



BUILDING AND DEVELOPMENT
SERVICES DEPARTMENT

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DEVELOPMENT ENGINEERING NEWSLETTER
SEPTEMBER 2009

This is the 11th edition of the Development Engineering Newsletter. Development Engineering is a division within the Building and Development Services Department (BDSD) and creates these bulletins to keep local consultants, developers, and interested parties up-to-date on changes and improvements the City is making within the sphere of development. ***Quarterly newsletter distribution will be modified to twice a year.***

Tentative Maps and Expiration Dates

During the development slowdown, don't forget to track your projects and the tentative map expiration dates. As a reminder, the Governor signed SB 1185 into law on July 15, 2008 and an additional AB 333 on July 15, 2009. Each bill contains provisions to extend the life of approved tentative or vesting tentative maps. Review each bill for the terms and details; included as Attachment A and Attachment B. of this newsletter.

For tentative or vesting tentative maps that are in risk of expiration, contact the Planning Services Department to request Extension of Time to File Final Map. There is an associated fee of \$2,118.00. This fee will be added as a deposit to the project account.

Storm Water Pollution Prevention Plan (SWPPP) Updates

On September 2, 2009, the State Water Board adopted a new construction general permit (CGP) to replace Order 99-08-DWQ and this new CGP will become effective July 1, 2010. The final permit language is still being drafted, however all information on the new (and "old") CGP on the following link:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

As a reminder, SWRCB Order No. 99-08-DWQ remains in effect until July 1, 2010. The State Water Board will produce guidance in the near future to summarize the permit and answer *frequently asked questions*. Please direct your questions to the emails or phone numbers below:

General Inquiries: stormwater@waterboards.ca.gov
Database Inquiries: smarts@waterboards.ca.gov
Telephone Toll Free - 1-866-563-3107

City of Chico EPA Audit

The Environmental Protection Agency (EPA) will be evaluating the City of Chico's municipal separate storm sewer system (MS4) Program, starting with a visit to the City this week. Please note that part of this audit will include evaluation of construction sites, including SWPPP and BMP implementation.

Landscape Design & Improvement Plan Practices

Development Engineering is currently working in conjunction with the Urban Forester to establish clear design guidelines and procedures for design, plan review, plan approval, inspection, and City acceptance of required landscape improvements. It is intended that these design guidelines and procedures be available on the City's website similar to other Development Engineering forms.

- Please continue to route all landscape plans through Development Engineering. This routing reinforces our intent that Development Engineering be the single point of contact for all improvement plan processing and approvals.

- Development Engineering/Urban Forester will be updating an earlier version of City design and installation practices contained in a document entitled "Landscape Design Manual." Because this document was never formally distributed and/or approved, it appears never to have been widely distributed or used as intended. As with the creation of all new design/installation procedures a series of workshops will be conducted with the user groups to gather necessary input with a goal of creating a document we all can use effectively to streamline the process.
- As a side note, both additional and new water use regulations introduced by the Department of Water Resources will be taking effect on January 1, 2010. These new regulations are intended to conserve water and will be the basis for the City's landscape design and irrigation practices into the future.

Miscellaneous Design Standards & Policies

- ***Chico Municipal Code Chapter 18R - Updates***

The City Council approved updates to Standard Plans S-7 and S-7A in Title 18R of the Chico Municipal Code on September 15, 2009. In addition, Standard Plan S-4 was removed and replaced with S-8. The changes can be found in Attachment C of this newsletter, or by referencing Title 18R of the Code online at: http://www.ci.chico.ca.us/government/municipal_code.asp

- ***Storm Drainage Design – Manning's "n" value***

The Chico Municipal Code Title 18R requires sewer and storm drain pipe be designed with a value of 0.013 or greater. Many pipe manufacturers have specified different n-values for their pipes. It has been common practice for the City to accept designs with values less than 0.013, based on the manufacturer specification. The design engineers must make certain that the pipe placed in the ground has an n-value equal to or surpassing the one on which the calculations are based.

- ***Lift Pump Stations***

A draft set of standards have been prepared for review and comment on designing City sanitary sewer lift pump stations. The draft can be found included as Attachment D of this newsletter. Please submit comments to Amie McAllister at amcallis@ci.chico.ca.us or 530-879-6911.

General Plan Update

All meeting notes and relevant documents related to the General Plan Update are available on the General Plan website at: <http://www.chicogeneralplan.com>. For specific questions, contact Principal Planner Brendan Vieg at bviieg@ci.chico.ca.us or at 530-879-6806.

Training Opportunity – Current Issues in CEQA

The City of Chico Engineering Division will be hosting a Lorman Education Services Teleconference "Current Issues in CEQA", on Wednesday, September 30, from 10:00 to 11:30 a.m., in City Council Chambers, Conference Room 1, located at 421 Main Street. The City of Chico has paid the registration fee which allows for unlimited listeners per connection. Please RSVP Sam Harrison if you would like to attend the class at 530-879-6906 or by email: slharris@ci.chico.ca.us. Refer to Attachment E for additional details.

Future Meetings

Please contact Amie McAllister at 879-6911 or amcallis@ci.chico.ca.us if you have any comments or suggestions for a future meeting.

Attachments:

- Attachment A – Senate Bill No. 1185 (8 Pages)
- Attachment B – Assembly Bill No. 333 (3 Pages)
- Attachment C – Chico Municipal Code 18R Revisions (6 Pages)
- Attachment D – DRAFT Sanitary Sewer Lift Pump Station (33 pages)
- Attachment E – CEQA Teleconference Information (2 Pages)

Senate Bill No. 1185

CHAPTER 124

An act to amend Sections 66452.6 and 66463.5 of, to add Section 66452.21 to, and to amend and renumber Sections 66452.11 and 66452.12 of, the Government Code, relating to land use, and declaring the urgency thereof, to take effect immediately.

[Approved by Governor July 15, 2008. Filed with
Secretary of State July 15, 2008.]

LEGISLATIVE COUNSEL'S DIGEST

SB 1185, Lowenthal. Land use: subdivision maps.

(1) The Subdivision Map Act establishes a statewide regulatory framework for controlling the subdividing of land. It generally requires a subdivider to submit, and have approved by, the city, county, or city and county in which the land is situated a tentative or vesting tentative map, which confers a vested right to proceed with development in substantial compliance with specified ordinances, policies, and standards. The act provides for the expiration of tentative or vesting tentative maps, after specified periods of time, and specifically extends by 12 months the expiration date of any tentative or vesting tentative map or parcel map for which a tentative or vesting tentative map has been approved that had not expired on May 15, 1996. This extension is in addition to any other extension of the expiration date provided for in specified provisions of the act. Any legislative, administrative, or other approval by any local agency, state agency, or other political subdivision of the state that pertains to a development project included in a map that is extended is to be extended by 12 months under specified conditions.

This bill would extend the applicable expiration date to 12 months, as specified, for any vesting tentative map, in addition to a tentative map, generally, that has not expired as of the date adding these provisions and that will expire, as specified, before January 1, 2011. By adding to the procedures officials in counties, cities, and cities and counties must follow, this bill would impose a state-mandated local program.

(2) The Subdivision Map Act provides that when a tentative map is required, an approved or conditionally approved tentative map must expire 24 months after its approval or conditional approval, or after any additional time period as prescribed by local ordinance, not to exceed an additional 12 months. A subdivider may file with the appropriate legislative body, prior to the expiration of the approved or conditionally approved tentative map, an application to extend the time at which the map will expire for a period or periods not to exceed a total of 5 years.

This bill instead would allow the subdivider to file an application to extend the time at which the map will expire for a period or periods not to exceed a total of 6 years. By adding to the procedures officials in counties, cities, and cities and counties must follow, this bill would impose a state-mandated local program.

(3) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

(4) This bill would declare that it is to take effect immediately as an urgency statute.

The people of the State of California do enact as follows:

SECTION 1. Section 66452.6 of the Government Code is amended to read:

66452.6. (a) (1) An approved or conditionally approved tentative map shall expire 24 months after its approval or conditional approval, or after any additional period of time as may be prescribed by local ordinance, not to exceed an additional 12 months. However, if the subdivider is required to expend one hundred seventy-eight thousand dollars (\$178,000) or more to construct, improve, or finance the construction or improvement of public improvements outside the property boundaries of the tentative map, excluding improvements of public rights-of-way which abut the boundary of the property to be subdivided and which are reasonably related to the development of that property, each filing of a final map authorized by Section 66456.1 shall extend the expiration of the approved or conditionally approved tentative map by 36 months from the date of its expiration, as provided in this section, or the date of the previously filed final map, whichever is later. The extensions shall not extend the tentative map more than 10 years from its approval or conditional approval. However, a tentative map on property subject to a development agreement authorized by Article 2.5 (commencing with Section 65864) of Chapter 4 of Division 1 may be extended for the period of time provided for in the agreement, but not beyond the duration of the agreement. The number of phased final maps that may be filed shall be determined by the advisory agency at the time of the approval or conditional approval of the tentative map.

(2) Commencing January 1, 2005, and each calendar year thereafter, the amount of one hundred seventy-eight thousand dollars (\$178,000) shall be annually increased by operation of law according to the adjustment for inflation set forth in the statewide cost index for class B construction, as determined by the State Allocation Board at its January meeting. The effective date of each annual adjustment shall be March 1. The adjusted amount shall apply to tentative and vesting tentative maps whose applications were received after the effective date of the adjustment.

(3) “Public improvements,” as used in this subdivision, include traffic controls, streets, roads, highways, freeways, bridges, overcrossings, street interchanges, flood control or storm drain facilities, sewer facilities, water facilities, and lighting facilities.

(b) (1) The period of time specified in subdivision (a), including any extension thereof granted pursuant to subdivision (e), shall not include any period of time during which a development moratorium, imposed after approval of the tentative map, is in existence. However, the length of the moratorium shall not exceed five years.

(2) The length of time specified in paragraph (1) shall be extended for up to three years, but in no event beyond January 1, 1992, during the pendency of any lawsuit in which the subdivider asserts, and the local agency which approved or conditionally approved the tentative map denies, the existence or application of a development moratorium to the tentative map.

(3) Once a development moratorium is terminated, the map shall be valid for the same period of time as was left to run on the map at the time that the moratorium was imposed. However, if the remaining time is less than 120 days, the map shall be valid for 120 days following the termination of the moratorium.

(c) The period of time specified in subdivision (a), including any extension thereof granted pursuant to subdivision (e), shall not include the period of time during which a lawsuit involving the approval or conditional approval of the tentative map is or was pending in a court of competent jurisdiction, if the stay of the time period is approved by the local agency pursuant to this section. After service of the initial petition or complaint in the lawsuit upon the local agency, the subdivider may apply to the local agency for a stay pursuant to the local agency’s adopted procedures. Within 40 days after receiving the application, the local agency shall either stay the time period for up to five years or deny the requested stay. The local agency may, by ordinance, establish procedures for reviewing the requests, including, but not limited to, notice and hearing requirements, appeal procedures, and other administrative requirements.

(d) The expiration of the approved or conditionally approved tentative map shall terminate all proceedings and no final map or parcel map of all or any portion of the real property included within the tentative map shall be filed with the legislative body without first processing a new tentative map. Once a timely filing is made, subsequent actions of the local agency, including, but not limited to, processing, approving, and recording, may lawfully occur after the date of expiration of the tentative map. Delivery to the county surveyor or city engineer shall be deemed a timely filing for purposes of this section.

(e) Upon application of the subdivider filed prior to the expiration of the approved or conditionally approved tentative map, the time at which the map expires pursuant to subdivision (a) may be extended by the legislative body or by an advisory agency authorized to approve or conditionally approve tentative maps for a period or periods not exceeding a total of six years. The period of extension specified in this subdivision shall be in

addition to the period of time provided by subdivision (a). Prior to the expiration of an approved or conditionally approved tentative map, upon an application by the subdivider to extend that map, the map shall automatically be extended for 60 days or until the application for the extension is approved, conditionally approved, or denied, whichever occurs first. If the advisory agency denies a subdivider's application for an extension, the subdivider may appeal to the legislative body within 15 days after the advisory agency has denied the extension.

(f) For purposes of this section, a development moratorium includes a water or sewer moratorium, or a water and sewer moratorium, as well as other actions of public agencies which regulate land use, development, or the provision of services to the land, including the public agency with the authority to approve or conditionally approve the tentative map, which thereafter prevents, prohibits, or delays the approval of a final or parcel map. A development moratorium shall also be deemed to exist for purposes of this section for any period of time during which a condition imposed by the city or county could not be satisfied because of either of the following:

(1) The condition was one that, by its nature, necessitated action by the city or county, and the city or county either did not take the necessary action or by its own action or inaction was prevented or delayed in taking the necessary action prior to expiration of the tentative map.

(2) The condition necessitates acquisition of real property or any interest in real property from a public agency, other than the city or county that approved or conditionally approved the tentative map, and that other public agency fails or refuses to convey the property interest necessary to satisfy the condition. However, nothing in this subdivision shall be construed to require any public agency to convey any interest in real property owned by it. A development moratorium specified in this paragraph shall be deemed to have been imposed either on the date of approval or conditional approval of the tentative map, if evidence was included in the public record that the public agency which owns or controls the real property or any interest therein may refuse to convey that property or interest, or on the date that the public agency which owns or controls the real property or any interest therein receives an offer by the subdivider to purchase that property or interest for fair market value, whichever is later. A development moratorium specified in this paragraph shall extend the tentative map up to the maximum period as set forth in subdivision (b), but not later than January 1, 1992, so long as the public agency which owns or controls the real property or any interest therein fails or refuses to convey the necessary property interest, regardless of the reason for the failure or refusal, except that the development moratorium shall be deemed to terminate 60 days after the public agency has officially made, and communicated to the subdivider, a written offer or commitment binding on the agency to convey the necessary property interest for a fair market value, paid in a reasonable time and manner.

SEC. 2. Section 66452.11 of the Government Code, as added by Section 6 of Chapter 612 of the Statutes of 2007, is amended and renumbered to read:

66452.14 (a) Pursuant to the provisions of subparagraph (E) of paragraph (2) of subdivision (a) of Section 66427.1, the subdivider shall give written notice of the intent to convert 180 days prior to the termination of tenancy in the form outlined in subdivision (b), to each tenant of the subject property.

(b) The notice shall be as follows:

“To the occupant(s) of _____:
(address)

The owner(s) of this building, at (address), plans to convert this building to a (condominium, community apartment, or stock cooperative project). This is a notice of the owner’s intention to convert the building to a (condominium, community apartment, or stock cooperative project).

A tentative map to convert the building to a (condominium, community apartment, or stock cooperative project) was approved by the City on _____. If the City approves a final map, you may be required to vacate the premises, but that cannot happen for at least 180 days from the date this notice was served upon you.

Any future notice given to you to terminate your tenancy because of the conversion cannot be effective for at least 180 days from the date this notice was served upon you. This present notice is not a notice to terminate your tenancy; it is not a notice that you must now vacate the premises.

(signature of owner or owner’s agent)

(date)”

The written notices to tenants required by this section shall be deemed satisfied if such notices comply with the legal requirements for service by mail.

SEC. 3. Section 66452.12 of the Government Code, as added by Section 7 of Chapter 612 of the Statutes of 2007, is amended and renumbered to read:

66452.15 (a) Pursuant to subparagraph (F) of paragraph (2) of subdivision (a) of Section 66427.1, the subdivider shall give written notice within five days after receipt of the subdivision public report to each tenant of his or her exclusive right for at least 90 days after issuance of the subdivision public report to contract for the purchase of his or her respective unit in the form outlined in subdivision (b).

(b) The notice shall be as follows:

“To the occupant(s) of _____:
(address)

The owner(s) of this building, at (address), have received the final subdivision report on the proposed conversion of this building to a (condominium, community apartment, or stock cooperative project). Commencing on the date of issuance of the subdivision public report, you have the exclusive right for 90 days to contract for the purchase of your rental unit upon the same or more favorable terms and conditions than the unit will initially be offered to the general public.

(signature of owner or owner’s agent)

(date)”

The written notices to tenants required by this section shall be deemed satisfied if the notices comply with the legal requirements for service by mail.

SEC. 4. Section 66452.21 is added to the Government Code, to read:

66452.21. (a) The expiration date of any tentative or vesting tentative subdivision map or parcel map for which a tentative or vesting tentative map, as the case may be, has been approved that has not expired on the date that the act that added this section became effective and that will expire before January 1, 2011, shall be extended by 12 months.

(b) The extension provided by subdivision (a) shall be in addition to any extension of the expiration date provided for in Section 66452.6, 66452.11, 66452.13, or 66463.5.

(c) Any legislative, administrative, or other approval by any state agency that pertains to a development project included in a map that is extended pursuant to subdivision (a) shall be extended by 12 months if this approval has not expired on the date that the act that added this section became effective. This extension shall be in addition to any extension provided for in Section 66452.13.

(d) For purposes of this section, the determination of whether a tentative subdivision map or parcel map expires before January 1, 2011, shall count only those extensions of time pursuant to subdivision (e) of Section 66452.6 or subdivision (e) of Section 66463.5 approved on or before the date that the act that added this section became effective and any additional time in connection with the filing of a final map pursuant to subdivision (a) of Section 66452.6 for a map that was recorded on or before the date that the act that added this section became effective. The determination shall not include any development moratorium or litigation stay allowed or permitted by Section 66452.6 or 66463.5.

SEC. 5. Section 66463.5 of the Government Code is amended to read:

66463.5. (a) When a tentative map is required, an approved or conditionally approved tentative map shall expire 24 months after its approval or conditional approval, or after any additional period of time as may be prescribed by local ordinance, not to exceed an additional 12 months.

(b) The expiration of the approved or conditionally approved tentative map shall terminate all proceedings, and no parcel map of all or any portion of the real property included within the tentative map shall be filed without first processing a new tentative map. Once a timely filing is made, subsequent actions of the local agency, including, but not limited to, processing, approving, and recording, may lawfully occur after the date of expiration of the tentative map. Delivery to the county surveyor or city engineer shall be deemed a timely filing for purposes of this section.

(c) Upon application of the subdivider filed prior to the expiration of the approved or conditionally approved tentative map, the time at which the map expires may be extended by the legislative body or by an advisory agency authorized to approve or conditionally approve tentative maps for a period or periods not exceeding a total of six years. Prior to the expiration of an approved or conditionally approved tentative map, upon the application by the subdivider to extend that map, the map shall automatically be extended for 60 days or until the application for the extension is approved, conditionally approved, or denied, whichever occurs first. If the advisory agency denies a subdivider's application for an extension, the subdivider may appeal to the legislative body within 15 days after the advisory agency has denied the extension.

