



**CITY OF CHICO**  
**BIDWELL PARK AND PLAYGROUND COMMISSION (BPPC)**  
**TREE COMMITTEE**  
(Commissioners Craig, Herrera, Mickles, Chair)  
February 8, 2012, 6:00 p.m.  
Municipal Center - 421 Main Street, Conference Room 2

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*Materials related to an item on this Agenda are available for public inspection in the Park Division Office at 965 Fir Street during normal business hours or online at <http://www.chico.ca.us/>.*

**1. CALL TO ORDER**

- 2. REGULAR AGENDA** - All items listed under the Regular Agenda are in the order which is believed are of interest to the public or which require Committee action at this meeting. The items will be considered in the order listed unless the Committee members request a change. Any person may speak on items on the Regular Agenda.

**2.1. DISCUSSION OF CONCEPTS FOR AN URBAN FOREST MANAGEMENT PLAN**

At it's meeting of 1/11/12, the Tree Committee began discussion and development of a set of goals that will become the foundation of an Urban Forest Management Plan. This meeting will continue that discussion with the following specific items to be included:

- a. Using the format and web site toolkit from the CaUFC for the Plan
- b. Definition of an Urban Forest
- c. Developing a Vision Statement

**3. BUSINESS FROM THE FLOOR**

Members of the public may address the Committee at this time on any matter not already listed on the agenda; comments are limited to three minutes. The Committee cannot take any action at this meeting on requests made under this section of the agenda.

**4. ADJOURN**

Adjourn to the next regular meeting tentatively scheduled for 3/14/12 at 6:00 p.m. in Conference Room 2, Chico Municipal Center building (421 Main Street, Chico, California).

**Distribution:** BPPC



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## BPPC Tree Committee Report Item 2.1

Meeting Date: 2/08/12

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**DATE:** February 2, 2012

**TO:** TREE COMMITTEE (Commissioners Craig, Herrera, Mikles, Chair)

**FROM:** DENICE F. BRITTON, URBAN FOREST MANAGER, 896-7802

**RE:** CONTINUED DISCUSSION OF CONCEPTS FOR AN URBAN FOREST MANAGEMENT PLAN

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### **BACKGROUND:**

At its meeting of 9/20/11, the City Council adopted the 2011-12 BPPC Work Plan which identified the establishment of goals for an Urban Forest Management Plan as one of the priorities of the Commission. The Tree Committee began working on the goals at its meeting of 1/11/12. This meeting will continue that discussion and review.

### **DISCUSSION:**

1. Since the meeting in January, 2012, staff attended a workshop held by the California Urban Forests Council (CaUFC). This organization received a grant to provide direct education and assistance for agency personnel to write an Urban Forest Management Plan, using a tool kit on their web site. The program requires a commitment to go through the process of actually writing the plan. Their web site (<http://ufmptoolkit.com/>) has further information about the program.

Staff would like to involve the Committee and dedicated public to participate in the writing of a draft plan using this tool kit. Staff will demonstrate how this can work.

2. At the January meeting, staff was asked to submit a definition of the Urban Forest for Review. Below are three definitions for review and discussion.

a. "The City's Urban Forest includes the entire green infrastructure within the community – both the overstory trees, as well as the associated vegetation. The elements of the urban forest exist throughout the community, although their care is under several jurisdictions, including both private and governmental entities."

b. "Chico's urban forest consists of the trees and related vegetation throughout the City's parks, streets, private properties and greenways. The urban forest within Chico provides an essential character to the City that includes both esthetic values and functional benefits."

c. "The Urban Forest is made up of trees and their related natural and planted vegetation within the City's parks, along the streets and creeks, and within private property. The forest provides significant benefits and esthetic values to its citizens both individually and as a whole."

3. The Tree Committee needs to agree on a vision statement to go along with the definition of an urban forest. The Vision Statement needs to be broad and address not only the vision for the Urban Forest, but also a definable vision for the Urban Forest Management Plan. Once a Vision is established, then the goals presented by those attending the meetings can more readily be prioritized.

**Possible elements of a Vision Statement include:**

1. Chico's Urban Forest covers a large percentage of area within the City limits – creating an aerial view of a natural forest. Prior to man's settlement of Chico, the forest consisted of a large grove of primarily oaks on the valley floor between the creeks and more diverse riparian vegetation along the creeks. Today, the Urban Forest canopy exists in every section of town, even in areas that were historically devoid of trees. It can be seen on aerial photographs as consisting of a large number of street trees, orchard trees, trees along creeks and in private yards and commercial areas.
2. Trees improve the environment in Chico. Citizens know that the City's trees provide significant benefits to them, including shade, beauty, temperature amelioration, pollution reduction, noise reduction and improved property values.
3. Chico has a healthy and safe urban forest that contains large trees over the older sections of town that are revered and protected by the citizens. Young and moderate sized trees are growing vigorously in other parts of town. Large trees are planted where space allows and encouraged in open space parks, etc.
3. Citizens are active partners in our program – they want the trees in front of their homes to be thriving and understand they have a role in accomplishing that.
4. Citizens see the tree crew as keepers of the trees, who can be depended upon to do what's right to keep the trees healthy and safe, while enhancing their benefits to the citizens.
5. Main corridors have large trees along them and citizens tolerate the small inconveniences resulting from their presence because they see the trees as a benefit.

