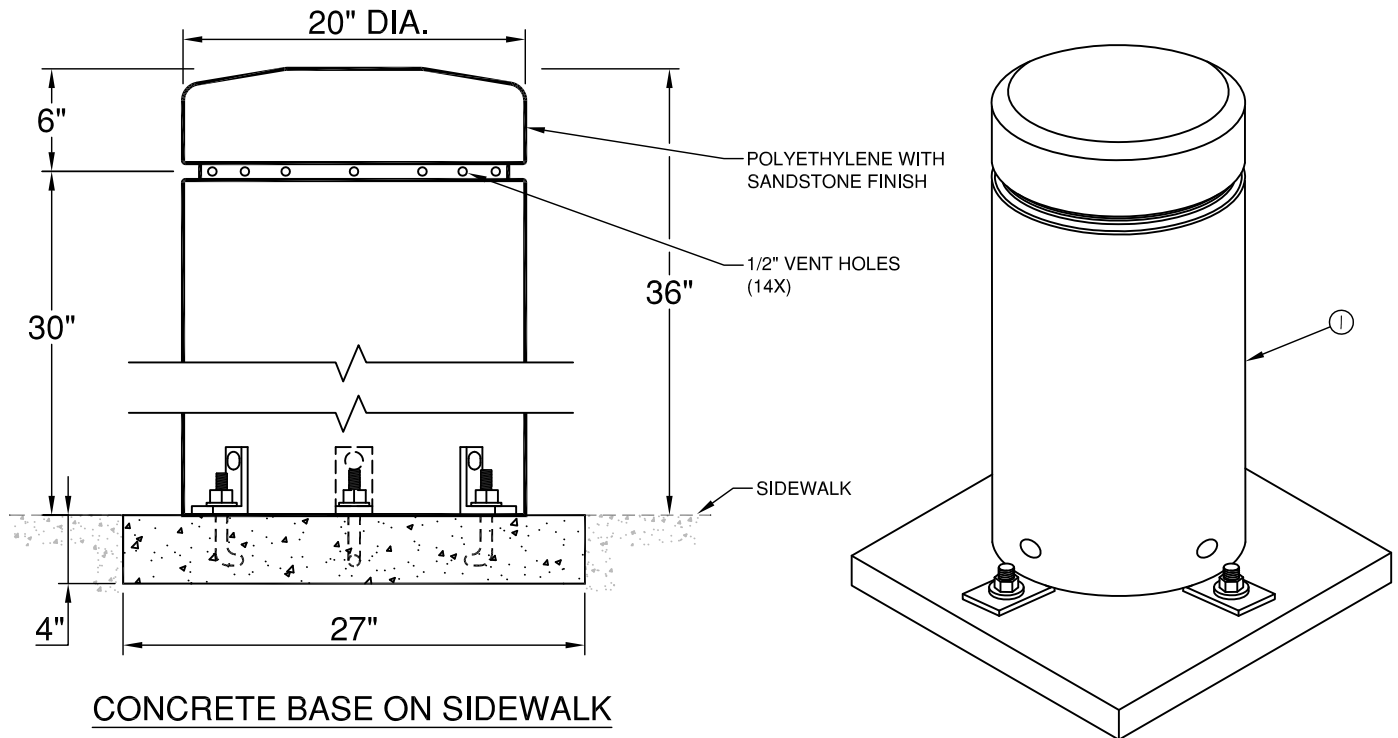
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: KR
D: KR
C: KR

SCALE: NONE
DATE: 07/21/2016
APP: GT

SHEET No. 1 OF 1

6070-A



CONCRETE BASE ON OPEN GROUND

ELEVATIONS NO SCALE

DETAIL	DESCRIPTION
①	ARMORCAST 20" DIA. x 36" HEIGHT AIR VACUUM VALVE ROUND VENT ENCLOSURE WITH 14- 1/2" VENT HOLES, PART NUMBER PGO02002-SND (COLOR=SANDSTONE)

NOTES:

- THIS HOUSING IS TO BE USED FOR 2" AND 4" AIR VALVES.
- SEE GWP STD. DRAWING NO. 6070-A FOR AIR VALVE ASSEMBLIES

GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA

VACUUM & AIR RELEASE
VALVE ENCLOSURE DETAIL

APPROVED

07/21/2016

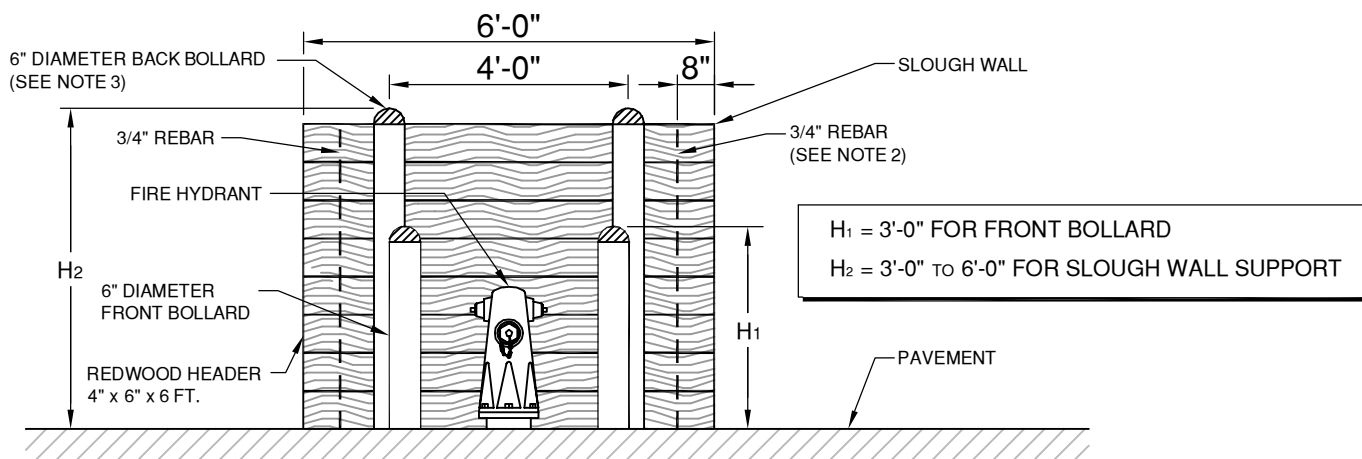
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: KR
D: KR
C: KR

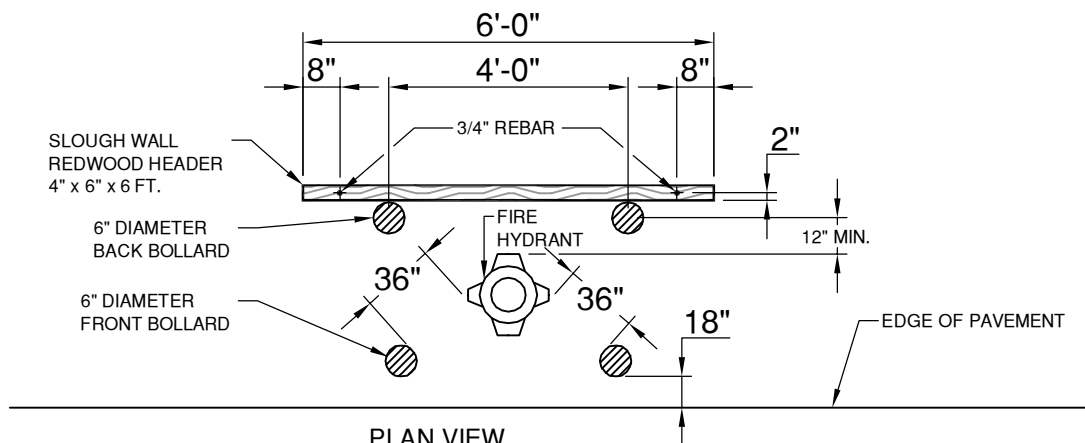
SCALE: NONE
DATE: 07/21/2016
APP: GT

SHEET No. 1 OF 1

6071-A



ELEVATION
NO SCALE

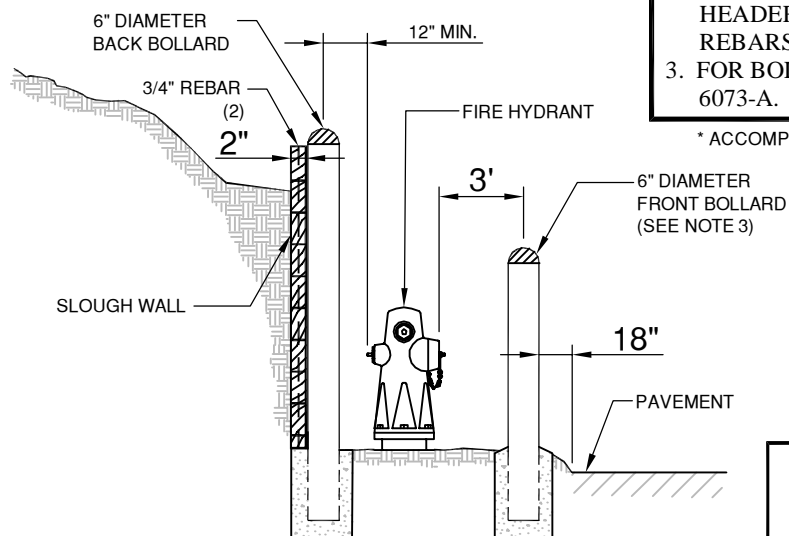


PLAN VIEW
NO SCALE

NOTES

1. FIRE HYDRANT'S 4" OUTLET SHALL FACE THE EDGE OF PAVEMENT LINE.
2. INSTALL 3/4" REBAR IN 1" DRILLED HOLES TO TIE HEADERS TOGETHER (TYP.) MINIMUM OF TWO (2) REBARS TOTAL (ONE ON EACH SIDE).
3. FOR BOLLARD INSTALLATION SEE GWP STD. DWG. 6073-A.

* ACCOMPANYING GWP STD. DWG. No. 6073-A



PROFILE
NO SCALE

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**FIRE HYDRANT
BOLLARDS WITH SLOUGH WALL**

APPROVED

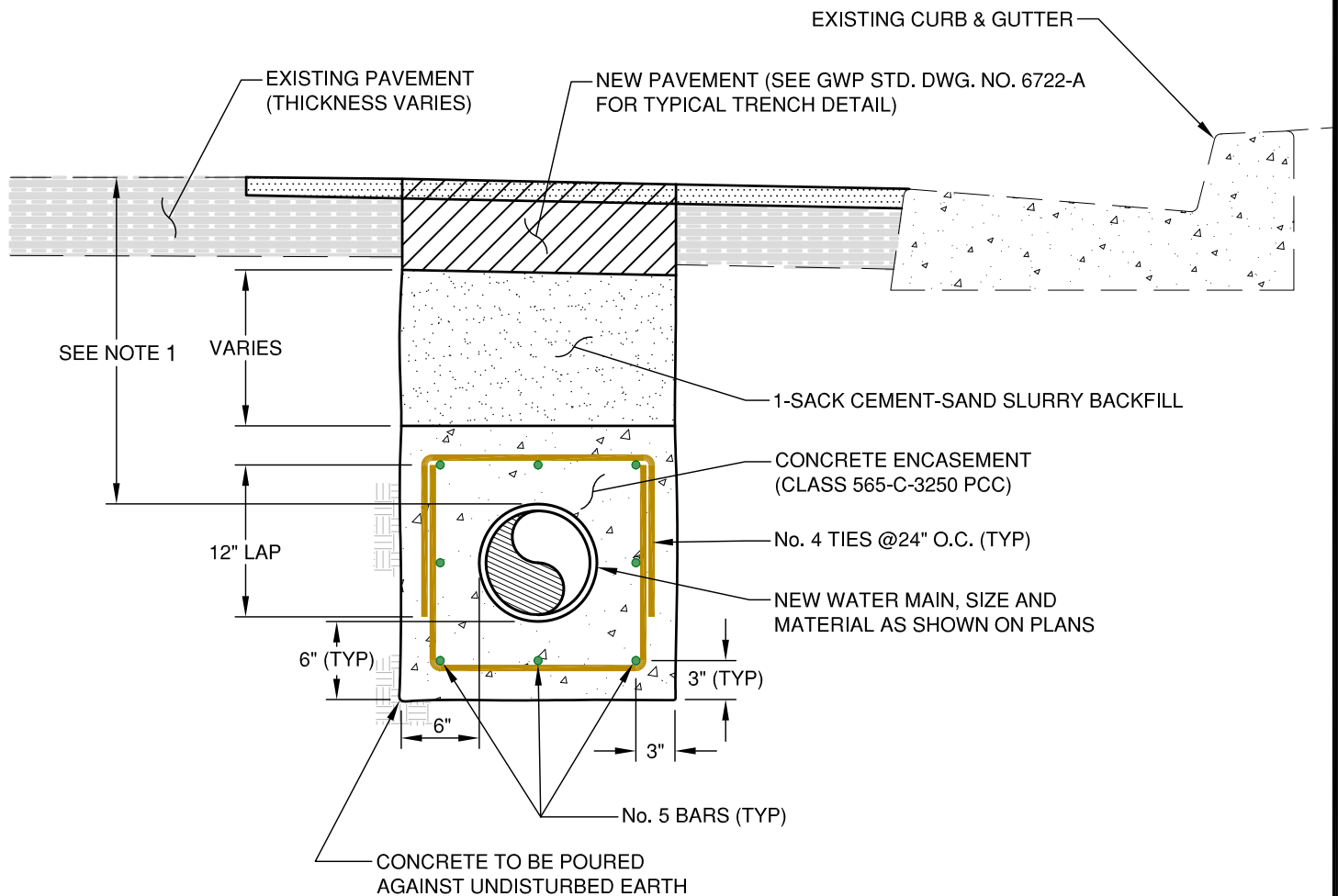
12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: MN/TN/PN SCALE: NONE
D: LC/LG
C: PN/GT DATE: 08/22/13
APP:

SHEET No. 1 OF 1

6074-A



NOTES

1. CONCRETE ENCASEMENT SHALL BE CONSTRUCTED WHEN THE COVER OVER THE WATER MAIN IS LESS THAN 30-INCHES.
2. CONCRETE FOR ENCASEMENT SHALL BE CLASS 565-C-3250 PORTLAND CEMENT CONCRETE OR BETTER.
3. MINIMUM VERTICAL SEPARATION BETWEEN CONCRETE ENCASEMENT AND ALL UTILITIES EXCEPT POTABLE WATER MAIN AND SEWER LINES SHALL BE 3-INCHES, UNLESS OTHERWISE NOTED.
4. MINIMUM VERTICAL SEPARATION BETWEEN NEW WATER MAIN AND OTHER POTABLE WATER LINES AND SEWER LINES SHALL BE 12-INCHES, UNLESS OTHERWISE NOTED.

**GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA**

**CONCRETE ENCASEMENT
FOR WATER MAINS**

APPROVED

7/14/2016

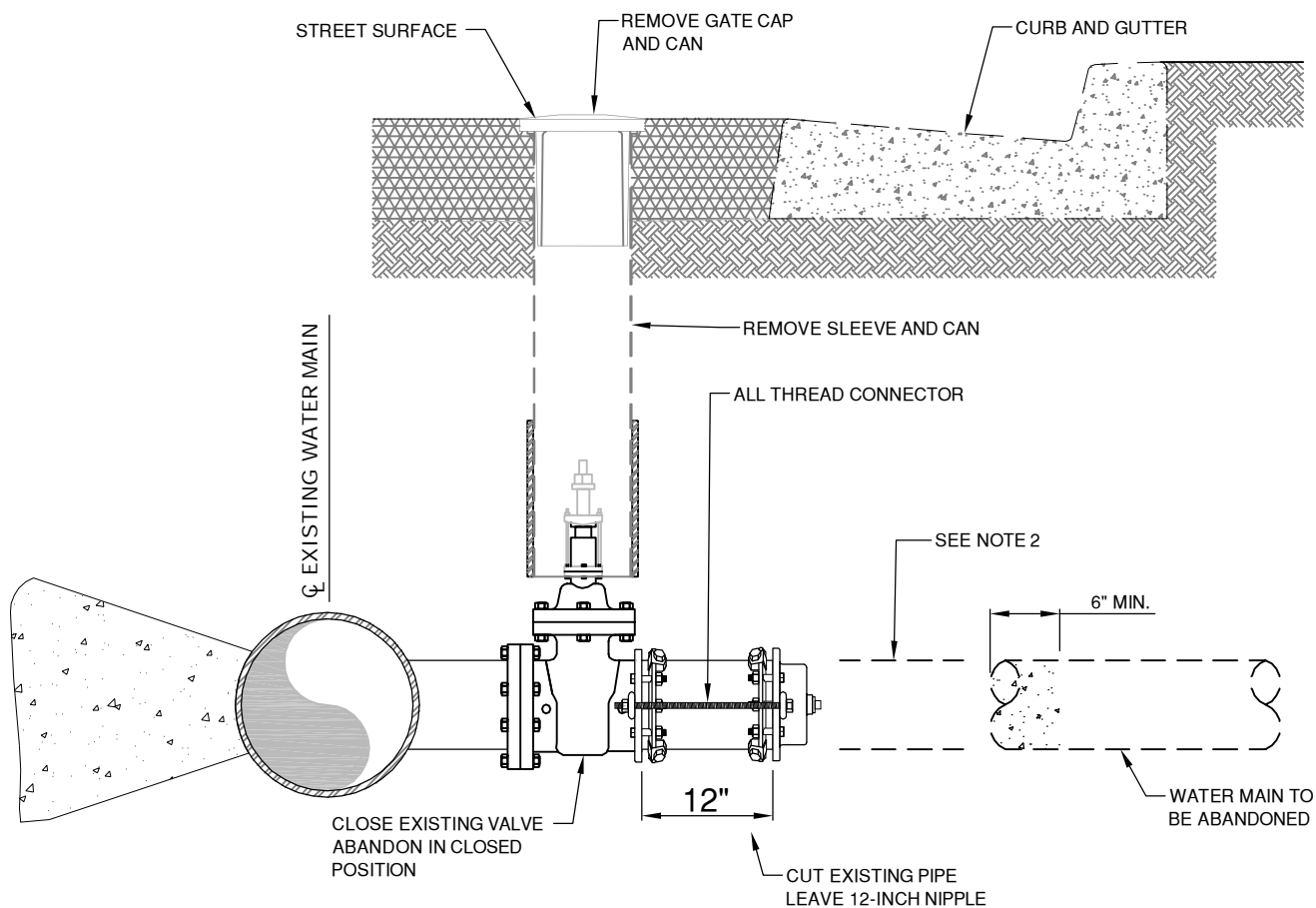
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KR
D: KR
C: KR

SCALE: NONE
DATE: 07/14/2016
APP: GT

SHEET No. 1 OF 1

6081-A



SECTION VIEW

NOTES

1. SEE GWP STD. DWG. No. 1667-A FOR STANDARD CLAMP SET.
2. REMOVE INTERFERING PORTIONS OF PIPE. CLOSE ALL ABANDONED VALVES. CAP ALL ABANDONED PIPE WITH CONCRETE (CONCRETE SHOULD BE AT LEAST 6" INSIDE THE PIPE).
3. REMOVE ALL VALVE BOXES, SLEEVES AND EXTENSIONS. BACKFILL HOLE WITH 1-SACK CEMENT SLURRY. COMPACT AND RESURFACE AS INDICATED BY GLENDALE PUBLIC WORKS ENGINEER OR SPECIFICATION.

* ACCOMPANYING GWP. STD. DWG. No. 1667-A

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**ABANDONMENT OF
EXISTING WATER MAIN
(SECTION VIEW)**

APPROVED

12/04/2014

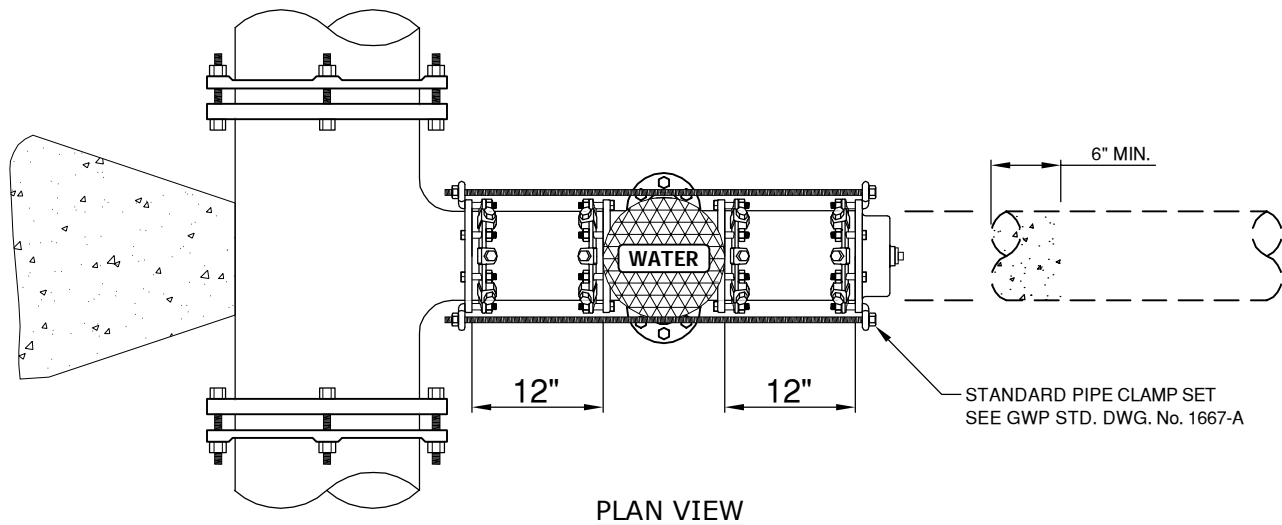
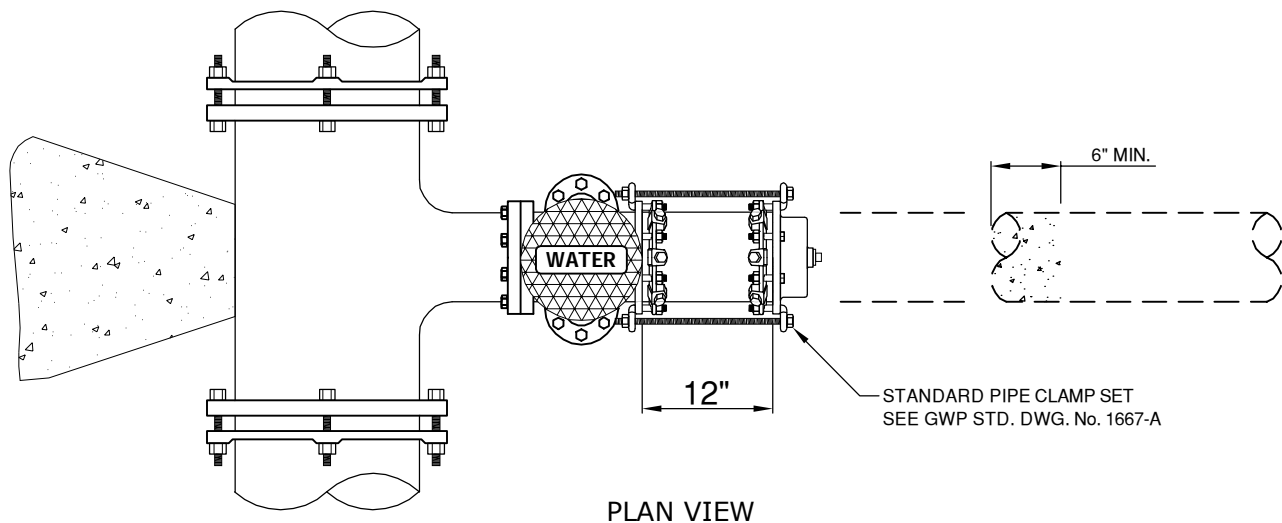
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: AR/LB
D: LG/GR
C: GT

SCALE: NONE
DATE: 11/15/13
APP:

SHEET No. 1 OF 2

6092-A



NOTES

1. SEE GWP STD. DWG. No. 1667-A FOR STANDARD CLAMP SET.
2. REMOVE INTERFERING PORTIONS OF PIPE. CLOSE ALL ABANDONED VALVES. CAP ALL ABANDONED PIPE WITH CONCRETE (CONCRETE SHOULD BE AT LEAST 6" INSIDE THE PIPE).
3. REMOVE ALL VALVE BOXES, SLEEVES AND EXTENSIONS. BACKFILL HOLE WITH 1-SACK CEMENT SLURRY. COMPACT AND RESURFACE AS INDICATED BY GLENDALE PUBLIC WORKS ENGINEER OR SPECIFICATION.

* ACCOMPANYING GWP. STD. DWG. No. 1667-A

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**ABANDONMENT OF
EXISTING WATER MAIN
(PLAN VIEW)**

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

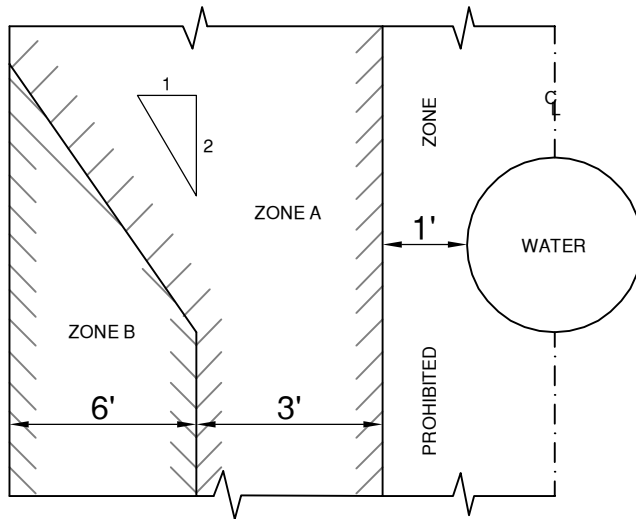
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C: GT

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DATE: 11/15/13
APP:

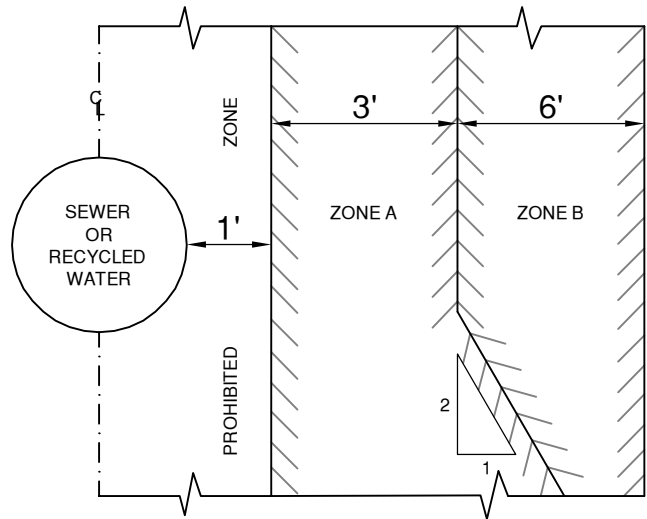
SHEET No. 2 OF 2

6092-A

PARALLEL CONSTRUCTION



CASE 1
NEW WATER MAIN



CASE 2
NEW SEWER /
RECYCLED WATER

ZONE SPECIAL CONSTRUCTION REQUIRED FOR WATER MAIN

- A. NO WATER MAINS PARALLEL TO SEWER OR RECYCLED WATER MAINS SHALL BE CONSTRUCTED WITHOUT APPROVAL FROM THE CITY OF GLENDALE.
- B. A WATER LINE PLACED PARALLEL TO A SEWER LINE OR RECYCLED WATER MAINS SHALL BE CONSTRUCTED OF D.I.P., STEEL PIPE, CML, AND CMC WITH WELDED JOINTS.
- P. PROHIBITED ZONE - NO WATER MAINS ARE ALLOWED TO BE INSTALLED IN THIS ZONE.