(d) (1) The period of time specified in subdivision (a) shall not include any period of time during which a development moratorium, imposed after approval of the tentative map, is in existence. However, the length of the moratorium shall not exceed five years.

(2) Once a moratorium is terminated, the map shall be valid for the same period of time as was left to run on the map at the time that the moratorium was imposed. However, if the remaining time is less than 120 days, the map shall be valid for 120 days following the termination of the moratorium.

(e) The period of time specified in subdivision (a), including any extension thereof granted pursuant to subdivision (c), shall not include the period of time during which a lawsuit involving the approval or conditional approval of the tentative map is, or was, pending in a court of competent jurisdiction, if the stay of the time period is approved by the local agency pursuant to this section. After service of the initial petition or complaint in the lawsuit upon the local agency, the subdivider may apply to the local agency for a stay pursuant to the local agency's adopted procedures. Within 40 days after receiving the application, the local agency shall either stay the time period for up to five years or deny the requested stay. The local agency may, by ordinance, establish procedures for reviewing the requests, including, but not limited to, notice and hearing requirements, appeal procedures, and other administrative requirements.

(f) For purposes of this section, a development moratorium shall include a water or sewer moratorium or a water and sewer moratorium, as well as other actions of public agencies that regulate land use, development, or the provision of services to the land, including the public agency with the authority to approve or conditionally approve the tentative map, which thereafter prevents, prohibits, or delays the approval of a parcel map.

(g) Notwithstanding subdivisions (a), (b), and (c), for the purposes of Chapter 4.5 (commencing with Section 66498.1), subdivisions (b), (c), and (d) of Section 66498.5 shall apply to vesting tentative maps prepared in connection with a parcel map except that, for purposes of this section, the time periods specified in subdivisions (b), (c), and (d) of Section 66498.5 shall be determined from the recordation of the parcel map instead of the final map.

SEC. 6. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

SEC. 7. This act is an urgency statute necessary for the immediate preservation of the public peace, health, or safety within the meaning of Article IV of the Constitution and shall go into immediate effect. The facts constituting the necessity are:

In order to permit cities, counties, and a city and county to preserve development applications that are set to expire and that cannot be processed presently due to prevailing adverse economic conditions in the construction industry, it is necessary that this act take immediate effect.

Assembly Bill No. 333

CHAPTER 18

An act to amend Section 65961 of, and to add Section 66452.22 to, the Government Code, relating to land use, and declaring the urgency thereof, to take effect immediately.

[Approved by Governor July 15, 2009. Filed with
Secretary of State July 15, 2009.]

LEGISLATIVE COUNSEL'S DIGEST

AB 333, Fuentes. Land use: subdivision maps: expiration dates.

(1) The Subdivision Map Act establishes a statewide regulatory framework for controlling the subdividing of land. It generally requires a subdivider to submit, and have approved by the city, county, or city and county in which the land is situated, a tentative or vesting tentative map, which confers a vested right to proceed with development in substantial compliance with specified ordinances, policies, and standards. The act provides for the expiration of tentative or vesting tentative maps, after specified periods of time, and specifically extends by 12 months the expiration date of any tentative or vesting tentative map or parcel map for which a tentative or vesting tentative map has been approved that had not expired on January 1, 2011. This extension is in addition to any other extension of the expiration date provided for in specified provisions of the act. Any legislative, administrative, or other approval by any local agency, state agency, or other political subdivision of the state that pertains to a development project included in a map that is extended is to be extended by 12 months under specified conditions.

This bill would extend the applicable expiration date to 24 months, as specified, for any vesting tentative map, in addition to a tentative map, generally, that has not expired as of the date adding these provisions and that will expire, as specified, before January 1, 2012. By adding to the procedures that officials in counties, cities, and cities and counties must follow, this bill would impose a state-mandated local program.

(2) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

(3) This bill would declare that it is to take effect immediately as an urgency statute.

The people of the State of California do enact as follows:

SECTION 1. Section 65961 of the Government Code is amended to read:

65961. Notwithstanding any other provision of law, except as provided in Section 66452.22, relating to the extension of the expiration date for subdivisions subject to that section, upon approval or conditional approval of a tentative map for a subdivision of single- or multiple-family residential units, or upon recordation of a parcel map for such a subdivision for which no tentative map was required, during the five-year period following recordation of the final map or parcel map for the subdivision, a city, county, or city and county shall not require as a condition to the issuance of any building permit or equivalent permit for such single- or multiple-family residential units, conformance with or the performance of any conditions that the city or county could have lawfully imposed as a condition to the previously approved tentative or parcel map. Nor shall a city, county, or city and county withhold or refuse to issue a building permit or equivalent permit for failure to conform with or perform any conditions that the city, county, or city and county could have lawfully imposed as a condition to the previously approved tentative or parcel map. However, the provisions of this section shall not prohibit a city, county, or city and county from doing any of the following:

(a) Imposing conditions or requirements upon the issuance of a building permit or equivalent permit which could have been lawfully imposed as a condition to the approval of a tentative or parcel map if the local agency finds it necessary to impose the condition or requirement for any of the following reasons:

(1) A failure to do so would place the residents of the subdivision or of the immediate community, or both, in a condition perilous to their health or safety, or both.

(2) The condition is required in order to comply with state or federal law.

(b) Withholding or refusing to issue a building permit or equivalent permit if the local agency finds it is required to do so in order to comply with state or federal law.

(c) Assuring compliance with the applicable zoning ordinance.

(d) This section shall also apply to a city or city and county which incorporates on or after January 1, 1985, and which includes within its boundaries any areas included in the tentative or parcel map described in this section.

When the incorporation includes areas included in the tentative or parcel map described in this section, "a condition that the city could have lawfully imposed as a condition to the previously approved tentative or parcel map," as used in this section, refers to conditions the county could have imposed had there been no incorporation.

SEC. 2. Section 66452.22 is added to the Government Code, to read:

66452.22. (a) The expiration date of any tentative or vesting tentative subdivision map or parcel map for which a tentative or vesting tentative

map, as the case may be, has been approved that has not expired on the date that the act that added this section became effective and that will expire before January 1, 2012, shall be extended by 24 months.

(b) The extension provided by subdivision (a) shall be in addition to any extension of the expiration date provided for in Section 66452.6, 66452.11, 66452.13, 66452.21, or 66463.5.

(c) Any legislative, administrative, or other approval by any state agency that pertains to a development project included in a map that is extended pursuant to subdivision (a) shall be extended by 24 months if this approval has not expired on the date that the act that added this section became effective. This extension shall be in addition to any extension provided for in Sections 66452.13 and 66452.21.

(d) (1) For purposes of this section, the determination of whether a tentative subdivision map or parcel map expires before January 1, 2012, shall count only those extensions of time pursuant to subdivision (e) of Section 66452.6 or subdivision (c) of Section 66463.5 approved on or before the date that the act that added this section became effective and any additional time in connection with the filing of a final map pursuant to subdivision (a) of Section 66452.6 for a map that was recorded on or before the date that the act that added this section became effective.

(2) The determination made pursuant to this subdivision shall not include any development moratorium or litigation stay allowed or permitted by Section 66452.6 or 66463.5.

(e) Section 65961 applies to a tentative subdivision map or parcel map that relies on the 24-month extension pursuant to this section, except for both of the following:

(1) The five-year period described in Section 65961 shall be three years.

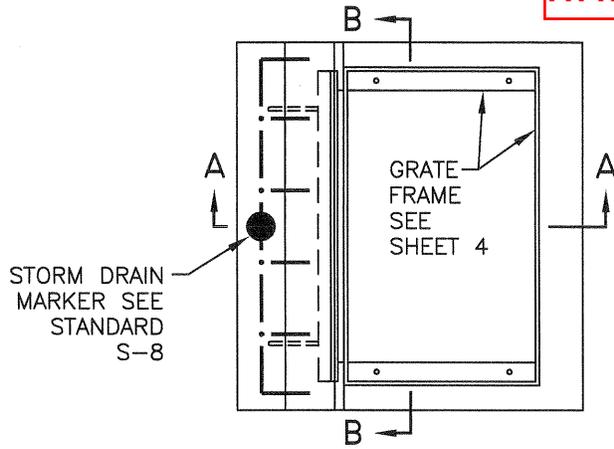
(2) Section 65961 does not prohibit a city, county, or city and county from levying a fee or imposing a condition that requires the payment of a fee upon the issuance of a building permit or after the issuance, including, but not limited to, a fee as defined in Section 66000.

SEC. 3. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because a local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

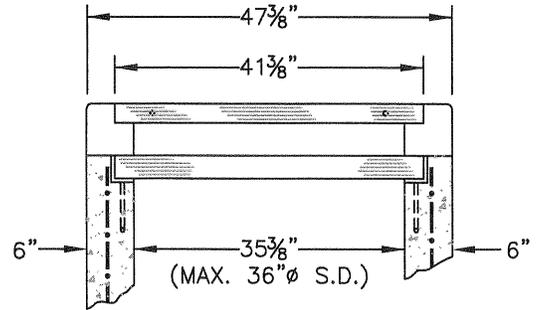
SEC. 4. This act is an urgency statute necessary for the immediate preservation of the public peace, health, or safety within the meaning of Article IV of the Constitution and shall go into immediate effect. The facts constituting the necessity are:

In order to permit cities, counties, and cities and counties to preserve development applications that are set to expire and that cannot be processed presently due to prevailing adverse economic conditions in the construction industry, it is necessary that this act take effect immediately.

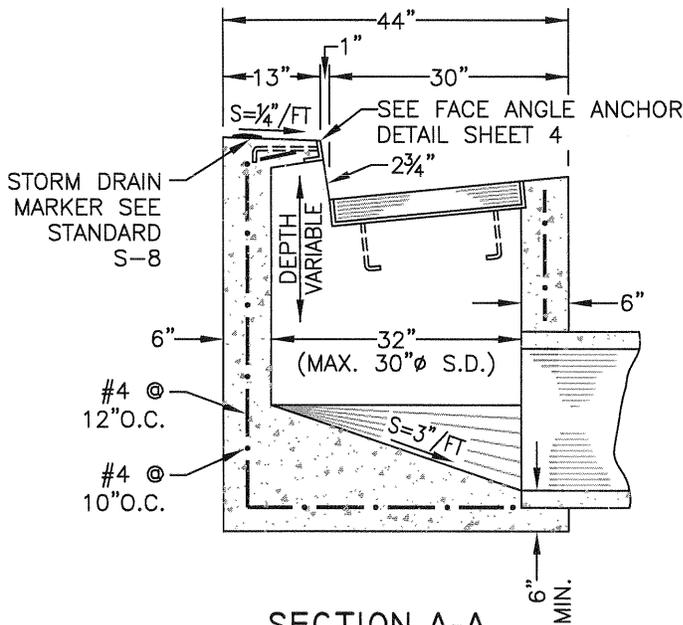
ATTACHMENT C



PLAN



SECTION B-B



SECTION A-A

NOTES:

1. WALL THICKNESS SHALL BE 8" WHEN DEPTH OF D.I. IS GREATER THAN 8'.
2. PIPES CAN BE PLACED IN ANY WALL.
3. SEE SHEET 2 OF 4 FOR D.I. CUT AWAY VIEW.
4. SEE SHEETS 3 & 4 FOR GRATE & FRAME DETAILS.
5. CAST-IN-PLACE OR PRECAST ALTERNATIVE IS OPTIONAL WITH CONTRACTOR; SEE STANDARD SPECS.
6. AT CONTRACTOR'S OPTION, 60" TRANSITIONS & D.I. TOP MAY BE MONOLITHIC POUR.

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

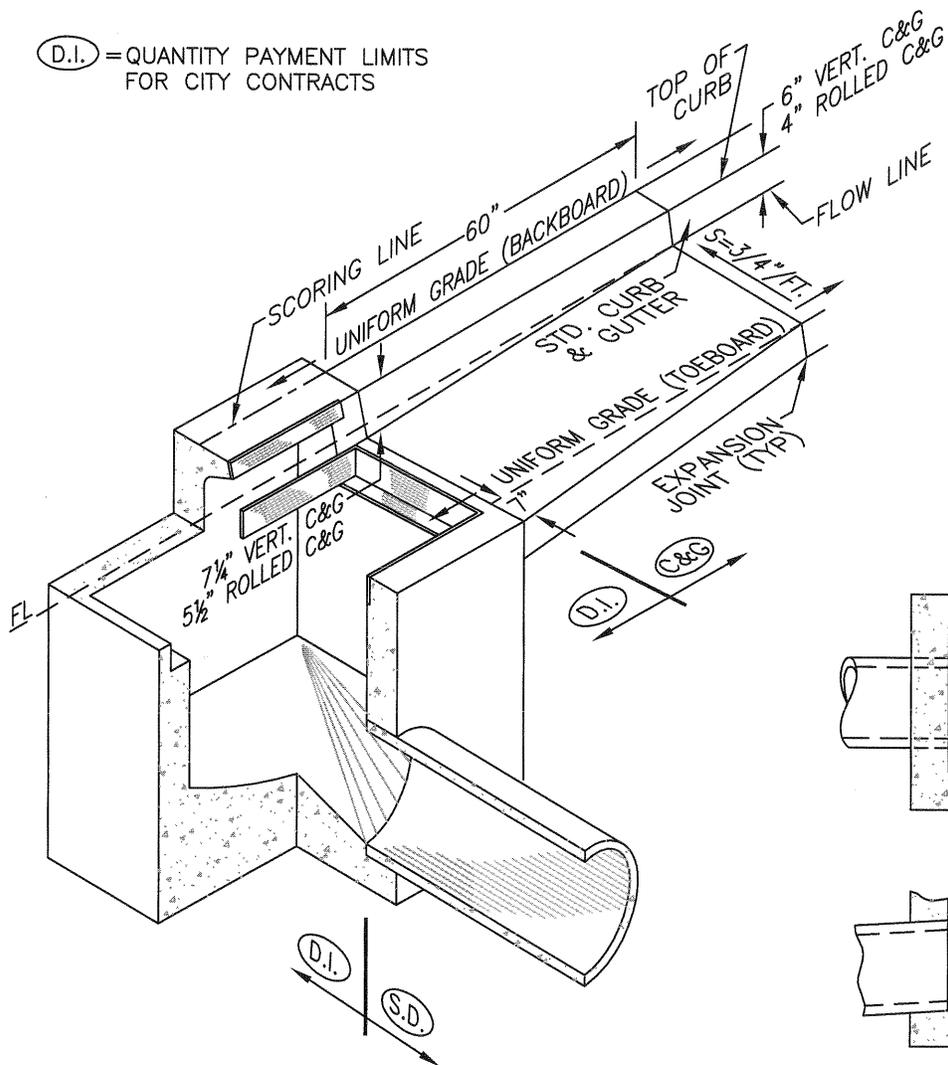
DRAWN BY: GL DATE: 8/09
 CHECKED BY: MT SCALE: NONE
 APPROVED: [Signature]
 CPSD DIRECTOR

**36" DROP INLET
 (CAL - TRANS "G-0")**

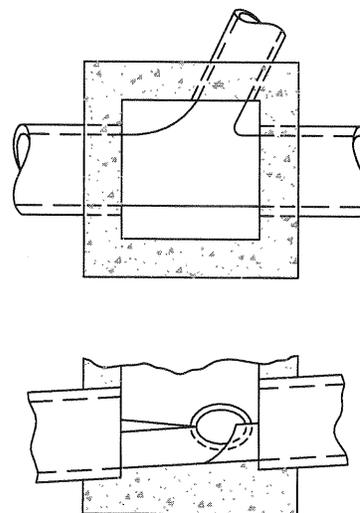
NO.
S-7

SHEET 1 OF 4

(D.I.) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS



D.I. CUT AWAY VIEW



SHAPING OF INVERT

NOTE: USE WHEN MORE THAN ONE PIPE CONNECTS TO THE D.I.