**Benefits of Trees –**

1. Esthetic values
2. Increased property values
3. Shade
  - a. reduction of heat island effects
  - b. improved lifespan of asphalt
  - c. more comfortable streets and parking lots
4. Pollution reduction
5. Storm Water retention
6. Carbon sequestration

***Staff asked the Committee to review a list of goals for the Urban Forest. The following is the list that the Committee developed. The goals have not been prioritized. Staff is providing these goals for review and reference at this time. The goals will be prioritized in a future meeting after the Urban Forest Definition and Vision Statement are completed.***

**Tree Resources:**

1. Provide for a healthy and safe Urban Forest.
2. Retain as many large old trees as possible, while recognizing conflicts with other infrastructure within the City.
3. Increase funding for tree planting
4. Increase planting efforts within the City to fill the 3000 plus empty planting sites.
5. Reduce the number of trees in areas where canopies are already over-lapping.
6. Increase the canopy of shade trees within the City, focusing on newer neighborhoods and commercial areas.
7. Develop an educational program to provide information to encourage the planting of appropriate species, and proper pruning and planting techniques to insure the best possible care of trees within the City.
8. Improve the species planting list so that the right tree is planted in the right place.
9. Discourage the planting of invasive species
10. Encourage the planting of appropriate trees within the City, on both public and private lands
11. Allow adequate growing space for new trees, both above ground and below ground
12. Increase the number of Heritage Trees recognized by the City.
13. Require posting of large trees (36"+) prior to removal
14. Due to staffing levels, hazards will likely increase in the future.

**Management**

1. Develop and implement a 5 to 10 year trim cycle (minimum).
2. Focus on formative pruning on young trees to reduce maintenance needs as the trees mature.
3. Be aggressive about removing declining/dying trees.
4. Encourage education about how to reduce decline in trees through proper cultural management and other practices.
5. Focus on elevation of foliage near intersections and along main corridors to improve visibility and reduce breakage from traffic.
6. Continue to allow private citizens to have their trees pruned or removed and replaced under permit.
7. Insure that trees are planted properly to reduce failure due to circling roots.
8. Improve staffing levels so that goals can be achieved within a reasonable time frame.
9. Recognize the value of the City's wood and allow/encourage the wood from declining trees to be utilized in wood products as well as recycled.

**Community Values/Concerns**

1. Preserve the character of Chico's tree resources.
2. Recognize the benefits of the urban forest to the community, especially in regard to accomplishing the goals of sustainability.
3. Recognize that trees provide oxygen, improve air quality, and sequester carbon.
4. Given the importance of trees to the character and environment in Chico, increase the "legal standing" of trees. The City should take a lead in Tree Preservation.
  - a. Reconcile differences between the public and private preservation/mitigation requirements, especially for Capital Projects, as well as development projects.

- b. The City should be required to preserve trees and mitigate tree removal to the same extent that the public is required to do so in CMC 16.66 and 19.68.
  - c. Staff should be provided adequate authority to require that current City Ordinances requiring protection of root zones, etc. are followed.
  - d. An educational meeting and/or other measures should take place to inform the Architectural Review and Historic Preservation Board, the Planning Commission and City inspectors of tree preservation measures and techniques.
  - e. Review techniques used for tree preservation and develop a manual or standards for their use.
  - f. Encourage the use of porous pavement wherever possible to not only improve tree health but to reduce sidewalk damage and enhance water absorption, thereby reducing storm water runoff.
  - g. Encourage the use of drainage swales for tree irrigation as well as storm water runoff reduction, especially in parking lots.
  - h. Review techniques for tree planting in parking lots to enhance tree growth, such as reducing the use of lime in parking lots, or require that the planting areas not be limed and compacted.
  - i. Consider allowing smaller trees to be planted so that native trees might be encouraged. This would require protection of the smaller plants.
  - j. In parking lot designs, protect trees from vehicles by allowing adequate distance from the curb to the tree.
5. Educate and involve citizens to grow and protect trees, in part because they add to property values by providing beauty as well as shade and other benefits to the citizens.
  6. Develop a better volunteer corps for City Street trees.
  7. Consider replanting Black walnut trees in Chico Vecino

### **Historical Context**

1. John Bidwell and the founding citizens of Chico planted trees to provide shade and beauty to City streets.
2. Chico has a rich history of planting trees and supporting the public infrastructure of street trees.
3. Recognize the importance of agriculture to the City, including the planting of fruit and nut trees. While these trees may not be appropriate for street trees, they can and should be included in any comprehensive plan to enhance the quality of life in Chico.