ZONE SPECIAL CONSTRUCTION REQUIRED FOR SEWER / RECYCLED WATER MAINS

- A. SEWER OR RECYCLED WATER MAINS PARALLEL TO WATER MAINS SHALL NOT BE PERMITTED IN THIS ZONE WITHOUT APPROVAL FROM THE CITY OF GLENDALE.
- B. A SEWER LINE OR RECYCLED WATER MAIN PLACED PARALLEL TO A WATER LINE SHALL BE CONSTRUCTED OF:
 - 1. EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS.
 - 2. PLASTIC SEWER PIPE WITH RUBBER RING JOINTS (PER ASTM D 3034) OR EQUIVALENT.
 - 3. CAST OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS.
 - 4. REINFORCED CONCRETE PRESSURE PIPE WITH COMPRESSION JOINTS (PER AWWA C302-74).
- P. PROHIBITED ZONE - NO SEWER MAINS/RECYCLED WATER MAINS ARE ALLOWED TO BE INSTALLED IN THIS ZONE.

GENERAL NOTES

1. NO PIPE JOINTS SHALL BE PERMITTED WITHIN ZONE D. IT IS THE INTENT OF THESE REQUIREMENTS NO JOINTS SHALL OCCUR WITHIN ZONE C. IF THAT CANNOT BE ACCOMPLISHED, THE NEW LINE SHALL BE ENCASED FOR THE FULL LENGTH.
2. SEWER FORCE MAINS SHALL NOT BE PERMITTED IN ZONES A THROUGH D.
3. THE MATERIALS OF NEW LINES AT CROSSINGS SHALL BE CONSISTENT WITH OTHER NEW MATERIALS I.E., STEEL ON A STEEL LINE.
4. THESE CONSTRUCTION CRITERIA APPLY TO HOUSE SEWER LATERALS THAT CROSS ABOVE WATER MAIN, BUT NOT TO THOSE THAT CROSS BELOW WATER LINE.

BASIC SEPERATION STANDARDS

1. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE DOMESTIC WATER AND RECYCLED WATER MAINS OR SEWER LINES SHALL BE AT LEAST 10 FEET.
2. PERPENDICULAR CONSTRUCTION (CROSS-OVER): PRESSURE DOMESTIC WATER MAINS SHALL BE AT LEAST ONE (1) FOOT ABOVE SANITARY SEWER AND RECYCLED WATER LINES MEASURED FROM PIPELINE OUTSIDE DIAMETER.
3. SPECIAL PROVISIONS: ALTERNATIVE CONSTRUCTION CRITERIA WHERE THE BASIC SEPARATION STANDARDS CANNOT BE ATTAINED ARE SHOWN IN CONSTRUCTION REQUIREMENTS ABOVE:

STATE HEALTH DEPARTMENT EXCEPTIONS TO BASIC SEPARATION STANDARDS FOR DOMESTIC WATER, RECYCLED WATER AND SANITARY SEWER PIPELINES.

GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA

SEPARATION REQUIREMENTS
FOR WATER, RECYCLED
WATER & SEWER

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

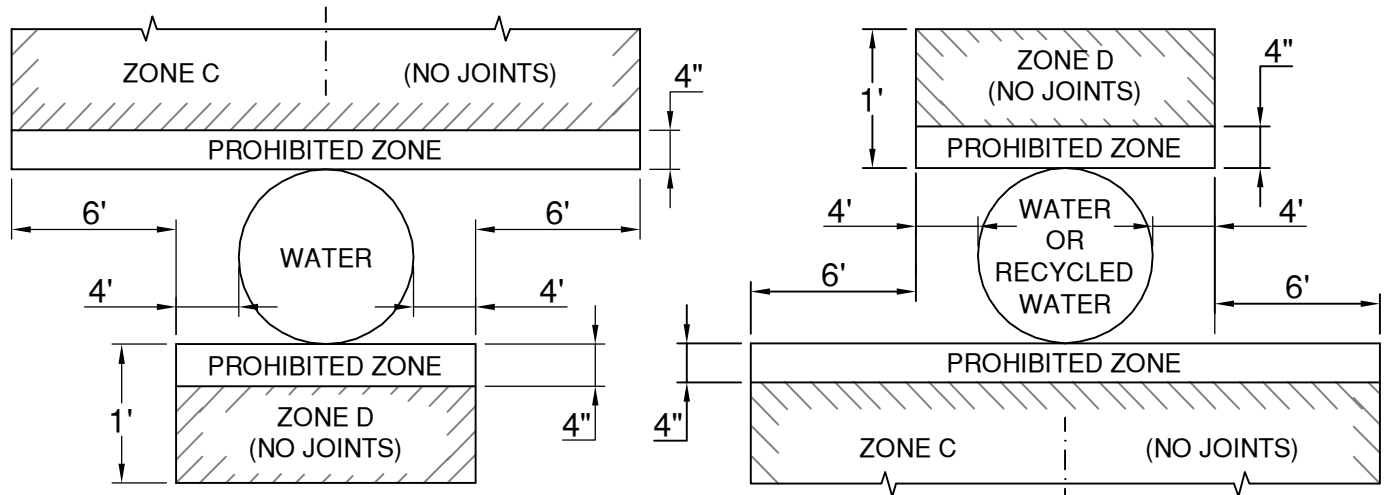
DES: RBT
D: AR/PN
C: TN

SCALE: NONE
DATE: 06/30/04
APP:

SHEET No. 1 OF 2

6101-A

PERPENDICULAR CROSSING



CASE 1 NEW WATER MAIN

ZONE SPECIAL CONSTRUCTION REQUIRED FOR WATER MAIN

- C. NO JOINTS WITHIN 10 FEET OF EITHER SIDE OF SEWER LINE. USE DUCTILE IRON PIPE, CML, AND POLYETHYLENE WRAPPED, OR STEEL PIPE, CML AND CMC.
- D. NO JOINTS WITHIN 4 FEET OF EITHER SIDE OF SEWER LINE. USE DUCTILE IRON PIPE, CML AND POLYETHYLENE WRAPPED, OR STEEL PIPE, CML AND CMC.
- P. PROHIBITED ZONE - NO WATER MAINS ARE ALLOWED TO BE INSTALLED IN THIS ZONE.

GENERAL NOTES

1. NO PIPE JOINTS SHALL BE PERMITTED WITHIN ZONE D. IT IS THE INTENT OF THESE REQUIREMENTS NO JOINTS SHALL OCCUR WITHIN ZONE C. IF THAT CANNOT BE ACCOMPLISHED, THE NEW LINE SHALL BE ENCASED FOR THE FULL LENGTH.
2. SEWER FORCE MAINS SHALL NOT BE PERMITTED IN ZONES A THROUGH D.
3. THE MATERIALS OF NEW LINES AT CROSSINGS SHALL BE CONSISTENT WITH OTHER NEW MATERIALS I.E., STEEL ON A STEEL LINE.
4. THESE CONSTRUCTION CRITERIA APPLY TO HOUSE SEWER LATERALS THAT CROSS ABOVE WATER MAIN, BUT NOT TO THOSE THAT CROSS BELOW WATER LINE.

BASIC SEPERATION STANDARDS

1. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE DOMESTIC WATER AND RECYCLED WATER MAINS OR SEWER LINES SHALL BE AT LEAST 10 FEET.
2. PERPENDICULAR CONSTRUCTION (CROSS-OVER): PRESSURE DOMESTIC WATER MAINS SHALL BE AT LEAST ONE (1) FOOT ABOVE SANITARY SEWER AND RECYCLED WATER LINES MEASURED FROM PIPELINE OUTSIDE DIAMETER.
3. SPECIAL PROVISIONS: ALTERNATIVE CONSTRUCTION CRITERIA WHERE THE BASIC SEPARATION STANDARDS CANNOT BE ATTAINED ARE SHOWN IN CONSTRUCTION REQUIREMENTS ABOVE:

ZONE SPECIAL CONSTRUCTION REQUIRED FOR SEWER / RECYCLED WATER MAINS

- A. A SEWER LINE CROSSING A WATER MAIN SHALL BE CONSTRUCTED OF:
 1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING AND MECHANICAL JOINTS.
 2. A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA 0990) PLASTIC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED.
 3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED.
 4. ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.

A SEWER LINE CROSSING A WATER MAIN SHALL BE CONSTRUCTED OF:

1. A CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING.
 2. A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA 0990) PLASTIC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED.
 3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED.
 4. ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.
 5. ANY SEWER PIPE SEPARATED BY A 10"x10"x4" THICK REINFORCED CONCRETE SLAB.
- P. PROHIBITED ZONE - NO SEWER MAINS ARE ALLOWED TO BE INSTALLED IN THIS ZONE.

STATE HEALTH DEPARTMENT EXCEPTIONS TO BASIC SEPARATION STANDARDS FOR DOMESTIC WATER, RECYCLED WATER AND SANITARY SEWER PIPELINES.

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**SEPARATION REQUIREMENTS
FOR WATER, RECYCLED
WATER & SEWER**

APPROVED

12/04/2014

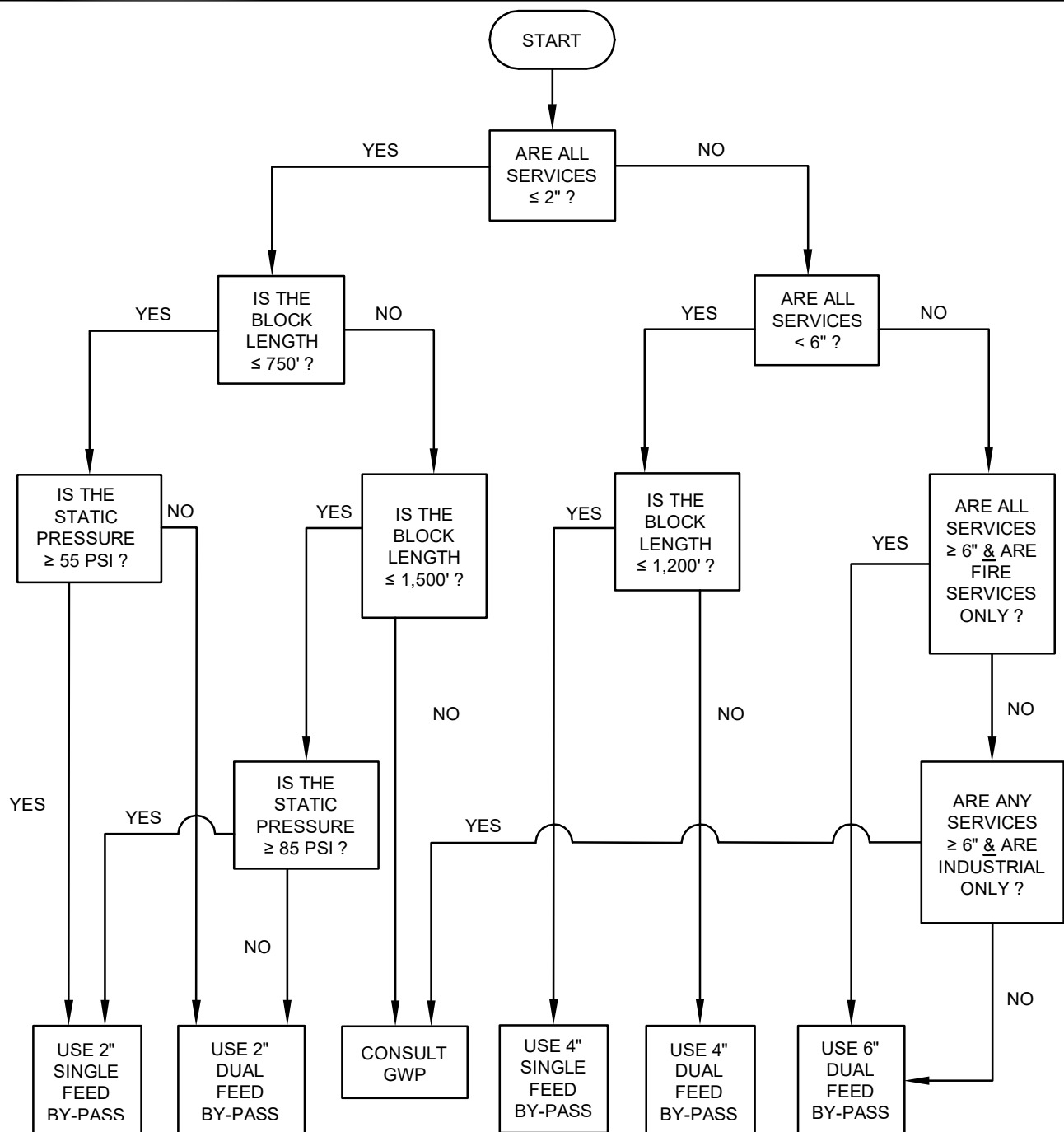
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: RBT
D: AR/PN
C: TN

SCALE: NONE
DATE: 10-10-05
APP:

SHEET No. 2 OF 2

6101-A



NOTES

1. A TEMPORARY FIRE HYDRANT SHALL BE PROVIDED WHEN THE DISTANCE BETWEEN ACTIVE HYDRANTS EXCEEDS 1,200 FEET.
2. THIS FLOW CHART IS A GUIDE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A FULLY FUNCTIONING WATER BYPASS SYSTEM THAT PROVIDES ADEQUATE WATER PRESSURE & FLOW TO THE WATER CUSTOMERS.

GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA

TEMPORARY BY-PASS PIPELINE DESIGN FLOW CHART

APPROVED



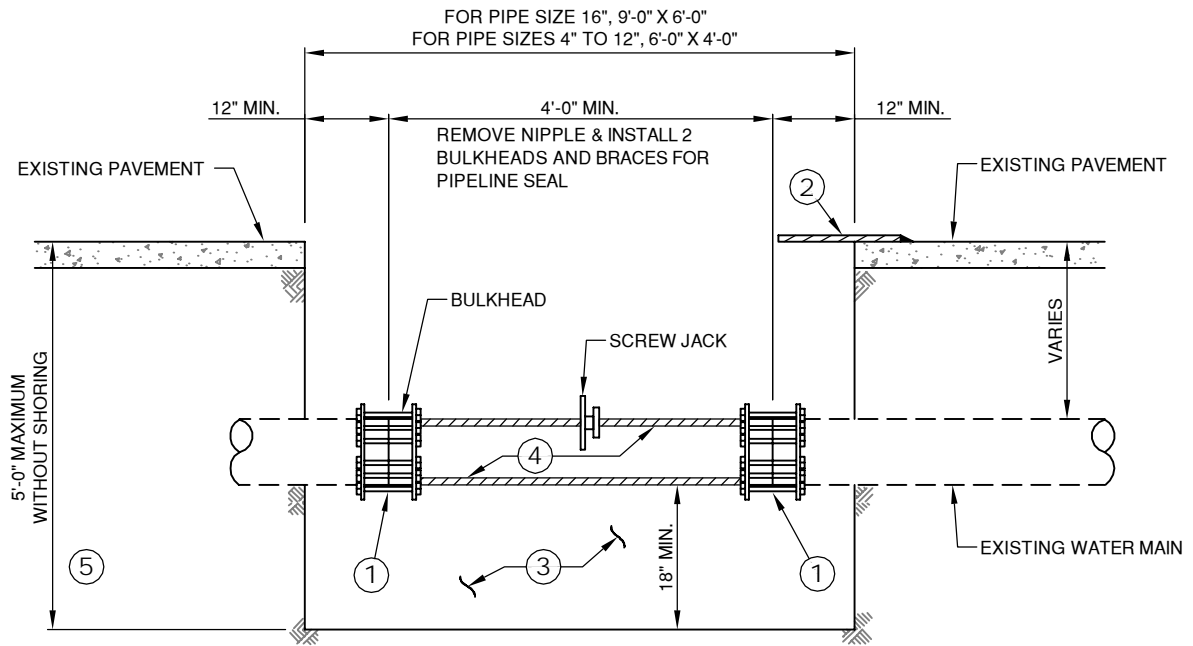
12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: KWR/LB SCALE: NONE
D: LG/GR
C: TN/GT
DATE: 08/22/13
APP:

SHEET No. 1 OF 1

6525-A



DETAIL	DESCRIPTION
①	CLOSURE SHALL BE BY EBBA SERIES 3800 RESTRAINED COUPLING (OR APPROVED EQUAL)
②	EXCAVATION SHALL BE COVERED WITH STEEL TRAFFIC PLATES WITH 12" MINIMUM OVERLAP ON ALL SIDES OVER PAVEMENT. PLATES SHALL BE IN ACCORDANCE WITH THE CALTRANS DOT SPECIAL PROVISION "C" EXCAVATION AND BACKFILL, LATEST EDITION, OR AS REQUIRED BY THE ENGINEER.
③	EXCAVATION SHALL BE BACKFILED PER GWP STANDARD DRAWING # (DUCTILE IRON PIPE INSTALLATION). CONTRACTOR SHALL REMOVE ALL "CLEANINGS" PRIOR TO BACKFILL.
④	BRACES SHALL BE FROM BULKHEAD TO BULKHEAD WITH STEEL PIPE AND SCREW JACKS, OR FROM BULKHEAD TO TRENCH WALL WITH BRACING AND BLOCKING, AS REQUIRED BY THE ENGINEER.
⑤	SHORING SHALL BE REQUIRED ON ALL EXCAVATIONS WHERE THE DISTANCE BETWEEN THE TOP OF THE PAVEMENT AND THE BOTTOM OF THE EXCAVATION IS GREATER THAN 5'-0".

NOTES

- THIS STANDARD DRAWING IS APPLICABLE FOR PIPES OF SIZES 4" THROUGH 16"

GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA

PIPELINE SEAL HOLE WITH
SCREW JACKS

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KWR/LB SCALE: NONE
D: GR

C:

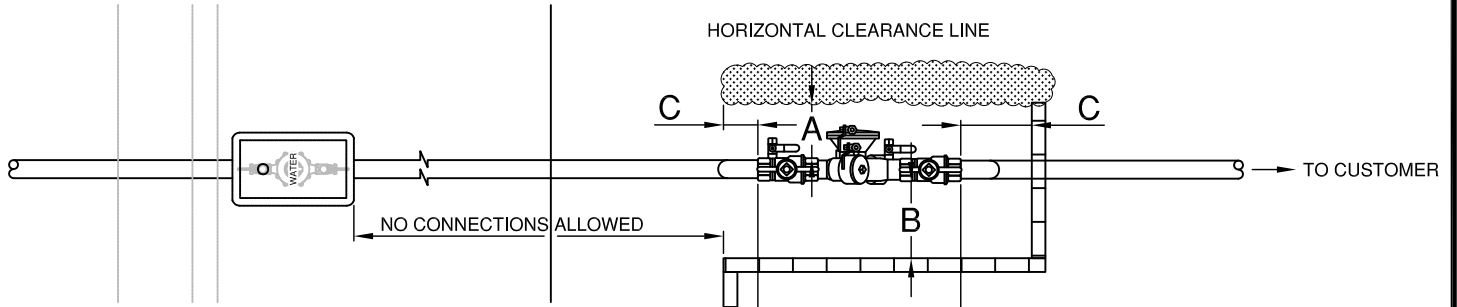
DATE: 11/13/13
APP:

SHEET No. 1 OF 1

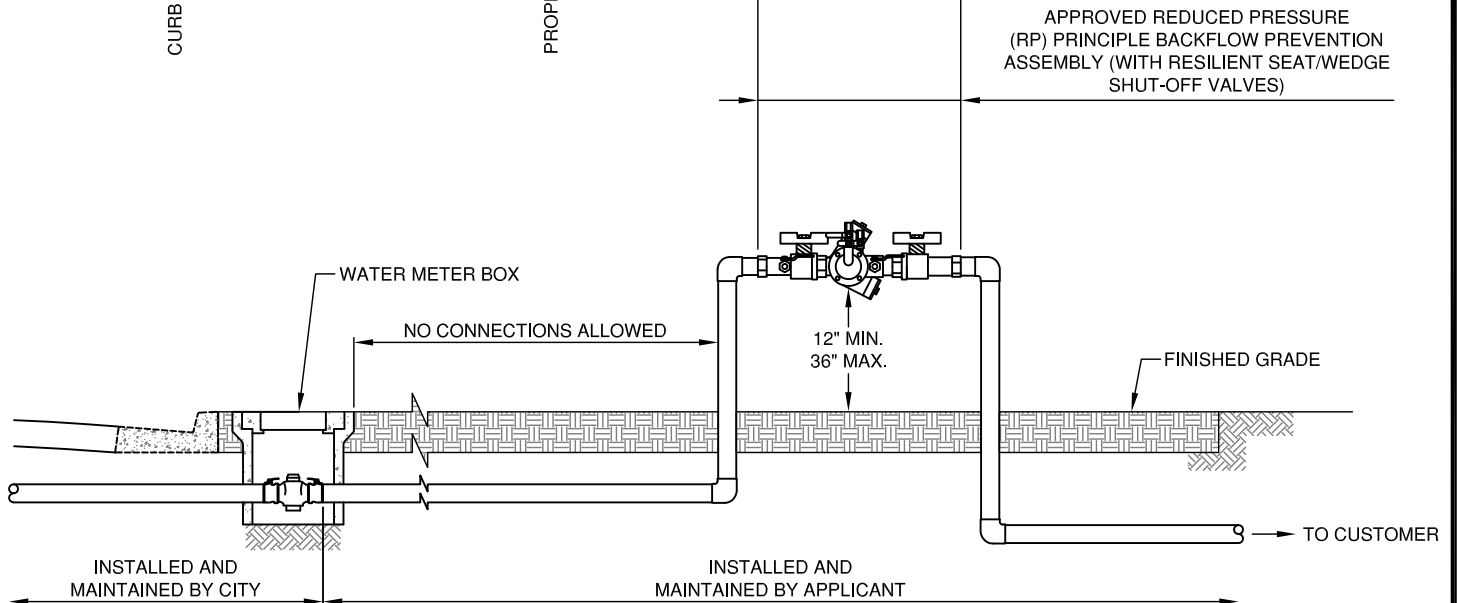
6526-A

MINIMUM CLEARANCE SCHEDULE

SIZE (BFPD)	A	B	C
3/4" - LARGER	12"	24"	12"



PLAN VIEW



SECTION VIEW

* ACCOMPANYING GWP STD. DWG. No. 6762-A

GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA

REDUCED PRESSURE
PRINCIPLE ASSEMBLY
(ALL SIZES)

APPROVED

07/14/2015

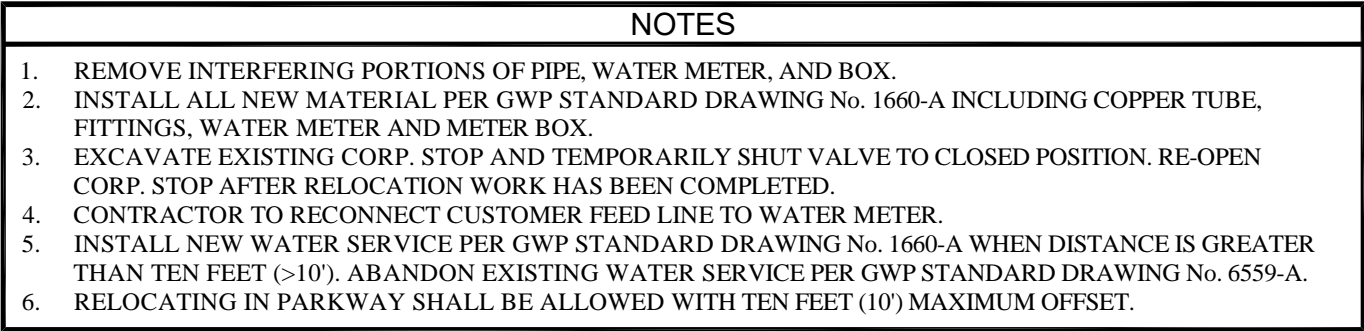
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: RO/LB
D: GR/PN
R: 2/22/16
C:

SCALE: NONE
DATE: 07/14/15
APP: RSN

SHEET No. 1 OF 1

6528-A



LEGEND

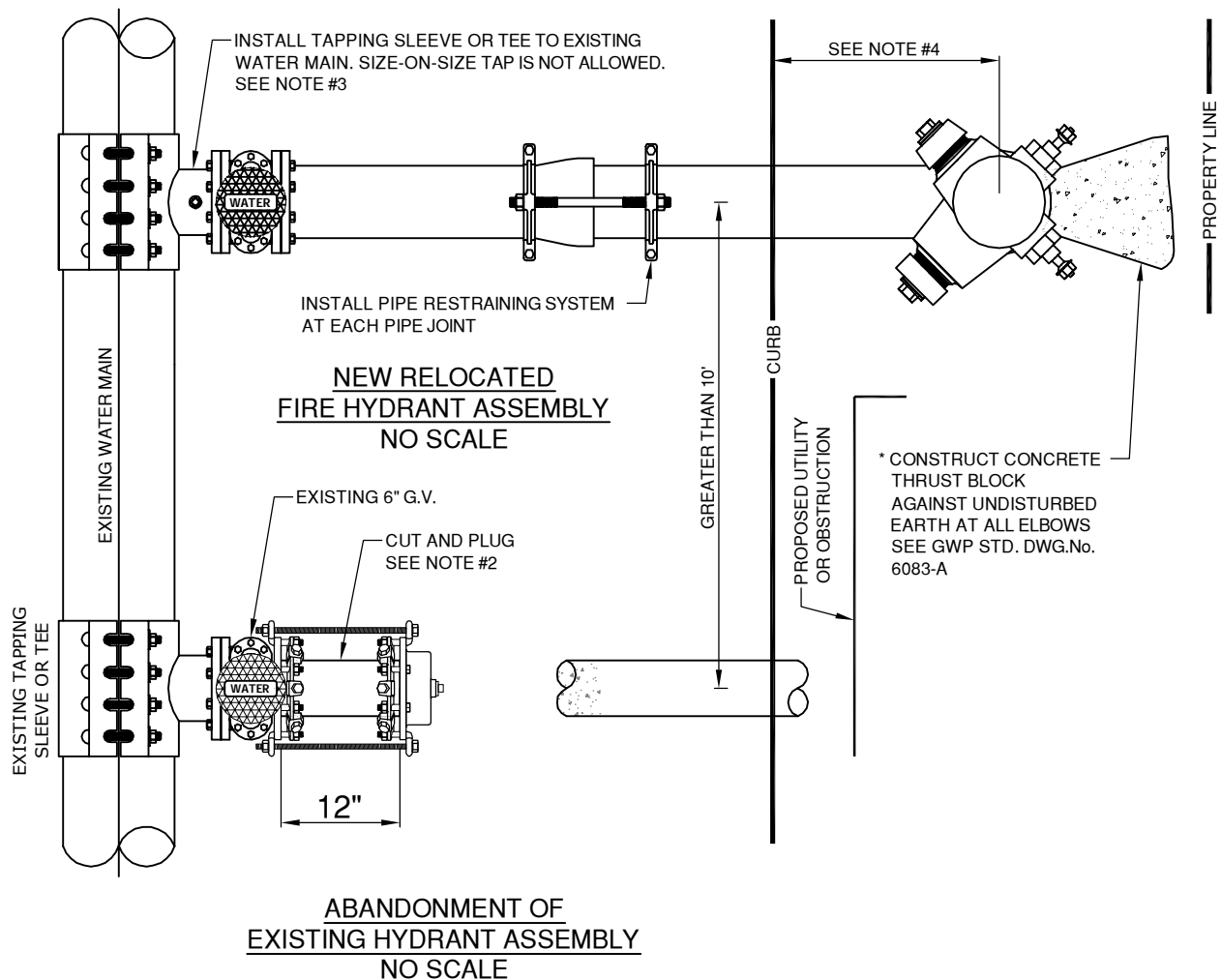
————— NEW

————— EXISTING

- - - - - REMOVAL

STANDARD WATER SERVICE RELOCATION (2" OR SMALLER)

6536-A



NOTES

1. CASE #1 ONLY APPLIES FOR A REQUIRED LATERAL RELOCATION THAT IS $>10'$, OR AS REQUIRED BY THE CITY OF GLENDALE.
2. SEE GWP STANDARD DRAWING No. 6092-A FOR STANDARD CUTTING AND PLUGGING OF EXISTING WATER LATERAL.
3. SEE GWP STANDARD DRAWING No. 4946-A, SHEET 2 FOR NEW FIRE HYDRANT ASSEMBLY WITH TAPPING SLEEVE AND VALVE OR GWP STANDARD DRAWING No. 4946-A, SHEET 1 WITH CUT-IN-TEE.
4. SEE GWP STANDARD DRAWING No. 1655-A FOR STANDARD FIRE HYDRANT SETTINGS.
5. ALL NEW MATERIAL SHALL BE USED UNLESS SPECIFIED.
6. REMOVE INTERFERING PORTION OF FIRE HYDRANT ASSEMBLY AND PIPE.
7. REMOVE FIRE HYDRANT HEAD AND EXTENSION AT LEAST 2' BELOW GROUND SURFACE COVER EXTENSION OR BURY BELOW GROUND WITH BLIND FLANGE. FILL HOLE, COMPACT AND RESURFACE.