NOTES:

1. WALL THICKNESS SHALL BE 8" WHEN DEPTH OF D.I. IS GREATER THAN 8'.
2. PIPES CAN BE PLACED IN ANY WALL.
3. SEE SHEET 2 OF 4 FOR D.I. CUT AWAY VIEW.
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REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

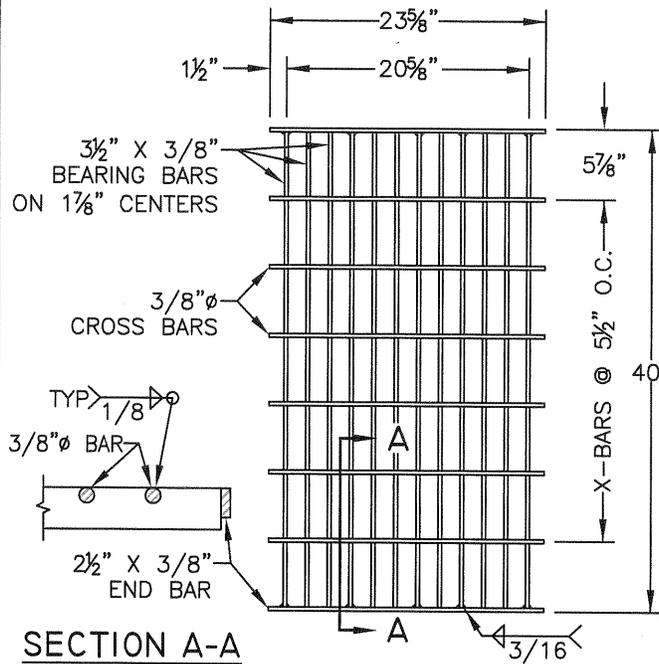
STANDARD PLAN

DRAWN BY: GL DATE: 8/09
 CHECKED BY: MT SCALE: NONE
 APPROVED: [Signature]
 CPSD DIRECTOR

**36" DROP INLET
(CAL - TRANS "G-0")**

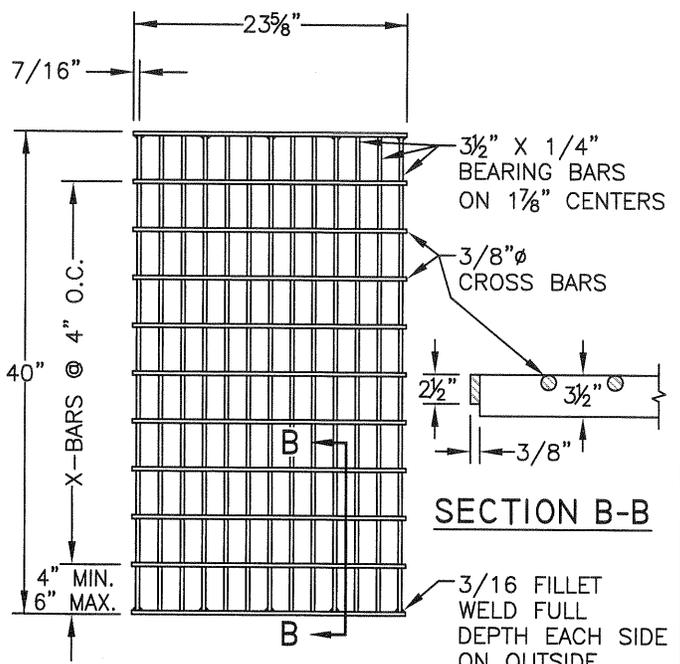
NO.
S-7

SHEET 2 OF 4



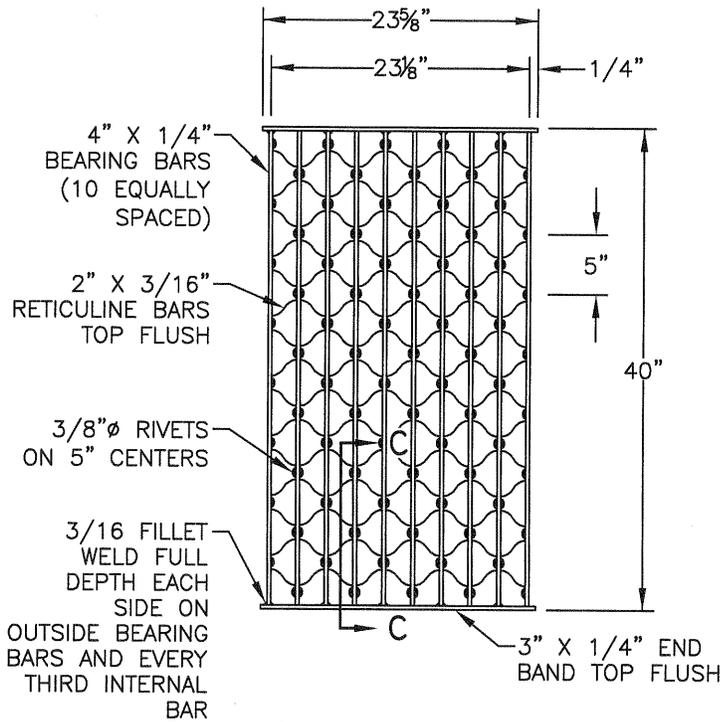
SECTION A-A

24-12X GRATE
(WELDED STEEL)

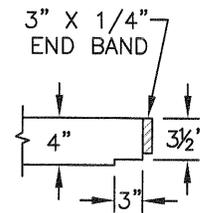


SECTION B-B

24-13 GRATE
(WELDED STEEL)



24-10S GRATE
(WELDED STEEL)
RETICULINE TYPE



SECTION C-C

NOTES:

1. GRATE TYPE NUMBERS REFER TO WIDTH OF GRATE IN INCHES AND NUMBER OF BARS, RESPECTIVELY.
2. CROSS BARS MAY BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.
3. ROUNDED TOP OF BARS OPTIONAL ON ALL GRATES.
4. ALL GRATES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 75-1.05 OF THE STANDARD SPECIFICATIONS.

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

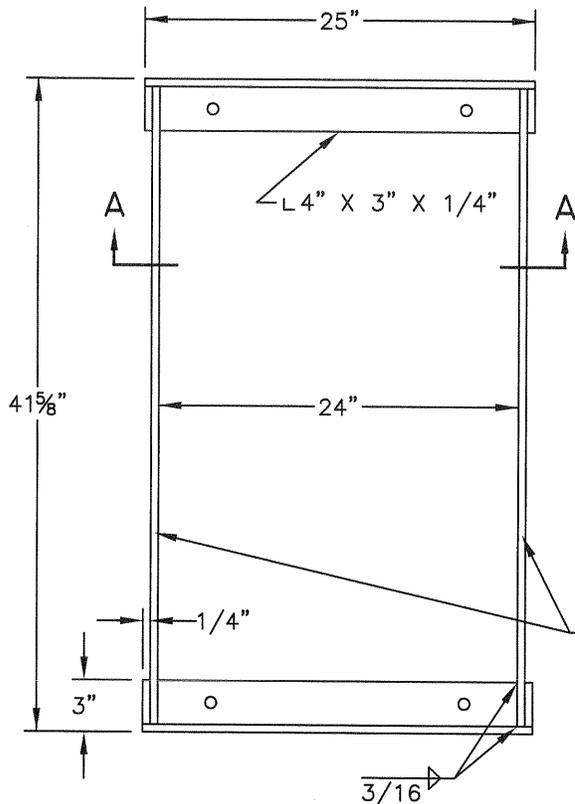
STANDARD PLAN

DRAWN BY: GL DATE: 8/09
 CHECKED BY: MT SCALE: NONE
 APPROVED: [Signature]
 CPSD DIRECTOR

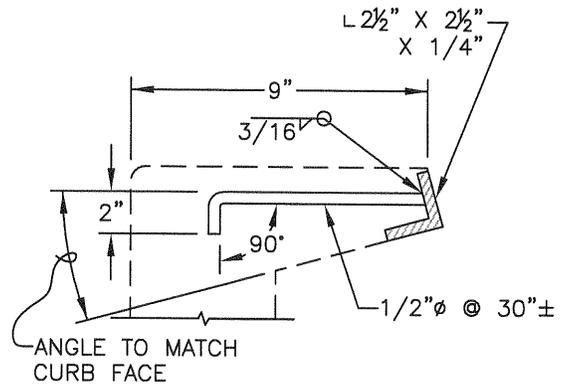
**GRATE DETAILS (CAL TRANS
STANDARD D-77-A & D-77-B)**

NO.
S-7

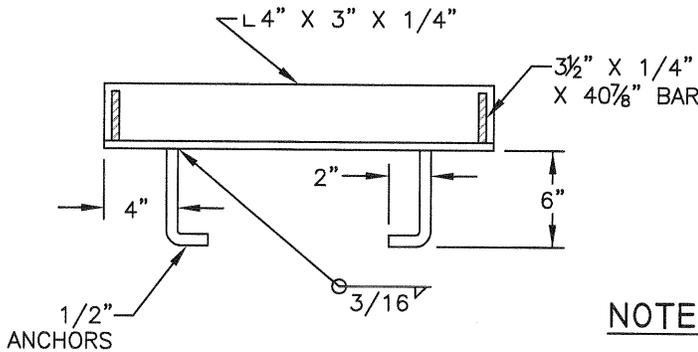
SHEET 3 OF 4



GRATE FRAME



FACE ANGLE ANCHOR DETAIL



SECTION A-A

NOTES:

1. FULL PENETRATION BUTT WELDS MAY BE SUBSTITUTED FOR FILLET WELDS ON ANCHORS.
2. ALL FRAMES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 75-1.05 OF THE STANDARD SPECIFICATIONS.

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

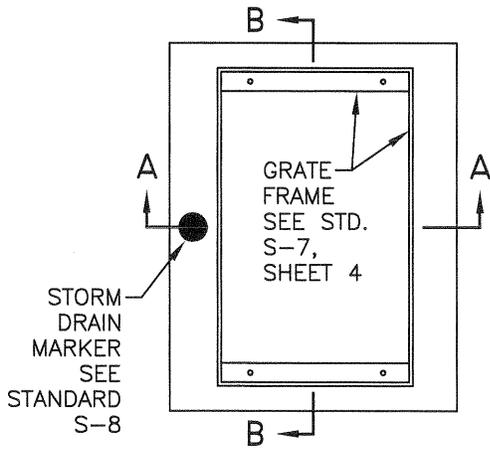
STANDARD PLAN

DRAWN BY: GL DATE: 8/09
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 CPSD DIRECTOR

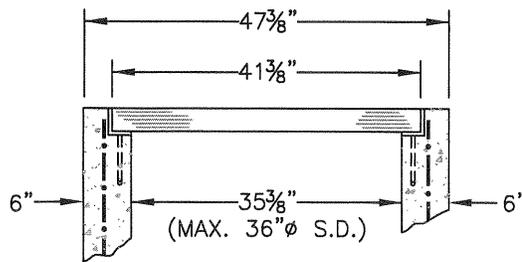
GRATE FRAME & FACE ANGLE ANCHOR DETAILS (CAL TRANS STANDARD D-77-A & D-77-B)

NO. **S-7**

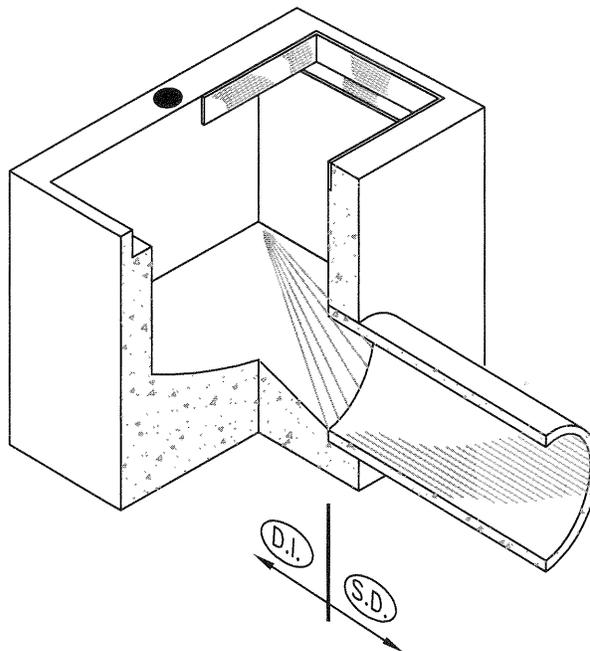
SHEET 4 OF 4



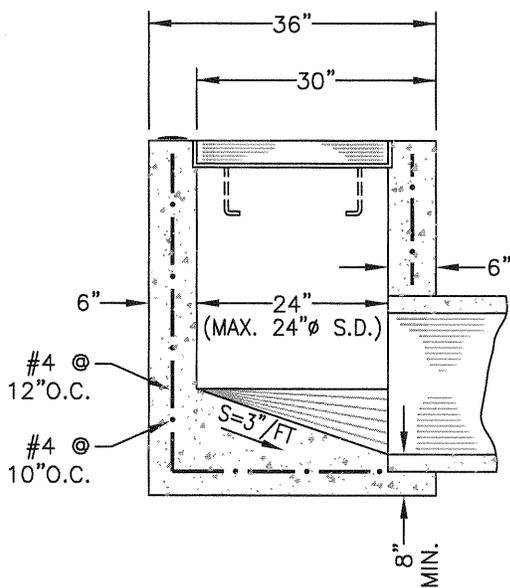
PLAN



SECTION B-B



D.I. CUT AWAY VIEW

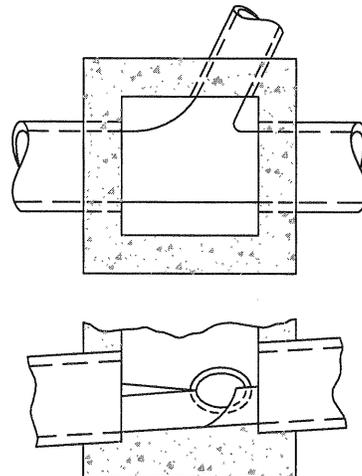


SECTION A-A

NOTES:

1. WALL THICKNESS SHALL BE 8" WHEN DEPTH OF D.I. IS GREATER THAN 8'.
2. PIPES CAN BE PLACED IN ANY WALL.
3. SEE STANDARD S-7 FOR FRAME AND GRATE DETAILS.
4. CAST-IN-PLACE OR PRECAST ALTERNATIVE IS OPTIONAL WITH CONTRACTOR; SEE STANDARD SPECS.
5. THIS DROP INLET SHALL BE USED FOR PUBIC STORM DRAINS IN ALLEYS AND EASEMENTS.

(D.I.) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS



SHAPING OF INVERT

NOTE: USE WHEN MORE THAN ONE PIPE CONNECTS TO THE D.I.

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

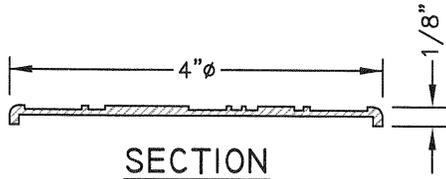
STANDARD PLAN

DRAWN BY: GL DATE: 8/09
 CHECKED BY: MT SCALE: NONE
 APPROVED: [Signature]
 CSPD DIRECTOR

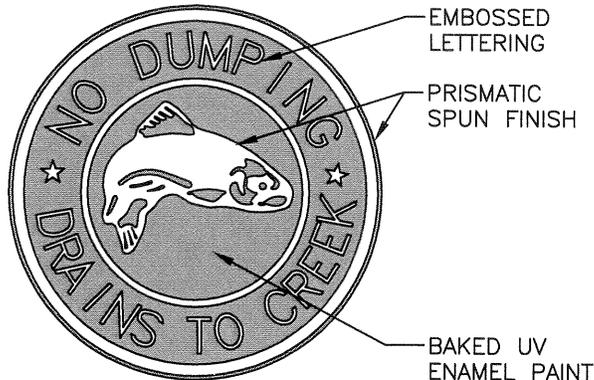
**FLAT GRATE INLET
(CAL - TRANS "G-1")**

NO. **S-7A**

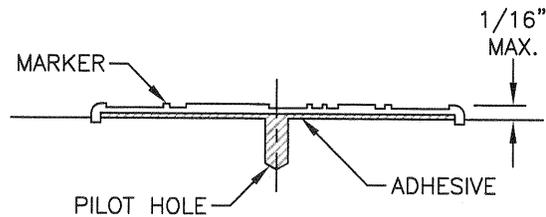
SHEET 1 OF 1



SECTION



PLAN



INSTALLATION DETAIL

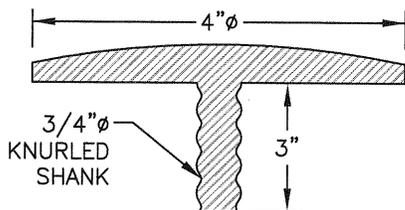
NOTES:

1. DRILL CONCRETE OR ASPHALT WITH 4"Ø KEYHOLE SAW 1/8" DEEP
2. APPLY CONSTRUCTION GRADE ADHESIVE (EPOXY) ON BACK OF MARKER AND EMBED INTO GROOVE. APPLY PRESSURE BY STEPPING ON MARKER

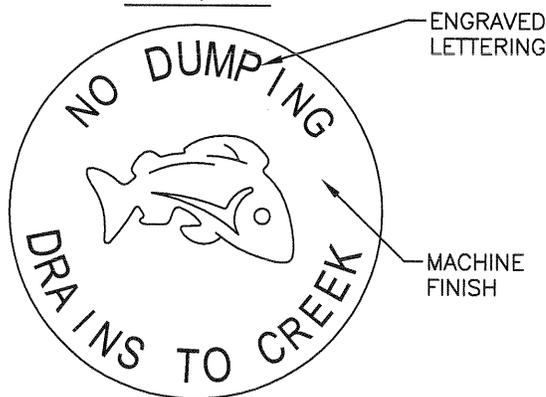
MANUFACTURED BY: ALMETEK INDUSTRIES
PART NO. SDS4R0301BLNAX OR
APPROVED EQUAL (www.almetek.com)

TYPE "A" MARKER

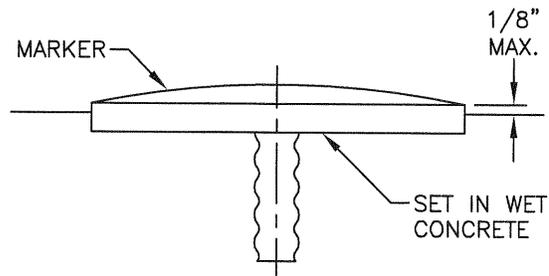
STAMPED STAINLESS STEEL



SECTION



PLAN



INSTALLATION DETAIL

NOTES:

1. IF DROP INLET IS PRE CAST THEN MARKER SHALL BE PLACED AT TIME OF MANUFACTURE
2. IF DROP INLET IS CAST IN PLACE THEN MARKER SHALL BE PLACED AT TIME OF POUR

MANUFACTURED BY: SURV-KAP, INC.
PART NO. M/M-ACS-4D WITH LOGO L-27
OR APPROVED EQUAL (www.surv-kap.com)

TYPE "B" MARKER

CAST ALUMINUM

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

DRAWN BY: GL DATE: 8/09
CHECKED BY: MT SCALE: NONE
APPROVED: [Signature]
CPSD DIRECTOR

**STORM DRAIN
MARKER DETAIL**

NO.
S-8

SHEET 1 OF 1

ATTACHMENT D

DRAFT

SANITARY SEWER
LIFT PUMP STATION
(LPS)

**CITY OF CHICO
GUIDELINES AND
SPECIFICATIONS**

SEPTEMBER 2009

TABLE OF CONTENTS

ITEM	PAGE
Typical Sanitary Sewer Lift Pump Station Detail	
Sanitary Sewage Lift Station	1
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Auxiliary Generator	26
Appendix	

CITY OF CHICO

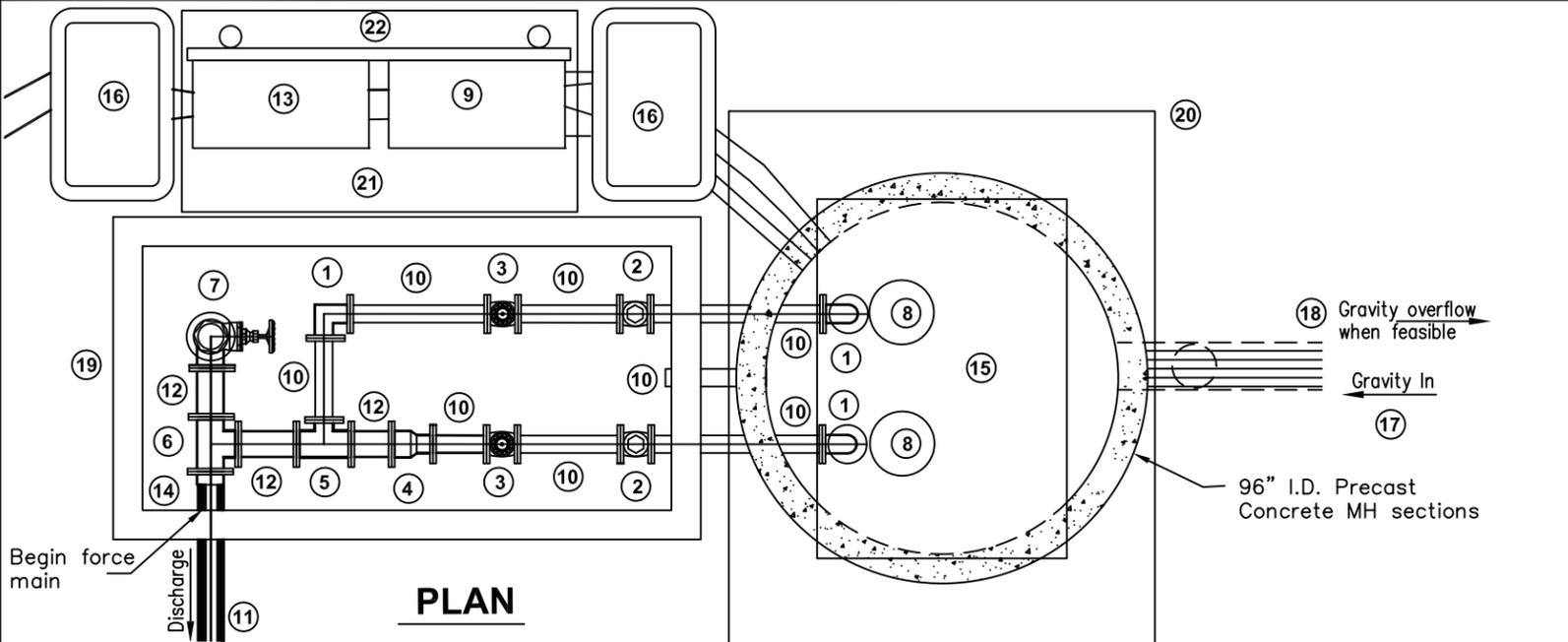
BUILDING & DEVELOPMENT SERVICES DEPT.