### **Environment**

1. Increase the use of native species in street tree and public plantings.
2. Prioritize the removal of invasive trees from public areas focusing on species whose seeds are spread by birds, wind and water.
3. Avoid planting invasive species as street trees or in public plantings.
4. Do not allow invasive species to be planted – restrict their sale by nurseries.
5. Do not allow London Plane to be planted in Chico anymore due to the impact on the native sycamore.
6. Enhance water conservation efforts by planting more drought tolerant species.

RE: Tree Committee Staff Report, Item 2.1

Meeting Date: 2/08/12

Page 5

**Goals for future meetings:**

4. Review and Prioritize the lists of goals presented above

Attachment: City Municipal Code sections that pertain to trees. These can also be found on the Street Trees Division web site:

[http://www.ci.chico.ca.us/general\\_services\\_department/park\\_division/street\\_trees/](http://www.ci.chico.ca.us/general_services_department/park_division/street_trees/)

**DISTRIBUTION:**

Tree-Finance Committee of BPPC

General Services Director

Street Tree Field Supervisor

**Chapter 14.40**

**STREET TREES<sup>4</sup>**

**Section:**

**ARTICLE I. GENERALLY**

- 14.40.010 Short title.**
- 14.40.020 Regulations generally.**
- 14.40.030 Adoption of street tree plan.**

**ARTICLE II. DEFINITIONS**

- 14.40.040 Generally.**
- 14.40.050 Commission.**
- 14.40.055 Director.**
- 14.40.060 Enforcing authority.**
- 14.40.070 Planting area.**
- 14.40.080 Street tree list.**
- 14.40.090 Street tree plan.**
- 14.40.100 Superintendent.**
- 14.40.110 Property owner.**

**ARTICLE III. PLANTING OR REMOVING**

- 14.40.120 Permit - Required.**
- 14.40.130 Permit - Application.**
- 14.40.140 Permit - Fee.**
- 14.40.150 Permit - Conditions upon issuance.**
- 14.40.160 Permit - Conditions imposed deemed order by commission.**
- 14.40.170 Removal by city - City's expense.**
- 14.40.180 When property owner responsible for cost of removal.**
- 14.40.190 Cost of planting generally.**
- 14.40.200 Neglect of property owner to perform work - Action by city.**
- 14.40.210 Manner of sending notice for cost of work - Hearing.**
- 14.40.220 Notice of lien - Preparation and filing.**
- 14.40.230 Special assessment.**
- 14.40.240 Delinquency - Amount to be added to taxes.**
- 14.40.250 Collection of amount of lien - Manner.**

**ARTICLE IV. ADDITIONAL REGULATIONS**

- 14.40.260 Advanced deposit on work performed by city.**
- 14.40.270 Power of authority to act independently for removal.**
- 14.40.280 Persons convicted for chapter violations not exempt from charge or debt payment.**
- 14.40.290 Nuisances declared.**
- 14.40.300 Branches to be trimmed.**
- 14.40.310 Maintenance.**
- 14.40.320 Unlawful acts.**

**ARTICLE V. HEARING - APPEAL**

- 14.40.330 Hearing.**  
**14.40.340 Appeal.**  
**14.40.350 Failure of commission to act on permit - Action by council.**

**ARTICLE I. GENERALLY****14.40.010 Short title.**

This chapter may be officially referred to and cited as the "Tree Law of the City of Chico."

(Prior code §23.50 (Ord. 852 §10))

**14.40.020 Regulations generally.**

The commission may adopt by resolution, such standards, specifications and other regulations controlling and governing the planting, removal and maintenance of trees and shrubs as are not inconsistent with other provisions of this code and as are necessary or convenient for carrying out the purposes of this chapter. Such standards, specifications and regulations so adopted shall be kept on file in the office of the general services department and in the office of the building and development services department.

(Prior code §23.51 (Ord. 852 §11, Ord. 2364 §155))

**14.40.030 Adoption of street tree plan.**

The commission shall adopt as a resolution a city-wide street tree plan controlling and governing the planting of trees and shrubs in public areas. Such plan shall specifically set forth the several species of trees or shrubs which may be planted or placed in the specified areas or locations in the city. Copies of such plan shall be filed in the office of the general services department and in the office of the building and development services department. Copies of such plan shall at all times be made available in such offices to property owners within the city.

(Prior code §23.51-1 (Ord. 852 §12, Ord. 2364 §156))

**ARTICLE II. DEFINITIONS****14.40.040 Generally.**

For the purposes of this chapter, the words and phrases defined in Sections 14.40.050 to 14.40.110 shall have the meanings respectively ascribed to them in such sections.