* ACCOMPANYING GWP. STD. DWG. No. 1655-A, 4946-A, 6083-A & 6092-A

LEGEND

— EXISTING

— REMOVAL

— INSTALL

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**STANDARD FIRE HYDRANT
ASSEMBLY RELOCATION $>10'$
CASE #1 - LATERAL RELOCATION**

APPROVED

[Signature]

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: RHO/LB SCALE: NONE
D: LG/GR

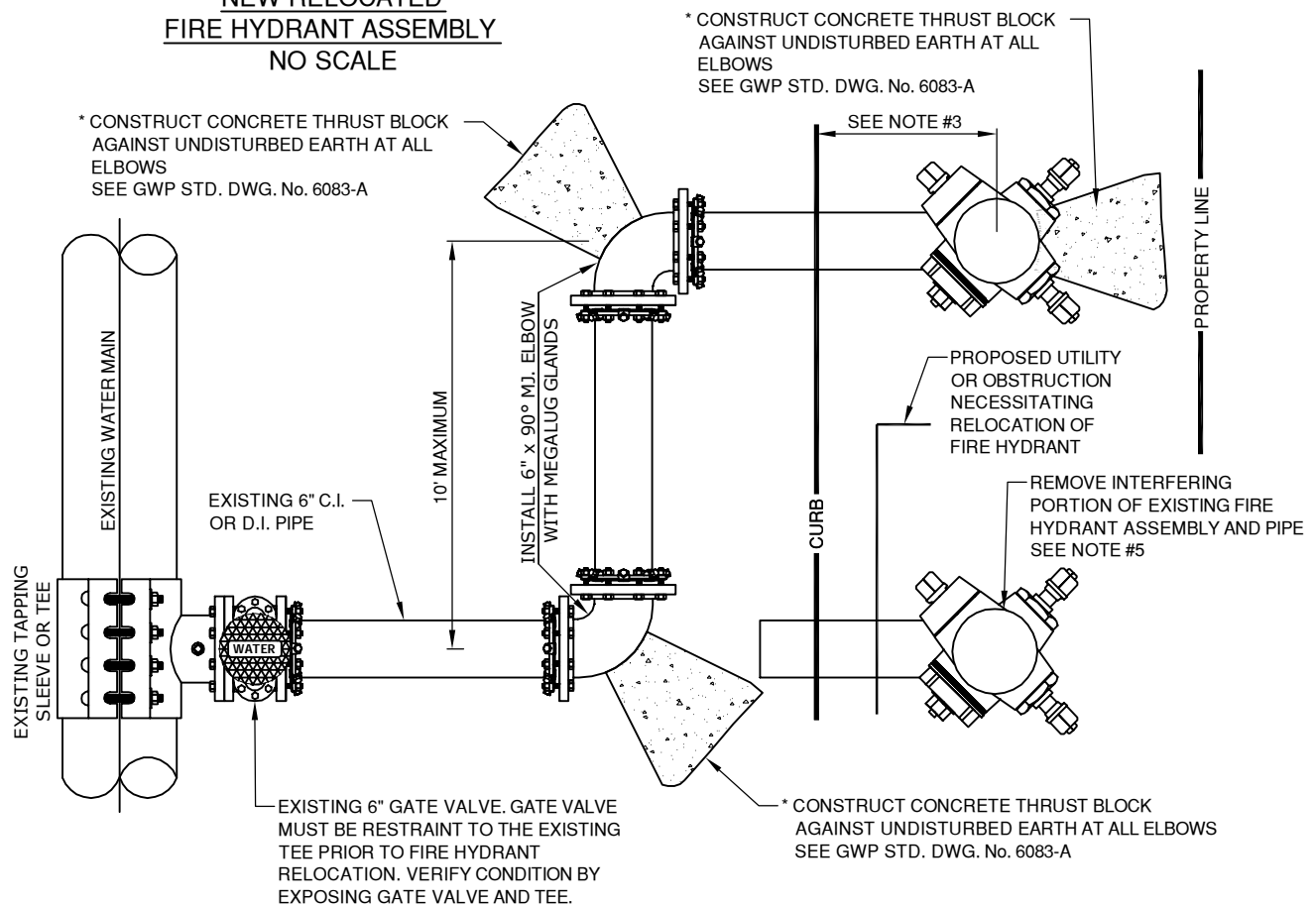
C: GT

DATE: 11/15/13
APP:

SHEET No. 1 OF 3

6537-A

**NEW RELOCATED
FIRE HYDRANT ASSEMBLY
NO SCALE**



NOTES

1. CASE #2 ONLY APPLIES FOR AN EXISTING FIRE HYDRANT LATERAL RELOCATION OF 10' OR LESS.
2. SEE STANDARD DRAWING No. 6092-A FOR STANDARD CUTTING AND PLUGGING OF EXISTING WATER LATERAL.
3. SEE GWP STANDARD DRAWING No. 1655-A FOR STANDARD FIRE HYDRANT SETTINGS.
4. ALL NEW MATERIAL SHALL BE USED UNLESS SPECIFIED.
5. REMOVE FIRE HYDRANT HEAD AND EXTENSIONS AT LEAST 2 FEET BELOW GROUND SURFACE. COVER EXTENSION OR BURY WITH BLIND FLANGE. FILL HOLE, COMPACT AND RESURFACE. CUT ABANDONED PIPE TO INSTALL NEW FIRE HYDRANT AS REQUIRED.
6. IF NO PROPOSED UTILITY OR OBSTRUCTION IN PARKWAY OR SIDEWALK, A RELOCATION ON CURB / SIDEWALK WILL BE ALLOWED WITH A 6' MAXIMUM DISTANCE.

* ACCOMPANYING GWP. STD. DWG. No. 1655-A, 6083-A & 6092-A

LEGEND

_____ EXISTING
 _____ REMOVAL
 _____ INSTALL

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**STANDARD FIRE HYDRANT
ASSEMBLY RELOCATION
CASE #2 - LATERAL RELOCATION 10' MAX.**

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
 GLENDALE WATER AND POWER - WATER DEPARTMENT

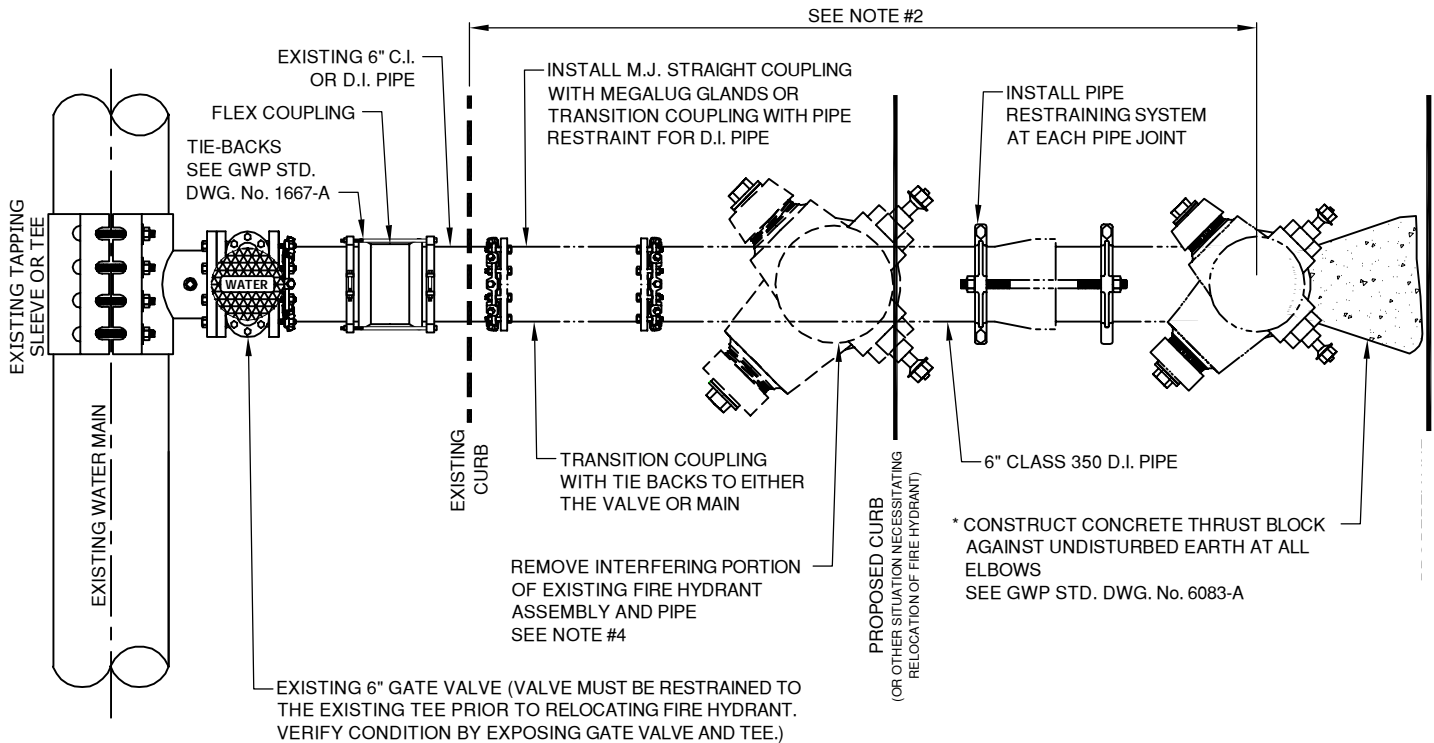
DES: RHO/LB SCALE: NONE
 D: LG

C: GT

DATE: 11/18/13
 APP:

SHEET No. 2 OF 3

6537-A



**NEW RELOCATED
FIRE HYDRANT ASSEMBLY
NO SCALE**

NOTES

1. SEE GWP STANDARD DRAWING No. 4946-A, SHEET 2 FOR NEW FIRE HYDRANT ASSEMBLY WITH TAPPING SLEEVE AND VALVE OR SEE GWP STANDARD DRAWING No. 4946-A, SHEET 1 WITH GATE VALVE.
2. SEE GWP STANDARD DRAWING No. 1655-A FOR STANDARD FIRE HYDRANT SETTINGS.
3. ALL NEW MATERIAL SHALL BE USED UNLESS SPECIFIED.
4. REMOVE FIRE HYDRANT HEAD AND EXTENSIONS AT LEAST 2 FEET BELOW GROUND SURFACE. COVER EXTENSION OR BURY WITH BLIND FLANGE. FILL HOLE, COMPACT AND RESURFACE. CUT ABANDONED PIPE TO INSTALL NEW FIRE HYDRANT AS REQUIRED.

* ACCOMPANYING GWP. STD. DWG. No. 1655-A, 1667-A, 4946-A & 6083-A

LEGEND

_____ EXISTING
 _____ REMOVAL
 _____ INSTALL
 _____ PROPOSED

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**STANDARD FIRE HYDRANT
ASSEMBLY RELOCATION
CASE #3 - DIRECT EXTENSION**

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

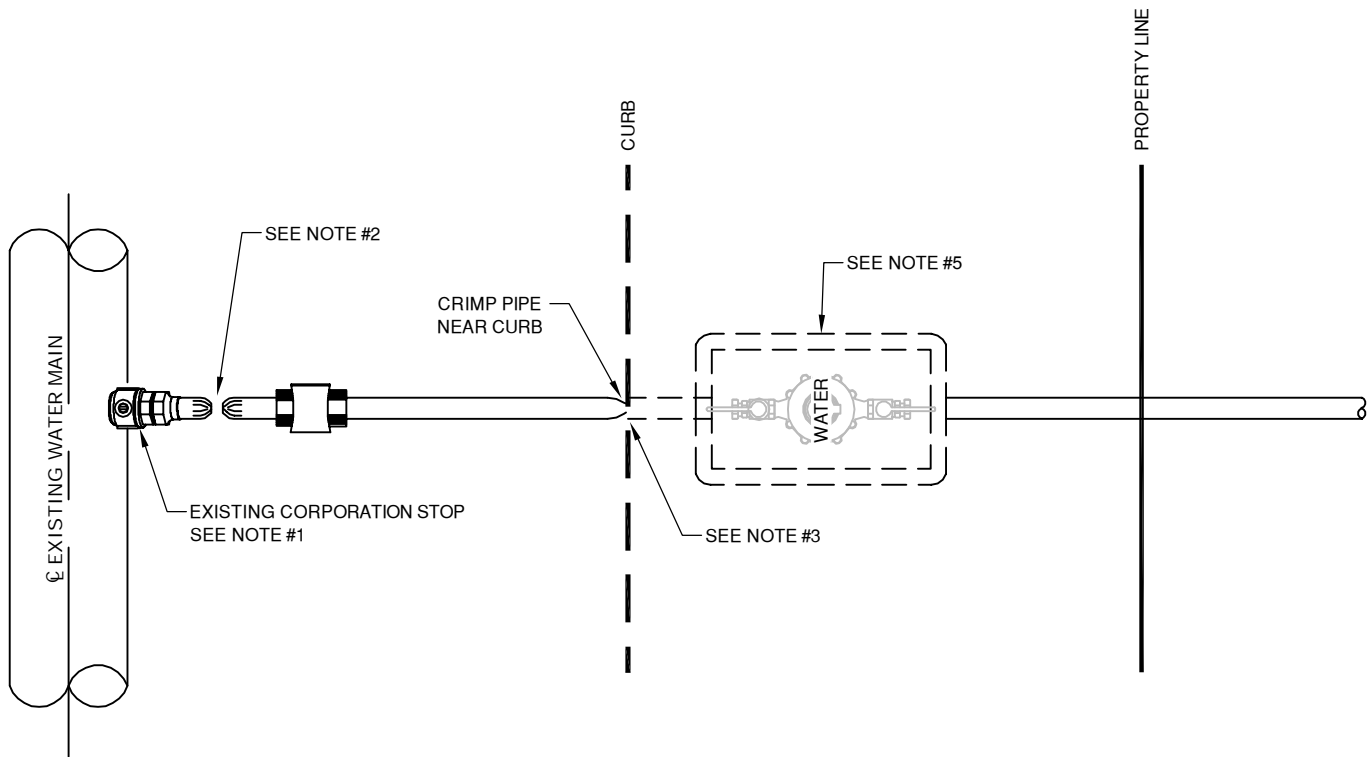
DES: RHO/LB SCALE: NONE
D: LG

C: GT

DATE: 11/18/13
APP:

SHEET No. 3 OF 3

6537-A



NOTES

1. EXCAVATE EXISTING CORPORATION STOP AND TURN VALVE TO CLOSED POSITION.
2. DISCONNECT SERVICE LATERAL FROM CORPORATION STOP.
3. REMOVE INTERFERING PORTIONS OF PIPE, WATER METER AND METER BOX.
4. RESTORE PAVEMENT OR LANDSCAPE.
5. IF METER BOX IS KEPT IN PLACE, FILL BOX WITH SAND AND KEEP LID FLUSH.

LEGEND

_____ EXISTING
 - - - - - REMOVAL

GLENDALE WATER & POWER
 CITY OF GLENDALE
 CALIFORNIA

STANDARD WATER
 SERVICE ABANDONMENT
 (2" OR SMALLER)

APPROVED

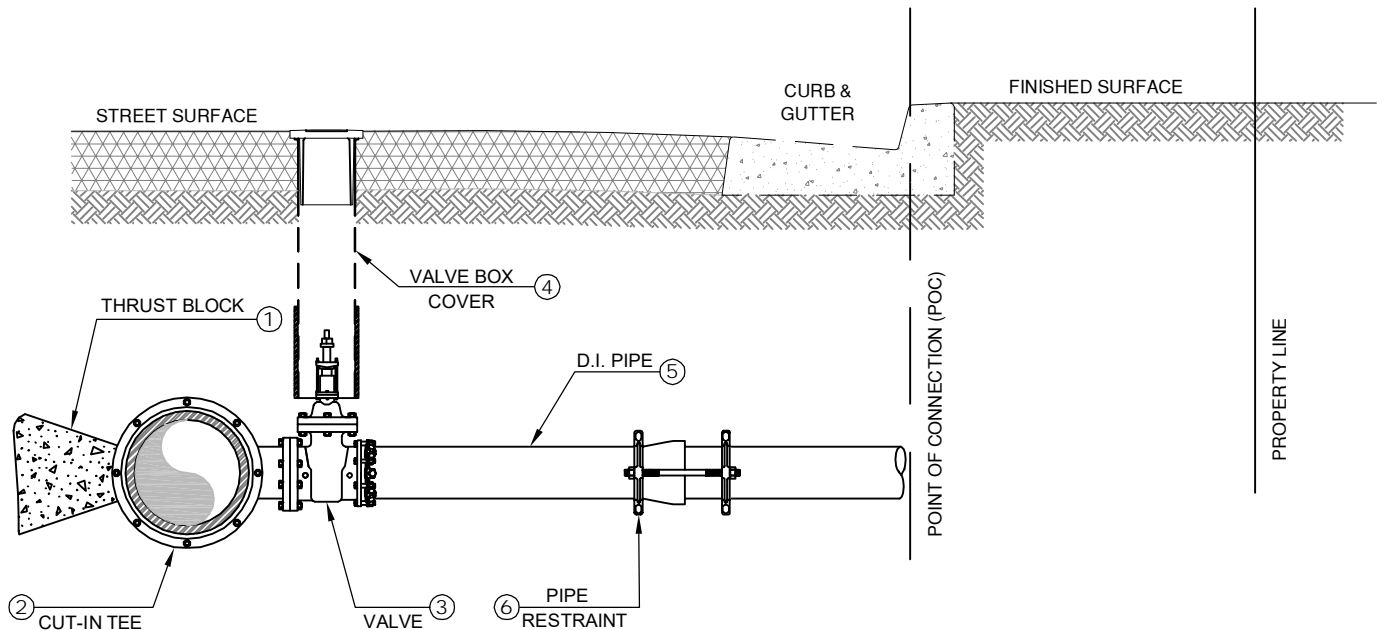
12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
 GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: RHO/LB SCALE: NONE
 D: LG/GR
 C: GT DATE: 11/14/13
 APP:

SHEET No. 1 OF 1

6559-A



NOTES

1. COORDINATE WITH CUSTOMER TO MARK DESIRED LOCATION OF SERVICE
2. POTHOLE TO GET EXISTING PIPE O.D. BEFORE ORDERING THE TAPPING SLEEVES.
3. FOR EXISTING MAINS 16" AND LARGER, TAPPING SLEEVES SHALL BE INTERNATIONAL STYLE 228 OR NAPCO BAKER SERIES 428, EPOXY LINED AND COATED, WITH STAINLESS STEEL BOLTS AND NUTS.
4. PIPE AND FITTINGS SHALL BE PER GWP SPECIFICATIONS AND MANUFACTURED IN THE U.S.A.

DETAIL	DESCRIPTION
①	CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH (SEE GWP STD. DWG. No. 6083-A)
②	CUT PIPE, INSTALL D.I. TEE, M.J.xM.J.xFLG. WITH MEGALUG GLADS, PIPE NIPPLE AND SMITH BLAIR 441 STRAIGHT COUPLING
③	F.L.G. X M.J. GATE VALVE RESILIENT WEDGE TYPE WITH MEGALUG GLAND (SAME SIZE AS LATERAL)
④	VALVE BOX & COVER (SEE GWP STD. DWG. No. 1590-A IN THE SPECIFICATIONS)
⑤	CLASS 350 D.I. PIPE (PUSH ON JOINTS) (SIZE AS SHOWN ON PLAN)
⑥	PIPE RESTRAINING SYSTEM AT EACH PIPE JOINT (WHEN REQUIRED)

* ACCOMPANYING GWP STD. DWG. No. 1590-A & 6083-A

**GLENDAL WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**4"-8" SERVICE LATERAL
(ON EXISTING WATER MAIN
USING GATE VALVE)**

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

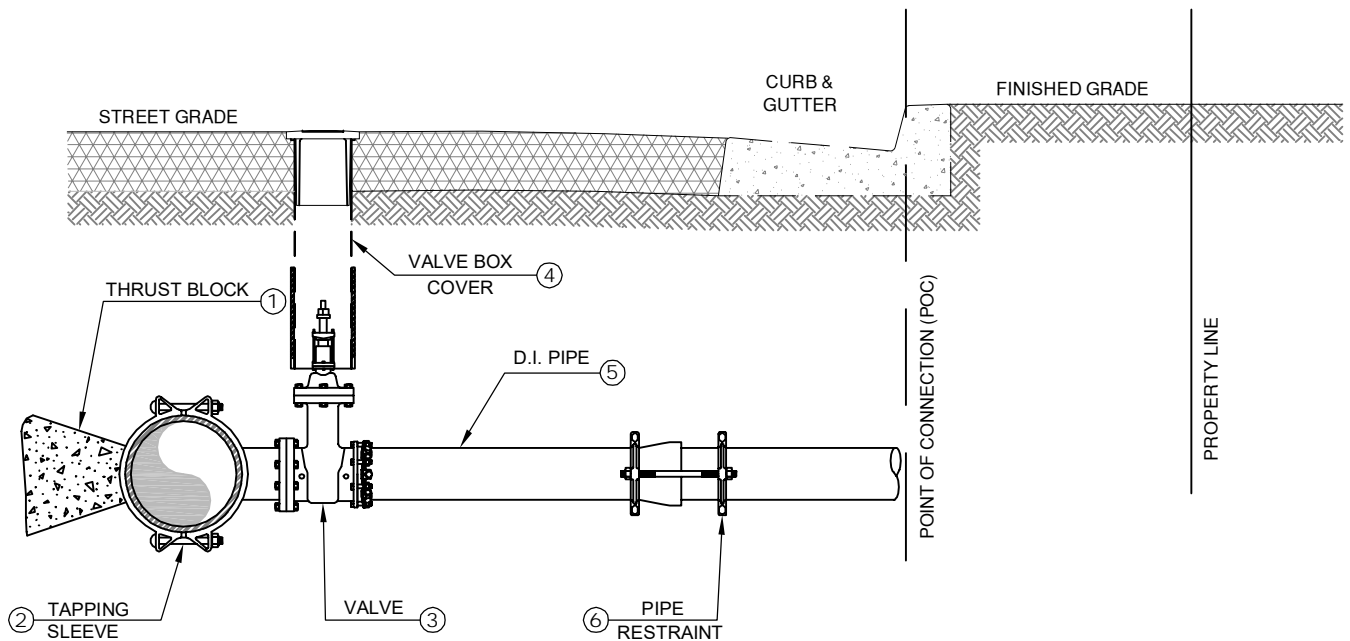
DES: LB
D: LG/GR
C: GT

SCALE: NONE

DATE: 01/23/14
APP:

SHEET No. 1 OF 2

6560-A



NOTES

1. COORDINATE WITH CUSTOMER TO MARK DESIRED LOCATION OF SERVICE
2. POT HOLE TO GET EXISTING PIPE O.D. BEFORE ORDERING THE TAPPING SLEEVES.
3. FOR EXISTING MAINS 16" AND LARGER, TAPPING SLEEVES SHALL BE INTERNATIONAL STYLE 228 OR NAPCO BAKER SERIES 428, EPOXY LINED AND COATED, WITH STAINLESS STEEL BOLTS AND NUTS.
4. PIPE AND FITTINGS SHALL BE PER GWP SPECIFICATIONS AND MANUFACTURED IN THE U.S.A.