DRAWN BY: GL DATE: 2/28/2007

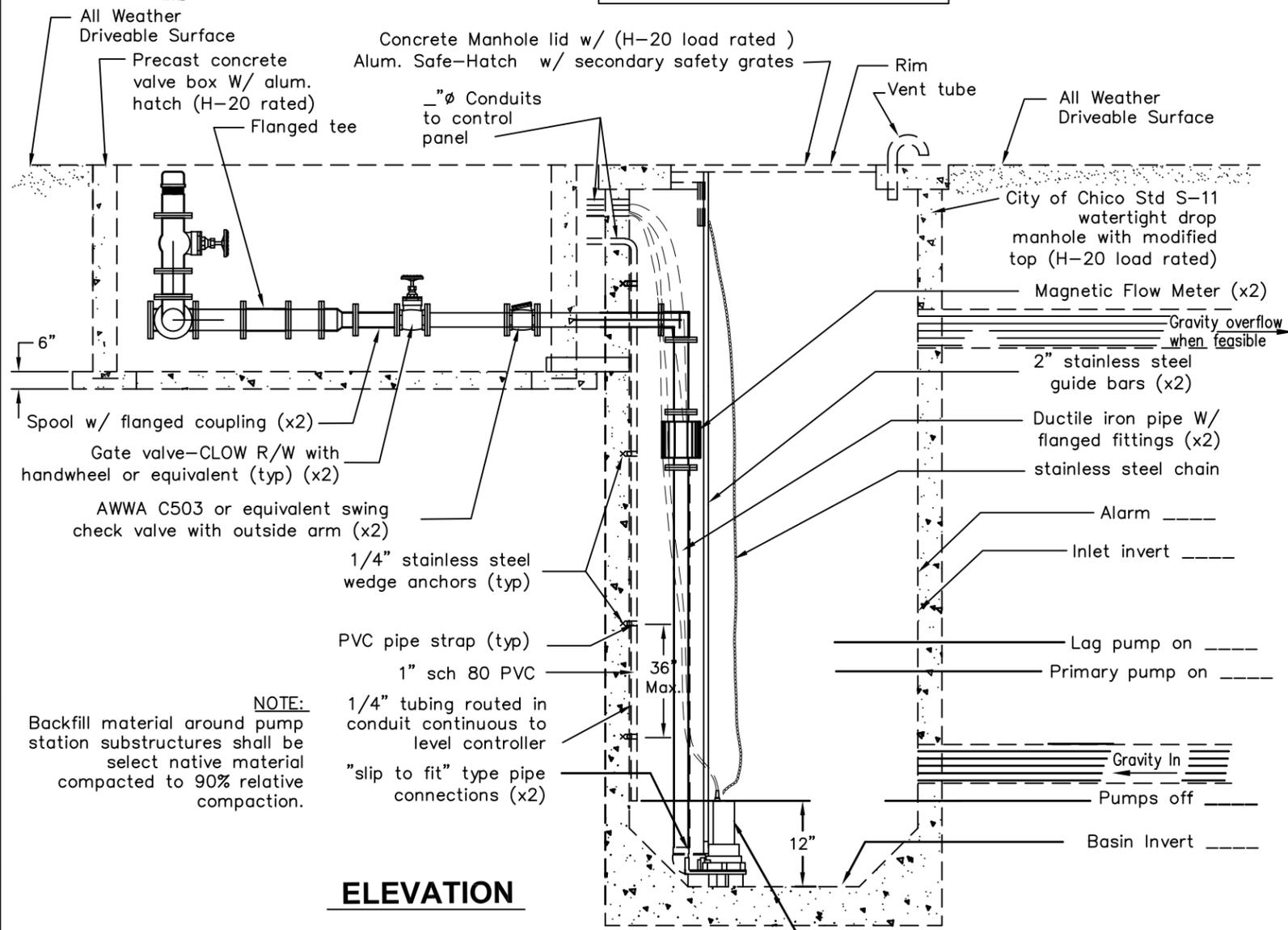
CHECKED BY: MT SCALE: NONE

APPROVED: DIRECTOR OF BLDG. & DEV. SERV.

Drawing Path: S:\SEWERS\Lift Stations\Standard Design\S9_Lift Station C 9-21-09.dwg



PLAN



ELEVATION

LIFT STATION NOTES:

1. ALL PUMPS SHALL BE FLYGT, OR ABS HEAVY DUTY, THREE PHASE, AND SUBMERSIBLE OR APPROVED EQUAL. CALCULATIONS FOR PUMP SIZING SHALL BE SUBMITTED PRIOR TO APPROVAL. PUMPS SHALL HAVE STAINLESS STEEL ATTACHED TAG CHAINS FOR PUMP REMOVAL.
2. PUMPS SHALL BE FITTED WITH INITIAL START UP FLUSH VALVE.
3. LAG AND LEAD PUMPS SHALL ALTERNATE AFTER EACH PUMPING CYCLE
4. ALL PUMPS SHALL HAVE PROGRAMMABLE LOGIC CONTROLLER (PLC) FOR CONTROL.
 - A) PLC TO BE SCADA COMPATIBLE (COMPUTERIZED CONTROL NETWORK).
 - B) CELLULAR TECHNOLOGY, OR DEDICATED TELEPHONE TO BE PROVIDED FOR COMMUNICATIONS TO SCADA AND ALARM NOTIFICATION.
5. ALL COMPONENTS INSIDE OF THE WET-WELL, (I.E. GUIDE-RAILS, SUPPORTS, CHAIN, BOLTS, ETC) SHALL BE STAINLESS STEEL.
 - A) EXCEPTIONS WOULD BE THE PUMP ITSELF AND THE DISCHARGE PIPING.
 - B) DISCHARGE PIPING TO BE DUCTILE IRON OR STEEL WITH EPOXY COATING.
6. LOCKABLE H-20 RATED ACCESS HATCHES WITH BUILT IN SAFETY GRATINGS FOR FALL PROTECTION SHALL BE PROVIDED.
7. PRIMARY LEVEL CONTROL SHALL BE A BUBBLER TYPE SYSTEM AND SHALL INCLUDE THE COMPONENTS SPECIFIED BELOW:
 - A) THE COMPRESSOR MAKE IS A MEDO, MODEL #: AC0410-A1013-D2-0561, 115V, 60HZ, 39 WATT, MANF. BY NITTO KOHKI CO., LTD. OR APPROVED EQUAL.
 - B) THE PRESSURE TRANSDUCER IS AN ASHCROFT, 0-15 PSI., 4-20 MA SIGNAL, PN: 15100D7M0242F215 OR APPROVED EQUAL.
8. A BACKUP HIGH-AND-LOW LEVEL FLOAT SYSTEM FOR ALARM AND PUMP OPERATION SHALL BE PROVIDED TO PROVIDE LEVEL CONTROL IN THE EVENT OF PLC FAILURE.
9. A PAD MOUNTED NATURAL GAS _____ H.P. CUMMINS, CATERPILLAR, OR APPROVED EQUAL GENERATOR SHALL BE PROVIDED AND INSTALLED ON SITE TO RUN LIFT PUMP STATION (LPS) (NOTE TO DESIGNER SIZE TO BE DETERMINED BY THE DIRECTOR AND THIS NOTE MODIFIED ACCORDINGLY). AN AUTOMATIC TRANSFER SWITCH SHALL BE INCLUDED IN THE INSTALLATION. P.G.&E. NATURAL GAS SERVICE SHALL BE PROVIDED.
10. CONTROL PANEL SHALL BE FLYGT OR ABS DUPLEX AUTOMATIC CONTROL PANEL FOR THREE PHASE PUMPS OR APPROVED EQUAL. IT SHALL INCLUDE THE FOLLOWING FEATURES:
 - A) THERMOSTATICALLY CONTROLLED VENT FANS FOR HEAT DISSIPATION,
 - B) THERMOSTATICALLY CONTROLLED HEATER ASSEMBLY FOR COLD CONDITIONS,
 - C) BUBBLER TYPE LEVEL CONTROL WITH TRANSMITTER,
 - D) NEMA 4 ALL WEATHER ENCLOSURE OR EQUIVALENT WITH HINGED INNER DOOR,
 - E) MAIN CIRCUIT BREAKER AND COMBINATION STARTERS,
 - F) 120 VOLT CONTROL TRANSFORMER,
 - G) H-O-A PUMP SELECTOR SWITCHES,
 - H) AUTOMATIC ALTERNATOR,
 - I) PUMP RUN INDICATOR LIGHTS MOUNTED ON INNER DOOR,
 - J) ELAPSED TIME METERS (ETM),
 - K) POWER-ON INDICATOR LIGHT,
 - L) CONDENSATION/ TEMPERATURE HEATER STRIP W/ THERMOSTAT,
 - M) EXTERIOR MOUNTED HIGH WATER FLASHING ALARM LIGHT,
 - N) HIGH WATER ALARM HORN W/ PUSH TO SILENCE BUTTON,
 - O) HIGH-WATER ALARM AUXILIARY CONTACT,
 - P) THREE PHASE CAPACITOR AND START RELAY MODULES,
 - Q) 20" FLOOR PEDESTAL STAND KIT PANEL,
 - R) PANEL SHALL BE UL LISTED AND LABELED,
 - S) CONTROL PANEL SHALL HAVE AN AUTOMATIC TRANSFER SWITCH FOR THE GENERATOR IN CASE OF POWER FAILURE (ALL SIZED TO RUN ENTIRE STATION), AND
 - T) PROVIDE AIR AND MOISTURE TIGHT SEAL BETWEEN CONDUIT AND CONDUCTORS PRIOR TO ENTERING CONTROL PANEL.

AN AUXILIARY GENERATOR SIZED ADEQUATELY TO RUN THE ENTIRE LIFT PUMP STATION (LPS) IN THE EVENT OF A POWER OUTAGE SHALL BE FURNISHED AND INSTALLED ON A CONCRETE PAD.
 COORDINATE CONNECTION TO TELEPHONE, WATER SERVICE, AND GAS/ELECTRIC WITH UTILITY COMPANIES.
 INSTALL FENCE AND/OR BOLLARDS AS DIRECTED BY THE ENGINEER.

LIFT STATION NOTES:

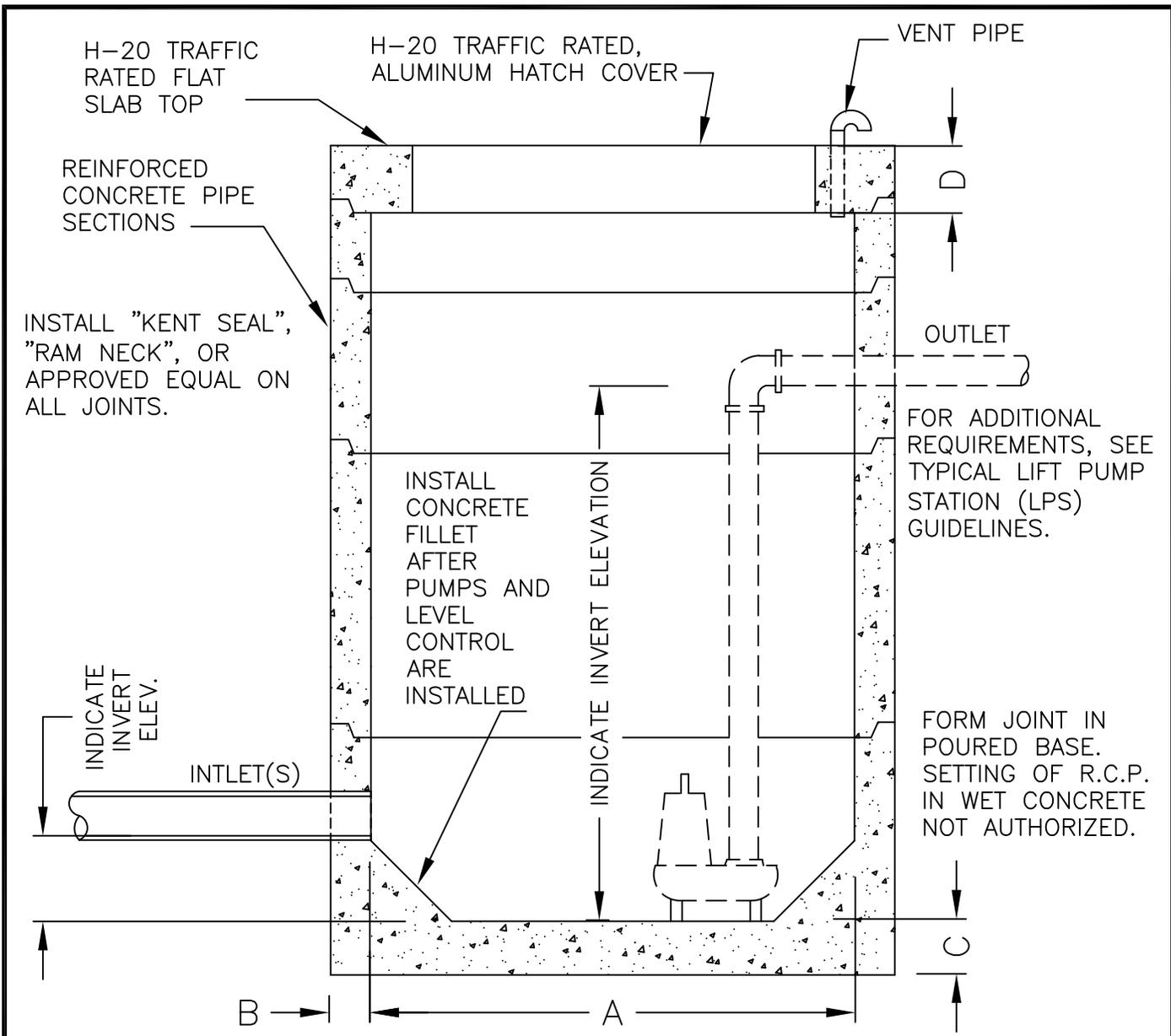
- ① (DIA. #1) DUCTILE IRON 90° FLANGED ELBOW.
- ② (DIA. #1) FLANGED SWING CHECK VALVE.
- ③ (DIA. #1) FLANGED GATE VALVE.
- ④ (DIA. #1 x DIA. #2) DUCTILE IRON FLANGED REDUCING COUPLER.
- ⑤ (DIA. #1 x DIA. #2) DUCTILE IRON FLANGED REDUCING TEE.
- ⑥ (DIA. #2) DUCTILE IRON FLANGED TEE.
- ⑦ (DIA. #2) FLANGED 90° ELBOW, (DIA #2) FLANGED SPOOL RISER, (DIA. #2) FLANGED GATE VALVE, (DIA. #2), (DIA. #2) SPOOL FLANGED ONE END THREADED ON THE OTHER, AND CAP.
- ⑧ SUBMERSIBLE NON-CLOG WASTEWATER PUMP.
- ⑨ CONTROL PANEL.
- ⑩ (DIA. #1) FLANGED DUCTILE IRON PIPE.
- ⑪ (DIA. #2) PVC FORCE MAIN PIPE.
- ⑫ (DIA. #2) FLANGED DUCTILE IRON PIPE.
- ⑬ PANEL WITH MAIN BREAKER, PHASE CONVERTER, TRANSFER SWITCHES, MINI POWER CENTER, DUPLEX (GFI) RECEPTACLE, POWER DISTRIBUTION BLOCK, SURGE SUPPRESSOR, AND GENERATOR RECEPTACLE.
- ⑭ TRANSITION FROM FLANGED DUCTILE IRON PIPE TO PVC PIPE.
- ⑮ CITY OF CHICO STD. S-11 WATERTIGHT DROP MANHOLE WITH MODIFIED (H-20 LOAD RATED) TOP W/ ALUM. HATCH & FALL PROTECTION.
- ⑯ #_ PULL BOX
- ⑰ GRAVITY FLOW INLET
- ⑱ GRAVITY OVERFLOW WHERE FEASIBLE.
- ⑲ PRECAST CONCRETE VAULT. BROOKS NO. W-303 W/ MODEL BILCO J2 WITH RECESSED HASP AND J2AL LOADING CAPABILITY OR EQUIVALENT.
- ⑳ DRIVEABLE SURFACE TO/AROUND FACILITY.
- ㉑ CONCRETE PAD UNDER ELECTRICAL PANELS
- ㉒ UNISTRUT OR EQUAL MOUNTING SYSTEM IF PANELS ARE NOT FREE STANDING.

TO BE USED IN CONJUNCTION WITH CITY OF CHICO SPECIFICATIONS.

TYPICAL SANITARY SEWER LIFT PUMP STATION DETAIL

SERIES C

SHEET 1 OF 1



DIMENSIONS SHALL BE IN ACCORDANCE WITH A.S.T.M. C-478-70 AS AMENDED. SHOP DRAWINGS SHALL BE SUBMITTED PRIOR TO PLACING ORDER.