(Prior code §23.49 (Ord. 852 §2))

**14.40.050 Commission.**

"Commission" shall mean Bidwell Park and Playground commission of the city.

(Prior code §23.49 (Ord. 852 §2))

**14.40.055 Director.**

"Director" shall mean the director of the general services department.

(Ord. 2364 §157)

**14.40.060 Enforcing authority.**

“Enforcing authority” shall mean Bidwell Park and Playground commission, acting through the director.

(Prior code §23.49-2 (Ord. 852 §4, Ord. 2364 §158))

**14.40.070 Planting area.**

The phrase “planting area” shall include (A) all public rights-of-way; (B) the area between the private property line and the adjacent street curbing; if no curbing exists, then “curbing” shall mean the line where a curb would be installed under existing regulations of the city; (C) other public areas and ways set aside for planting.

(Prior code §23.49-3 (Ord. 852 §5, Ord. 2364 §159))

**14.40.080 Street tree list.**

“Street tree list” shall mean a list of species of trees or shrubs adopted by the Bidwell Park and Playground commission pursuant to this chapter, available for planting in different areas of the city in accordance with the street tree plan. Copies of such list shall be kept on file in the office of the general services department and the office of the building and development services department.

(Prior code §23.49-4 (Ord. 852 §6, Ord. 2364 §160))

**14.40.090 Street tree plan.**

“Street tree plan” shall mean a uniform city-wide plan for street tree planting of shrubs or trees, as adopted by the Bidwell Park and Playground commission, pursuant to this chapter, a copy of which shall be filed with the general services department and the office of the building and development services department. Such plan may consist of several parts adopted at different times for different sections of the city.

(Prior code §23.49-5 (Ord. 852 §7, Ord. 2364 §161))

**14.40.100 Superintendent.**

*Repealed by Ord. 2364 §162*

(Prior code §23.49-6 (Ord. 852 §8))

**14.40.110 Property owner.**

“Property owner” shall mean the owner of property abutting the planting area upon which the removal or planting is to be performed. In case of doubt, the owner shall be deemed to be the person or persons shown to be the owner of such property upon the last equalized assessment roll of the county unless, in case of actual transfer, notice containing the name and address of the new owner or owners shall have been received by the city.

(Prior code §23.49-7 (Ord. 852 §9))

**ARTICLE III. PLANTING OR REMOVING****14.40.120 Permit - Required.**

No trees or shrubs shall be planted in or removed from any planting area in the city unless:

- A. A written permit therefor is authorized by the commission or the city council and is issued by the director; or
- B. Such planting or removal is required by order of the commission or the city council.

The director shall bring all applications for permits to the attention of the commission and shall issue such written permit when and as directed by the commission or the city council.

The planting of a tree or shrub in conformity to the street tree plan as adopted and amended by the commission shall be deemed to be authorized by the commission and no further authorization for the granting of a permit shall be necessary.

(Prior code §23.52 (Ord. 852 §13, Ord. 2364 §163))

**14.40.130 Permit - Application.**

Every person required to have a permit pursuant to Section 14.40.120, shall apply to the director, using the appropriate forms as prescribed by the city manager. As relates to such tree or shrub, only those defined as a property owner, a public utility, or a person acting in a governmental capacity shall apply.

(Prior code §23.53 (Ord. 852 §14, Ord. 2268, Ord. 2364 §164))

**14.40.140 Permit - Fee.**

At the time of making such application the applicant shall pay to the city such fees, if any, as may be determined by the commission and adopted by resolution thereof.

(Prior code §23.53-1 (Ord. 852 §15))

**14.40.150 Permit - Conditions upon issuance.**

All regulations adopted by the commission pursuant to this chapter are conditions upon the issuance of any permit, unless specifically waived by the commission, or the council. The director may impose upon the granting of such permit such additional conditions as the director deems reasonable. Among others, the director may require, as such a condition upon the granting of a removal permit, the replanting of a tree or shrub in place of that removed. The director shall, when removal is being permitted for convenience of owner to make way for construction, require, as a condition, that the removal shall not take place until the work of construction is commenced, unless otherwise authorized by the commission or the council.

(Prior code §23.53-2 (Ord. 852 §16, Ord. 2268, Ord. 2364 §165))

**14.40.160 Permit - Conditions imposed deemed order by commission.**

The imposition, by the director, of conditions upon the granting of a permit, shall be deemed to be an order of the commission for the purposes of Section 14.40.330.

(Prior code §23.53-3 (Ord. 852 §17, Ord. 2364 §166))

**14.40.170 Removal by city - City's expense.**

Whenever, pursuant to a permit granted or commission order, a tree or shrub is to be removed, such removal shall be by the city and at city expense, unless the commission shall find that such tree or shrub is not dead or dying and its continued existence does not create a dangerous or defective condition upon public property, in which case its removal shall be deemed to be for the convenience of the property owner.