DETAIL	DESCRIPTION
①	CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH (SEE GWP STD. DWG. No. 6083-A)
②	TAPPING SLEEVE WITH FLANGED OUTLET
③	F.L.G. X M.J. GATE VALVE RESILIENT WEDGE TYPE WITH MEGALUG GLAND (SAME SIZE AS LATERAL)
④	VALVE BOX & COVER (SEE GWP STD. DWG. No. 1590-A IN THE SPECIFICATIONS)
⑤	CLASS 350 D.I. PIPE (PUSH-ON JOINTS) (SIZE AS SHOWN ON PLAN)
⑥	PIPE RESTRAINING SYSTEM AT EACH PIPE JOINT (WHEN REQUIRED)

* ACCOMPANYING GWP STD. DWG. No. 1590-A & 6083-A

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**4"-8" SERVICE LATERAL
(ON EXISTING WATER MAIN
USING TAPPING SLEEVE)**

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

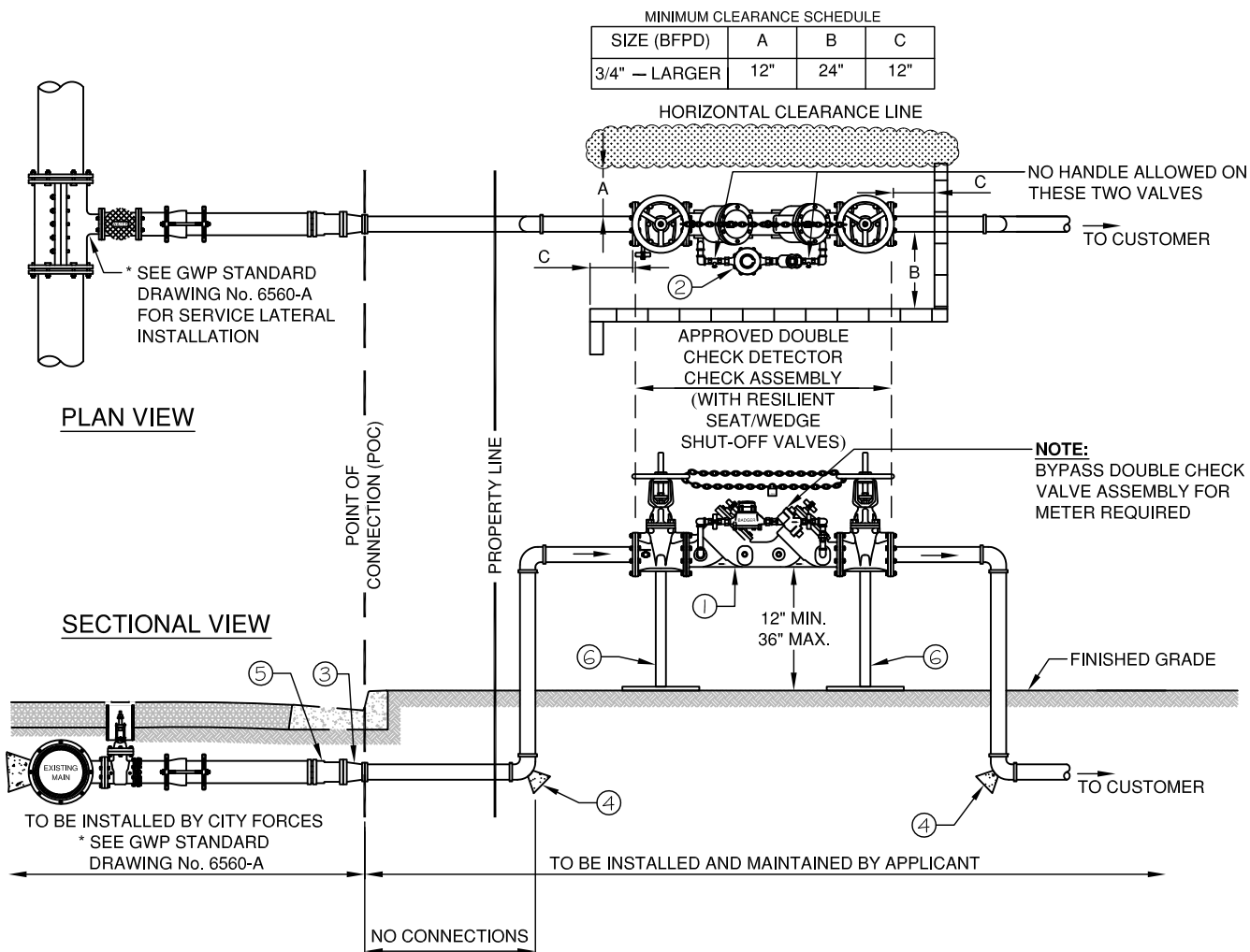
DES: LB
D: AR/LC/LG/GR
C: TN/GT

SCALE: NONE

DATE: 01/23/14
APP:

SHEET No. 2 OF 2

6560-A



DETAIL	DESCRIPTION
①	DOUBLE CHECK DETECTOR CHECK ASSEMBLY-APPROVED BY HEALTH AGENCY.
②	BYPASS METER TO BE FURNISHED BY GWP AT CUSTOMERS EXPENSE.
③	4" x 3" FLG. x FLG. REDUCER (WHEN NEEDED)
④	SEE GWP STD. DWG. No. 6083-A FOR THRUST BLOCK INSTALLATION
⑤	4" M.J. x FLG. ADAPTOR
⑥	ADJUSTABLE PIPE SUPPORT. SEE GWP STD. DWG. No. 6682-A.

* ACCOMPANYING GWP STD. DWG. No. 6083-A, 6560-A, 6528-A, 6682-A & 6562-A

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**STANDARD FIRE LINE INSTALLATION
WITH DOUBLE CHECK DETECTOR
CHECK ASSEMBLY - (3" - 12")**

APPROVED

07/14/2015

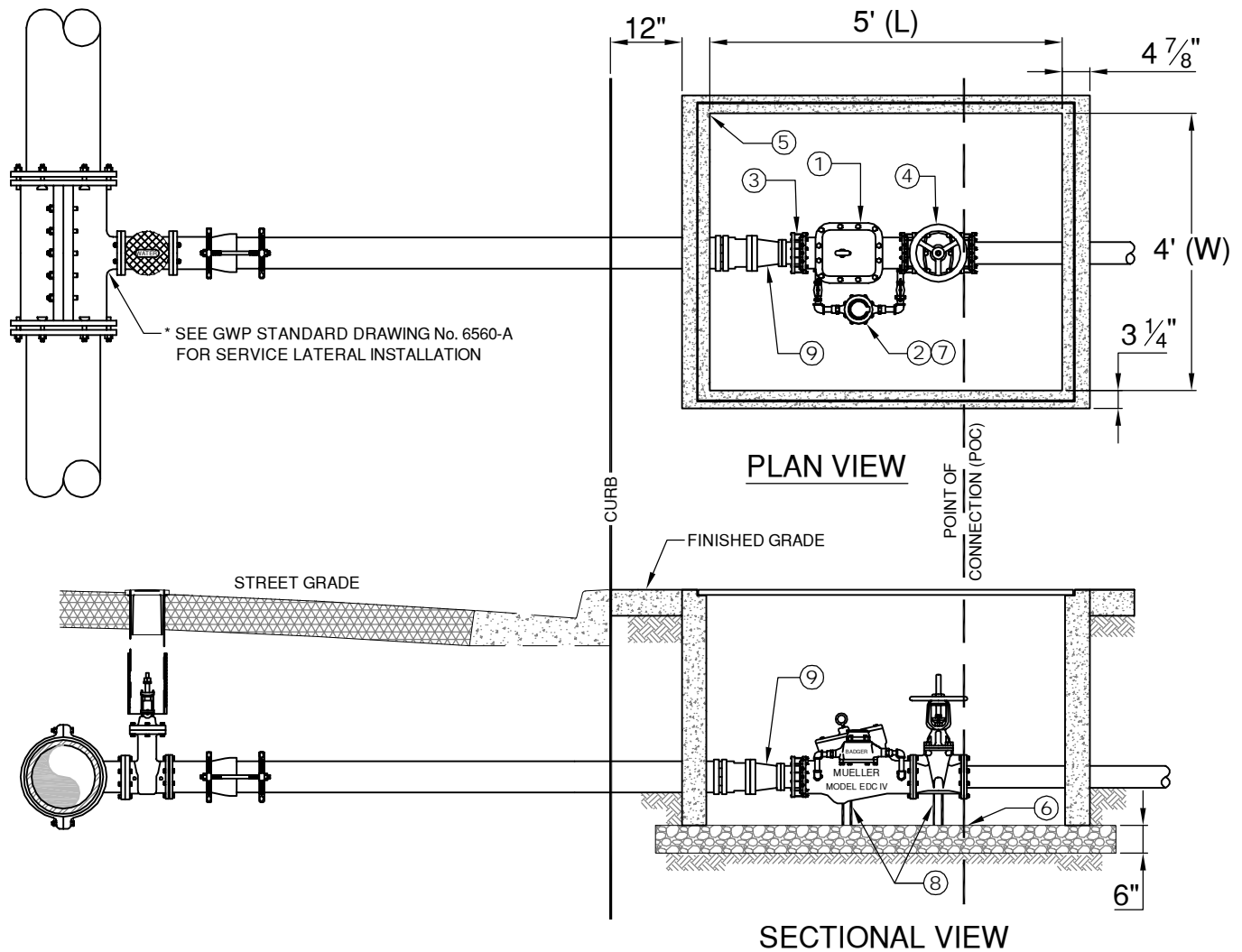
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB
D: GR/PN
C: GT

SCALE: NONE
DATE: 07/14/15
APP:

SHEET No. 1 OF 1

6561-A



NOTES

1. FOR 3" FIRE SERVICE INSTALL 4" D.I. PIPE WITH 4" x 3" REDUCER

DETAIL	DESCRIPTION
①	DETECTOR CHECK-HERSEY MODEL EDC IV, OR AN APPROVED EQUAL BY PUBLIC HEALTH AGENCY.
②	BYPASS METER TO BE FURNISHED AND INSTALLED BY GWP, AT CUSTOMERS EXPENSE.
③	EBAA MEGAFLANGE SERIES 2100 RESTRAINED FLANGE ADAPTER.
④	OUTSIDE SCREW AND YOKE (O.S. & Y). RESILIENT WEDGE GATE VALVE WITH FLANGE ENDS.
⑤	ARMORCAST VAULT. SEE GWP STD. DWG. No. 6683-A. ADJUST VAULT FRAME & COVER TO MEET SIDE WALK & CURB GRADE.
⑥	6" CLEAN CRUSHED ROCK SUMP
⑦	SEE GWP STD. DWG. No. 6685-A FOR A.M.I. CONNECTION
⑧	SEE GWP STD. DWG. No. 6682-A FOR ADJUSTABLE PIPE SUPPORT.
⑨	4" M.J. x FLG. ADAPTOR AND 4" x 3" FLG. x FLG. REDUCER (WHEN NEEDED)

* ACCOMPANY STANDARD 6560-A, 6682-A, 6683-A, 6685-A

GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA

STANDARD FIRE LINE
INSTALLATION WITH DETECTOR
CHECK ASSEMBLY (3" - 10")

APPROVED

12/04/2014

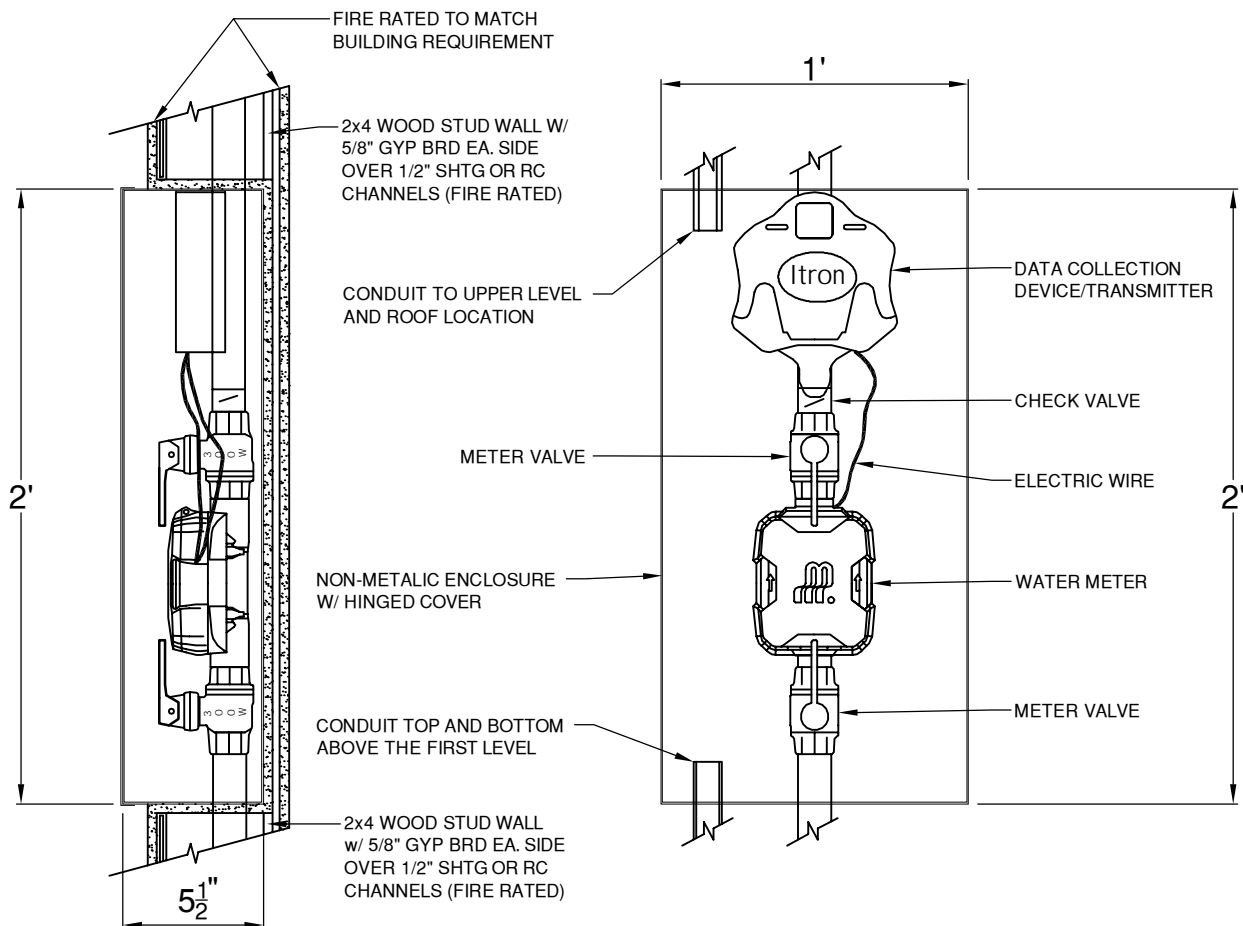
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB/RO
D: LG/GR
C:

SCALE: NONE
DATE: 01/27/14
APP:

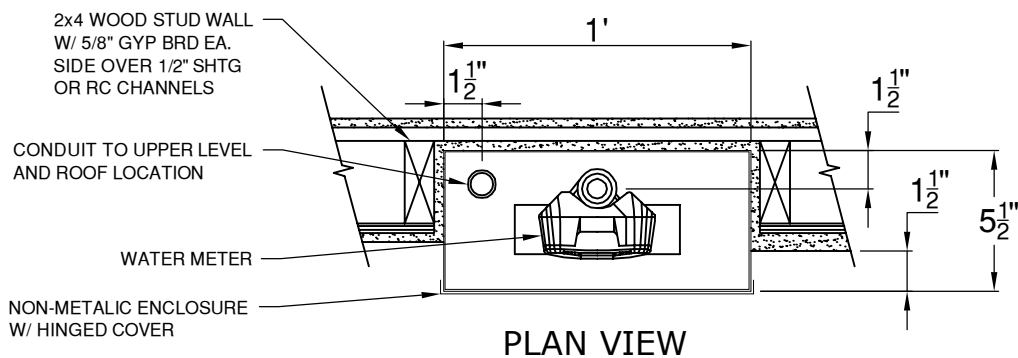
SHEET No. 1 OF 1

6562-A



SECTION VIEW

ELEVATION VIEW



PLAN VIEW

GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA

INDIVIDUAL DWELLING
E-35 METER INSTALLATION

APPROVED

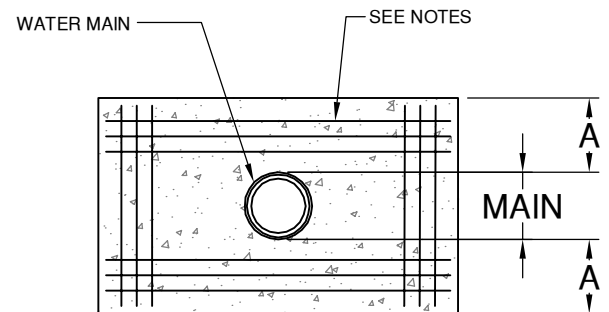
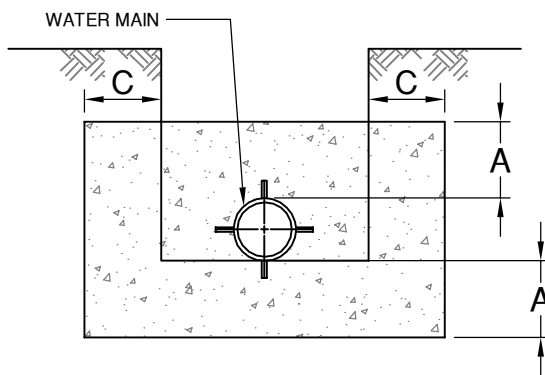
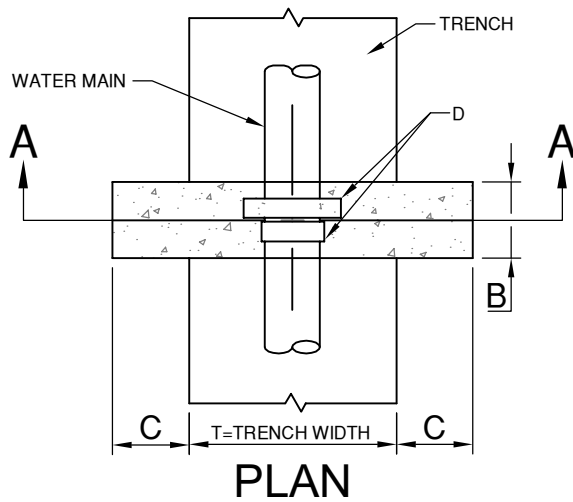
12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB/RHO SCALE: NONE
D: LG/GR
C: GT
DATE: 01/24/14
APP:

SHEET No. 1 OF 1

6644-A



NOTES

6" TO 16" MAINS = 12-NO. 7 BARS
 20" TO 36" MAINS = 12-NO. 8 BARS
 BARS PLACED AS SHOWN

SCHEDULE

PIPE DIAMETER	CONCRETE THRUST COLLAR			CLAMPS SETS
	A	B	C	D
6", 8", 12"	1'-0"	1'-0"	1'-0"	2"
16"	1'-4"	1'-0"	1'-0"	2"
20"	1'-4"	1'-0"	1'-0"	3"
24"	1'-4"	1'-0"	1'-4"	3"
30"	1'-4"	1'-2"	1'-4"	4"
36"	1'-4"	1'-4"	1'-4"	4"

GLENDAL WATER & POWER
 CITY OF GLENDAL
 CALIFORNIA

CONCRETE THRUST COLLAR

APPROVED

12/04/2014

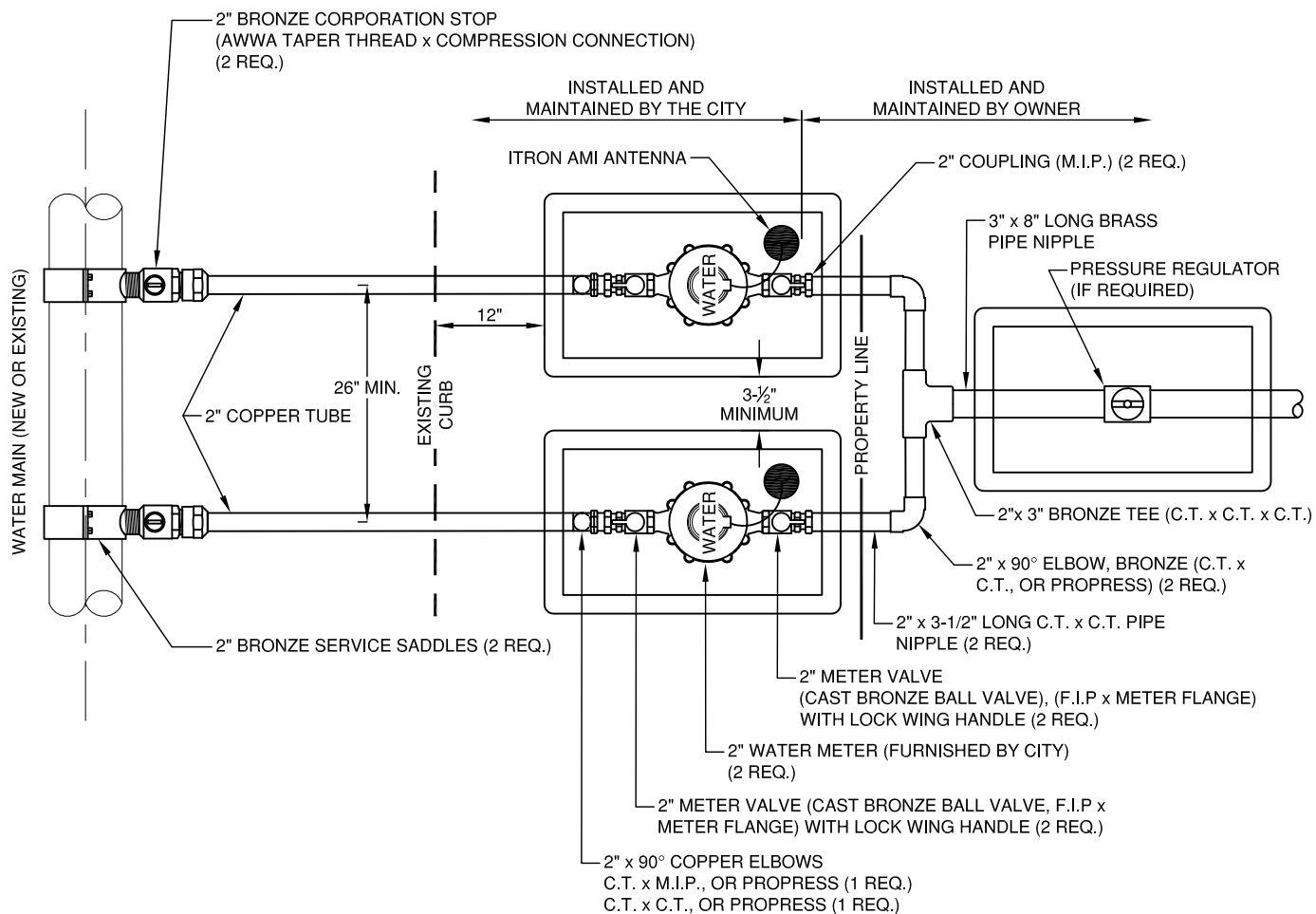
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
 GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KR/LB
 D: LG
 C: GT

SCALE: NONE
 DATE: 09/19/13
 APP:

SHEET No. 1 OF 1

6666-A



PLAN VIEW

3" EQUIVALENT WATER METER AND SERVICE

NO SCALE

NOTES

- SEE GWP STANDARD DRAWING No. 1660-A FOR STANDARD 2" METER, METER BOX AND SERVICE ASSEMBLY.

* ACCOMPANYING GWP STD. DWG. No. 1660-A

GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA

3" EQUIVALENT WATER
METER AND SERVICE

APPROVED

[Signature]

07/13/2016

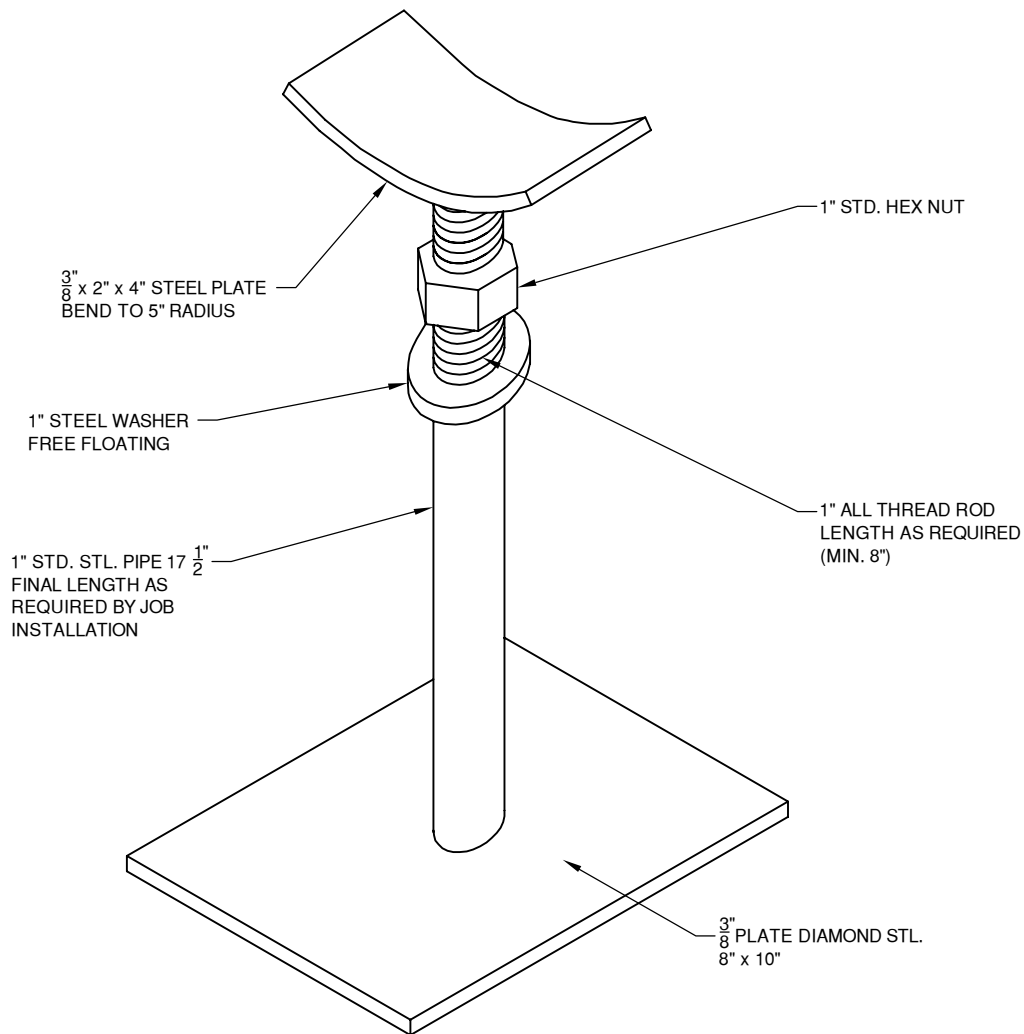
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KR
D: LB
C: KR

SCALE: NONE
DATE: 07/13/2016
APP: GT

SHEET No. 1 OF 1

6670-A



DETAIL	DESCRIPTION
①	PIPE SUPPORTS SHALL BE PAINTED AND COATED.
②	ALL THREADED AREAS SHALL BE COATED WITH ANTI-RUST LUBRICANT.

GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA

ADJUSTABLE PIPE SUPPORT

APPROVED

12/04/2014

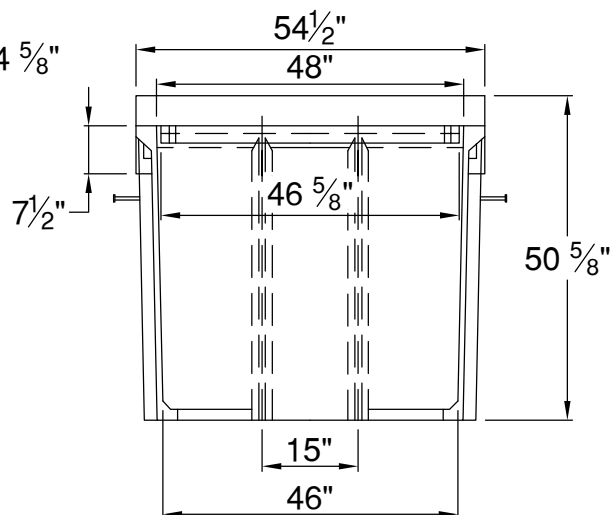
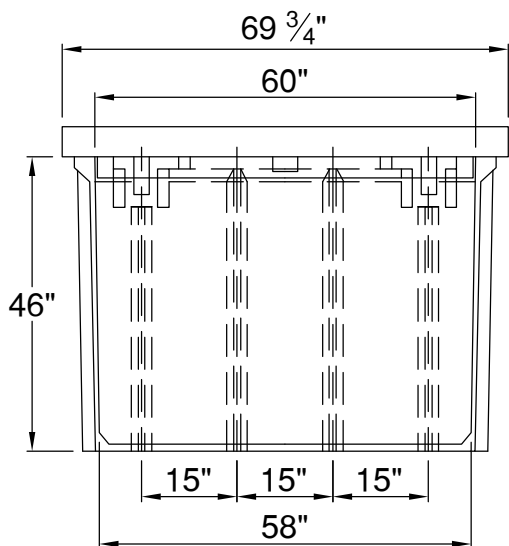
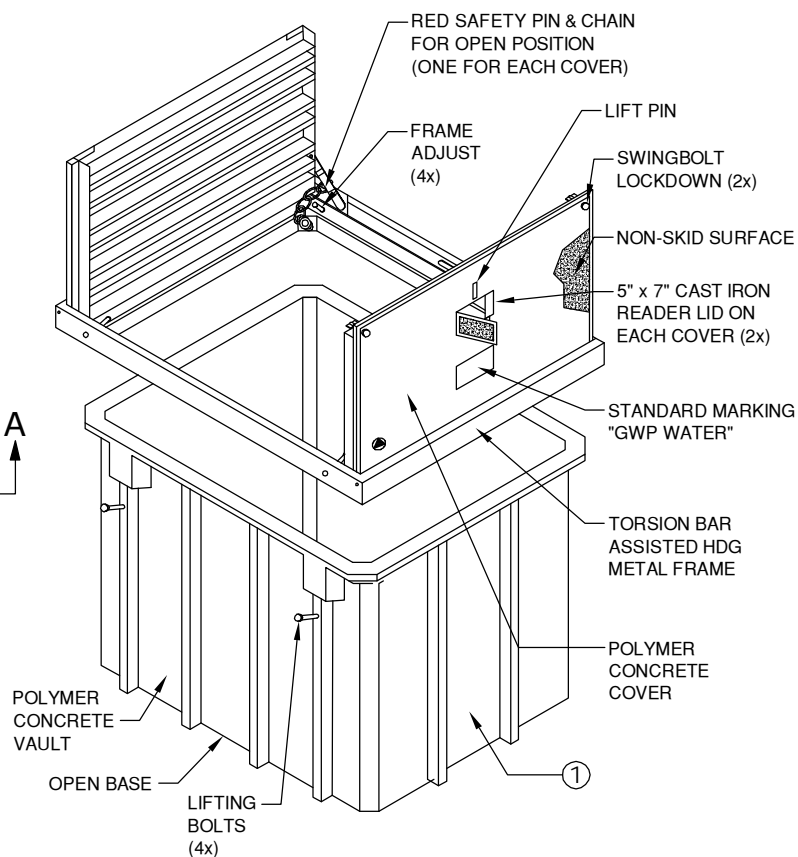
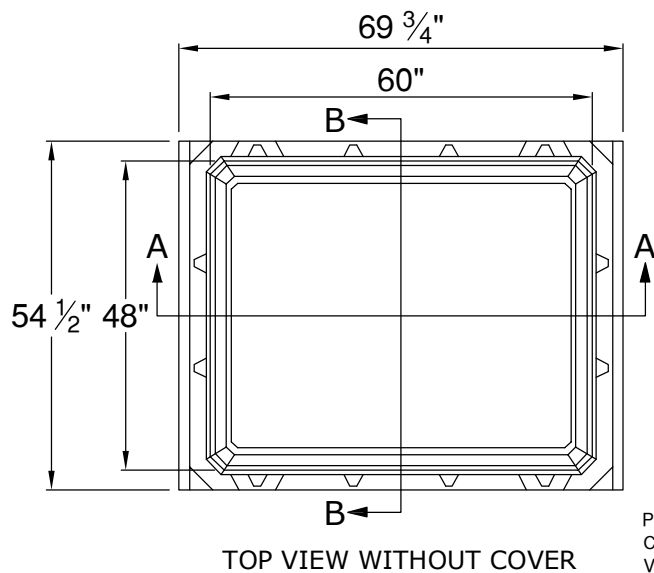
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: LB
D: LG/GR
C: GT

SCALE: NONE
DATE: 01/23/14
APP:

SHEET No. 1 OF 1

6682-A



DETAIL	DESCRIPTION
①	ARMORCAST PART No. A6001447TAP48MT *OR APPROVED EQUAL

* 20K LOAD RATING ON ARMORCAST VAULT ASSEMBLY W/ TORSION ASSIST COVER

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**POLYMER CONCRETE
VAULT W/ TORSION
COVER (4'x5')**

APPROVED

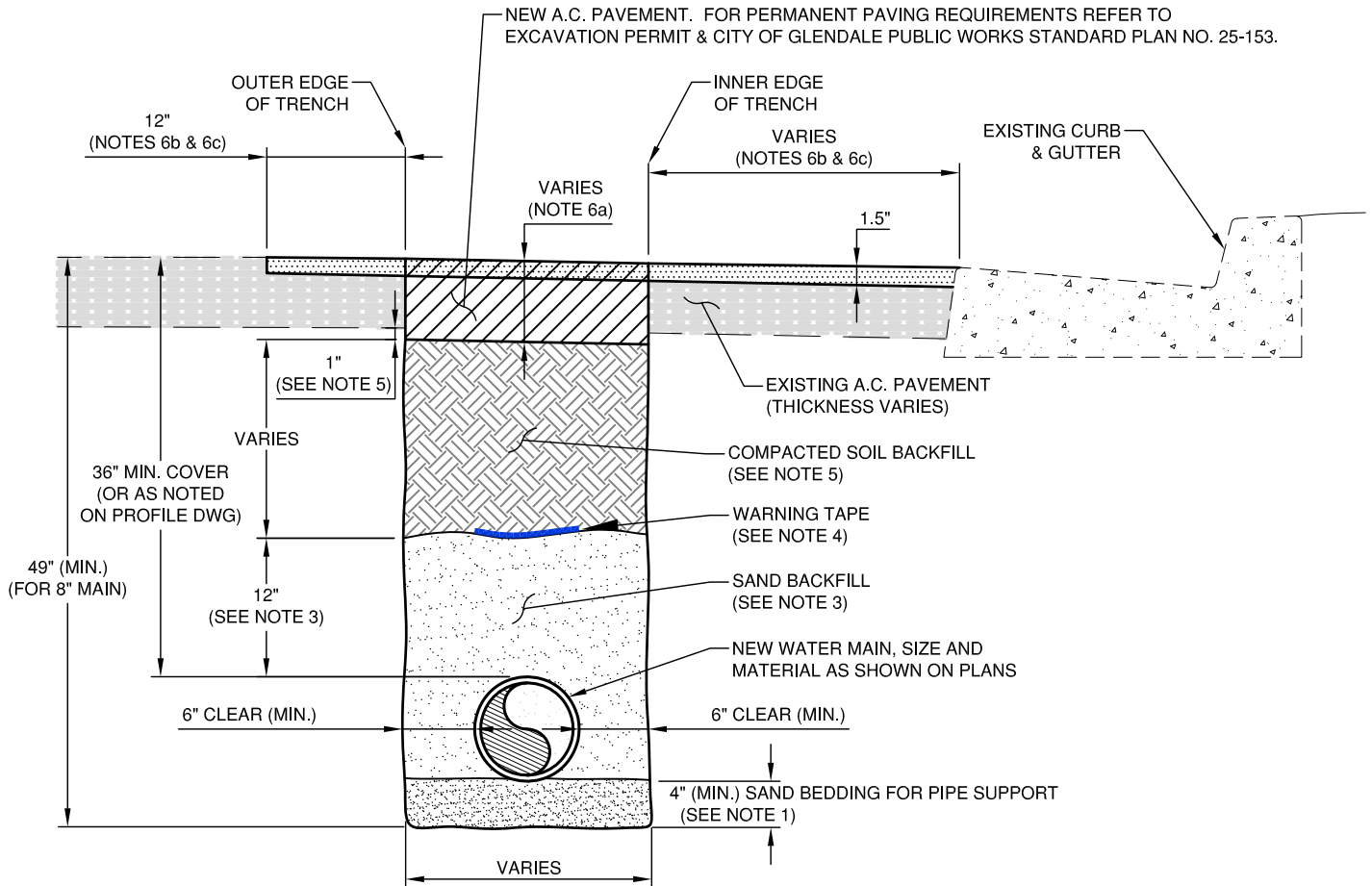
12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB/RHO SCALE: NONE
D: LG/GR
C: GT DATE: 10/17/13
APP:

SHEET No. 1 OF 1

6683-A



NOTES

1. FILL THE BOTTOM OF THE TRENCH WITH SAND TO A DEPTH OF 4-INCHES TO PROVIDE BEDDING FOR THE NEW WATER MAIN.
2. INSTALL THE NEW WATER MAIN.
3. BACKFILL THE TRENCH WITH BEDDING SAND TO A DEPTH OF 12-INCHES ABOVE THE TOP OF THE NEW WATER MAIN.
4. INSTALL CONTINUOUS METALLIC WARNING TAPE ON TOP OF THE BEDDING SAND, CENTERED OVER THE MAIN, TAPE WIDTH EQUAL TO THE PIPE O.D., WITH WORDING "*CAUTION: POTABLE WATER MAIN BELOW*"
5. BACKFILL AND COMPACT THE REMAINDER OF THE TRENCH WITH NATIVE SOIL OR APPROVED IMPORTED FILL MATERIAL TO A DEPTH OF 1-INCH BELOW THE BOTTOM OF THE EXISTING PAVEMENT.
6. RESTORE THE TRENCH WITH ASPHALT-CONCRETE PAVEMENT IN THE FOLLOWING ORDER:
 - a) BASE PAVE THE TRENCH FLUSH WITH THE EXISTING PAVEMENT SURFACE WITH TYPE 'B' AR-4000 A.C. MIX (PAVEMENT THICKNESS SHALL BE 1" GREATER THAN THE EXISTING PAVEMENT THICKNESS).
 - b) GRIND A 1.5"-THICK LAYER OF PAVEMENT OVER THE TRENCH AND 12-INCHES FROM EACH EDGE OF THE TRENCH (T-GRIND) OR AS DIRECTED BY THE ENGINEER.
 - c) PLACE A 1.5"-THICK LAYER OF TYPE 'D' AR-4000 A.C. MIX OVER THE GRINDED AREA.

GLENDAL WATER & POWER CITY OF GLENDAL CALIFORNIA

STANDARD TRENCH FOR NEW WATER MAIN INSTALLATION CASE 1: COMPACTED SOIL BACKFILL

APPROVED

05/20/2016

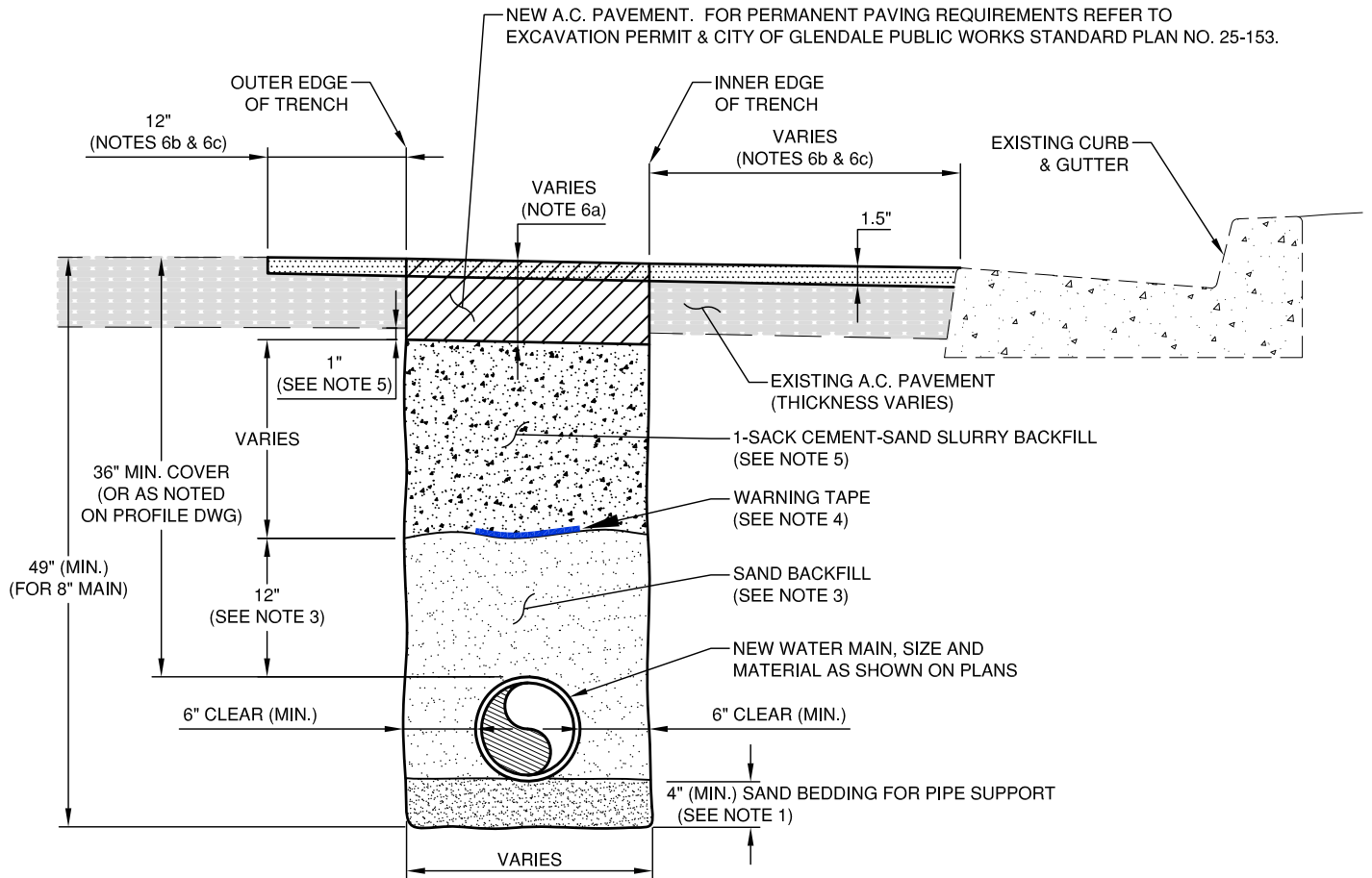
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KR
D: CS
C: KR

SCALE: NONE
DATE: 05/20/2016
APP: GT

SHEET No. 1 OF 2

6722-A



NOTES

- FILL THE BOTTOM OF THE TRENCH WITH SAND TO A DEPTH OF 4-INCHES TO PROVIDE BEDDING FOR THE NEW WATER MAIN.
- INSTALL THE NEW WATER MAIN.
- BACKFILL THE TRENCH WITH BEDDING SAND TO A DEPTH OF 12-INCHES ABOVE THE TOP OF THE NEW WATER MAIN.
- INSTALL CONTINUOUS METALLIC WARNING TAPE ON TOP OF THE BEDDING SAND, CENTERED OVER THE MAIN, TAPE WIDTH EQUAL TO THE PIPE O.D., WITH WORDING "*CAUTION: POTABLE WATER MAIN BELOW*"
- BACKFILL THE REMAINDER OF THE TRENCH WITH CONTROLLED LOW-STRENGTH MATERIAL (CLSM) THAT IS COMPRISED OF A ONE-SACK CEMENT-SAND SLURRY MIX, TO A DEPTH OF 1-INCH BELOW THE BOTTOM OF THE EXISTING PAVEMENT. COVER TRENCH WITH STEEL PLATES.
- RESTORE THE TRENCH WITH ASPHALT-CONCRETE PAVEMENT IN THE FOLLOWING ORDER:
 - BASE PAVE THE TRENCH FLUSH WITH THE EXISTING PAVEMENT SURFACE WITH TYPE 'B' AR-4000 A.C. MIX (PAVEMENT THICKNESS SHALL BE 1" GREATER THAN THE EXISTING PAVEMENT THICKNESS).
 - GRIND A 1.5"-THICK LAYER OF PAVEMENT OVER THE TRENCH AND 12-INCHES FROM EACH EDGE OF THE TRENCH (T-GRIND) OR AS DIRECTED BY THE ENGINEER.
 - PLACE A 1.5"-THICK LAYER OF TYPE 'D' AR-4000 A.C. MIX OVER THE GRINDED AREA.

GLENDAL WATER & POWER CITY OF GLENDALE CALIFORNIA

STANDARD TRENCH FOR NEW WATER MAIN INSTALLATION CASE 2: SLURRY BACKFILL

APPROVED

[Signature]

05/20/2016

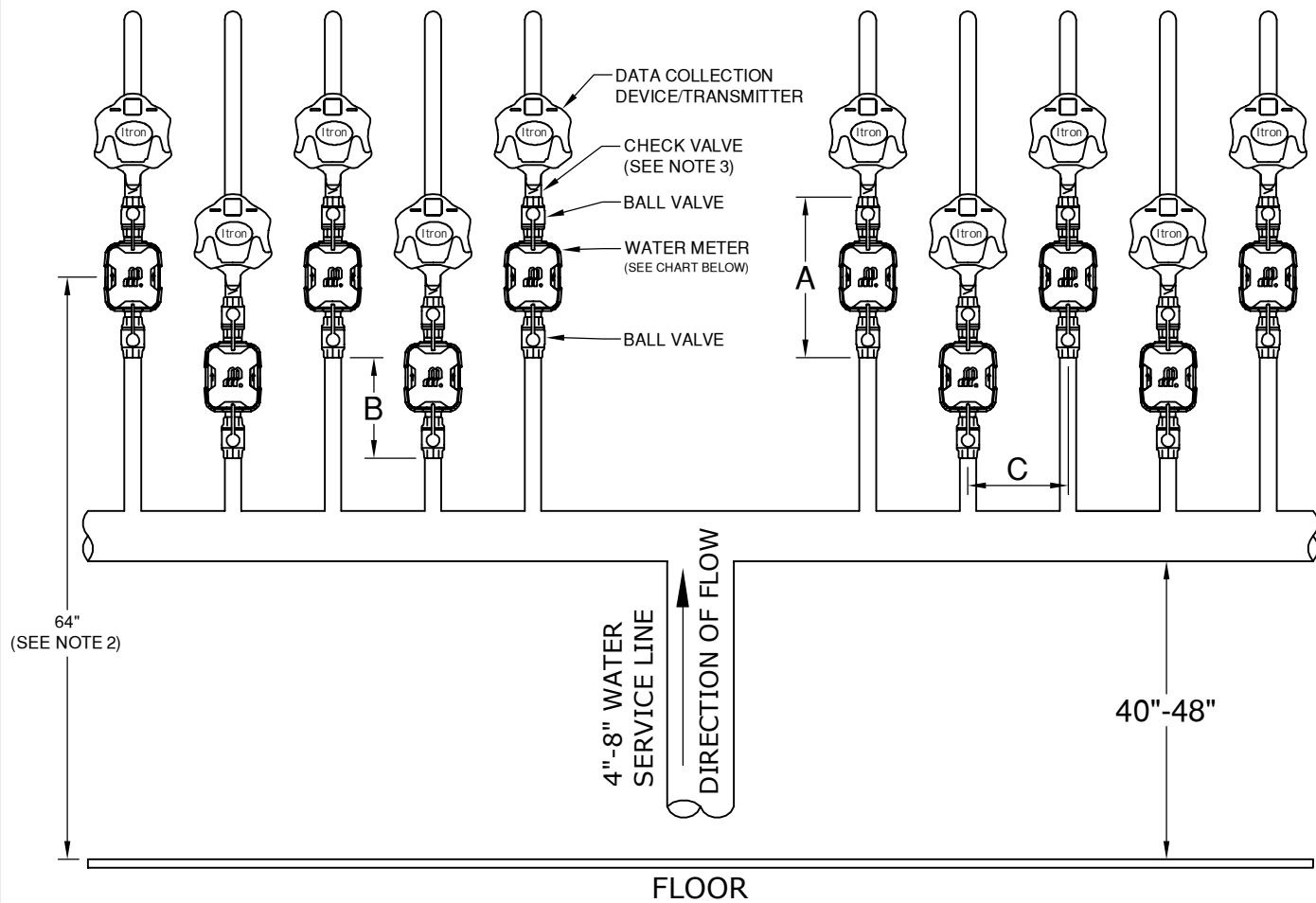
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KR
D: CS
C: KR

SCALE: NONE
DATE: 05/20/2016
APP: GT

SHEET No. 2 OF 2

6722-A



TYPICAL DIMENSIONS

METER SIZE	A	B	C	MATERIAL PROVIDED
5/8"	13 1/4"	6"	6"	(2) 3/4" BALL VALVES, (1) 5/8" WATER METER, (1) TRANSMITTER
3/4"	13 1/4"	6"	6"	(2) 3/4" BALL VALVES, (1) 3/4" WATER METER, (1) TRANSMITTER
1"	18 1/2"	6"	8"	(2) 1" BALL VALVES, (1) 1" WATER METER, (1) TRANSMITTER

NOTES

1. LOCATION OF DATA COLLECTION DEVICE MAY VARY AS REQUIRED FOR SYSTEM COMMUNICATION.
2. METER HEIGHT NOT TO EXCEED 64" TO CENTER OF TOP METER.
3. CHECK VALVE ONLY USED WHEN USING A CENTRAL BOILER SYSTEM.
4. ALL PORTIONS OF MANIFOLD TO BE CONSTRUCTED BY DEVELOPER WITH TYPE "K" COPPER & MALE x COPPER FITTINGS.
5. THESE STANDARDS ONLY APPLY WHEN BADGER WATER METERS ARE USED.

GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA

METER MANIFOLD
SPECIFICATION FOR
OFFSET WALL INSTALLATION

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

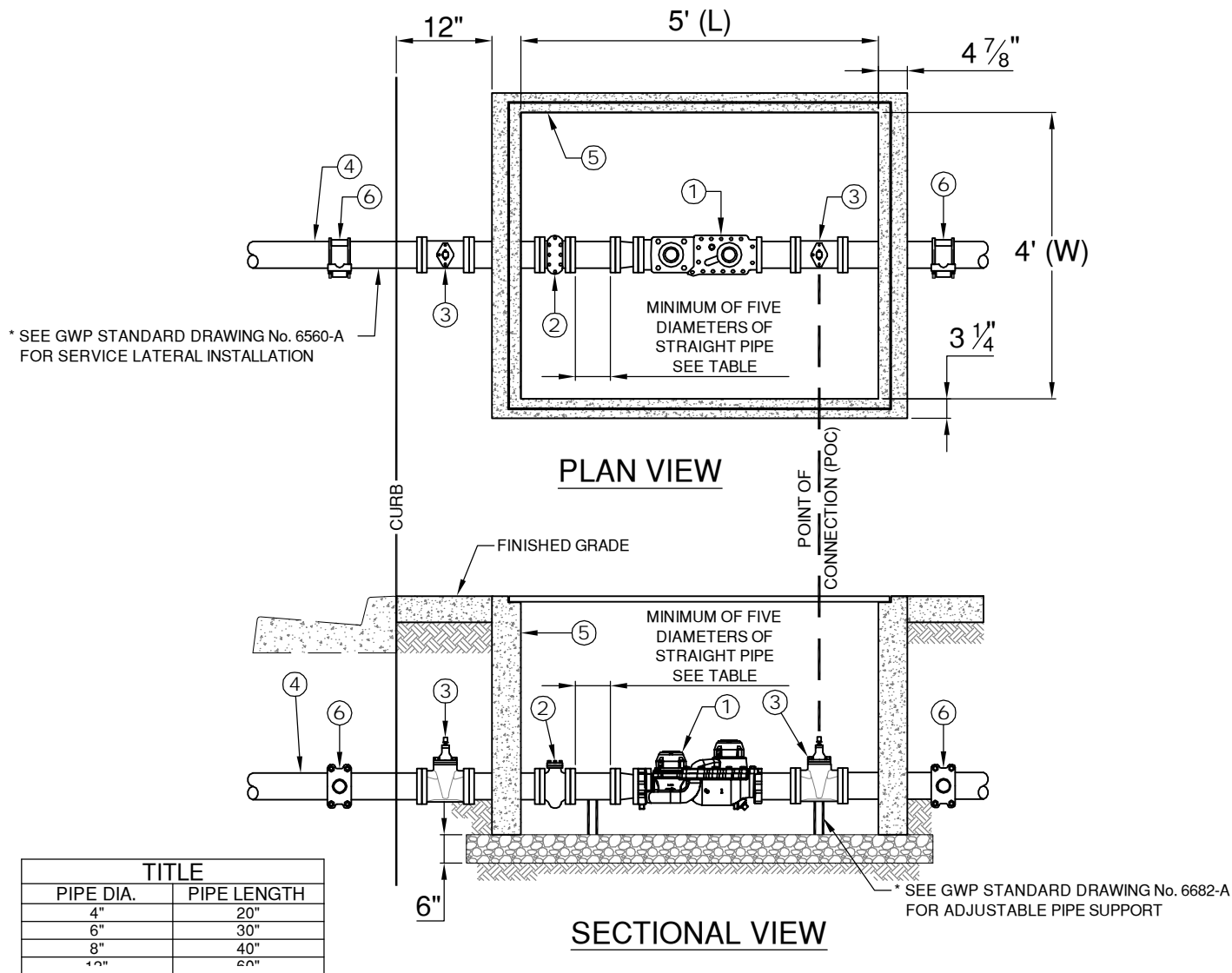
DES: LB/LG
D: G

SCALE: NONE

DATE: 08/14/13
APP:

SHEET No. 1 OF 1

6723-A



NOTES

1. FOR 3" COMPOUND METER INSTALL 4" D.I. PIPE WITH 4" x 3" REDUCER.
2. FOR 6" AND 8" COMPOUND WATER METER AND SERVICE, INSTALL 4' x 8' VAULT. FOR COMPOUND WATER METER AND SERVICES OVER 8", COORDINATE WITH GWP WATER ENGINEERING.