THE WET WELL BASE SHALL BE:

1. CLASS B CONCRETE POURED AGAINST UNDISTURBED EARTH, OR:
2. A PRECAST BASE WITH GASKETED JOINTS, PLACED ON 6" MINIMUM A.B., COMPACTED TO 95% RELATIVE DENSITY.

CITY OF CHICO		BUILDING & DEVELOPMENT SERVICES DEPT.	
DRAWN BY: <u>TS</u>	DATE: <u>9/15/2009</u>	TYPICAL SANITARY SEWER LIFT PUMP STATION DETAIL	DETAIL A
CHECKED BY: <u>MT</u>	SCALE: <u>NONE</u>		
APPROVED: _____	DIRECTOR OF ENGINEERING		
		SHEET 1 OF 1	

1. Sanitary Sewage Lift Station

- a. Description: Providing sewage lift station, shall conform to the applicable sections of the Standard Specifications and these special provisions.

Equipment List and Drawings: The controller cabinet schematic wiring diagram and lift station sketch shall be combined into one drawing, so that, when the cabinet door is fully open, the drawing is oriented with the lift station. One blueprint shall be supplied in the cabinet and the as-builts sent to the Engineer. As-builts, to be supplied shall consist of one mylar and one blueprint.

The Contractor shall furnish two maintenance and operations manuals for all controller units, sewage lift station-control software and auxiliary equipment. The maintenance manual and operation manual may be combined into one manual. One maintenance manual or combined maintenance and operations manual shall be submitted at the time the controllers are delivered for testing or, if ordered by the Engineer, previous to purchase. The second maintenance and operations manual shall be delivered to the Engineer at time of testing. Any changes to the manual required as the result of the testing or other circumstance shall be supplied to the Engineer prior to acceptance of the project. The maintenance manual shall include, but need not be limited to, the following items:

- (1) Specifications
- (2) Design characteristics
- (3) General operation theory
- (4) Function of all controls
- (5) Trouble shooting procedure (diagnostic routine)
- (6) Block circuit diagram
- (7) Geographical layout of components
- (8) Schematic diagrams
- (9) List of replaceable component parts with stock numbers

The manufacturer shall provide as part of his bid price the services of a factory trained representative for a period of one day at the lift station site to perform initial start-up of the pumping station, to instruct operating personnel in the operation and maintenance of the equipment, and to demonstrate satisfactorily the performance of each piece of the equipment.

- b. Components:

WET WELL

Construction of the wet well shall conform to the provisions in Section 70, "Miscellaneous Facilities" of the Standard Specifications and these Special Provisions. Wet well shall have a minimum inside diameter of 72-inches.

Cast-in-place concrete: All materials used in cast-in-place concrete shall be Class B concrete in accordance with the applicable portions of Section 51 and 90 of the State Standard Specifications.

Precast Concrete Wet Well Sections: All precast concrete wet well sections, including grade rings and flat slab tops, shall conform to ASTM C478, and the dimensions as shown on City of Chico Standard and Typical Plans, and Guidelines. Minimum wet well inside diameter shall be 72". Grade rings shall be a standard product, manufactured particularly for use in wet well or manhole construction, sized to fit the wet well sections on which they are to be placed, and the wall thickness shall be not less than that of the

wet well sections. Grade rings shall be not less than 2 inches, nor more than 6 inches in height. All precast components shall have tongue and groove ends.

Wet Well Access Cover: Cover shall be designed for H-20 wheel loading, and shall be constructed of 1/4 inch aluminum "diamond plate" with stainless steel hardware and shall include secondary fall protection grates. A 1-½ inch drain coupling shall be attached to the channel frame and each leaf of the access cover shall have a recessed handle. Cover shall lock shut with a padlock in recessed area in the checker plate. Each leaf of the access cover shall have an automatic hold open devise that will sturdily hold each leaf open during windy conditions. The size of each access cover shall be such that there is a minimum clearance of 4" in all directions when lifting pumps straight up and out of the wet well. Access covers shall be as manufactured by Bilco, Flygt, Chicago, or approved equal.

Joint Sealing Compound Components shall be RAM-NEK primer and joint sealing compound, KENT-SEAL primer and joint sealant, or approved equal.

Manhole water stops, as approved by the engineer, shall be installed on PVC sewer pipe to make a watertight seal between the pipe wall and the concrete wet well.

Mortar shall be proportioned with one part Portland Cement in two parts clean, well-graded sand which will pass a 1/8-inch screen. Admixtures may not exceed the following percentages of weight of cement: Hydrated lime, 10 percent; diatomaceous earth or other inert materials, 5 percent. Consistency of mortar shall be such that it will readily adhere to the surfaces. Mortar mixed for longer than 30 minutes shall not be used.

Contractor shall install a vent tube from the wet well as indicated on the Typical Lift Station Detail Plan. It shall be fabricated from ductile iron pipe, with a screen firmly attached to the outlet end to prevent debris from entering the well.

Workmanship shall conform to those in the "Sewer and Storm Drain Manholes" section of the Special Provisions.

PUMPS

For highlighted text: "As per actual design indicates"

Requirements

Furnish and install two submersible non-clog wastewater pumps. Each pump shall be equipped with {3} HP, submersible electric motor connected for operation on {480} volts, 3 phase, 60 hertz, {4} wire service, submersible cable (SUBCAB) suitable for submersible pump applications. The power cable shall be sized according to NEC and ICEA standards and also meet with P-MSHA Approval. The pump shall be supplied with a mating cast iron {3}-inch (min. 2") discharge connection and be capable of delivering {180} GPM at {12} ft of TDH. An additional point on the same curve shall be {120} GPM at {15} feet total head. Shut off head shall be {18} feet (minimum). Each pump shall be fitted with 20 feet of ⅜" lifting chain or 8/32" stainless steel cable. The working load of the lifting system shall be 50% greater than the pump unit weight. The NPSH shall be 0-ft. Pumps shall be as manufactured by FLYGT, ABS, or an approved equal design. Proposed equals must be pre-approved by the City. Specifications for proposed equals shall be submitted to the City for approval no less than 72 hours prior to the bid opening.

Pump Design

The pump(s) shall be automatically and firmly connected to the discharge connection, guided by no less than two guide bars extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet-well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal watertight contact. **Sealing of the discharge interface with a diaphragm, O-ring or profile gasket will not be acceptable.** No portion of the pump shall bear

directly on the sump floor.

Pump Construction

Major pump components shall be of gray cast iron, ASTM A-48, Class 35B or higher (40), with smooth surfaces devoid of blow holes or other irregularities. All exposed nuts or bolts shall be AISI type 304 or 316 stainless steel construction. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.

Sealing design shall incorporate **metal-to-metal contact** between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.

Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

Motor Cooling System

Each unit shall be provided with an adequately designed cooling system. Pump motor cooling shall be accomplished with a closed loop cooling system rather than the pumped fluid media. Pump shall be able to operate for continuous pump operation in liquid temperature of up to **104 DEGREES F** either fully or partially submerged and without need for external motor cooling device or fans. Restrictions below this temperature are not acceptable.

Cable Entry Seal

The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. The cable entry shall consist of a single cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the body containing a strain relief function, separate from the function of sealing the cable. The assembly shall provide ease of changing the cable when necessary using the same entry seal. The cable entry junction chamber and motor shall be separated by terminal board, which shall isolate the interior from foreign material gaining access through the pump top. Epoxies, silicones, or other secondary sealing systems shall not be considered acceptable.

Motor

The pump motor shall be induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber, NEMA B type. The stator shall be heat-shrink fitted into the stator housing. The use of bolts, pins or other fastening devices requiring penetration of the stator housing is not acceptable. The motor shall be designed for continuous duty handling pumped media of 40EC (104EF) and capable of up to 15 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of cast aluminum. Thermal switches set to open at 125EC to 140 (260EF/284) shall be embedded in the stator lead coils to monitor the temperature of each phase winding. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the control panel. The junction chamber containing the terminal board, shall be hermetically sealed from the motor by an elastomer O-ring seal. Connection between the cable conductors and stator leads shall be made with threaded compression type binding posts permanently affixed to a terminal board. The motor and pump shall be designed and assembled by the same manufacturer.

The combined service factor (combined effect of voltage, frequency and specific gravity)

shall be a minimum of 1.10. The motor shall have a voltage tolerance of plus or minus 10%. The motor shall be designed for operation up to 40EC (104EF) ambient and with a temperature rise not to exceed 80EC. A performance chart shall be provided upon request showing curves for torque, current, power factor, input/output kW and efficiency. This chart shall also include data on starting current and torque.

The power cable shall be sized according to the NEC and ICEA standards and shall be of sufficient length to reach the junction box without the need of any splices. The outer jacket of the cable shall be oil resistant chloroprene rubber. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet.

The motor horsepower shall be adequate so that the pump is non-overloading throughout the entire pump performance curve from shut-off through run-out.

The motor shall be able to operate dry without damage while pumping under load.

Bearings

The pump shaft shall rotate on two bearings. Motor bearings shall be permanently grease or oil lubricated. The upper bearing shall be a single roller bearing. The lower bearing shall be a two row angular contact bearing to compensate for axial thrust and radial forces. **Single row lower bearings are not acceptable.**

Mechanical Seal

Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The seals shall operate in an lubricant reservoir that hydrodynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal unit, located between the pump and the lubricant chamber, shall contain one stationary and one positively driven rotating **tungsten-carbide** or silicon Carbide ring. The upper, secondary seal unit, located between the lubricant chamber and the motor housing, shall contain one stationary **tungsten-carbide** or carbon seal ring and one positively driven rotating **tungsten-carbide** or Cr-steel seal ring. Each seal interface shall be held in contact by its own spring system. The seals shall require neither maintenance nor adjustment nor **depend on direction of rotation for sealing**. For special applications, other seal face materials shall be available.

The following seal types shall not be considered acceptable nor equal to the dual independent seal specified: shaft seals without positively driven rotating members, or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces. Cartridge type systems will not be acceptable. No system requiring a pressure differential to offset pressure and to effect sealing shall be used.

Each pump shall be provided with an lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and to provide lubricant expansion capacity. The drain and inspection plug, with positive anti-leak seal shall be easily accessible from the outside. The seal system shall not rely upon the pumped media for lubrication.

Seal lubricant shall be FDA Approved, nontoxic.

Pump Shaft

Pump and motor shaft shall be the same unit. The pump shaft is an extension of the motor shaft. Couplings shall not be acceptable. The pump shaft shall be of 420 stainless steel or carbon steel C-1035 and shall be completely isolated from the pumped liquid.

Impeller

The impeller(s) shall be of gray cast iron, Class 35B or higher (40), dynamically balanced, double shrouded, or semi open, non-clogging design having a long throughlet without acute turns. At the direction of the Engineer, the impeller(s) shall be FLYGT "N" Type, ABS "Contra Block" Type, or "Grinder" type, or approved equal, capable of handling solids, fibrous materials, heavy sludge and other matter found in wastewater. Whenever possible, a full vaned, not vortex, impeller, or semi-open impeller with adjustable wearplate, shall be used for maximum hydraulic efficiency; thus, reducing operating costs. Mass moment of inertia calculations shall be provided by the pump manufacturer upon request. Impeller(s) shall be keyed to the shaft, retained with an allen head bolt and shall be capable of passing a minimum 4 inch diameter solid. All impellers shall be coated with an acrylic dispersion zinc phosphate primer.

Adjustable Wear Plate or Wear Ring Systems

Wear Ring System:

A wear ring system shall be used to provide efficient sealing between the volute and suction inlet of the impeller. Each pump shall be equipped with a brass, or nitrile rubber coated steel ring insert that is drive fitted to the volute inlet.

This pump shall also have a stainless steel impeller wear ring heat-shrink fitted onto the suction inlet of the impeller.

Wear Plate System:

Wear plate shall be adjustable self-cleaning type of ASTM A48B class 40 cast iron. The wear plate shall be mounted to the volute with four stainless steel/brass adjusting screws to permit close tolerance adjustment between the wear plate and impeller for maximum pump efficiency.

Volute

Pump volute(s) shall be single-piece gray cast iron, Class 35B or higher (40), non-concentric design with smooth passages large enough to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified.

Protection

All stators shall incorporate thermal switches in series to monitor the temperature of each phase winding. At 125EC / 140 deg C (260EF/284) the thermal switches shall open, stop the motor and activate an alarm.

A leakage sensor shall be available to detect water in a leak chamber or the stator chamber. The Leakage Sensor is used to detect the presence of water in the leak chamber or stator chamber and when activated, will send an alarm both local and/or remote.

The thermal switches and leakage sensor shall be connected to a Mini CAS or equal (Control and Status) monitoring unit. The Mini CAS or equal shall be designed to be mounted in any control panel.

PUMP CONTROL PANEL

General:

The control system shall be designed to operate the two pumps specified on the drawing at the power characteristics shown on the plans.

The control function shall provide for the operation of the pumps under normal conditions, and shall alternate the pumps on each pump down cycle to equalize the run time. In the event the incoming flow exceeds the pumping capacity of the lead pump, subsequent pumps shall automatically start to handle the increased flows. As the flow decreases, the pumps shall cut off at the elevations as shown on the plans.

Each pump shall be protected by thermal switches embedded in the motor windings. In the event of an overtemperature condition, the pumps shall shut down and remain inactive until the motor housing cools off.

The control shall function as described below. The equipment listed below is a guide and does not relieve the supplier from supplying a system that will function as required.

Mechanical:

The enclosure shall be a NEMA 4 rated painted steel or SS enclosure. The enclosure shall be a free standing type with a minimum depth of 8" sized to adequately house all the components. The door gasket shall be rubber composition with a retainer to assure a positive weatherproof seal. The door shall open a minimum of 180 degrees.

A polished aluminum dead front shall be mounted on a continuous aircraft type hinge and shall contain cutouts for mounted equipment and provide protection of personnel from live internal wiring. Cutouts for breaker handles shall be provided to allow operation of breakers without entering the compartment. All control switches, indicator pilot lights, elapsed time meters, duplex receptacle and other operational devices shall be mounted on the external surface of the dead front. The dead front shall open a minimum of 150 degrees to allow access to equipment for maintenance. A 3/4" break shall be formed around the perimeter of the dead front to provide rigidity.

The back plate shall be manufactured of 12 gauge sheet steel and be finished with a primer coat and two [2] coats of baked on white enamel. All hardware mounted to the subpanel shall be accomplished with machine thread tapped holes. Sheet metal screws are not acceptable. All devices shall be permanently identified using engraved nameplates. Use of DYMO type labels is not acceptable.

Electrical:

The panel power distribution shall include all necessary components and be completely wired with stranded copper conductors rated at 90 degrees C. All conductor terminations shall be as recommended by the device manufacturer.

All circuit breakers shall be heavy-duty thermal magnetic or motor circuit protectors similar and equal to SQUARE D type FAL. Each motor breaker shall be adequately sized to meet the pump motor operating characteristics and shall have a minimum of 10,000 amps interrupting capacity for 230 VAC and 14,000 amps at 480 VAC. The control circuit and the duplex receptacle shall individually be controlled by heavy-duty breakers. Duplex receptacle shall be a 120 volt GFCI type on a dedicated 20 amp circuit breaker.

Circuit breakers shall be indicating type, providing "on-off-trip" positions of the operating handle. When the breaker is tripped automatically, the handle shall assume a middle position indicating "trip".

Thermal magnetic breakers shall be quick-make and quick-break on manual and automatic operation and have inverse time characteristics secured through the use of bimetallic tripping elements supplemented by a magnetic trip.

Breakers shall be designed so that an overload on one pole automatically trips and opens all legs. Field installed handle ties shall not be acceptable.

Motor starters shall be open frame, across the line NEMA rated with individual overload protection in each leg. Motor starter contact and coil shall be replaceable from the front of the starter without removing from its mounted position. Overload heaters shall be block type, utilizing melting alloy spindles, and shall have visual trip indication. Overload shall be sized for the full load amperage draw of the pumps. Definite purpose contactors,

fractional size starters and horsepower rated contactors or relays shall not be acceptable.

Control transformers shall be provided to provide the 120 VAC and/or 24 VAC for control circuits. Transformers shall be fused on the primary and secondary circuits. The secondary shall be grounded.

A lightning-transient protector with telltale warning lights on each phase to indicate loss of protection on the individual phases shall be provided. The device shall be solid state with a response time of less than 5 nanoseconds with withstanding surge capacity of 6500 amperes. Unit shall be instant recovery, long life and have no holdover currents.

A line voltage rated, adjustable phase monitor shall be installed to sense low voltage, loss of power, reversed phasing and loss of a phase. Control circuit shall de-energize upon sensing any of the faults and shall automatically restore service upon return to normal power.

Included with the lift station package shall be a manual transfer switch and a receptacle to connect a portable backup generator per the "ELECTRICAL" section of these Special Provisions.

Alarm System:

The alarm light shall be a weatherproof, shatterproof, red light fixture with a 40-watt bulb to indicate alarm conditions. The alarm light shall be turned on by the alarm level.

The alarm horn shall be mounted on the exterior of the cabinet. The alarm horn shall provide a signal of not less than 90db at 10 feet. An alarm silence switch shall deactivate the alarm horn; however, the alarm light will flash until the alarm condition ceases to exist. At that time the alarm reset function will reset for normal operation.

Ancillary Equipment:

A three-position HOA switch shall be provided for each pump. The switch shall be NEMA 4x rated with 10 amp contacts. A position indicating legend plate shall be provided. The HOA switches shall be mounted on the inner dead front door.

A green run pilot indicator shall be mounted on the dead front door.

An elapsed time meter shall be mounted on the dead front door. The meter shall operate on 120 VAC, shall indicate in hours [6 digits] and tenths and shall be non-resettable.

The alternator shall be a plug in, solid state unit with lead-lag-auto selector and test switches. The unit shall operate on 120 VAC and provide DPDT ten amp rated contacts. Two LED's shall indicate the next position to run as lead pump.

A thermal heater and thermostat shall be installed to maintain the internal temperature of the enclosure above the dew point.

A 0-10' level gauge shall be installed on the dead front to provide the liquid level reading.

Miscellaneous:

A final as built drawing encapsulated in mylar shall be attached to the inside of the front door. A list of all legends shall be included.

All component parts in the control panel shall be permanently marked and identified as they are indicated on the drawing. Marking shall be on the back plate adjacent to the component. All control conductors shall be identified with wire markers at each end as close as practical to the end of conductor.

All panels shall be tested to the power requirements as shown on the plans to assure proper operation of all the components. Each control function shall be activated to check for proper indication.