(Prior code §23.54 (Ord. 852 §18))

**14.40.180 When property owner responsible for cost of removal.**

Whenever removal is for the convenience of the property owner, the work of removal shall be done by the property owner at such property owner's expense. However, the city may perform such work at the request of property owner and charge the cost thereof to the property owner.

(Prior code §23.54-1 (Ord. 852 §19, Ord. 2268))

**14.40.190 Cost of planting generally.**

All planting or replanting, pursuant to this chapter, shall be done by the city or at city expense, except when replanting has been a condition of the granting of a permit. In the latter case, the city shall perform such work either at the request of the property owner or after such property owner's neglect to perform, the cost of such work to be charged to the property owner as herein provided. The terms "work" and "cost of such work" as used herein include not only labor but the supplying of the tree or shrub to be planted. This section shall not apply to planting required pursuant to the subdivision law of the city.

(Prior code §23.54-2 (Ord. 852 §20, Ord. 2268))

**14.40.200 Neglect of property owner to perform work - Action by city.**

Should the property owner be required, as a result of any conditions imposed pursuant to this chapter, to perform work as defined in Section 14.40.190, and neglect to perform such work for a period of sixty days after the removal for which this planting is a condition, then the director, shall, upon order of the commission, cause such work to be performed by the city and charge the property owner the cost thereof.

(Prior code §23.54-3 (Ord. 852 §21, Ord. 2364 §167))

**14.40.210 Manner of sending notice for cost of work - Hearing.**

In all cases wherein the work of removal, planting, or replanting is performed by the city and at the expense of the property owner, upon completion of such work, the finance director shall cause a notice of the cost of such work, which shall include the cost of any tree or shrub or other materials used, to be given by mailing a postcard to the property owner at such property owner's last known address, as the same appears on the last equalized assessment roll pursuant to which city taxes were last assessed, or the name and address of the person owning such property as is shown on the records in the office of the city clerk. The notice shall specify the following:

- A. An itemized statement of the costs being so charged to the property owner; and
- B. The day, hour and place when the commission will hear and pass upon the report of the director of the cost of such work, together with any objections or protests, if any, which may be raised by any property owner liable to be assessed for the cost of such work, and any other interested person.

At such hearing, the commission, after hearing all objections and protests made, shall have the power to finally fix and determine the amount required to be paid by such

property owner. The amount so determined to be owed by such property owner, shall be due and payable and shall constitute a lien against such property from and after 10 days after the conclusion of such hearing and the making of such determinations. However, if this hearing shall be deemed to be a hearing pursuant to Section 14.40.330 and the property owner shall have a right to appeal to the council pursuant to Section 14.40.340. If such appeal shall be brought pursuant to Section 14.40.340, then such amount as determined by the commission shall not become due nor shall a lien be imposed as hereinabove set out. Upon such council's determination of the matter as provided in Section 14.40.340, the amount so determined by such council to be owed by such property owner shall be thereafter forthwith due and payable and shall constitute a lien against such owner's property abutting the planting area in which such work was done. (Prior code §23.54-4 (Ord. 852 §22, Ord. 2113 §1, Ord. 2268, Ord. 2364 §168))

**14.40.220 Notice of lien - Preparation and filing.**

Within ten days after the amount determined to be owed shall have become due and payable and shall have constituted a lien, the director shall cause to be prepared and filed with the city finance director, a notice of the amount determined to be due and owing to the city from the property owner. Such notice shall set forth the name of the owner, the property to be assessed, the amount of the cost of work owed by such owner. (Prior code §23.54-5 (Ord. 852 §23, Ord. 2113 §1, Ord. 2364 §169))

**14.40.230 Special assessment.**

If the amount determined to be due and owing shall not have been paid within ten days after its determination by the commission or city council (if appeal was made) then it shall constitute a special assessment against the parcel of property which abuts the planting area in which the work was done. (Prior code §23.54-6 (Ord. 852 §24))

**14.40.240 Delinquency - Amount to be added to taxes.**

The finance director, after receiving the notice provided for in Section 14.40.220 and ascertaining that the same has not been paid within ten days required in Section 14.40.230, shall add the amount of the assessment to the next regular bill for taxes levied against such parcel of land. If city taxes are collected by the county officials, a notice of the lien shall be delivered to the county auditor, or such other county officer performing the duties of a county auditor, pursuant to an agreement between the city and the county. (Prior code §23.54-7 (Ord. 852 §25, Ord. 2113 §1))

**14.40.250 Collection of amount of lien - Manner.**

Thereafter, the amount of the lien shall be collected at the same time in the same manner as ordinary city taxes are collected, and shall be subject to the same penalties and interest and to the same procedure under foreclosure and sale in case of delinquency as provided for ordinary city taxes. All laws applicable to the levy, collection and enforcement of city taxes and county taxes are hereby made applicable to such special assessment taxes. (Prior code §23.54-8 (Ord. 852 §26))

**ARTICLE IV. ADDITIONAL REGULATIONS****14.40.260 Advanced deposit on work performed by city.**

Notwithstanding provisions in this chapter to the contrary, whenever the cost of any work to be performed by the city is to be paid for by a property owner, the finance director may require the property owner to deposit with the city the amount of the estimated cost of such work prior to its performance. If the actual cost of such work exceeds the deposit, the difference shall be collected as hereinabove provided. If the deposit exceeds the actual cost of such work, the difference shall be refunded to the property owner. No interest shall be payable on any such refund.