DETAIL	DESCRIPTION
①	COMPOUND WATER METER
②	BRONZE STRAINER
③	RESILIENT WEDGE GATE VALVE, FLG. x FLG. WIT OPERATING NUT
④	D.I. PIPE SPOOL
⑤	ARMORCAST VAULT. SEE GWP STD. DWG. No. 6683-A. ADJUST VAULT FRAME & COVER TO MEET SIDEWALK & CURB GRADE.
⑥	SERVICE SADDLE FOR D.I.P. PIPE WITH 2" FEMALE I.P. THREADS

* ACCOMPANY STANDARD 6560-A, 6682-A, 6683-A, 6685-A

**GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA**

**4" OR GREATER COMPOUND
WATER METER & SERVICE**

APPROVED

[Signature]

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

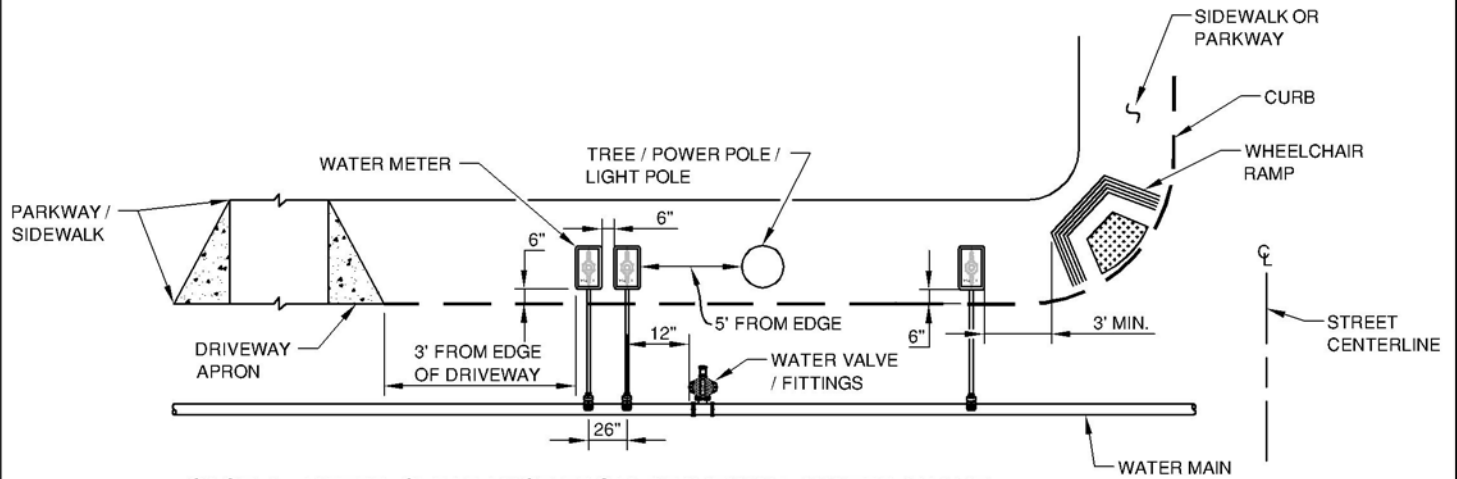
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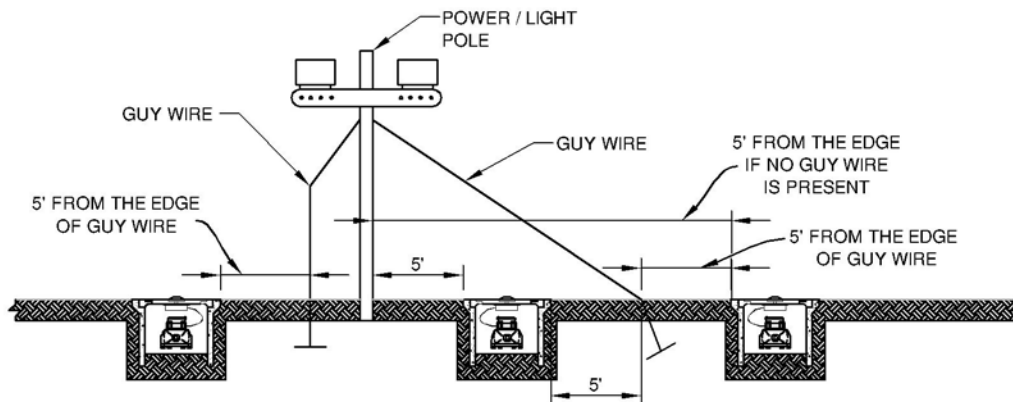
DATE: 07/01/14
APP:

SHEET No. 1 OF 1

6724-A



CASE 1: METER CLEARANCE FROM DRIVEWAY, WATER VALVE, TREE, POWER POLE, LIGHT POLE AND WHEELCHAIR



CASE 2: METER CLEARANCE FROM GUY WIRE AND POLE

NOTES

1. A MINIMUM 5'-0" HORIZONTAL CLEARANCE IS REQUIRED FROM EDGE OF WATER FACILITY TO EDGE OF TREE TRUNK, POWER POLE, LIGHT POLE AND /OR GUY WIRE.
2. A MINIMUM 3'-0" HORIZONTAL CLEARANCE IS REQUIRED FROM EDGE OF WATER FACILITY TO EDGE OF WHEELCHAIR RAMP AND/OR DRIVEWAY.
3. A MINIMUM 12" HORIZONTAL CLEARANCE IS REQUIRED FROM CENTER OF WATER SERVICE TAP TO EDGE OF WATER VALVE AND/OR FITTINGS.
4. A MINIMUM 26" HORIZONTAL CLEARANCE IS REQUIRED FROM CENTER OF WATER SERVICE TAP TO CENTER OF ADDITIONAL WATER SERVICE TAP.
5. A MINIMUM 6" HORIZONTAL CLEARANCE IS REQUIRED BETWEEN EDGES OF WATER FACILITIES.
6. A MINIMUM 6" HORIZONTAL CLEARANCE IS REQUIRED FROM EDGE OF WATER FACILITY TO BACK OF THE CURB.

LEGEND

	PROPERTY LINE
	WIDTH
	CENTER LINE
	WATER METER BOX

**GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA**

**STANDARD WATER METER
BOX CLEARANCES**

APPROVED

12/04/2014

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: LB/TV
D: TV
C: GT

SCALE: NONE
DATE: 09/23/14
APP:

SHEET No. 1 OF 1

6728-A

INSTALLATION REQUIREMENTS

1. ALL INSTALLATIONS MUST BE COORDINATED WITH GLENDALE WATER & POWER (GWP). ANY UNAUTHORIZED CONNECTION TO, OR OPERATION OF, A GWP FACILITY MAY BE GROUNDS FOR DENIAL OF WATER SERVICE.
2. BACKFLOW PREVENTION ASSEMBLY (BFP) MUST BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA AND MUST BE INSTALLED IN THEIR ORIGINAL (UNALTERED) MANUFACTURED FORM.
3. THE ASSEMBLY SHALL BE INSTALLED AS CLOSE TO THE METER OR TO THE RIGHT-OF-WAY LINE AS PRACTICAL (SEE STANDARD DRAWING No. 6528-A & 6561-A).
4. THE BFP MUST BE TESTED BY A GWP-AUTHORIZED TESTER PRIOR TO ACTUAL SERVICE (SEE GWP'S APPROVED TESTER LIST).
5. ANY UNAUTHORIZED CONNECTION TO A BFP WILL RESULT IN DISCONNECTION OF SAID CONNECTIONS AND POSSIBLE SHUT OFF OF WATER SERVICE.
6. PLEASE CONTACT (818) 937-8948 FOR APPROVAL OF BFP INSTALLATION LOCATION PER CA CODE OF REGULATIONS, TITLE 17 & CITY OF GLENDALE ORD. No. 5678.
7. FOR A LIST OF APPROVED BFP, PLEASE CONTACT (818) 937-8948. NEW DEVICES MUST BE INSPECTED BY GWP AND TESTED BY LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH CERTIFIED BACKFLOW TESTER IMMEDIATELY UPON INSTALLATION BEFORE WATER SERVICE IS APPROVED.
8. ACCORDING TO CALIFORNIA AND GLENDALE CITY CODE AND REGULATIONS, ALL COMMERCIAL FIRE SERVICES AND IRRIGATION SERVICES WILL REQUIRE SOME FORM OF BACKFLOW PREVENTION SYSTEM TO PROTECT THE POTABLE WATER SYSTEM. PLEASE BE SURE TO THOROUGHLY REVIEW GWP STANDARD DRAWINGS. (SEE STANDARD DRAWINGS 6528-A & 6561-A)
9. ALL BFP SHALL BE LOCATED AS CLOSE AS PRACTICAL TO THE USER'S CONNECTION. THEY WILL BE INSTALLED A MINIMUM OF TWELVE INCHES (12") AND NOT MORE THAN THIRTY SIX INCHES (36") ABOVE FINISHED STREET GRADE MEASURED FROM THE BOTTOM OF THE DEVICE. A MINIMUM OF TWELVE INCHES (12") SIDE CLEARANCE, AND TWENTY-FOUR INCHES (24") FRONT CLEARANCE, LOCATED WHERE IT IS READILY ACCESSIBLE FOR INSPECTION, TESTING AND MAINTENANCE.

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**INSTALLATION REQUIREMENTS FOR
BACKFLOW PREVENTION
ASSEMBLY DEVICE (BFP)**

APPROVED



07/14/2015

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB
D: GR/PN
C:

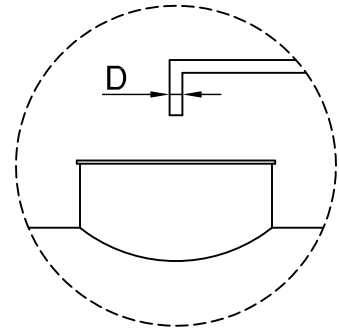
SCALE: NONE
DATE: 07/14/15
APP:

SHEET No. 1 OF 1

6762-A

SEE DETAIL

D - GAP MUST BE AT LEAST
TWICE THE DIAMETER OF PIPE.



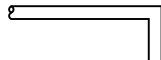
DETAIL

12" MIN.
36" MAX.

SEE DETAIL

FLEX HOSE NOT TO EXCEED
12 FEET IN LENGTH

FILL PIPE



RECEIVING TANK OR POND

GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA

AIR GAP DETAILS

APPROVED

07/14/2015

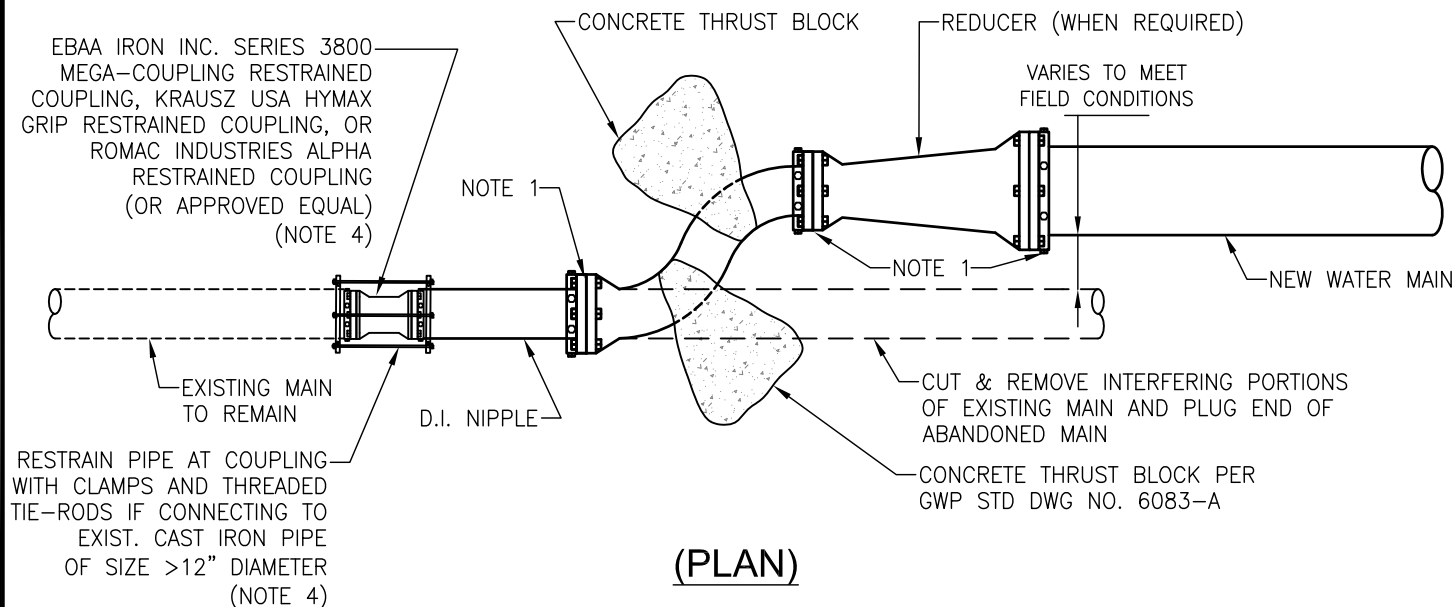
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: LB
D: GR
C:

SCALE: NONE
DATE: 07/14/15
APP:

SHEET No. 1 OF 1

6763-A



NOTES

1. ALL JOINTS SHALL BE MECHANICAL TYPE JOINTS (MJ) AND SHALL BE RESTRAINED WITH MEGALUG SERIES 1100 "MECHANICAL JOINT RESTRAINT".
2. OFFSETS MAY BE SUBSTITUTED FOR BENDS (AS SHOWN) WHEN APPROVED BY THE ENGINEER.
3. SIZE OF PIPE & FITTINGS SHALL CORRESPOND TO PIPE SIZES AND TYPE SHOWN ON THE PLAN.
4. TO CONNECT PIPES WITH DIFFERENT O.D. USE SMITH BLAIR 441 TRANSITION COUPLING (POTHOLE TO GET O.D. FIRST) AND PIPE RESTRAINING SYSTEM WITH CLAMP AND THREADED TIE RODS PER GWP STD DWG NO. 1667-A.
5. THE CONTRACTOR SHALL PROVIDE ALL PIPE NIPPLES, FITTINGS AND COUPLING ADAPTERS AS NECESSARY TO COMPLETE THE TIE-IN IN THE FIELD. (NO CHANGE ORDER IS ALLOWED).

GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA

TYPICAL TIE-IN DETAIL
(NEW MAIN TO EXISTING MAIN)

APPROVED

08/13/15

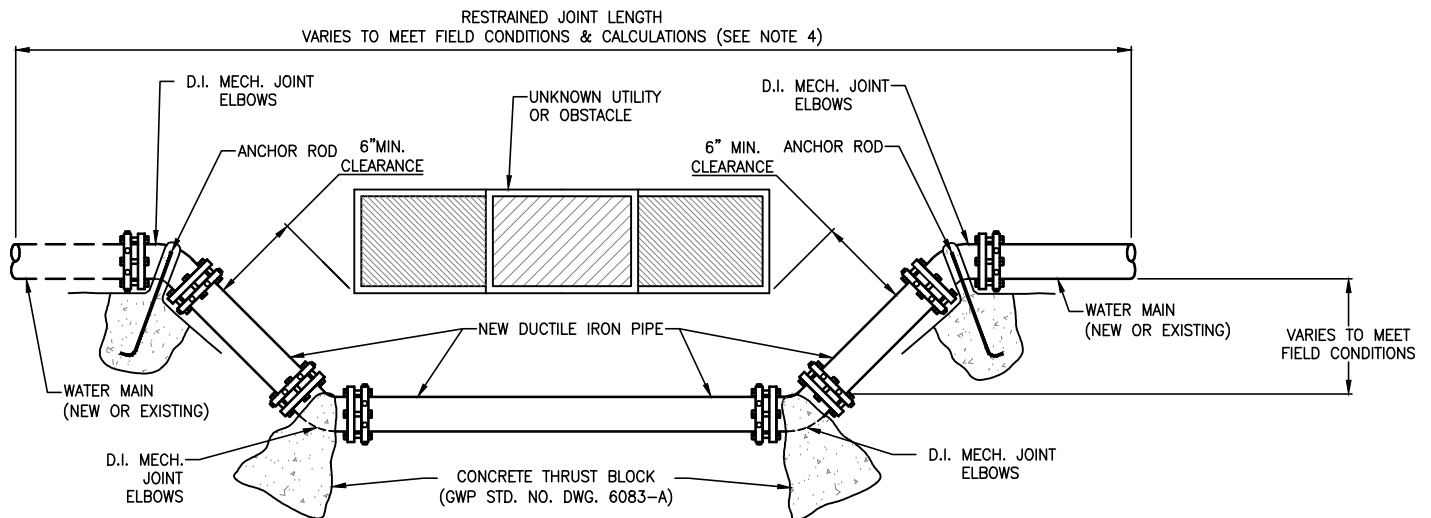
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KR
D: CS
C: GT

SCALE: NONE
DATE: 08/13/15
APP: -

SHEET No. 1 OF 1

6770-A



NOTES

1. ELBOW FITTINGS SHALL BE OF DUCTILE IRON MATERIAL AND A MECHANICAL JOINT TYPE (MJ) RESTRAINED WITH MEGALUG SERIES 1100 MECHANICAL JOINT RESTRAINTS.
2. OFFSETS MAY BE SUBSTITUTED FOR BENDS AS SHOWN WHEN APPROVED BY THE ENGINEER.
3. SIZE OF PIPE & FITTINGS SHALL CORRESPOND TO PIPE SIZES AND TYPE SHOWN ON THE PLANS.
4. REQUIRED RESTRAINED LENGTH SHALL BE CALCULATED AND SUBMITTED TO G.W.P. FOR APPROVAL.

GLENDALÉ WATER & POWER
CITY OF GLENDALÉ
CALIFORNIA

PIPE ASSEMBLY FOR
CLEARING AN OBSTRUCTION

APPROVED

05/12/16

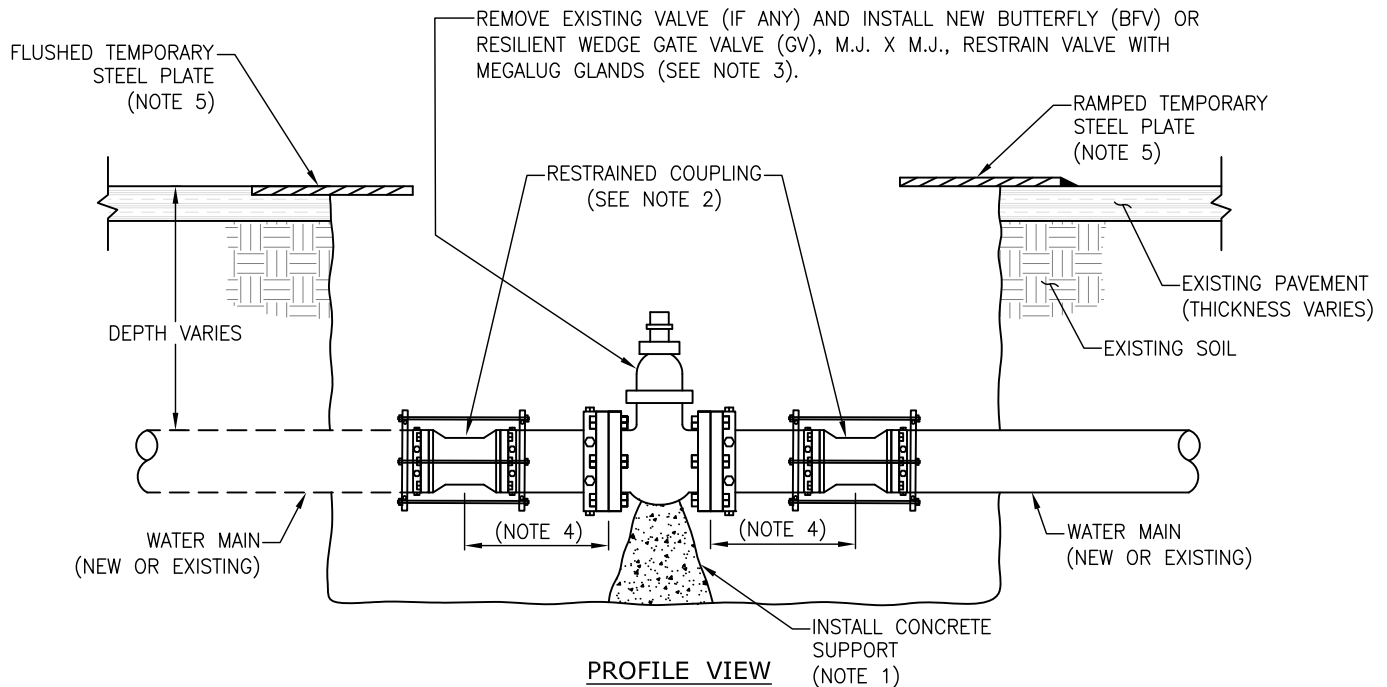
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALÉ WATER AND POWER - WATER DEPARTMENT

DES: KR
D: CS
C: GT

SCALE: NONE
DATE: 05/12/16
APP: -

SHEET No. 1 OF 1

6771-A



NOTES

1. PROVIDE SUPPORT UNDER PIPE AS REQUIRED PER GWP STD DWG NO. 6083-A.
2. CONNECT PIPES WITH EBAA IRON INC. SERIES 3800 MEGA-COUPLING RESTRAINED COUPLING, KRAUSZ USA HYMAX GRIP RESTRAINED COUPLING, OR ROMAC INDUSTRIES ALPHA RESTRAINED COUPLING (OR APPROVED EQUAL). IF CONNECTING TO EXISTING CAST IRON PIPE OF SIZE >12" DIAMETER, THEN RESTRAIN PIPE AT COUPLING WITH CLAMPS AND THREADED TIE-RODS.
3. REFER TO PLANS & SPECIFICATION FOR SIZE & TYPE OF VALVE. PROVIDE VALVE BOX, COVER AND ADJUSTABLE SLEEVE PER STANDARD DRAWING 1588-A, 1589-A AND 1590-A FOR NEW VALVE.
4. MINIMUM DISTANCE FROM VALVE FLANGE TO COUPLING CENTER SHALL BE 2' FOR 8" PIPE AND SMALLER, 3' FOR 12" AND LARGER PIPE.
5. GRIND PAVEMENT TO KEEP PLATE FLUSH WITH PAVEMENT SURFACE ON ALL ARTERIAL & COLLECTOR STREETS. RAMP THE STEEL PLATE USING ASPHALT FOR ALL RESIDENTIAL STREETS, OR AS DIRECTED BY THE ENGINEER.

*ACCOMPANYING GWP STD. DWG. No.'s 1588-A, 1589-A, 1590-A & 6071-A

**GLENDAL WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

**TYPICAL VALVE REPLACEMENT OR NEW
INSTALLATION ON NEW OR EXISTING
WATER MAIN**

APPROVED

08/24/15

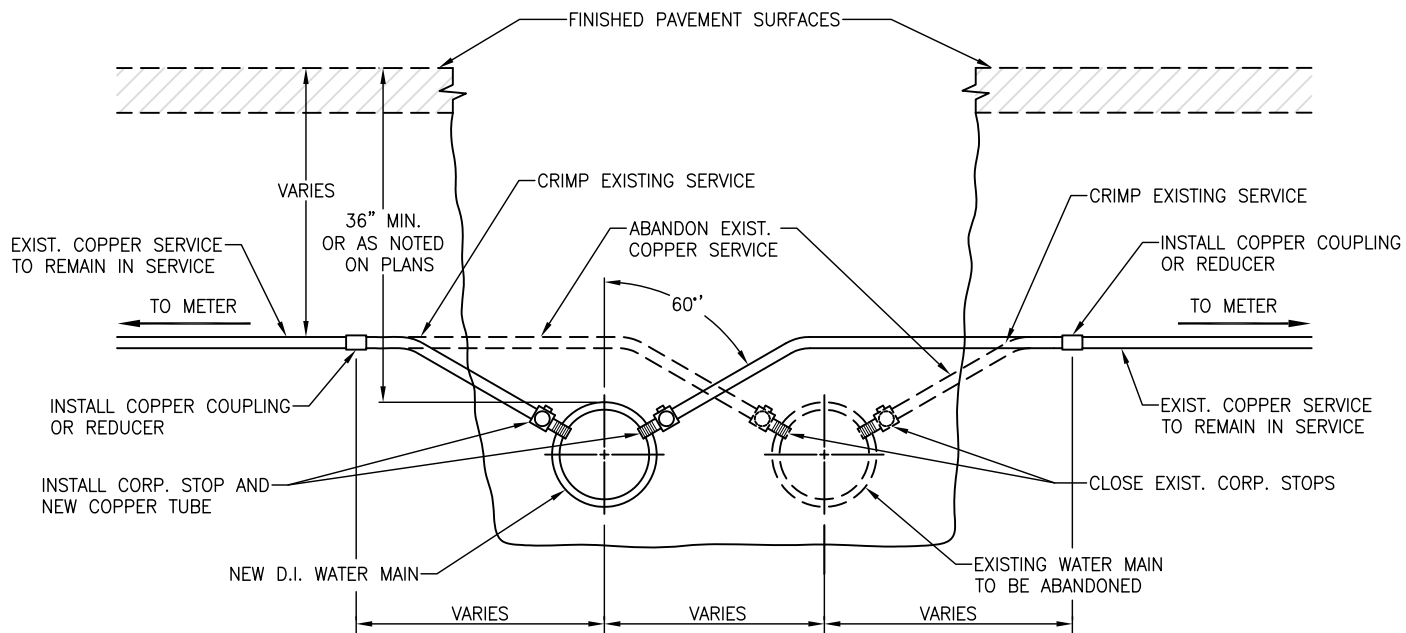
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KR
D: CS
C: GT

SCALE: NONE
DATE: 08/24/15
APP: -

SHEET No. 1 OF 1

6772-A



NOTES

1. A SERVICE CLAMP IS REQUIRED FOR ALL NEW SERVICE TAPS.
2. ALL SERVICE SIZES AND MATERIAL TYPES TO BE FIELD VERIFIED BY CONTRACTOR.