All equipment shall be guaranteed for a period of three [3] years from date of shipment. The guarantee is effective against all defects in workmanship and /or defective component. The warranty is limited to replacement or repair of the defective equipment.

Manufacturer:

The manufacturer shall be a UL 508 listed shop for industrial control systems and shall provide evidence of such on request from the engineer or using authority.

Level Control System:

The Level Controller shall be a solid state programmable logic controller (PLC). A dual pump control system shall be provided. The controller shall be a bubbler type level measurement system. The PLC shall be SCADA compatible (computerized control network). DSL and/or Cellular technology shall be able to be used for communications with SCADA and alarm system. Pump controller shall be MPEE Model SC2000 as manufactured by Motor Protection Electronics, Inc., or an approved equal, and shall be capable of: High level float alarm, Pump Failure, Generator running, Low level float alarm, Power failure alarm.

Controller shall include the capability to simulate a high water level condition to test the auto dialer.

The system shall be comprised of dual air pumps, air tank, internal selectable alternator for the submersible pumps and an alternator.

The control system shall contain a 40 segment [0-10'] bar graph display with level adjustment controls and selector switches that allow for setting of control levels, air flow and tank pressure. The controller shall be flush mounted on the dead front to allow for ease of adjustment.

The built in alternator shall allow for the automatic alternation of the pumps and shall provide for selection of the lead pump so that a single pump can be removed for maintenance.

The bar graph shall indicate airflow to the wet well, the pressure in the air tank [accumulator], and the level of the wet well with the operation of switches.

Alternation of the air compressors shall be controlled by the controller to reduce the operation time of the air compressors. Compressor failure shall be recognized by the controller and automatic switching to the standby unit shall be accomplished. The air compressor controls initial pressure settings shall be determined by the lead and lag pump set points. If tank pressure is less than the lead set point, the lead air pump will start. If the pressure is less than the lag set point, the lag air pump shall start. At the completion of each cycle, the controller adjusts each cycle to minimize compressor starts.

The system shall incorporate a minimum of three [3] transducers for measurement of the airflow, tank pressure and the bubbler tube pressure.

Provisions shall also be provided to allow use of an external transducer to supply a 4-20 ma signal input to the controller to control wet well level. The front panel shall indicate when an external 4-20 ma signal is being used to control the pumps.

The bubbler system shall automatically measure air flow rate into the wet well for detection of a clogged or restricted bubbler tube and at any time that the flow decreases below the set flow rate, the system shall lock all control functions, pressurize the tank to the maximum and dump the total air volume through the bubbler tube. After purging, the system shall return to normal operation. Purging of the system shall be accomplished automatically on decrease of flow, or through a time period setting accomplished by adjustment from the front of the controller. Timing shall be selectable from 15 minutes to 10 hours. Manual purging shall be performed by depressing an external purge button. The controller shall indicate when a purge cycle is called for.

An automatic dump solenoid on the air tank shall operate once a day to eliminate any accumulation of water in the air tank.

The controller shall provide for complete control of the submersible pumps, the dual air pumps and shall also provide for high and low level alarm outputs.

The on-off level for each pump shall be adjustable from the front panel by viewing the bar graph and the set points. As the level in the wet well rises, the controller shall sense the changes and provide a signal output through relay contacts to turn pumps on.

FLOAT BACKUP LEVEL CONTROL

A float control back up system shall be provided utilizing two {2} float switches, high on, low off. In the event the bubbler controller fails, the float system shall assume command of the system, turn on both pumps at an adjustable level, and provide an alarm signal, and indicate that the system is now operating from the float back up system. The operating control voltage level on the float switches shall meet intrinsically safe levels rated at less than 30 milliwatts of power at 5 VDC. A pump duration timer shall be provided for controlling pump run times while under operating in the float control back up system.

When the controller switches to the backup float system, it shall require removal of the control power to reset the system back into the bubbler control system.

A test switch mode shall be included to simulate actual on/off signals to the pumps, measure tank pressure and measure airflow to the wet well. Each of the signals shall be displayed on the bar graph.

The controller shall provide indication of the following failure conditions: [1] power failure, [2] AC1 or AC2 fail, [3] flow failure, [4] bubbler/air system failure or, [6] system failure. An external pump failure signal shall disable any pump and allow for control of a single pump through the controller. The Controller shall provide pump run times (totalization) and wetwell levels.

An RS-232 serial interface port shall be provided to support program modification or for connection of a telephone or radio modem for SCADA transmissions of signals to and from a central site.

DIALER

General:

The dialer shall be a 16-bit microprocessor based system employing a real-time multi-tasking operating system to monitor and control up to eight (8) input or output channels in addition to input power. The system shall be modular in design allowing any combination of digital and, up to two (2) analog, input or output channels to be selected by the user via plug-in modules. Each Input Module shall be a pulse counter (Channels 1-7 1 pps., Channel 8, 50 pps.) and run time accumulator (DD:HH:MM). The dialer shall be capable

of operating via cellular technology. Dialer shall be installed in the top 1/3 of the control panel. Dialer shall be a Scout Auto Dialer Model DS4 (available from Antx Inc., 512-255-2800, or an approved equal.

System Features:

Real Time Multi-tasking Operations: All individual activities shall operate independently and simultaneously assuring accurate and uninterrupted I/O scanning and data collection during programming, dialing and status reporting.

Real Voice: The system shall have the ability to digitally store and reproduce user voice messages and use those messages to articulate the location of the system and status of the monitored channel at that location. In the absence of user-entered voice messages the system shall articulate channel status using an internally resident digitized vocabulary speech. All digitized speech message data shall be stored in nonvolatile memory.

FAXTALK: In addition to voice reporting, the system shall have the ability to transmit a hard-copy report of alarm status and dialer program date, to a FAX machine.

Call Progress Decoding: The system shall detect dial tone, busy, ring-back, and voice signals allowing the system to quickly detect if a party has answered the call. If the call has not been answered successfully, the system will abort the call and dial the next number optimizing the time elapsed to alarm acknowledgment. Pager terminal tone detection shall provide close-loop verification of successful pager communication.

Print Log: The system shall be programmable to continually print a time and date stamped event log, dialer program report, and status report through an RS232 port to printer providing a hard copy record of system status and alarms.

Status LEDs: The system shall provide LED status indication of phone line off-hook, call progress, ring detection, power fail, and dialer operational status. In addition, each I/O channel will provide LED indication of Alarm status.

Hardware Watchdog Timer: In addition to an internal software Watchdog Timer, the system shall supply a separate and external supervisory circuit assuring correct microprocessor operation.

System Calling Features

Independent Call List: The system shall provide an independent telephone calling list for each I/O channel selected from a directory of up to nine telephone numbers assuring that alarms are acknowledged by authorized personnel.

60 Digit Dialing: Each telephone number programmed may consist of up to 60 digits allowing for each interface with aging systems, PA systems, fax machines, and other telephone accessible communications systems.

I/O Channel Features

Module I/O Channels: The system shall provide up to eight (8) input or output channels plus input power monitoring. All I/O channels shall be user configurable to accept any combination of digital, analog, input, or output modules. The I/O channel configuration in the field at any time.

Digital I/O Channels: The system shall be provided with two (2) dry digital input modules and be capable of accepting up to eight (8) digital input or output modules

Analog I/O Channels: The system shall be capable of accepting up to two (2) isolated 4-20 mA analog input or output modules.

Remote Operation Features

Local and Remote Programming: The system shall be capable of being programmed both locally and remotely via any touch tone phone or laptop computer. Programming shall be accomplished on-line without interruption of dialer alarm monitoring operation. a four digit access code shall be utilized to protect against unauthorized access to programming functions.

Single Level Menu: The system shall incorporate a single level menus structure for local and remote programming reducing programming time and complexity involved with multi-level menu structures. data shall be entered and retrieved with direct touch-tone commands. The system shall provide voice verification of all programming commands. Two laminated pocket-sized programming guide shall be provided listing all programming commands.

Tone Interrupt: The system shall enable the user to interrupt a voice message or program prompt with any touch tone command allowing the customer to quickly program or acknowledge alarms without waiting for the recorded message to complete.

Nonvolatile Memory: All user-entered dialer program and voice messages shall be stored in nonvolatile memory assuring that information is saved in the event of input power loss.

Call Spacing: The system shall be programmable to delay dialing between answered phone calls from 1-99 minutes.

Call Disable Timer: The system shall allow the user to dial a particular telephone number from a call list for a prescribed period of time, up to 99 days, allowing an unattended phone line to be taken out of the call list without programming.

Call at Time: The system shall be capable of automatically dialing a call list or fax machine on a weekly or daily basis to report system status.

Snooze Delay: The system shall allow the user to re-arm an acknowledged alarm for an adjustable time period, up to 99 days, as a reminder that the alarm condition still exists.

Alarm Delay/Reset: the system shall allow the user to delay the report and reset of an alarm for an adjustable period of time, up to 99 minutes, to prevent unnecessary alarm reporting.

Enclosure and Environmental

The dialer system shall be enclosed in a dust and corrosion proof NEMA type 12 fiberglass enclosure with lockable stainless steel hardware.

CONDUIT

The installation of conduit shall conform to the provisions in Section 86, "Signals and Lighting," of the Standard Specifications and these Special Provisions.

The first paragraph in Section 86-2.05B, "Use," of the Standard Specifications is amended to read:

Conduit to be installed on the surface of poles or structures or other exposed locations shall be the rigid metal type. Exposed conduit installed on a painted structure shall be painted the same color as the structure.

The fourth sentence in the third paragraph in Section 86-2.05C, "Installation," of the Standard Specifications is amended to read:

When a standard coupling cannot be used for coupling metal type conduit, a UL listed threaded union coupling, concrete-tight split coupling or concrete-tight set screw coupling shall be used.

Insulated bonding bushings will be required on metal conduit.

Conduit runs shall be located where shown on the plans by trenching as provided below unless otherwise permitted in writing by the engineer. All pull boxes shall be located behind the curb within the sidewalk or at the locations shown on the plans.

Unless otherwise specified on the plans, when rigid non-metallic conduit for electrical service is placed in a trench (not under pavement) it shall be not less than 18 inches below grade in portland cement concrete sidewalk areas and 30 inches below finish grade in all other areas. The trench shall be backfilled with commercial quality concrete, containing not less than 376 pounds of cement per cubic yard, to not less than 4 inches above the conduit before additional backfill material is placed. Excavations shall be backfilled in conformance with the provisions in Section 19-3 "Structure Excavation and Backfill" of the Standard Specifications. Conduit placed for telephone service may be installed in the same trench but must be separated from the electrical conduit by at least 12 inches.

At locations where electrical conduit is to be installed under existing pavement, conduit shall be placed by trenching as provided below.

Trenching Installation of Conduit Under Existing Pavement: Unless otherwise shown on the plans, electrical conduit shall be placed under existing pavement in a trench approximately equal to the sum of the outside diameter of each conduit to be installed plus 4-inches. Conduit depth shall not exceed 12 inches or conduit trade-diameter plus 10 inches, whichever is greater, except that at pull boxes the trench may be hand dug to required depth. The top of the installed conduits shall be a minimum of 9 inches below finish grade. Telephone conduit shall be separated from electrical conduit by two horizontal inches. Contractor shall install telephone conduit with pull rope from service point to enclosure for telephone network interface and shall make the connection from interface to modem.

The outline of all areas of pavement to be removed shall be cut to a minimum depth of 3 inches with an abrasive type saw or with a rock cutting excavator specifically designed for this purpose. Cuts shall be neat and true with no shatter outside the removal area. The trench shall be within one foot of the lip of gutter.

The conduits shall be placed in the bottom of the trench and the trench shall be backfilled with commercial quality concrete, containing not less than 376 pounds of cement per cubic yard, to not less than 0.10-foot below the pavement surface. The top 0.10-foot shall be backfilled with asphalt concrete produced from commercial quality paving asphalt and aggregates.

Spreading and compacting of asphalt concrete shall be performed by any method which will produce an asphalt concrete surfacing of uniform smoothness, texture, and density.

After conductors have been installed, the ends of conduits terminating in pull boxes and controller cabinets shall be sealed with an approved type of sealing compound.

In the event that trenching is done on driveways, curbs, sidewalks, or in the parkway, all landscaping and other affected ground cover and asphalt and concrete surfaces are to be replaced and restored to their original condition.

PULL BOXES

Pull boxes and their installation shall conform to the provisions in Section 86, "Signals and Lighting," of the Standard Specifications, City of Chico Standard Plan SL-2, and these Special Provisions.

Service: The Contractor shall arrange with the serving utility to complete service connections for both temporary and permanent installations and the City will pay all costs and fees required by the utility.

PIPING AND PLUMBING

Contractor shall install 1" dia. potable water line to reduced pressure principle assembly in protective enclosure, ball valve, and hose bibb, all per the California Water Service Company requirements, at lift station.

Polyvinyl Chloride (PVC) pipe shall be SR (Schedule Rated) in accordance with ASTM D1785 for Schedule 80 pipe, and shall have a maximum DR of 18 for "Class 150" applications, and a maximum DR of 14 for "Class 200" applications.

Pipe 4-inches and larger shall comply with AWWA Specification C900 and shall be of cast-iron-equivalent diameters. Pipe 3-inches and smaller in diameter shall have either rubber ring or solvent welded joints. Pipe 4-inches and larger in diameter shall have solid cross-section rubber ring joints in accordance with ASTM D1869.

Ductile Iron Pipe: Pipe shall be Class 50 ductile iron pipe conforming to AWWA Specification C151. Pipe shall be bell and spigot with "push-on" rubber gasket joints conforming to AWWA Specification C111, unless otherwise specified. Pipe shall be cement-mortar lined and bituminous coated inside and outside with an approved bituminous coating.

FITTINGS AND VALVES

Fittings for PVC pipe shall be PVC with the same pressure and hydrostatic test pressure rating as the pipe, or cast iron with rubber gaskets sized for PVC pipe.

Fittings for ductile iron pipe shall comply with AWWA Specification DC110, and shall be cement-mortar lined in accordance with AWWA C104 and shall be bituminous coated inside and outside with an approved bituminous coating. Fittings for ductile iron pipe shall be the flanged type.

Mechanical couplings, including flexible couplings and flanged coupling adaptors, shall be as manufactured by Smith-Blair, Baker, Dresser, or approved equal. All mechanical couplings shall have the longest standard sleeve length.

Gate valves, 3-inch and larger, shall be Resilient Seated Gate Valves conforming to AWWA C509. Valves shall be rated for a minimum working pressure of 150 psi, and shall have end fittings to conform to the pipe or fittings being connected. Valves shall be similar

and equal to Mueller "Resilient Seat", Watrous "Series 500", Clow "Resilient Wedge", or approved equal. Valves shall be provided with operating nuts when installed underground, and handwheels when installed aboveground.

Gate valves, 2-inches and smaller, shall be Resilient Seated Gate Valves similar to and equal to NIBCO T-22 valves. Valves shall be provided with handwheels.

Check valves shall be swing check valve type. The swing check valve arm and return spring shall swing clear of the waterway providing "full flow" equal to the nominal pipe size. The valve body shall be cast iron conforming to ASTM A 159 Class 35. Valve end connections shall be flanged. Valves shall be Flygt, or approved equal.

Hydrostatic Tests

All parts of the piping shall be tested at a pressure 50 psi greater than normal operating pressure, with a 100 psi minimum test pressure.

Before the test, the piping shall be sufficiently anchored to withstand the test pressure. During the filling of the system with water, precautions shall be taken to prevent air pockets at high points. There shall be no leakage during the test, which shall be conducted at the test pressure for at least 30 minutes. Leaks shall be repaired and the line retested until the above requirements are met.

The Contractor shall provide all labor, tools, and equipment required to perform the tests.

CONCRETE VAULT

Valves and check valves installed on the wastewater discharge pipes shall be placed in a precast concrete vault with an access cover designed for H-20 wheel loading. The access cover shall be constructed of 1/4 inch aluminum "diamond plate" with stainless steel hardware. A 1-1/2 inch drain coupling shall be attached to the channel frame and each leaf of the access cover shall have a recessed handle. Cover shall lock shut with a padlock in recessed area in the checker plate. Each leaf of the access cover shall have an automatic hold open device that will sturdily hold each leaf open during windy conditions. The size of each access cover shall be sized so as to provide the maximum opening possible to allow for maximum access to valves. Access covers shall be as manufactured by Bilco, Flygt, Chicago, or approved equal.

- c. Measurement: The construction of the Sanitary Sewage Lift Station shall be measured on a lump sum basis, complete in place.
- d. Payment: The contract lump sum price paid for the construction of a Sanitary Sewage Lift Station shall include full compensation for furnishing all labor, tools, materials, equipment, conduits, power, telemetry, and incidentals, and doing all the work including miscellaneous concrete construction, the construction of a wet well, the installation of pumps, piping and fittings up to and including the valves on the pump discharge pipe, construction of concrete vaults, bubbler control panel, dialer, and for furnishing all labor, tools, materials and equipment, and for performing all the work involved to complete a fully functional Sanitary Sewage Lift Station as shown on the plans and as specified herein. Training by factory representative shall also be included in this lump sum price.

2. Sanitary Sewer Force Main

- a. Description of Work: The work done under this section shall consist of the installation a of sanitary sewer force main including pipe, fittings, laying of pipe, structure excavation, concrete thrust blocks, and structure backfill. All work shall be done in accordance with the contract plans and the following specifications. These specifications cover the requirements for Polyvinyl Chloride (PVC) pipes with integral bell and spigot gasketed joints in Cast Iron Outside Diameter (CIOD) nominal.
- b. Materials: Pipe shall comply with AWWA Specification C900 and shall be cast-iron-equivalent diameters. Pipe shall have solid cross-section rubber ring joints in accordance with ASTM D1869.

The pipe shall be manufactured to the Cast Iron Outside Diameter nominal size series for use as a pressure conduit. The pipe shall be Pressure Class 200 working pressure rating in water service at 73.4° F, providing a 2 foot per second surge allowance with a 2.5:1 long term hydrostatic design safety factor. The pipe shall utilize a "locked in" integral gasket joint design meeting the requirements of ASTM D-3139, Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals. The gaskets shall be reinforced with a steel band and conform to the requirements of ASTM F-477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipes. Natural rubber will not be accepted.

The pipe shall be green in color and marked "Forced Sewer" and as specified in ANSI/AWWA C-900.

Fittings and accessories shall be as manufactured and furnished by the pipe supplier, or approved equal.

Except as indicated, all sanitary sewer force main installations shall utilize similar materials throughout, including manhole connections.