(Prior code §23.55 (Ord. 852 §27, Ord. 2113 §1))

**14.40.270 Power of authority to act independently for removal.**

The director, and the city manager shall each, independently, have the authority to remove a tree or shrub, without the authorization or direction of either the commission or the council, and regardless of the issuance or nonissuance of a permit, if any of such three persons determines that the immediate removal of such tree or shrub is necessary for the maintenance of public safety. In making this determination, such officer shall consider all other means available to maintain public safety. Such officer shall incur no civil or criminal liability as a result of any determination such officer makes hereunder regardless of the correctness thereof.

Such officer shall report to the commission upon any removal made pursuant to this section at its next regular meeting following such removal. The report may be submitted in writing without the appearance of such officer unless the commission otherwise requests.

(Prior code §23.56 (Ord. 852 §28, Ord. 2268, Ord. 2364 §170))

**14.40.280 Persons convicted for chapter violations not exempt from charge or debt payment.**

Conviction and punishment of any person under the terms of this chapter shall not exempt or excuse such person from the payment of a charge or a debt against such person created pursuant to the provisions of Sections 14.40.180 and 14.40.190.

(Prior code §23.57 (Ord. 852 §29))

**14.40.290 Nuisances declared.**

Any tree or shrub growing or standing in the public area fronting private property which, in the opinion of the commission, creates a dangerous or defective condition or endangers the security or usefulness of any public street, sewer or sidewalk is hereby declared to be a public nuisance.

(Prior code §23.58 (Ord. 560 §10))

**14.40.300 Branches to be trimmed.**

It shall be unlawful for any person in the city to permit branches of trees or shrubs growing or being on private property to extend within ten feet from the ground over any portion of the sidewalk or street.

(Prior code §23.59 (Ord. 224 §211))

**14.40.310 Maintenance.**

The director shall propagate, plant, replant, remove, prune, care for, and maintain the trees and shrubbery on the streets, along the sidewalks and in the parking areas of the city, except as in this chapter such duty is imposed on a property owner. The director shall report to the commission from time to time regarding work done pursuant to this section. Such work shall, at all times, be subject to the control and direction of the commission. (Prior code §23.59-1 (Ord. 852 §30, Ord. 2268, Ord. 2364 §171))

**14.40.320 Unlawful acts.**

No person shall abuse, destroy or mutilate any tree, shrub or plant growing in a public area, attach thereto or place thereupon any rope, wire (other than one used to support or aid the tree or shrub), sign, poster or handbill, cause or permit any wire charged with electricity to come into contact with such tree or shrub or to allow any gaseous liquid or solid substance which is harmful to such tree or shrub to come in contact with their roots or leaves.

(Prior code §23.60 (Ord. 224 §213, Ord. 355 §213, Ord. 560 §11))

**ARTICLE V. HEARING - APPEAL****14.40.330 Hearing.**

Should any person be aggrieved by reason of any order of the commission made pursuant to this chapter, such person shall be entitled to a hearing before the commission in person and with counsel, if desired. Such hearing shall be granted upon written request made within 10 days from receipt of notice of the order of the commission. The commission shall set and hold such a hearing within 35 days from the date of such request. Such request shall be in writing and signed by the person requesting the hearing and shall set forth the reasons or grounds for protest against the commission order. No special form of request shall be required. The commission shall make a final determination upon such hearing within 35 days of the date upon which such hearing was terminated.

(Prior code §23.61 (Ord. 852 §31), Ord. 2268)

**14.40.340 Appeal.**

Any person aggrieved by any order of the commission or of the director, made pursuant to this chapter (except any order made pursuant to Section 14.40.270) shall have the right to appeal such determination to the city council pursuant to the provisions contained in Chapter 2.80 of this code. A person aggrieved is a person who is significantly affected by the action appealed from. Significant effect refers to an effect significantly greater than the effect that the action appealed from has generally upon all citizens of the city.

There is no right to appeal from any action taken pursuant to the provisions of Section 14.40.270 of this code, nor is there any right to appeal with respect to an application of the kind referred to in Section 14.40.350 of this code.