GLENDAL WATER & POWER
CITY OF GLENDAL
CALIFORNIA

TYPICAL COPPER TUBE SERVICE
RECONNECTION TO NEW MAIN

APPROVED

08/1315

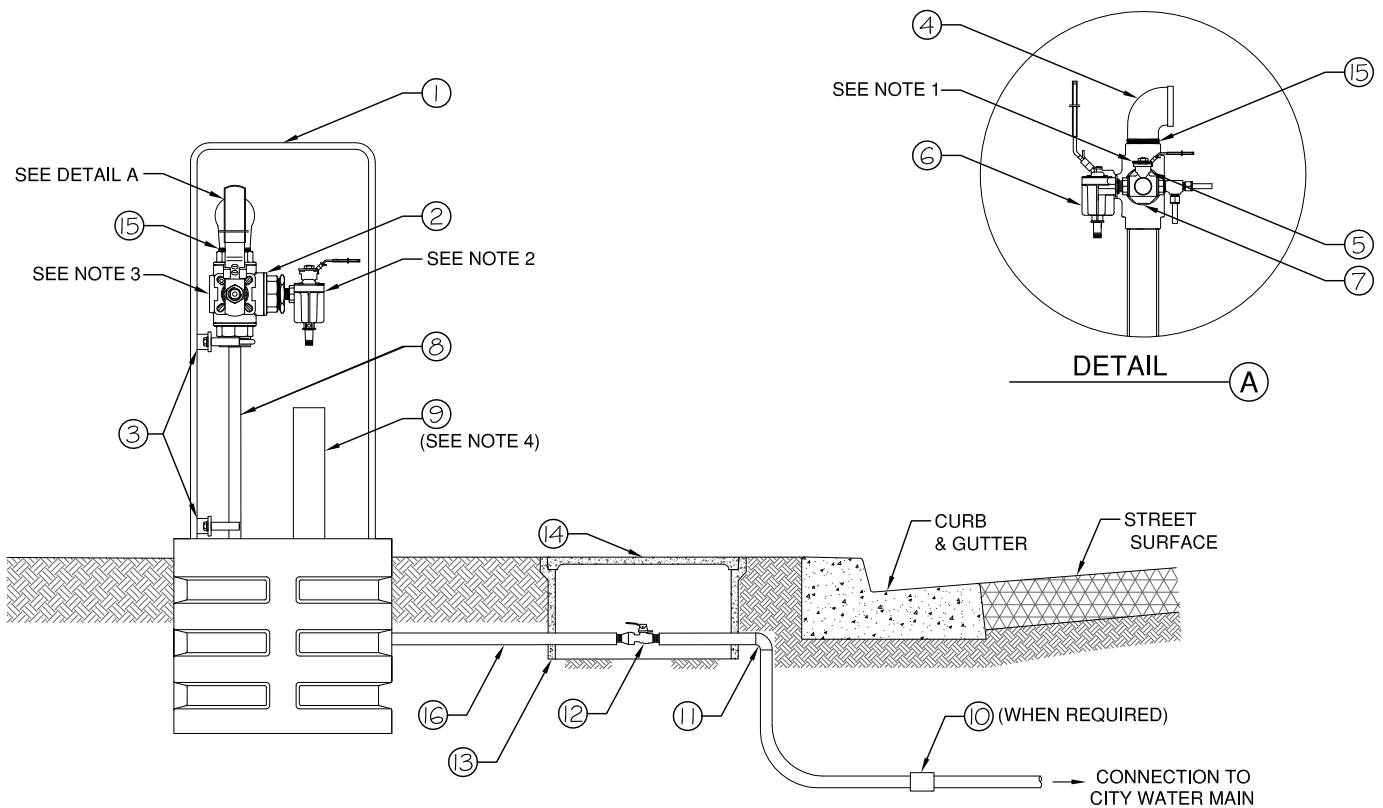
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDAL WATER AND POWER - WATER DEPARTMENT

DES: KR
D: CS
C: GT

SCALE: NONE
DATE: 08/13/15
APP: -

SHEET No. 1 OF 1

6773-A



NOTES

1. 3-WAY SAMPLING VALVE SHOWN IN THE FREEZE PROTECTION POSITION.
2. 3-WAY SAMPLING VALVE SHOWN IN THE SAMPLING POSITION.
3. MAIN 1" BLOW-OFF VALVE SHOWN IN THE FREEZE PROTECTION POSITION.
4. A DRAIN SHALL BE INSTALLED TO ALLOW THE FREEZE PROTECTION VALVE TO DRAIN BELOW THE FROST LINE.
 - 20°F - APPROXIMATELY 13 GALLONS PER DAY
 - 10°F - APPROXIMATELY 42 GALLONS PER DAY

DETAIL	DESCRIPTION	DETAIL	DESCRIPTION
①	UV RESISTANT LOCKABLE LID	⑨	3" MIN. DRAIN
②	1" 3-WAY BALL VALVE	⑩	1" WROUGHT COPPER COUPLING, OR PROPRESS
③	MOUNTING BRACKET	⑪	1" x 90° CAST BRONZE ELBOW, OR PROPRESS
④	1" DISCHARGE	⑫	1" CAST BRONZE BALL VALVE, F.I.P. OR SWIVEL
⑤	SAMPLING POINT	⑬	ARMORCAST No. AG000485 (GLENDALE No. 4) BOX
⑥	FREEZE PROTECTION VALVE	⑭	ARMORCAST No. AG000484 BOX COVER
⑦	1/2" 3-WAY BALL VALVE	⑮	THREAD 10-32 DRAIN HOLE
⑧	1" WATERWAY	⑯	1" ANNEALED COPPER TUBE TYPE K IN 60 FEET COILS

* ACCOMPANYING GWP STD. DWG. No. 1660-A-1

**GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA**

1" SAMPLING STATION

APPROVED

7/27/16

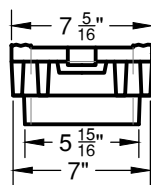
GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: LB
D: PN
C: GT

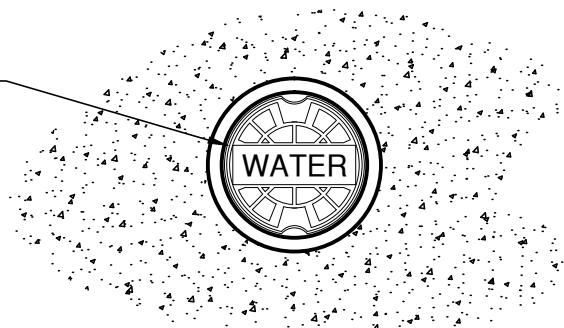
SCALE: NONE
DATE: 7/27/16
APP:

SHEET No. 1 OF 1

6807-A



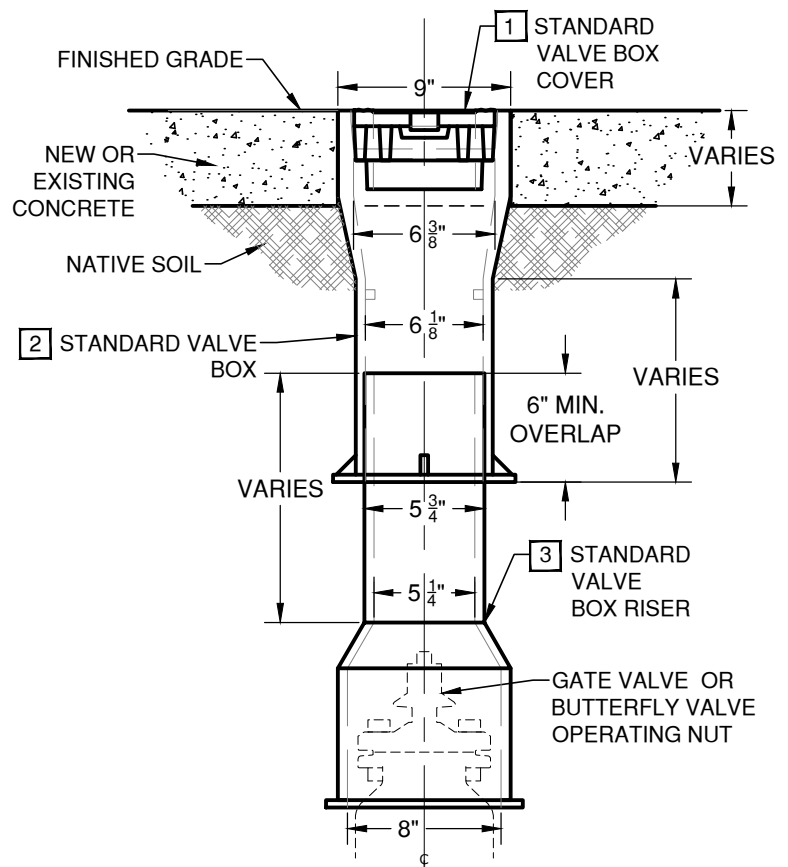
1 STANDARD VALVE BOX COVER



PLAN VIEW - CASE 1

CASE 1: VALVE INSTALL IN CONCRETE HARDSCAPE

1. APPLIES TO ALL VALVE INSTALLATIONS FALLING WITHIN THE FOOTPRINT OF NEW OR EXISTING CONCRETE.
2. VALVE BOX AND LID SHALL BE INSTALLED TO FINISHED GRADE OF SURROUNDING CONCRETE.
3. IF SPECIFIED MAKE AND MODEL ARE NOT AVAILABLE FOR VALVE BOX COVER, VALVE BOX OR VALVE RISER, A DOMESTICALLY-MANUFACTURED SUBSTITUTE SHALL BE PRESENTED TO THE GWP WATER ENGINEER* FOR APPROVAL.
4. ALL CONCRETE USED AROUND THE VALVE BOX SHALL CONFORM TO THE CONCRETE MIX DESIGN AS REQUIRED BY THE LATEST GREENBOOK STANDARD FOR THE SPECIFIC AREA WHERE THE WORK OCCURS.
5. USE GWP STANDARD DWG NO. 1590-A FOR WATER VALVE BOX INSTALLATIONS IN A.C. PAVEMENT.



SECTIONAL VIEW - CASE 1

CONSTRUCTION NOTES - BOTH CASES

- 1 TYLER UNION 5 1/4" MWW DROP LID WITH LIFTING HOLES, MARKED "WATER". PART # 145370.
- 2 TYLER UNION 6855 SERIES CAST IRON 5 1/4" SHAFT, SLIP TYPE VALVE BOX (TOP PORTION). LENGTH TO BE DETERMINED BASED ON DEPTH OF OPERATING NUT AND VALVE BODY.
- 3 TYLER UNION 6855 SERIES CAST IRON 5 1/4" SHAFT, SLIP TYPE RISER (BOTTOM PORTION). LENGTH TO BE DETERMINED BASED ON DEPTH OF OPERATING NUT AND VALVE BODY.

*GWP WATER ENGINEERING DEPARTMENT: (818) 548-2062

APPROVED

08/30/2107

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA

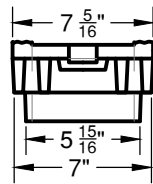
STANDARD WATER VALVE
BOX - CASE 1 (CONCRETE)

DES: CJ
D: CJ
C: GT

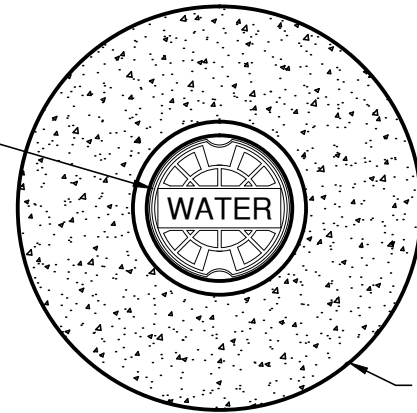
SCALE: NONE
DATE: 08/30/2017
APP: GT

SHEET No. 1 OF 2

6854-A



1 STANDARD VALVE BOX COVER

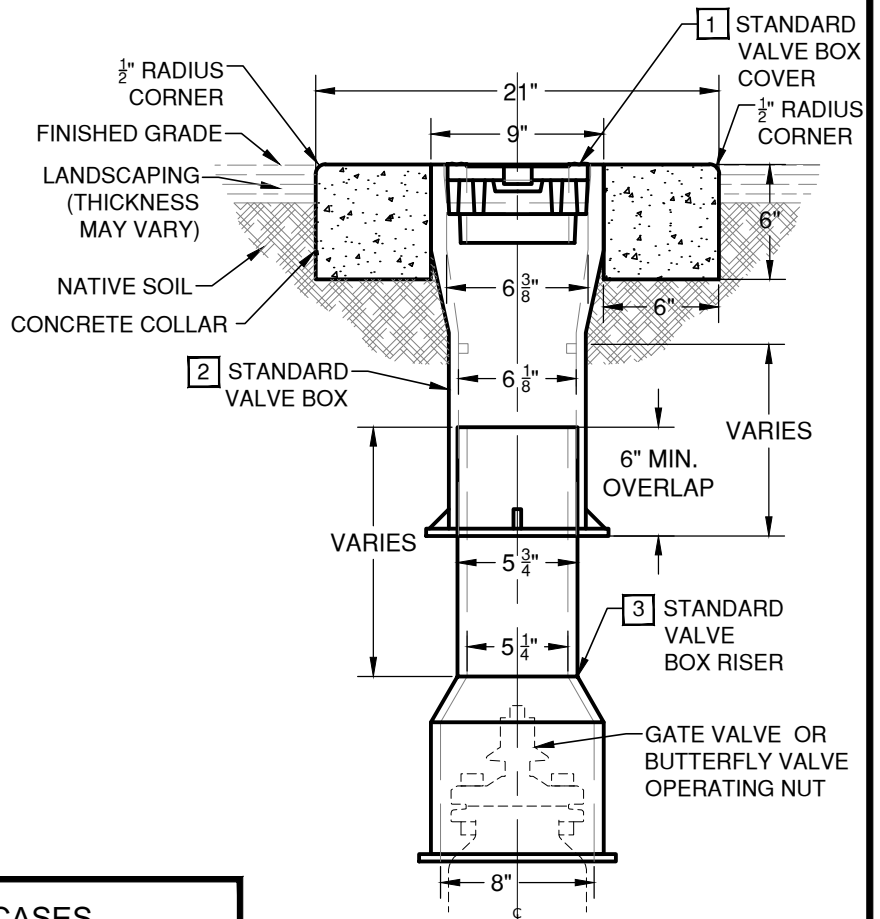


21" DIA. CONCRETE COLLAR

PLAN VIEW - CASE 2

CASE 2: VALVE INSTALL IN SOFTSCAPE

1. APPLIES TO ALL LANDSCAPED OR BARE-EARTH VALVE INSTALLATIONS.
2. VALVE BOX AND LID SHALL BE INSTALLED TO FINISHED GRADE ELEVATION OF SURROUNDING SOFTSCAPE.
3. VALVE BOX SHALL HAVE A CIRCULAR CONCRETE APRON INSTALLED AT 21" O.D. X 9" I.D., TO A DEPTH OF 6" AROUND THE VALVE BOX. THE CONCRETE COLLAR SHALL HAVE $\frac{1}{2}$ " RADIUS EDGES AS SHOWN.
4. IF SPECIFIED MAKE AND MODEL ARE NOT AVAILABLE FOR VALVE BOX COVER, VALVE BOX OR VALVE RISER, A DOMESTICALLY-MANUFACTURED SUBSTITUTE SHALL BE PRESENTED TO THE GWP WATER ENGINEER*.
5. CONCRETE COLLARS SHALL BE CONSTRUCTED USING AN APPROVED CONCRETE MIX CONSISTENT WITH THE LATEST GREENBOOK STANDARD 502-C-2500.
6. USE GWP STD. DWG. NO. 1590-A FOR WATER VALVE INSTALLATIONS IN A.C. PAVEMENT.



SECTIONAL VIEW - CASE 2

CONSTRUCTION NOTES - BOTH CASES

- 1 TYLER UNION 5 $\frac{1}{4}$ " MWW DROP LID WITH LIFTING HOLES, MARKED "WATER". PART # 145370.
- 2 TYLER UNION 6855 SERIES CAST IRON 5 $\frac{1}{4}$ " SHAFT, SLIP TYPE VALVE BOX (TOP PORTION). LENGTH TO BE DETERMINED BASED ON DEPTH OF OPERATING NUT AND VALVE BODY.
- 3 TYLER UNION 6855 SERIES CAST IRON 5 $\frac{1}{4}$ " SHAFT, SLIP TYPE RISER (BOTTOM PORTION). LENGTH TO BE DETERMINED BASED ON DEPTH OF OPERATING NUT AND VALVE BODY.

*GWP WATER ENGINEERING DEPARTMENT: (818) 548-2062

APPROVED

[Signature]

08/30/2107

GERALD TOM, SENIOR CIVIL ENGINEER, R.C.E. No. C51209 DATE
GLENDALE WATER AND POWER - WATER DEPARTMENT

DES: CJ
D: CJ
C: GT

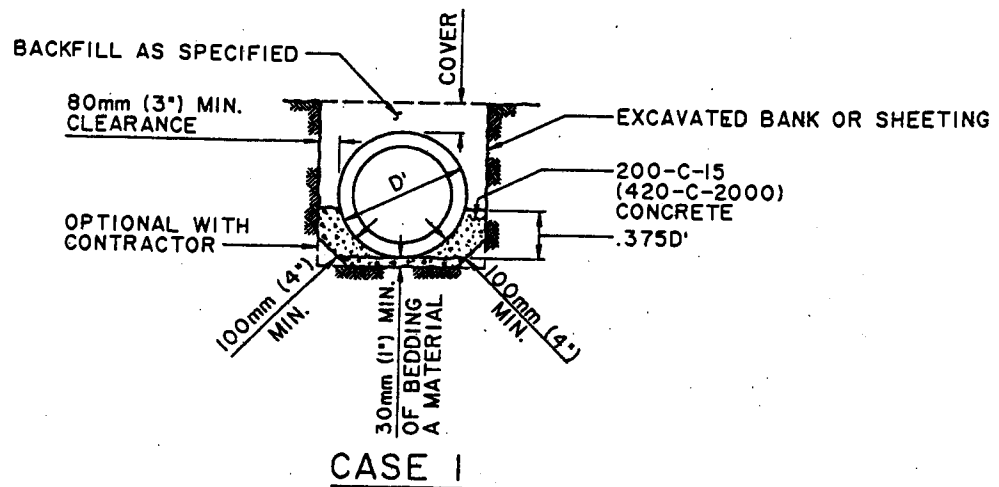
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DATE: 08/30/2017
APP: GT

SHEET No. 2 OF 2

6854-A

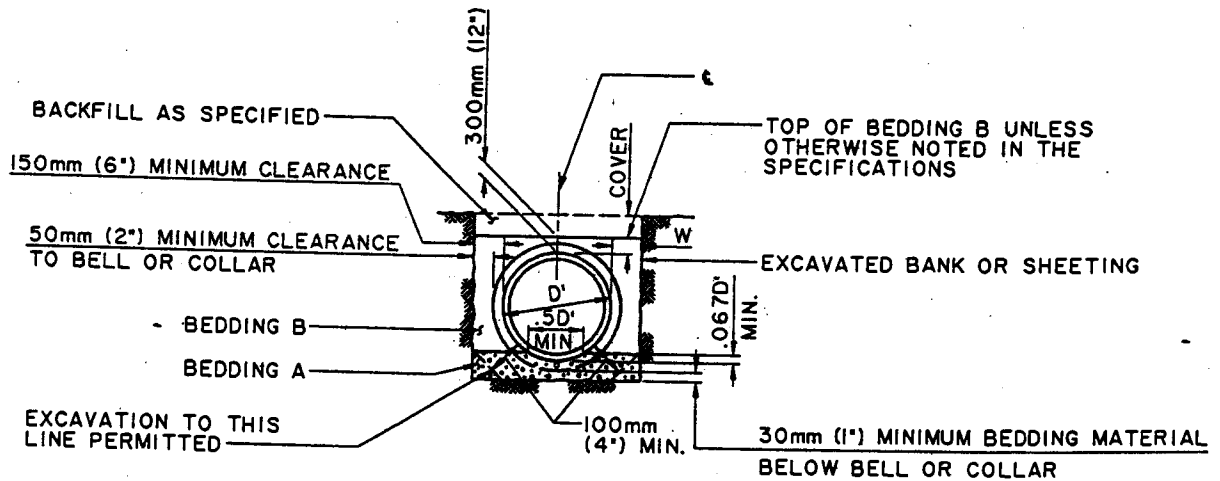
GLENDALE WATER & POWER
CITY OF GLENDALE
CALIFORNIA

STANDARD WATER VALVE
BOX - CASE 2 (SOFTSCAPE)



NOTE:

CASE 1 BEDDING (LOAD FACTOR 2.1) SHALL BE USED WHERE SPECIFIED ON PROJECT DRAWINGS OR WHERE REQUIRED AS AN ALTERNATIVE TO CASE 2 OR CASE 3 BEDDING AS PROVIDED HEREON AND ON SH. 2. CASE 4 BEDDING SHALL BE USED INSTEAD OF CASE 1 AGAINST SHEETING OR UNSTABLE TRENCH SIDES IF SO REQUIRED BY THE ENGINEER.



CASE 2
VITRIFIED CLAY AND PLAIN CONCRETE PIPE

NOTES:

- CASE 2 BEDDING & BACKFILL AROUND PIPE (LOAD FACTOR 1.8)
- (a) W AT SPRING LINE SHALL NOT BE LESS THAN 150mm (6") FOR ANY DEPTH OF TRENCH. THIS DIMENSION MAY INCLUDE THE THICKNESS OF ANY SHEETING.
 - (b) WHERE COVER IS 2.5m (8'-0") OR LESS, W MEASURED AT TOP OF PIPE MAY BE ANY DIMENSION GREATER THAN 150mm (6").
 - (c) WHERE COVER IS GREATER THAN 2.5m (8'-0"), W MEASURED AT TOP OF PIPE SHALL NOT BE GREATER THAN 200mm (8") UNLESS THE CONTRACTOR AT HIS OWN EXPENSE PROVIDES CASE 1 BEDDING OR STRONGER PIPE. THE STATED 200mm (8") INCLUDES THE THICKNESS OF ANY SHEETING.
 - (d) SCREED BEDDING A TO FIT CURVATURE AND GRADE OF PIPE. TYPE OF SCREED AND THE METHOD OF USE TO BE APPROVED BY THE ENGINEER.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

PIPE BEDDING IN TRENCHES

STANDARD PLAN
METRIC

APPROVED

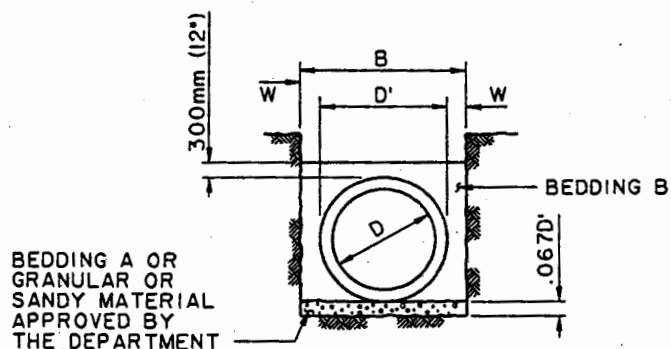
Thomas A. Gilmanson
DIRECTOR OF PUBLIC WORKS

5/31/1992
DATE

1995, 1999

REVISIONS

3080-2
SHEET 1 OF 3



CASE 6

NOTES

1. USE CASE 3 FOR RCP, CASE 2 FOR VITRIFIED CLAY, PLASTIC AND PLAIN CONCRETE PIPE UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE PROJECT DRAWINGS.
2. FOR RCP 675mm (27") IN DIAMETER AND LARGER, BEDDING A SHALL BE COMPOSED OF SAND, 20mm (3/4") OR 15mm (1/2") CRUSHED ROCK, 5mm (NO.3 OR 4) CONCRETE AGGREGATE OR GRAVEL OR OTHER GRANULAR MATERIAL AS SPECIFIED AND SHALL HAVE A SAND EQUIVALENT VALUE OF NOT LESS THAN 20 UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. WHERE RCP SMALLER THAN 675mm (27") IN DIAMETER IS USED, THE REQUIREMENTS IN NOTE 2 SHALL BE MET EXCEPT THAT A GRADATION COARSER THAN 4.75mm (NO.4) CONCRETE AGGREGATE OR NO COARSER THAN 15mm (1/2") CRUSHED ROCK SHALL BE USED.
4. BEDDING B SHALL BE COMPOSED OF SAND OR OTHER GRANULAR MATERIAL AND SHALL HAVE A SAND EQUIVALENT VALUE NOT LESS THAN 20 AS SPECIFIED IN SUBSECTION 306-1.2.1 AS AMENDED UNLESS OTHERWISE APPROVED BY THE ENGINEER AND SHALL BE COMPLETED PRIOR TO PLACING THE BALANCE OF THE BACKFILL. THE MAXIMUM ROCK SIZE FOR BEDDING B SHALL BE 100mm (4") IN THE GREATEST DIMENSION. NESTING OF ROCKS WILL NOT BE PERMITTED.
5. UNLESS SPECIFIED ON THE PROJECT DRAWINGS, CONCRETE SHALL BE 200-C-15 (420-C-2000).
6. CONCRETE BACKFILL SHALL BE POURED FROM WALL TO WALL OF THE TRENCH AND FROM THE BOTTOM OF THE TRENCH TO A MINIMUM DEPTH OF 100mm (4") OVER THE TOP OF THE PIPE.
7. CONCRETE BACKFILL SHALL BE PROVIDED FOR RCP 525mm (21") IN DIAMETER OR LESS WHERE THE COVER IS EQUAL TO OR LESS THAN 600mm (24"), FOR RCP GREATER THAN 525mm (21") IN DIAMETER BUT LESS THAN 975mm (39") WHERE THE COVER IS LESS THAN 375mm (15") AND FOR RCP 975mm (39") OR GREATER WHERE THE COVER IS LESS THAN 300mm (12"). CONCRETE BACKFILL SHALL BE IN ACCORDANCE WITH NOTES 5 AND 6.
8. 3-EDGE BEARING TEST LOAD FACTOR = 1.0.
9. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACT EQUAL VALUES. IF METRIC VALUES ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH UNITS.

NOTES:

CASE 6 BEDDING (LOAD FACTOR 1.5)

(a)

NOTES (a), (b), AND (c) FROM CASE 3 SHALL APPLY.

(b)

WHERE SUBGRADE IS COMPOSED OF OTHER THAN GRANULAR OR SANDY MATERIAL, THE TRENCH SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 80mm (3") BELOW THE PIPE AND BACKFILLED WITH A BEDDING MATERIAL OR OTHER MATERIALS AS MAY BE SPECIFIED OR OTHERWISE APPROVED BY THE DEPARTMENT.