- c. Trench Excavation, Sanitary Sewer Force Main: Trench excavation shall conform to the provisions in Section 19-3, "Structure Excavation and Backfill", of the Standard Specifications and these Special Provisions. The excavation for sewer pipe shall not be made further in advance of laying the pipe than is practical to complete the pipe laying and backfill operation each day.
 - i. Excavation for Laying Pipe: Pipe shall, unless otherwise directed, be laid in open cut. All trenches shall have vertical sides from the bottom to a point at least six (6) inches above the top of the pipe. Above this point in unstable ground, with the written consent of the Engineer, the trench may be sloped as directed. Trenches shall be six (6) inches minimum, wider on each side, or a total of twelve (12) inches minimum, wider than the exterior diameter of the pipe, exclusive of sockets. In the event that sheeting is required, the width of the trench shall be increased sufficiently to accommodate the sheeting. Shheeting shall not be driven below the invert grade of the pipe unless absolutely necessary due to ground conditions, as sheeting is to be removed in conjunction with the backfilling. If sheeting is driven below the invert grade as required above, it shall remain in place, except that portion more than two (2) feet above the top of the pipe, which shall be cut off and removed as the backfilling is completed.

When using movable trench support, care shall be exercised not to disturb the pipe locations, jointing or embedment. Any voids left in the embedment material by support removal shall be carefully filled with compacted granular material.

Removal of any bracing between sheeting, trench boxes or shields shall only be done where backfilling procedures permit removal without loss of trench support. Any longitudinal movement or disjuncting of pipe which results from movement of trench boxes or shields shall be corrected before additional pipe is placed.

- ii. Trenches in rock: Every trench in rock shall be fully opened to a final depth at least thirty (30) feet in advance of any place where pipe is being laid. In rock the trench shall be carried six (6) inches below the external diameter of the pipe. Bedding material consisting of clean washed sand, with a maximum particle size of 1/4 inch, and with a minimum of 70 percent passing a No. 20 screen or graded sand and gravel with a maximum particle size of 3/4 inches conforming to the gradation requirements for Class 2 Aggregate Base per Section 26 of the Standard Specifications, shall be placed, spread and compacted to provide a firm uniform bed for supporting the pipe.
- iii. Soil Testing: Should soil conditions such as running water or unstable soils be encountered during trench excavation, the Director may require testing in advance of excavation to determine the nature and extent of the conditions. After such determination is made, the Director may require modified trenching and embedment procedures, as required by soil conditions.
- iv. Preparation of Subgrade: The subgrade for pipe shall be so prepared that the entire length of each section of pipe shall have a firm and uniform bearing except for such distance as is necessary for bell holes and the proper sealing of the pipe joints. Bell holes below the elevations of the pipe subgrade shall not be larger than one-fourth (1/4) of the distance between pipe joints.
- v. Overcut: Excavations shall be carried to the exact depth indicated on the plans or as specified. Should the contractor, through his or her negligence or other fault, excavate below the designed lines, he or she shall replace such excavation with approved materials at his own expense.
- vi. Approval of Excavations: The contractor shall notify the Engineer where excavations for structure or pipes are completed, and no concrete shall be deposited or pipes laid until the excavations are approved.

d. Laying Force Main Sewer Pipe:

Each sewer pipe shall be laid uphill in perfect conformity with the lines and grades as established by the Contractor from control points shown on the plans.

The grade line of the pipe shall be obtained by use of a construction laser. The contractor shall at all times have available one competent person, whose duty it shall be to set and maintain the laser to ensure the accuracy of the sewer pipe grade and alignment.

After the trench for sewer pipes has been brought to the proper line and grade in the manner above specified, the pipe shall be laid therein in the following manner:

Before any pipe is put in place, the trench bottom shall be prepared so that each pipe shall have a firm and uniform bearing over its entire length. All adjustment to line and grade must be made by scraping away the earth or rock under the body of the pipe as herein specified, and not by wedging or blocking up any portion of the pipe.

The pipe shall be lowered into place in the trench in a manner that will insure that the pipe remains clean and undamaged. The pipe shall not be lowered by sliding it down the side

of the trench.

All pipe shall be fitted together and matched while being laid so that when joined, the invert forms a true straight line. The bends of the pipe shall be brought in contact with each other.

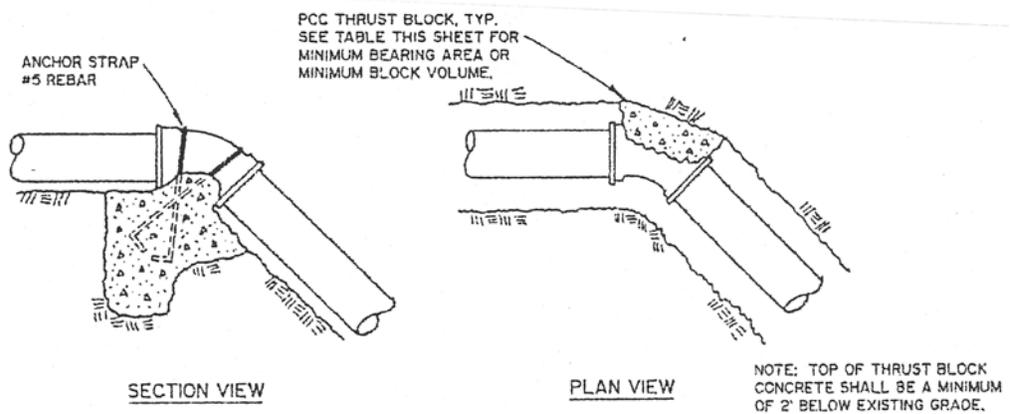
If water is encountered in the trench, it shall be kept below the bottom of the bell of the unjoined pipe, and not allowed to come in contact with any part of the pipe forming the joint until after the joint is completely filled with the specified jointing compound. Should the water, through neglect or otherwise, raise in the trench and enter the annular space in the pipe before the joining operation is completed, the annular space in all pipe so affected shall be freed of all water and foreign matter and thoroughly cleaned, before completing the jointing operation.

Line and grade shall be checked continuously by means of the laser beam.

Thrust blocks shall be constructed as specified on the project plans, in conformance with schedule and details below, and as directed by the Engineer.

TYPE OF HORIZONTAL FITTING	MINIMUM BEARING AREA OF UNDISTURBED SOIL (SQ. FT.) 12" PIPE (6")
VALVE CAP OR TEE	7 (2)
90° ELL	9 (3)
45° ELL	5 (2)
22 1/2° ELL OR 11 1/4° ELL	3 (1)
TYPE OF VERTICAL FITTING	VOLUME OF CONCRETE THRUST BLOCK (CU. YDS.) 12" PIPE (6")
45° ELL	3 (1)
22 1/2° ELL	2 (1)

THRUST BLOCK SCHEDULE



THRUST BLOCK DETAIL

NO SCALE

e. Manhole Connections:

Sewer Force Main pipe shall be connected to manhole bases in a manner which will provide a watertight seal. With polyvinyl chloride sewers, special adapters with resilient seals or waterstops shall be installed in manhole bases to provide a flexible, watertight connection.

f. Trench Backfill, Sanitary Sewer Force Main:

Trench backfill shall conform to the provisions in Section 19-3, "Structure Excavation and Backfill", of the Standard Specifications, and these Special Provisions unless otherwise shown on the plans.

Pipe bedding and shading material, from the bottom of the trench to a depth twelve (12) inches above the top of the pipe, shall be clean sand with a maximum particle size 1/4-inch and minimum of 70% passing a No. 20 screen or graded sand and gravel, with a maximum particle size of 3/4-inch, conforming to the gradation requirements for Class 2 aggregate base contained in Section 26, "Aggregate Bases" of the State Standard Specifications.

Backfill material and installation above the top of the shading shall be as specified below.

Bedding and shading materials shall be compacted by mechanical methods in conformance with the provisions of Section 19-3.06 of the Standard Specifications to a relative compaction of 95%. No ponding or jetting shall be permitted unless approved in writing by the Engineer prior to trench excavation.

If, at any time during the continuance of the contractor's responsibility, there shall be any settlement of the trenches requiring that repairs be made in any street or highway, or should any defect appear in the system due to negligence or carelessness on the part of the contractor, the engineer may notify the contractor to make such repairs as may be necessary, and should the nature of such defect be such as to require immediate attention, the engineer shall make such repairs as may be necessary and submit a statement of the actual cost of such repairs to the Contractor. All costs charged to the Contractor for trench repair completed by the City shall be taken out of the Contractor's next progress payment, including such fines as called for in the Section, "Maintaining Traffic", of the Special Provisions.

The maintaining of a clean and dry joint during construction is essential in order that leakage may be eliminated in the completed sewer. Toward that end, the provisions of these improvement standards shall be rigidly adhered to in order to secure sewers free from leakage.

Whenever the work ceases for any reason, the unfinished end of the sewer shall be sufficiently closed to prevent the entry of dirt, trash, or water.

The interior of the sewer shall be kept free from all dirt and foreign material as the work progresses, and left clean at its completion.

Temporary pavement shall be placed on all disturbed paved areas at the end of every work day except in areas that are not paved.

Temporary pavement replacement shall be asphalt plant cold mix and shall be placed flush with the existing pavement. The Contractor shall provide continuous maintenance of all temporary pavement replacement flush with the existing pavement until the permanent

pavement replacement is placed.

i. Standard Embedment Procedure for Sewer Pipe

After excavating the trench to a grade at least 4 inches below the pipe barrel elevation, carefully place and compact bedding material the full width of the trench to provide uniform support along the entire length of pipe to be installed. Care shall be taken to ensure that the pipe grade is maintained.

Pipe shading

After installing the pipe, place and compact embedment material to the spring line of the pipe, taking care to work the material under the haunches of the pipe and to avoid displacement of the pipe.

Place and compact embedment material to the top of the pipe.

Place and compact embedment material to a minimum depth of 12 inches over the top of the pipe.

ii. Backfill Material and Installation

(1) Public Right of Way (New and Existing Streets, Alleys, and Easements)

(a) Location: For any portion of the street right-of-way upon which aggregate sub-base, aggregate base, asphalt concrete or P.C.C. curb and gutter will be constructed, the following materials and installation procedures shall be used:

- i) Backfill material, from the top of the shading material to a plane two (2) feet below subgrade or bottom of Standard S-17 Pavement Replacement may consist of trench excavation free from stones and lumps exceeding three (3) inches in greatest dimension, vegetable matter, or other unsatisfactory material. The material shall be compacted to a relative compaction of 90% and shall be placed in conformance with the requirements of Section 19-3.06 of the standard specifications.
- ii) Backfill material from two (2) feet below subgrade or bottom of Standard S-17 Pavement Replacement to subgrade shall conform to all requirements of Section 19-3.06 of the standard specifications.

(b) Location: For remaining portions of a new street right-of-way, the following material and installation procedures shall be used:

- i) Backfill material, from the top of the shading material to finished grade, shall conform to the requirements of paragraph 1)a) of this

subsection.

(2) County Streets

- (a) Trench backfill in County streets shall be done in accordance with the details shown on the plans and as described above.

Backfill material shall conform to and be placed in accordance with details shown on the plans and the requirements of Section 19-3.06 of the Standard Specifications.

- (3) Disposal of Excess Material. Excess materials which have been excavated from trenches, and which cannot be utilized for backfill, shall be the Contractor's responsibility and shall be removed and disposed of away from the job site.

g. Cleaning Sewers: After installation the pipe shall be cleaned in the following manner:

The Contractor shall furnish an inflatable rubber ball of a size that will inflate to fit snugly into the pipe. The ball may, at the option of the Contractor, be used without a tag line; or a rope or cord may be fastened to the ball to enable the Contractor to know and control its position at all times. The ball shall be placed in the last cleanout or manhole on the pipe to be cleaned, and water shall be introduced behind it. The ball shall pass through the pipe with only the force of the water impelling it. All debris flushed out ahead of the ball shall be removed at the first manhole where its presence is noted. In the event cemented or wedged debris, or a damaged pipe shall stop the ball, the Contractor shall remove the obstruction.

h. Testing:

- i All air in the pipeline shall be bled off carefully while filling the line with water for testing. Air shall be bled off at the high spots in the line. Air removal may be accomplished by pushing a foam plug through the line by incoming water pressure.

- ii Test pressures shall be 100 p.s.i.

i. General: Tests for watertightness shall be made by the Contractor in the presence of the Engineer. The Contractor shall furnish all labor, tools, materials, and equipment required to make the tests. No testing for final acceptance of pipe will be done until the trench has been fully backfilled and acceptably compacted to finish grade, or if the sewer is under pavement, to the pavement subgrade.

All sections of pipe shall be tested. As a minimum, tests shall be made from manhole to manhole.

Where leakage is in excess of the specified rate, the sewer shall immediately be uncovered and the amount of leakage reduced, by the Contractor, to a quantity within the specified rate before the sewer is accepted. In addition, the Contractor shall repair all visible leaks.

- i Water Test: Test pressures shall be applied by means of a force pump sized to provide and maintain the required pressure without interruption during the test.

Water meters and pressure gauges shall be accurately calibrated and shall be subject to review and acceptance by the Engineer.

- ii Pressure Test: After the section of line to be tested has been filled with water, the test pressure shall be applied and maintained without interruption for 2 hours plus any additional time required for the Engineer to examine all piping undergoing the test and for the Contractor to locate all defective joints and pipe materials.
- iii Leakage Test: Following successful completion of pressure testing and acceptance of the results by the Engineer, the force main shall be subjected to a leakage test. The duration of the leakage test shall be 2 hours plus the additional time required by the Engineer for an accurate determination of line leakage.

The hydrostatic pressure maintained during the leakage test shall be 100 p.s.i. and shall be maintained within plus or minus 5% during the entire time that leakage measurements are being performed.

Measurement of leakage shall not be attempted until all trapped air has been vented and a constant test pressure has been established. After the pressure has stabilized, line leakage shall be measured by means of a suitable water meter installed in the pressure supply piping on the pipeline side of the force pump.

The term "leakage", as used herein, shall be the total amount of water which must be introduced into the line during the leakage test to maintain the test pressure.

No force main section will be accepted if and while it exhibits a leakage rate in excess of that determined by the following formula:

$$Q = 0.0075 \text{ DLN, Where}$$

Q = allowable leakage in gallons per hour,
D = nominal diameter of pipe in inches,
L = length of section tested in thousand feet, and
N = square root of average test pressure in p.s.i.

All joints in piping shall be watertight and free from visible leaks during the leakage test. Each leak which is discovered within the correction period stipulated in these specifications shall be repaired by and at the expense of the Contractor regardless of any amount that the total line leakage rate, during the leakage test, may have been below the specified allowable leakage rate.

If the leakage test indicates a line leakage rate exceeding the allowable, the Contractor shall locate and repair leaking joints and other defective items of work to the extent necessary to reduce the line leakage to an acceptable amount.

- i. Pipe Deflection Testing: If flexible pipe material is used, the pipe installation shall be tested for excessive deflection after all backfill has been placed and the line has been cleaned.

A rigid mandrel having an outside diameter of 95% of the "average inside diameter" of the pipe, as defined in ASTM D 3034 shall be pulled through the pipeline. The minimum length of the circular portion of the mandrel shall be equal to the nominal diameter of the pipe. If the mandrel does not pass freely through the pipe, the pipe shall be re-excavated, bedded and backfilled to adequately support the pipe and reduce the pipe deflection to 5% or less of the average inside diameter of the pipe. The pipeline shall then be retested for both deflection and watertightness.

Should tests performed by the City of Chico, within one year of the original testing and acceptance, show deflection in excess of 7.5%, of the average internal diameter, the Contractor shall re-excavate, bed and backfill the pipe to provide adequate support and reduce the deflection to 5% or less. The pipeline shall be retested for deflection.

Final tests of sewer force mains shall be made by the contractor under the direction of the engineer.

All tools, materials and appurtenances required for testing the sewers as specified shall be furnished by the contractor.

Unsatisfactory conditions shall be required to be corrected prior to acceptance of the project by the Engineer.

Noncompliance with plans and specifications, excessive leakage or similar causes shall be basis of nonacceptance.

- j. Measurement: Quantities of sanitary sewer force main pipe shall be measured by the lineal foot along the centerline of pipe to inside face of structures. When pipes are cut to fit a structure or slope, the quantity to be paid for will be the length of pipe necessary to be placed.
- k. Payment: The contract price paid per lineal foot of sanitary sewer force main pipe shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing sanitary sewer force mains, including sawcutting and removing existing pavement and concrete, structure excavation, thrust block construction, structure backfill, bar reinforcement, boring and jacking of pipe, joining of pipe to other pipe or structure, shaping bottoms of new manholes, cleaning and testing of sewer line, placing temporary and permanent pavement, and all other incidental work and material required to construct the sewer force main, complete in place, as shown on the plans, and as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

3. Electrical

- a. Description of Work: The Contractor shall install, ready for use, the electrical components as specified herein and shown on the Contract drawings. This document describes the function and operation of the system and particular components, but does not necessarily describe all necessary devices. All components and devices shall be furnished and installed as required to provide a complete operable and reliable system for accomplishing the functions and meeting the performance set forth hereinafter.

The Contractor shall furnish all required labor, materials, project equipment, tools construction equipment, safety equipment, transportation, test equipment, incidentals and services to provide a complete and operational electrical system as shown on the Drawings, included in these Specifications, or required for fully operating facilities.

- b. Materials:

TERMINAL BLOCKS shall be furnished and installed as required for "fan-out" of control, power, and instrumentation wiring in equipment. The blocks shall be rated 600V at a minimum of 20 amperes and sized for the conductors served. Provide terminal blocks with "follower" plates which compress the wires and have wire guide tangs for ease of maintenance. Terminal blocks which compress the wires with direct screw compression are unacceptable. All power, control and instrument wires entering and leaving a compartment shall terminate on terminal blocks with wire numbers on terminals and on both ends of the wires. Terminal blocks shall be similar to Buchanan 500 series, phoenix type UK, or approved equal.

Terminal blocks shall be snap-in type for mounting on DIN EN mounting rails. End clamps and end cover plates shall be provided to hold terminal blocks securely in place.

Each strip of terminal block shall have a unique identifying alphanumeric nameplate at one end. Plastic marking strip segments shall be provided to label terminal blocks. Each marking strip segment length shall provide labeling for no more than four terminals at one time. These marking strips shall have a unique number/letter for each terminal which is identical to the "elementary" diagram wire designation. Numbers on this marking strip shall be machine printed and 1/8 inch high.

Terminal blocks shall be physically separated into groups by the level of signal and voltage served. Power and control wiring above 100 volts shall have a separate group of terminal blocks from terminal blocks for wiring above below 100 volts, intermixing of these two types of wiring on the same group of terminal blocks is not allowed.

Provide a ground terminal or connection point for the power system grounding conductor.

Provide a separate common or neutral terminal for every input and output.

A **MANUAL TRANSFER SWITCH** capable of transferring the electrical service to the lift station control panel, from the utility provider to a portable back-up generator, shall be furnished and installed by the Contractor.

All auxiliary power source connections shall be wired and installed with a fused, double throw safety switch with designated positions of NORMAL-OFF-STANDBY, where OFF is the center position, to prevent auxiliary power from backfeeding into the regular power system. Lockout provisions shall be furnished on the switch handle. The double throw safety switch shall be operable only after first opening the outer doors of the cabinet.

The Contractor shall be responsible for insuring that the control panel supplier consults with the transfer switch manufacturer in order to supply a control panel that is compatible with and

wired appropriately for the transfer switch to function as designed.

A **GENERATOR RECEPTACLE** shall be furnished and installed on the outside of the control or electrical panel. **Connection shall be a reverse service receptacle.**

Auxiliary power source connections shall be rated to accept single-phase, 240 volt ($\pm 10\%$) or three-phase, 480 volt ($\pm 10\%$) from standby power source.

For single-phase, 240-volt connections up to 3 HP motors, a 30-amp fusible, 125-250 volt, a Leviton "L14-30" NEMA receptacle shall be provided. For single phase, 240-volt connections for 5 HP motors, a 50 amp fusible disconnect CS style Leviton "6374-CR" flanged inlet receptacle shall be provided.

For three-phase, 208Y/120 volt, or 277/480 volt connection receptacles, a fusible disconnect of the required voltage and amperage with a Crouse Hinds "AR641" or "AR 642", 60-amp, 4-wire receptacle shall be provided. With motors 15 HP and over, a three-phase, 480-volt connection receptacle with fusible disconnect of the required voltage and amperage with a Crouse Hinds "AR2041", 100-amp, three-phase, 4-wire receptacle shall be provided.

For any 480-volt, 300-amp services, receptacles/services shall be specified on a case-by-case basis by the City of Chico Engineering Department.

The standby power connection receptacle and its associated receptacle box shall be provided at a point close to and below the double throw safety on the enclosure cabinet.

All receptacles/receptacle boxes shall be dust free and weatherproof, waterproof, and, where specified by the Engineer, explosion-proof.

The Contractor shall be responsible for insuring that the control panel supplier consults with the receptacle manufacturer in order to supply a control panel that is compatible with and wired appropriately for the receptacle to function as designed.

A **PHASE CONVERTER** shall be furnished and installed in the lift station electrical panel.

Single phase power is available from the utility company in the vicinity of the project. A phase converter which is capable of converting single phase to 3-phase power shall be furnished and installed in conjunction with this project. Converter shall supply three phase starting as well as operating current. The Contractor shall be responsible for insuring that the control panel supplier consults with the converter manufacturer in order to supply a control panel that is compatible with and wired appropriately for the converter to function as designed.

The phase converter shall be a Duo Add-A-Phase converter, as manufactured by Ronk, or an approved equal.

- c. Measurement and Payment: No measurement of quantities will be made. Payment for all work under this section shall be included in the lump sum price bid for the Sanitary Sewer Lift Station.

4. AUXILIARY GENERATOR

- a. Description of Work: An auxiliary generator shall be furnished and installed on a concrete pad as shown on the plans and as directed by the Engineer. The generator shall be a diesel fueled engine-driven generator set to serve during interruption or outage of normal power supply.

The unit shall be installed on a concrete foundation and consist of an engine directly connected to a generator, be provided with zone 4 spring vibration isolators with anchors, and shall include all necessary engine and generator auxiliaries, accessories, and controls required to provide electrical output as specified herein. The unit shall be the product of a supplier regularly engaged in the assembly of generator sets. The component parts of the unit shall be the products of firms regularly engaged in the manufacturing of these parts.

Concrete foundation shall be constructed per the requirements of the "Miscellaneous Concrete" section of these Special Provisions.

All materials shall be new and of current manufacture and shall be guaranteed against defects in materials or workmanship for one year from the date of delivery of the unit.

The supplier of the generator set and manufacturers of the component parts shall have a representative located within 250 miles of the installation. The representative's personnel shall be factory trained and authorized to perform all necessary service. The representative shall maintain within his organization a full-time service department that shall provide regular service inspection, spare parts, and 24-hour emergency service.

The auxiliary generator shall generate a noise level of no more than 74 dBA at 23 feet.

All equipment shall meet shall meet local air quality requirements and Contractor shall secure all necessary permits including air quality. Contractor shall provide the City with a copy of the Authority To Construct immediately upon receipt from the Air Quality Management District and before the generator may be installed.

System voltage will be XXXV 3-phase. The alternator temperature rise shall not exceed 125°C.

The generator set shall be capable of sequentially starting and running two XX HP wastewater pumps with a XX HP well pump and 7.5 KVA miscellaneous loads, and operating indefinitely under this load without exceeding safe operating temperatures when operating with an ambient temperature of 110° F at 200 feet altitude.

Generator shall include a 200A 3-pole circuit breaker.

Contractor shall supply, install, and wire a weatherproof light and shall mount it on the exterior of the generator housing to operate in lieu of emergency audible alarm in the event of power outage.

Included with the backup generator package shall be an automatic transfer switch. Transfer switch shall be a 200A, Onan 3-pole 4 wire, PwrCmd, or approved equal in a NEMA 3R weatherproof panel. Also included in the transfer switch shall be 2A automatic battery charger and network card and an exercise clock.

The engine generator package shall be UL 2200 listed and prototype tested.

ENGINE

The engine shall be a LPG-fueled four cycle, liquid-cooled type.

OR

(PREFERRED) The engine shall be diesel-fueled with a 120V AC coolant heater and shall include oil and coolant drain extensions, and an electronic isochronous governor.

The engine speed shall be controlled by a governor of the hydraulic or mechanical type to maintain generator frequency within 5% from no-load to full-load output.

The engine shall have a full-flow oil filter with replaceable element and shall have dry-type air filter elements.

A 120-volt, single-phase water jacket heater shall be provided to maintain the engine water at 100°F at all times the engine is idle.

All exposed rotating parts of the engine shall be provided with guards for protection of personnel.

ENGINE FUEL SYSTEM

DIESEL

(PREFERRED) The fuel system shall include a dual walled UL listed subbase fuel tank with 12 hour capacity. It shall include a low fuel switch and a rupture basin switch.

OR

The fuel system shall include an electric fuel solenoid installed as close to the carburetor as practical, and a pressure regulator.

Flexible connectors of all-metal construction shall be furnished for connection of fuel lines to the engine. The connectors shall be no less than 18-inches long.

ENGINE STARTING SYSTEM

The engine shall be equipped with a DC electric starting motor with solenoid shift. Starting batteries, and a battery charging alternator shall be provided. A corrosion-resistant rack and cover shall be provided for the batteries within the unit housing and shall be readily accessible.

ENGINE EXHAUST SYSTEM

An engine exhaust silencer shall be furnished and installed on the generator set. The exhaust silencer shall be supplied by the engine manufacturer and shall be designed and sized to optimize engine operation.

Guards or insulation shall be provided where required by CAL/OSHA safety requirements to protect personnel from accidental contact with the exhaust manifolds, turbochargers, exhaust pipe, etc.

ENGINE INSTRUMENTS

The engine instruments shall include a lube oils pressure gauge, water temperature gauge, and manual stop and start switches. The instruments shall be installed on the generator set control panel.

GENERATOR

The generator shall be of the single bearing, synchronous type with brushless exciter and open guarded construction. The generator shall meet all applicable NEMA standards for

auxiliary generators including temperature rise for the class of insulation used and short circuit ratios.

The generator shall be suitable for use in a solidly grounded system. Generator coil bracing shall be suitable for bolted line-to-terminal fault at the generator terminals. The neutral shall be brought out for instrumentation.

GENERATOR VOLTAGE REGULATOR

The voltage regulator shall be of the solid state type and shall maintain the voltage within limits as follows:

1. Plus or minus 2% from no load to full rated load.
2. Voltage dip not to exceed 25% upon application of 75% rated load in one step with recovery to stable operation in less than 4 seconds. Stable operation shall be with terminal voltage remaining within plus or minus 1 % of rated voltage.

Voltage level adjustment shall be provided to allow adjustment no less than plus 5%.

GENERATOR SET CONTROL PANEL

The generator set control panel shall be wired, tested, and shock mounted on the generator set by the manufacturer.

The engine starting controls shall provide for automatic start-stop control of the engine upon receipt of a signal from a remote source. The signal to start shall consist of the closure of a two-wire circuit by remote contacts. A device shall automatically disconnect the starting circuit when the engine has started. If the engine does not start within approximately 45 to 90 seconds, a cranking limiter shall disconnect the starting circuit and lock out the control and a failure to start signal shall be given. A selector switch for engine control shall be provided and shall include positions for TEST, AUTOMATIC, MANUAL, and OFF. TEST shall provide for test operation of the unit through its automatic controls. AUTOMATIC shall provide for operation of the unit through closure of remote contacts. Upon the opening of these remote contacts, the unit shall continue to run unloaded for an adjustable time up to 10 minutes before shutdown in order to cool down the engine. MANUAL shall provide operation of the unit via manual start-stop switches. OFF shall provide for complete shutoff and de-energization of all controls.

A green ready lamp shall be energized whenever the selector switch is in the automatic position. Safety controls for alarms and shut-downs as specified heretofore shall be provided and shall include a visual red alarm lamp for each of the safety alarm or safety shut-down conditions specified and an SPDT contact for a common alarm to the plant control panel. The lamps shall remain energized so long as the indicated trouble is uncorrected.

Generator shall be provided with AC analog meters and a network communication module to allow compliant communication with the generator control by remote devices.

All controls shall operate on DC battery voltage. Provide for testing all panel indicator lights by means of a pushbutton.

The generator set control panel shall include the following instruments and devices:

1. Manual reset, overload and short circuit protection circuit breaker.
2. AC voltmeter, 2% accurate, 3-1/2-inch minimum diameter with seven position switch.

3. AC ammeter, 2% accurate, 3-1/2-inch minimum diameter with four position switch.
4. Frequency meter.
5. Unit running time.
6. Voltage adjusting rheostat.
7. Necessary current and potential transformers.
8. Alarm contacts, normally closed, which open to activate a remote alarm for any alarm condition(i.e., failure to start, low oil pressure, overspeed, etc.).

Terminal block with all terminals identified shall be provided for external connections. Blocks shall be rated 20 amps at 600 volts minimum and shall have barrel lugs.

AUTOMATIC TRANSFER SWITCH

Automatic transfer switch shall be as specified in the ELECTRICAL section of these Special Provisions.

BATTERY CHARGER

A fully automatic battery charger shall be provided, which will monitor the condition of the battery, charge when needed, and shut off completely when the battery has reached full charge. The charger shall be capable of "float" charging a current up to, but not exceeding maximum charge rate. It shall be capable of delivering a current within the range of 50 to 100 percent of the 20-hour discharge rate of the battery.

The charger shall be designed so it will not be damaged or blow fuses during the cranking cycle of the engine when operated by an automatic controller.

The charger shall have a rectifier of the semiconductor type, fused input and output in accordance with the maximum current of the rectifier, and an ammeter with the accuracy of 5% of the normal charging rate. It shall be ambient temperature compensated.

The battery charger shall be a Model BC, as manufactured by Murphy Safety Switch of Palmdale, California, or an approved equal.

WORKMANSHIP

GENERATOR SET INSTALLATION

The generator set, including all auxiliaries and accessories shall be delivered to the jobsite in Chico, California with complete installation instructions. The unit will be installed in strict accordance with the manufacturer's instructions and recommendations.

The complete installation shall be checked and approved by the generator set supplier.

MANUFACTURER'S SHOP TESTS

The generators set, together with all controls, shall be tested at the manufacturer's plant to determine conformance with this specification. A test log shall have entered into it the actual settings of all safety devices, voltage and frequency performance, unit rating, engine and generator serial numbers, etc. Additionally, voltage and frequency, amperage, wattage, water temperature, ambient temperature, and barometric readings shall be logged each ½ hour during the sustained continuous load run. The continuous uninterrupted load run shall be for a period of 6 hours and shall be performed at 0.80 PF

(reactive) as follows: 2 hours at 50% of rating, 2 hours at 75% of rating, and 2 hours at 100 % of rating.

If, for any reason, the above 6-hour load run is interrupted, it shall be repeated in its entirety. A failure during the continuous run of any component included as part of the unit shall be deemed as a failure of the unit as a whole.

ASTM Power Test Code PTC 17-1957 shall be used as the guide for definitions, deviations, computations, etc. Certified test reports shall be submitted to the Engineer.

INSTALLATION TEST

Upon completion of the generator set installation, running tests shall be carried out by the supplier. The set shall be operated at rated load for a period of not less than 2 hours, and all necessary adjustments made by the generator set supplier. This test shall demonstrate the ability of the set to satisfactorily carry its rated load and to function within the requirements for voltage regulation when 75% rated load is applied in one step.

FINAL ADJUSTMENTS AND INSTRUCTIONS

Upon completion of the tests, final adjustments shall be made to the equipment as necessary. Oil filters shall be replaced and proper operation of all equipment demonstrated to the Engineer. The Engineer shall be instructed in the maintenance and operation of the equipment. These final adjustments and instructions shall be carried out by the generator set supplier.

OPERATION MANUALS

Four (4) bound operation and maintenance manuals shall be provided. Each manual shall contain complete operating, service, and repair instructions for the entire engine-generator set and accessories; complete illustrated parts breakdown with the manufacturer's name, nomenclature, and part number for each component part, assembly, connection, and wiring diagrams.

SPARE PARTS

One set of manufacturer's recommended spare parts shall be provided.

The auxiliary generator shall be as manufactured by Cummins Power Generation, inc., Caterpillar, Onan, Kohler, or an approved equal.

b. Measurement and Payment: No measurement of quantities will be made. Payment for all work under this section shall be included in the lump sum price bid for the Sanitary Sewer Lift Station.

OR

b. Measurement: Auxiliary Generator shall be measured on a lump sum basis.

c. Payment: The contract lump sum price paid for auxiliary generator shall include full compensation for furnishing all the labor, materials, tools, equipment, and incidentals, and for doing all the work necessary to install an auxiliary generator as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

Current Issues in CEQA

ATTACHMENT E

September 30, 2009

Time: 1:00 pm ET (12:00 pm CT, 11:00 am MT, 10:00 am PT)

Length: 1 hour 30 minutes

ID: 385488

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BENEFITS

CREDIT

Benefits

While others chose to fight over the reality of climate change, those of us who work on new development or projects in California only have time to fight to keep up with the enormous changes in California law and jurisprudence concerning climate change. This teleconference will provide an update on the proposed changes to the California Environmental Quality Act guidelines for mitigation of greenhouse gas emissions as well as their effects on the environment. We will discuss the many changes proposed to the guidelines, issues and concerns of the private and public sectors, and how this will affect future projects within California. We will also discuss recent CEQA decisions which provide a nascent view into how courts are dealing with greenhouse gas issues under CEQA. Finally, we will present 2009 CEQA decisions impacting development of projects within the state.

Learning Objectives

- You will be able to specify recent and proposed CEQA decisions concerning greenhouse gases.
- You will be able to debate mitigation impact and effects of greenhouse gases.
- You will be able to examine possible consequences of the proposed changes.
- You will be able to recite other 2009 CEQA decisions.

Agenda

Proposed Changes to CEQA Guidelines to Mitigate Impact and Effects of Greenhouse Gases

- Proposed Changes
- Issues and Concerns about Proposed Changes
- Possible Consequences of Proposed Changes

Recent CEQA Decisions Concerning Greenhouse Gases

Other 2009 CEQA Decisions

Faculty

Douglas E. Wance, J. Craig Williams, Sedgwick, Detert, Moran & Arnold LLP

Douglas E. Wance

- Special counsel in the Orange County office of Sedgwick, Detert, Moran & Arnold LLP
- Concentrates his practice in environmental compliance, land use development and water resources, representing both businesses and developers as well as public agencies
- Assists clients with obtaining development and environmental permits, as well as project approvals
- Represents clients in administrative proceedings and litigation in the successful defense of permits and CEQA approvals
- Serves as general counsel to the Central Basin Municipal Water District, and special counsel to municipal and public agencies in Southern California
- J.D. degree, Boston College Law School
- B.A. degree, University of Southern California
- Can be reached at 949-852-8200 or doug.wance@sdma.com

J. Craig Williams

- Partner in the Orange County office of Sedgwick, Detert, Moran & Arnold LLP
- Practice emphasizes all aspects of business litigation, environmental, intellectual property, real estate, employment and labor, insurance, white-collar crime, e-discovery and admiralty
- Conducts regular seminars and workshops on numerous issues involved with environmental law, e-discovery, technology and commercial law
- Author of numerous publications related to various areas of business litigation and commercial law, including the books How To Get Sued: An Instructional Guide and Bad Decisions? and 10 Famous Cases That Went Wrong; more of his publications are listed with his biography at <http://www.sdma.com/j-craig-williams/>
- Recognized as one of O.C.'s Top Lawyers in the August 2009 issue of OCMetro
- Admitted to practice law in California, Iowa, Massachusetts and Washington
- Member of the Avvo.com advisory board; the Law Technology News editorial board; the Bighorn Institute board of directors; the Authors Guild; the Legal Writing Institute; the Defense Research Institute; the Association of Southern California Defense Counsel; the Association of Business Trial Lawyers; the California Bar Association, Litigation and Insurance Sections; the Iowa Bar Association; the Washington Bar Association; the Massachusetts Bar Association; the Orange County (California) Bar Association, Real Estate, Business Litigation, Environmental Law, Intellectual Property and Technology Sections; and the American Bar Association, Environmental Litigation, Probate and Trust, and Real Property Sections, and the Decisions Committee
- Member of the board of directors of the Orange County (California) Bar Association
- Attended the U.S. Coast Guard Academy in New London, Connecticut, from 1975 to 1976
- B.S. degree, James Madison University in Harrisonburg, Virginia
- J.D. degree, with distinction, University of Iowa College of Law
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Only registered attendee will receive continuing education credit.

Who Should Attend

Attorneys, engineers, city and county planners, environmental professionals, presidents, vice presidents, water resource specialists, public works directors, architects and project managers

Current Issues in CEQA

September 30, 2009

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