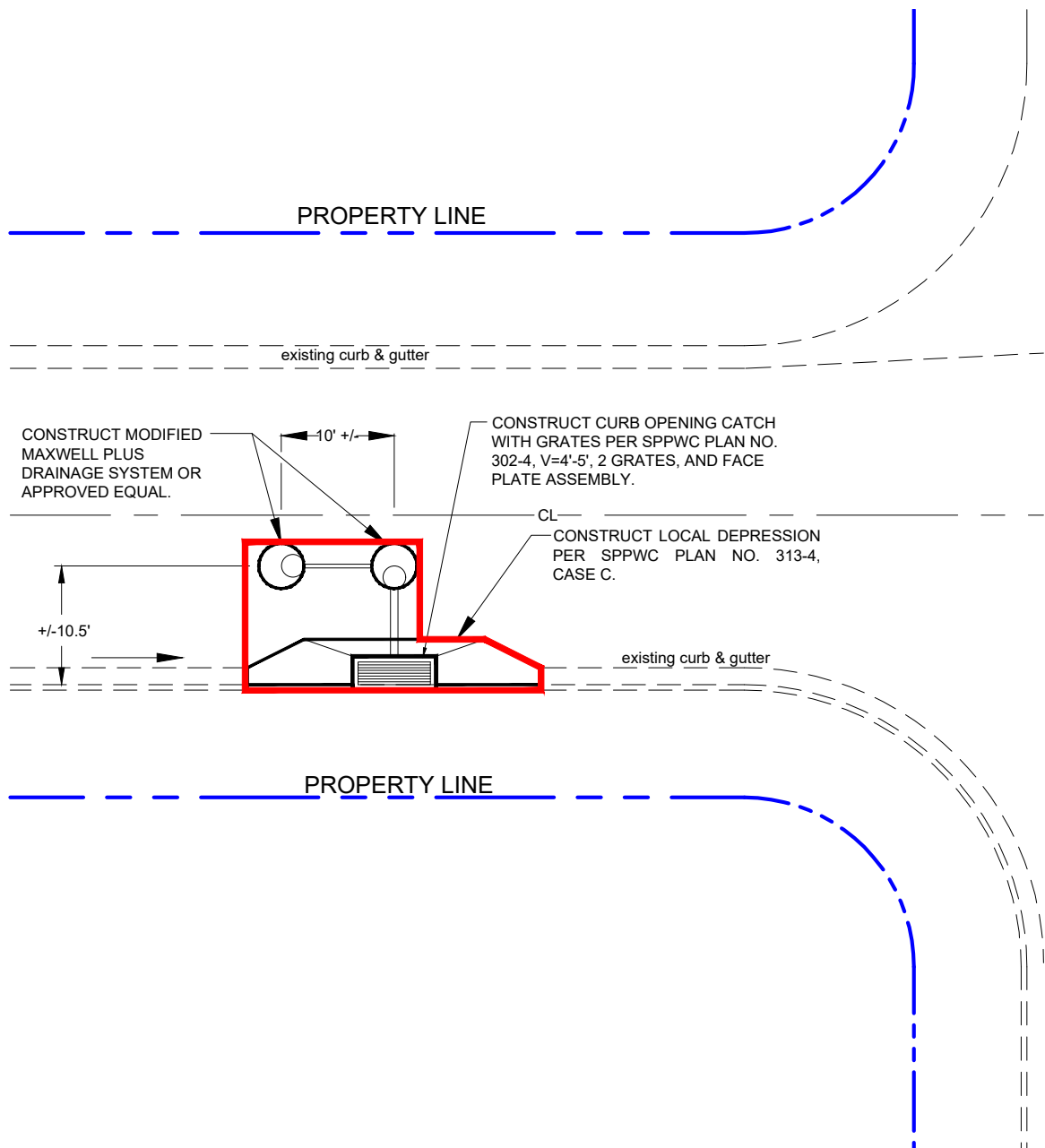
LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

PIPE BEDDING IN TRENCHES

STANDARD PLAN
METRIC

3080-2

SHEET 3 OF 3



DRYWELL SYSTEM AND CATCH BASIN DETAIL

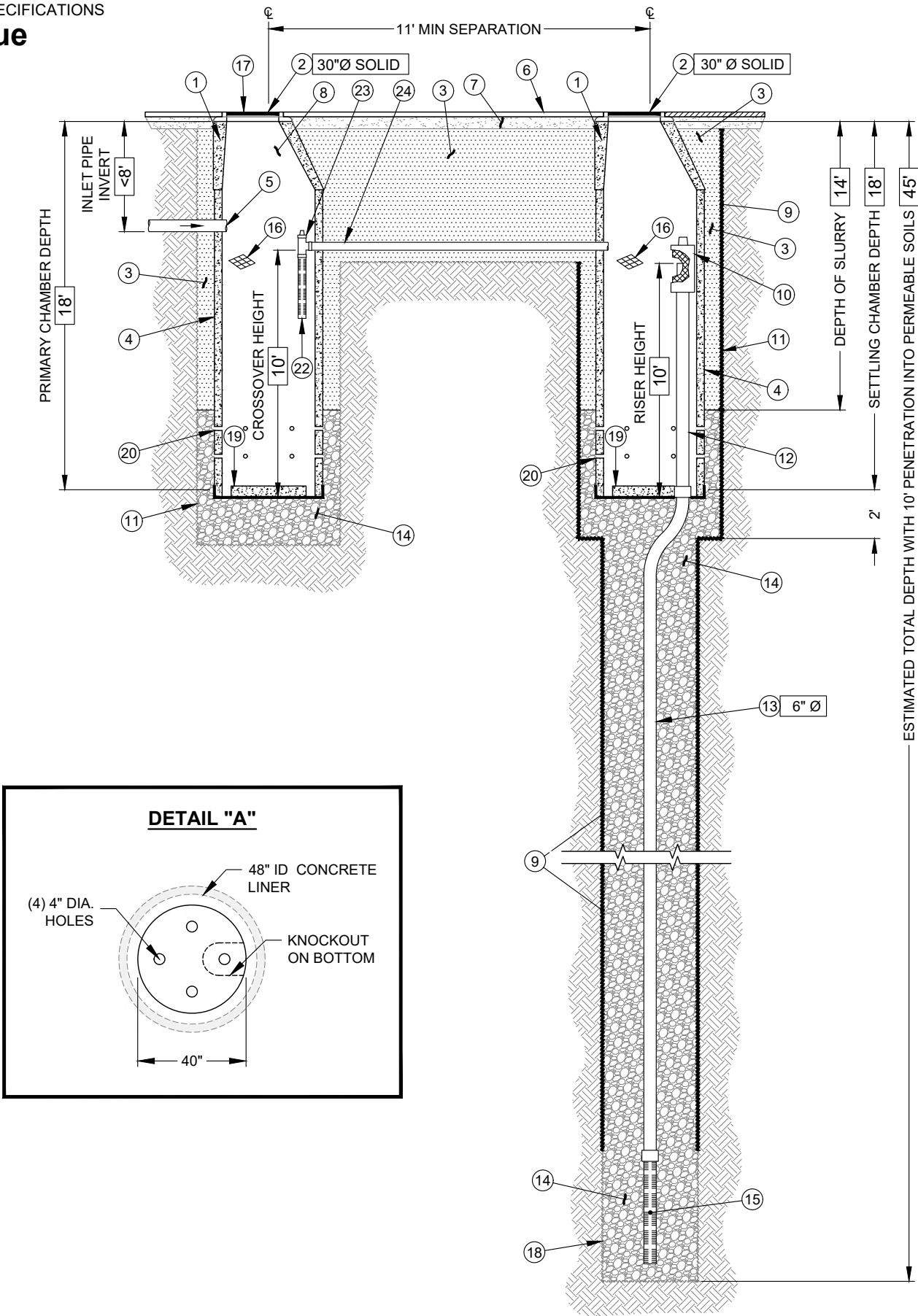
NOT TO SCALE

The
MaxWell® Plus

DRAINAGE SYSTEM DETAILS AND SPECIFICATIONS

La Crescenta Avenue

Glendale, CA



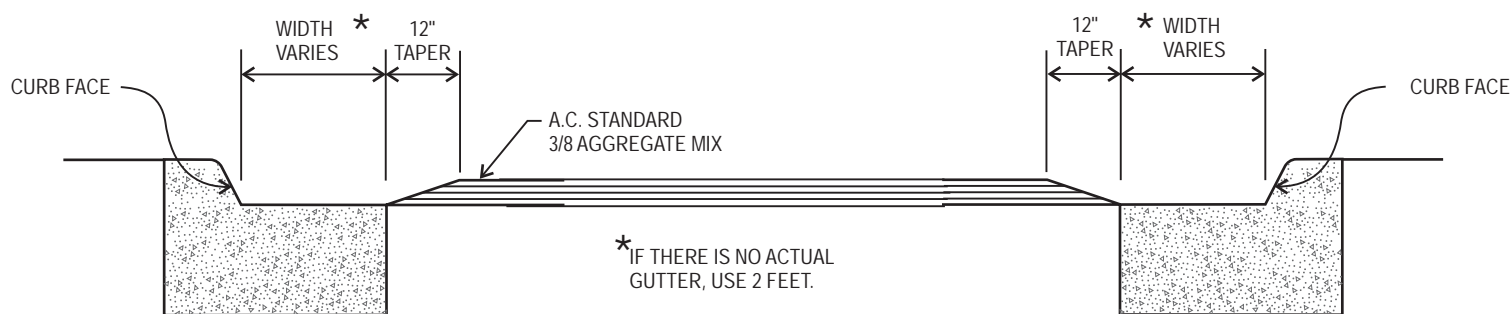
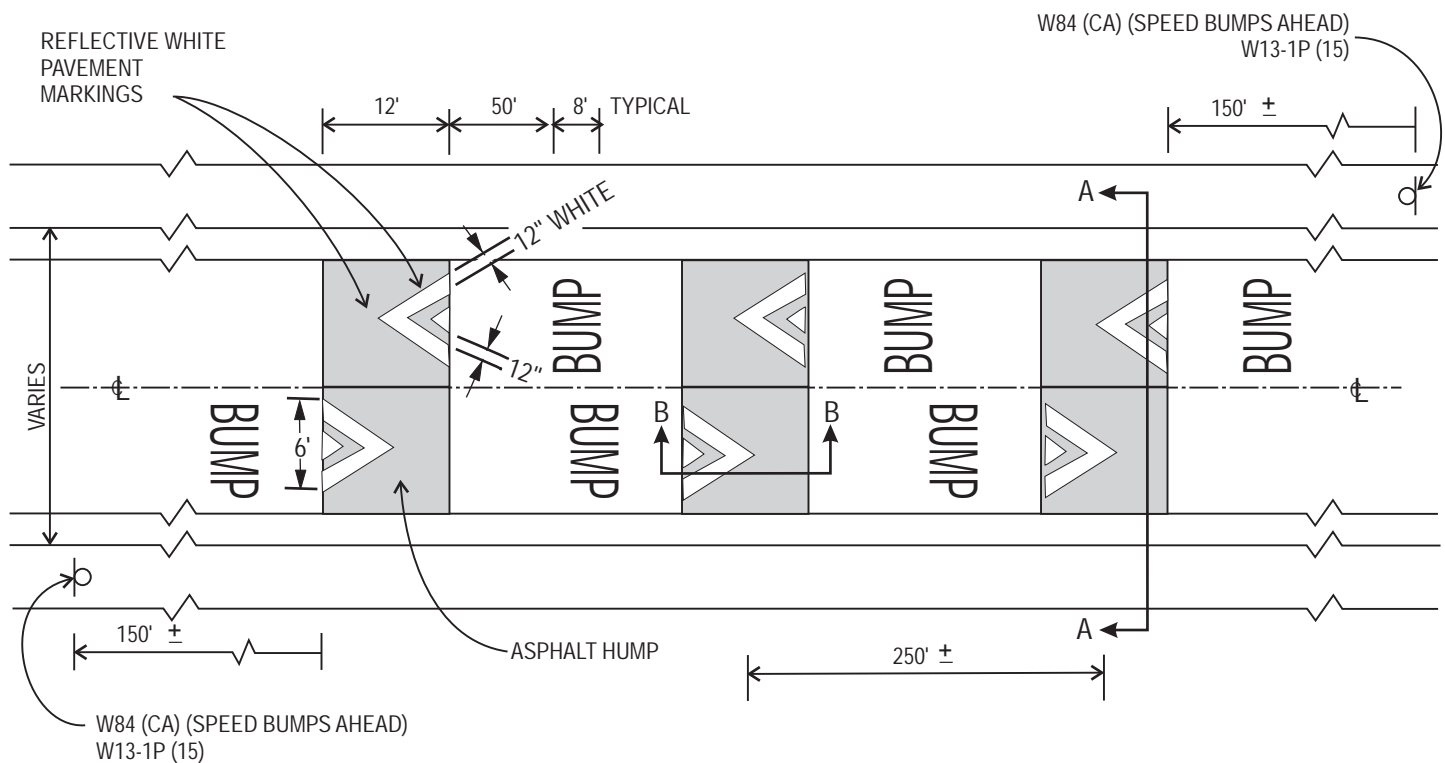
ITEM NUMBERS

1. MANHOLE CONE - MODIFIED FLAT BOTTOM.
2. BOLTED RING & GRATE/COVER - DIAMETER & TYPE AS SHOWN. CLEAN CAST IRON WITH WORDING "STORM WATER ONLY" IN RAISED LETTERS. BOLTED IN 2 LOCATIONS AND SECURED TO CONE WITH MORTAR. RIM ELEVATION $\pm 0.02'$ OF PLANS. COVER MUST INCLUDE 3/4" DIAMETER PICK HOLE.
3. STABILIZED BACKFILL - TWO-SACK SLURRY MIX.
4. PRE-CAST LINER - 4000 PSI CONCRETE 48" ID. X 54" OD. CENTER IN HOLE AND ALIGN SECTIONS TO MAXIMIZE BEARING SURFACE.
5. INLET PIPE (BY OTHERS). SEE SEPARATE PLAN FOR INVERT ELEVATIONS.
6. GRADED BASIN OR PAVING (BY OTHERS).
7. COMPACTED BASE MATERIAL, IF REQUIRED (BY OTHERS).
8. FREEBOARD DEPTH VARIES WITH INLET PIPE ELEVATION. INCREASE PRIMARY AND SECONDARY CHAMBER DEPTHS AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE RISER PIPE.
9. NON-WOVEN GEOTEXTILE SLEEVE - MIRAFI 140 NL. MIN. 6 FT \varnothing . HELD APPROX. 10 FEET OFF THE BOTTOM OF EXCAVATION.
10. PUREFLO® DEBRIS SHIELD - ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL 0.265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. FUSION BONDED EPOXY COATED.
11. MIN. 6' \varnothing DRILLED SHAFT.
12. RISER PIPE - SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
13. DRAINAGE PIPE - ADS HIGHWAY GRADE OR SCH. 40 PVC WITH TRI-A COUPLER. SUSPEND PIPE DURING BACKFILL OPERATIONS. DIAMETER AS NOTED.
14. ROCK - WASHED, SIZED BETWEEN 3/8" AND 1-1/2".
15. FLOFAST® DRAINAGE SCREEN - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. OVERALL LENGTH VARIES, UP TO 120" WITH TRI-B COUPLER.
16. ABSORBENT - HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY. TYPICAL, 2 PER CHAMBER.
17. FABRIC SEAL - U.V. RESISTANT GEOTEXTILE - TO BE REMOVED BY CUSTOMER AT PROJECT COMPLETION. GRATED ONLY.
18. MIN. 4' \varnothing DRILLED SHAFT.
19. PERFORATED PRECAST CONCRETE BOTTOM SECTION WITH GEOTEXTILE LINER. REFER TO DETAIL "A".
20. 6 PERFORATIONS MINIMUM PER FOOT, 2 ROWS MINIMUM.
21. NOT USED.
22. INTAKE SCREEN - 4" \varnothing SCH. 40 PVC 0.120" MODIFIED SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/ FT. 48" OVERALL LENGTH WITH TRI-C END CAP.
23. VENTED ANTI-SIPHON INTAKE.
24. CONNECTOR PIPE - 4" \varnothing SCH. 40 PVC.

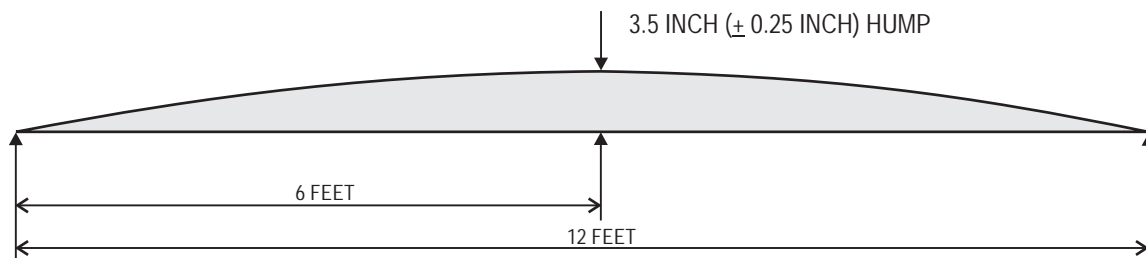
DETAIL : PL-4-SS-GD	REVISED BY GOP	
DRAWN ON: 04-06-23	REVISED DATE: 4-14-23	SCALE: N.T.S

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CA Lic. 886759, C-42, C-57, HAZ
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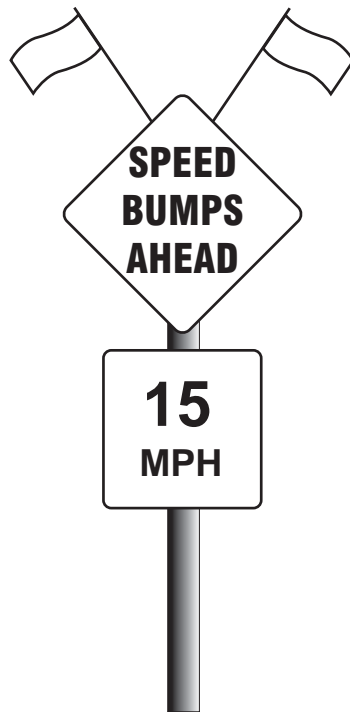
SECTION A-A



SECTION B-B

SPEED HUMPH DESIGN STANDARDS

EXHIBIT 1



WARNING FLAGS
(FIRST WEEK)

30" X 30" W84 (CA) (SPEED BUMPS AHEAD)
WARNING SIGN
BLACK ON YELLOW
6" SERIES "E" LETTERS

W13-1P (15) SIGN

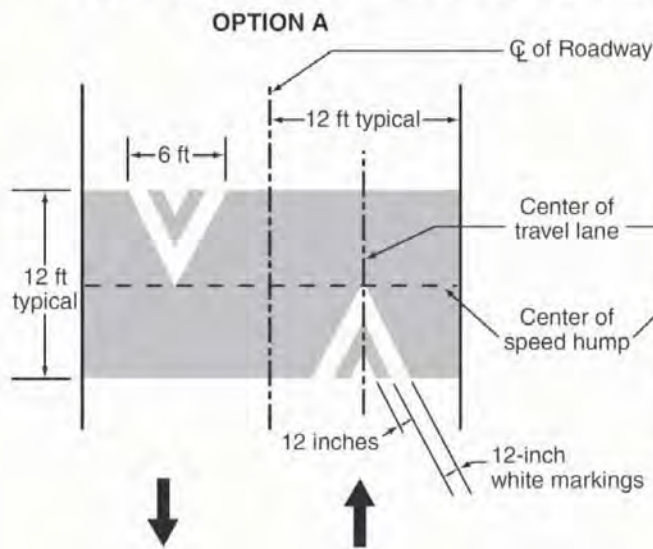
EXACT SIGN LOCATIONS
SHALL BE DETERMINED
BY CITY TRAFFIC &
TRANSPORTATION
ADMINISTRATOR

ADVANCE SIGNING

California MUTCD 2014 Edition

(FHWA's MUTCD 2009 Edition, including Revisions 1 & 2, as amended for use in California)

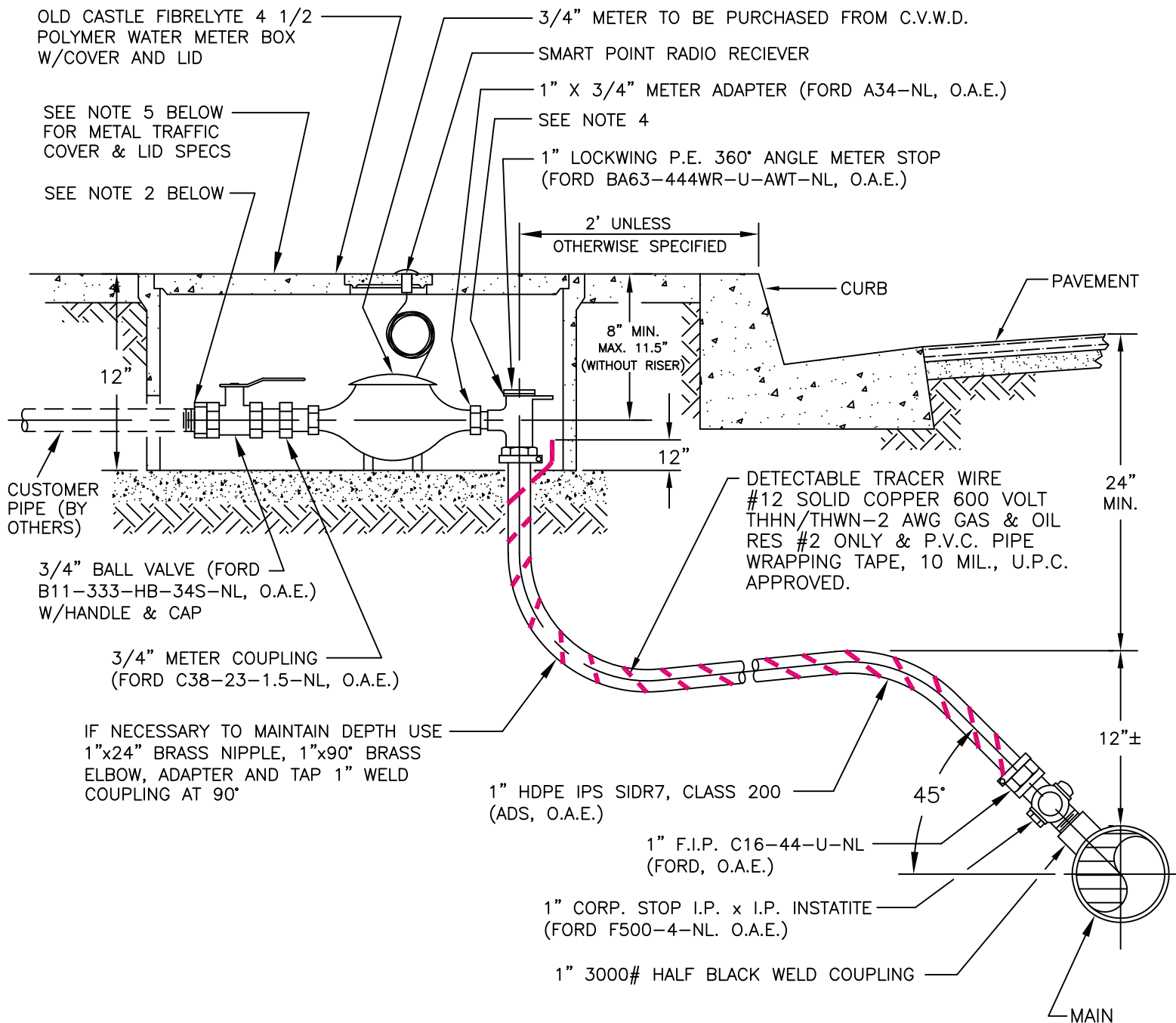
Figure 3B-29. Pavement Markings for Speed Humps without Crosswalks



SPEED HUMP MARKING

SPEED HUMP INSTALLATION DETAILS

1. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATERGATES, JUNCTION CHAMBERS, ETC.
2. EDGE OF SPEED HUMPS SHALL BE 10 FEET MINIMUM FROM EDGE OF DRIVEWAY.
3. WHERE POSSIBLE, SPEED HUMPS SHALL BE PLACED AT PROPERTY LINES INSTEAD OF MID-LOT.
4. WHERE POSSIBLE, SPEED HUMPS SHALL BE PLACED ADJACENT TO STREET LIGHTS.
5. EXACT LOCATION OF SPEED HUMPS SHALL BE DETERMINED BY CITY TRAFFIC ENGINEER.



NOTES:

1. CENTER METER BOX OVER METER REGISTER.
2. IF METER IS 3/4-INCH, INSTALL 3/4-INCH BRASS PLUG. IF METER IS 1-INCH, INSTALL 1-INCH BRASS PLUG
3. FOR PLASTIC LATERALS, DETECTABLE UNDERGROUND TRACER WIRE SHALL BE INSTALLED FOR ALL PLASTIC LATERALS. THE DETECTABLE WIRE USED SHALL BE SIZE 12 AWG, STRAND SOLID BC WALL 019 AS MANUFACTURED BY ATLAS WIRE & CABLE OR APPROVED EQUAL. THE DETECTABLE WIRE SHALL BE BURIED IN THE EXCAVATION DITCH 6 INCHES TO 12 INCHES BELOW GRADE DETECTABLE USING ANY COMMON METAL DETECTOR. ONE END OF THE WIRE SHALL BE WRAPPED AROUND WELD COUPLING AND OTHER END SHALL BE EXPOSED A MIN. OF 12 INCHES INSIDE METER BOX. CONNECTION TO WATER MAIN SHALL BE TAPE WRAPPED AFTER TRACER WIRE IS INSTALLED.
4. ANY ABANDONED FACILITIES IN METER BOX SUCH AS ANGLE METER STOP, PLASTIC PIPE, ETC. SHALL BE REMOVED TO BELOW GRADE BY CONTRACTOR AFTER NEW SERVICE IS CONNECTED TO WATER MAIN AND WATER METER.
5. IN TRAFFIC AREAS USE THE FOLLOWING WATER METER BOX COVERS:
 - a. A.C. PAVEMENT: THS SUPERIMPOSED STEEL COVER W/ HINGED LID.
 - b. CONCRETE: THF STEEL COVER W/HF FLUSH.

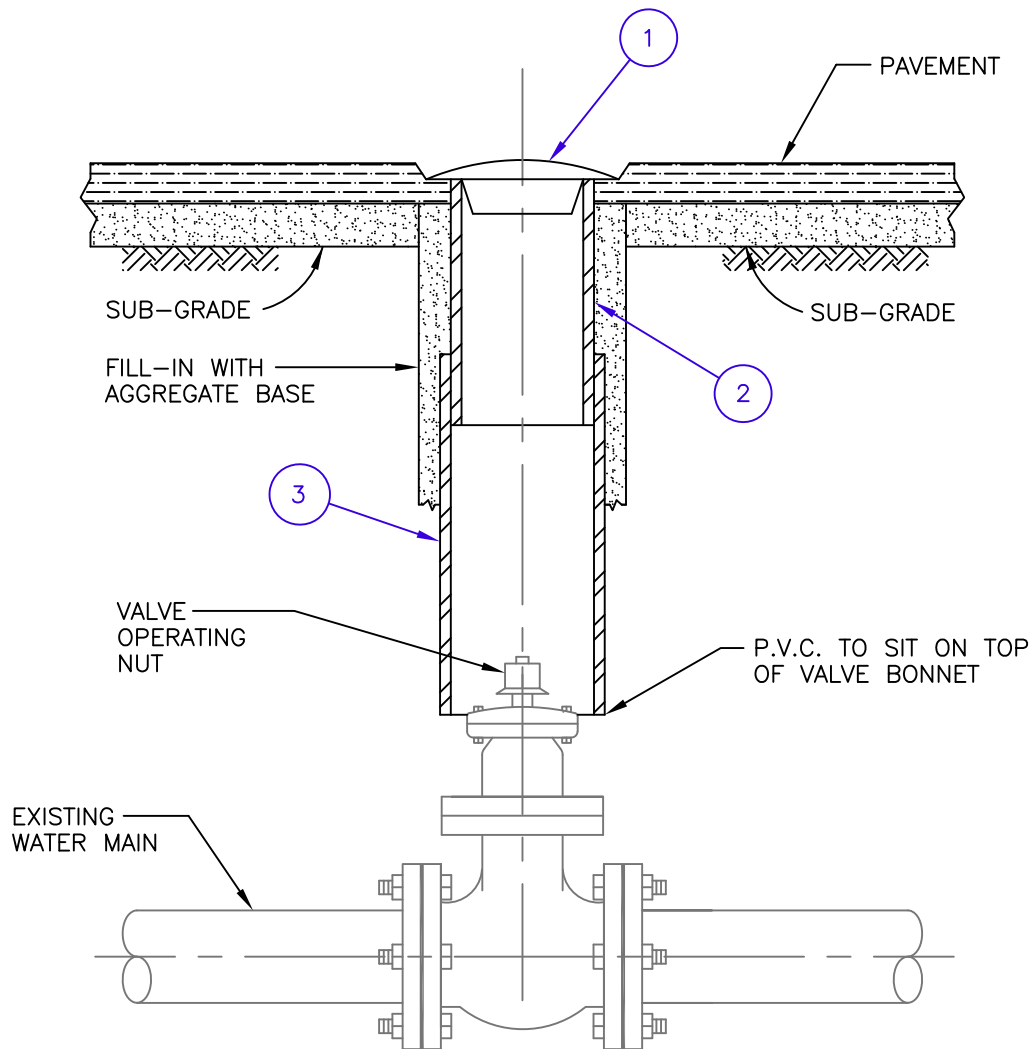
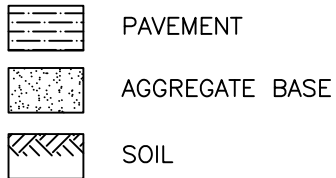
CRESCENTA VALLEY WATER DISTRICT

DRAWN: JAH
DATE: 1/02

REV.
12/21

3/4" WATER METER & 1" SERVICE INSTALLATION

DWG. NO.
10-00W



NOTE:

THE FOLLOWING APPLICABLE DESIGNATION WILL BE WELDED ON THE TOP OF THE VALVE CAN:
 'NC' (ZONE VALVE / NORMALLY CLOSED)
 'FH' (FIRE HYDRANT VALVE)
 NO DESIGNATION WILL BE REQUIRED FOR "NORMALLY OPEN" VALVES.

MATERIALS

ITEM NO.	SIZE & DESCRIPTION
1	8" C.I. VALVE CAN CAP
2	8" O.D. 18" SLIP SLEEVE GALVANIZED
3	8" I.D. SCHEDULE 40 P.V.C.

CRESCENTA VALLEY WATER DISTRICT

DRAWN: JAH DATE: 3/11	REV.	VALVE BOX AND RISER	DWG. NO. 30-01W
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APPENDIX G

CONSTRUCTION PLANS