(Prior code §23.62 (Ord. 1072 §2, Ord. 2004 §14, Ord. 2364 §172))

**14.40.350 Failure of commission to act on permit - Action by council.**

Notwithstanding other provisions of this code to the contrary, when the capital projects services director or some other authorized officer of the capital projects services department, makes application under the provisions of this chapter for the removal of

trees or shrubs for the purpose of making way for public works, that application shall be brought before the commission at its next regular meeting following the making of such application. The commission may either authorize and direct the granting of such permit as applied for (including the imposition of waiving of conditions as requested in the application) or the commission may make its recommendations concerning such application and cause the same to be transmitted to the city council. The city council shall consider such application and such recommendations of the commission at its next regular meeting. The city council shall thereafter take such action as it deems appropriate. If the commission shall fail within thirty-five days after its first regular meeting following the making of the application to either grant such permit or make its recommendations and transmit them to the city council, then the city council may deem such failure as a recommendation of denial and may proceed to act upon such application as it deems appropriate. No determination or order made by the commission under this section shall be appealable.

(Prior code §23.63 (Ord. 852 §3, Ord. 2364 §173))

## Chapter 16.66

## TREE PRESERVATION REGULATIONS

**Section:**

<b>16.66.010</b>	<b>Title.</b>
<b>16.66.020</b>	<b>Purpose and intent.</b>
<b>16.66.030</b>	<b>Applicability.</b>
<b>16.66.040</b>	<b>Exemptions.</b>
<b>16.66.050</b>	<b>Definitions.</b>
<b>16.66.060</b>	<b>Tree removal permit required.</b>
<b>16.66.070</b>	<b>Tree removal permit application.</b>
<b>16.66.080</b>	<b>Tree removal permit review.</b>
<b>16.66.085</b>	<b>Tree replacement.</b>
<b>16.66.090</b>	<b>Appeals.</b>
<b>16.66.100</b>	<b>Protection of trees during construction.</b>
<b>16.66.110</b>	<b>Protection plan required prior to issuance of permit.</b>
<b>16.66.120</b>	<b>Enforcement.</b>
<b>16.66.130</b>	<b>Violation—penalty.</b>
<b>16.66.140</b>	<b>Additional provisions.</b>

**16.66.010 Title.**

This chapter shall be known as the Tree Preservation Regulations.  
(Ord. 2286)

**16.66.020 Purpose and intent.**

The propagation, maintenance, and preservation of trees enhances the scenic beauty, increases property values, encourages quality development, prevents soil erosion, counteracts pollution in the air, and helps to maintain the climatic balance within the city. The council finds that establishing regulations controlling the removal of and the preservation of trees within the city will further the maintenance and advancement of these public values. In establishing these regulations, it is the city's intent to preserve as many trees as possible consistent with the reasonable use and enjoyment of private property, to provide for a healthy urban forest, and to absorb carbon dioxide to help reduce urban impacts on global warming.

(Ord. 2286, Ord. 2402)

**16.66.030 Applicability.**

This chapter applies to (a) all undeveloped private property within the city which is 10,000 square feet or greater in size and (b) all property that requires discretionary approval of a land use entitlement.

(Ord. 2286, Ord. 2402)

**16.66.040 Exemptions.**

The following shall be exempt from the provisions of this chapter:

- A. Cemetery, public school, university, and city property; and
- B. Tree work performed by public utilities in public utility easements or public rights of way.

(Ord. 2286)

**16.66.050 Definitions.**

For the purposes of this chapter:

- A. "Arborist" means a certified arborist who is registered with the International Society of Arboriculture, or a member in good standing with the American Society of Consulting Arborists.
- B. "Damage" means:
  - 1. "Minimal Damage" means any intentional action or gross negligence which causes injury to or disfigurement of a tree that will not result in the destruction of the tree, as certified by the urban forest manager or an arborist.
  - 2. "Major Damage" means any intentional action or gross negligence which causes injury to, disfigurement, destruction, or effective removal of a tree as certified by the urban forest manager or an arborist
- C. "Development" means any improvement of real property which requires the approval of grading permits, building permits, encroachment permits, parcel or tentative subdivision maps, planned development permits, or use permits.
- D. "Diameter at breast height" or "DBH" means the diameter of a tree at four and one-half feet above adjacent ground.
- E. "Director" means the director of the general services department or a designee.
- F. "Drip line" means the area within a circle defined by a radius measured from the trunk to the outermost branch, plus an additional 10 feet.
- G. "Effectively remove" includes, but is not limited to, any extreme pruning that is not consistent with standard arboriculture practices for a healthy tree and that results in the tree's permanent disfigurement, destruction, or removal pursuant to this chapter.
- H. "Private property" means property owned by a private person or entity. "Private property" does not include property owned by the state or federal government, or by any local public agency.
- I. "Protect" means the protection of an existing tree from damage and stress such that the tree is likely to survive and continue to grow normally in a healthy condition, through measures that avoid or minimize damage to branches, canopy, trunk, and roots of the tree. Such measures may include, but are not limited to, installation of tree protective fencing, mulching and watering of roots, supervision of work by an arborist, installation of aeration or drainage systems, root pruning, and use of nondestructive excavation techniques.
- J. "Remove" or "removal" means cutting a tree to the ground, extraction of a tree, or killing of a tree by spraying, girdling, damaging the roots of a tree, or any other means.
- K. "Tree" or "trees" means any of the following:
  - 1. Any live woody plant having a single perennial stem of 18 inches or more in diameter, or multistemmed perennial plant greater than 15 feet in height having an aggregate circumference of 40 inches or more, measured at four feet six inches above adjacent ground;
  - 2. Any tree that meets the following criteria:

12-inch DBH or greater	6-inch DBH or greater
All Oaks ( <i>Quercus</i> )	Blue oak ( <i>Q. douglassii</i> )
Sycamores ( <i>Platanus racemosa</i> )	Canyon live oak ( <i>Q. chrysolepsis</i> )
Oregon ash ( <i>Fraxinus latifolia</i> )	Interior live oak ( <i>Q. wislizenii</i> )
Big leaf maple ( <i>Acer macrophyllum</i> )	California buckeye ( <i>Aesculus californica</i> )
	Madrone ( <i>Arbutus menziessii</i> )
	Toyon ( <i>Heteromeles arbutifolia</i> )
	Redbud ( <i>Cercis occidentalis</i> )
	California bay ( <i>Umbellularia californica</i> )
	Pacific dogwood ( <i>Cornus nuttallii</i> )

3. Any tree or trees required to be preserved as part of an approved building permit, grading permit, demolition permit, encroachment permit, use permit, tentative or final subdivision map; or
  4. Any tree or trees required to be planted as a replacement for an unlawfully removed tree or trees.
- L. "Tree" or "trees" does not include the following tree species: Ailanthus, Chinese Tallow, Fremont Cottonwood or Poplar, Privet, Box Elder, Silver Wattle, Black Acacia, English Hawthorn, Russian Olive, Olive, Red Gum, Tasmanian Blue Gum, Edible Fig, English Holly, Cherry Plum, Black Locust, Peruvian Peppertree, Brazilian Peppertree, Western Catalpa, Chinese Elm or Winged Elm; or the following fruit and nut trees: Almonds, Apples, Apricots, Avocados, Cherries, Chestnuts, Mandarins, Nectarines, Olives, Oranges, Peaches, Pears, Pecans, Persimmons, Pistachios, Plums or English Walnuts.
- (Ord. 2286, Ord. 2364 §336, Ord. 2402)

**16.66.060 Tree removal permit required.**

- A. No person shall remove, cause to be removed, or effectively remove any tree from any property which is subject to this chapter without obtaining a permit from the director.
- B. Emergency exception. A permit is not required for removal of a tree that presents an immediate hazard to life or property, as determined by the city manager, director, police chief, fire chief, capital projects services director, building and development services director, urban forest manager, code enforcement officer, public utility companies, or their designees.

(Ord. 2286, Ord. 2364 §337, Ord. 2402)

**16.66.070 Tree removal permit application.**

- A. Any person wishing to remove one or more trees shall apply to the director for a permit. The application for a permit shall be made on forms provided by the general services department and shall include the following:
  1. A drawing showing all existing trees six inches or larger that may be affected by tree removal, and the location, type, and size of all tree(s) proposed to be removed;
  2. A brief statement of the reason for removal;

3. If the tree(s) are proposed for removal because of a failing condition, an arborist's determination of the state of health of the tree(s) may be required;
  4. Written consent of the owner of record of the land on which the tree(s) are proposed to be removed;
  5. A tree removal permit fee in amount established by resolution by the city council to cover the cost of permit administration. An additional deposit may be required by the director to retain an arborist to assist the city in assessing the condition of the tree(s); and
  6. Other pertinent information as required by the director.
- B. Any person submitting a tree removal application in conjunction with an application for any development shall provide to the director the plan specifying the precise location, size, species, and drip-line of all existing trees on or adjacent to the property. The plan shall also show existing and proposed grades and the location of proposed and existing structures. The plan submitted shall be the same plan approved by the body having final authority over the development application.
- (Ord. 2286, Ord. 2364 §338, Ord. 2402)

**16.66.080 Tree removal permit review.**

- A. The director shall inspect the property and evaluate each application which is not in conjunction with development. In deciding whether to issue a permit, the director shall base the decision on the following criteria:
1. The condition of the tree or trees with respect to health, imminent danger of falling, proximity to existing or proposed structures, and interference with utility services or public works projects;
  2. The necessity to remove the tree or trees for reasonable development or improvement of the property;
  3. The topography of the land and the effect of the removal of the tree on erosion, soil retention, and diversion or increased flow of stream waters; and
  4. Availability of reasonable or feasible alternatives.
- B. The director shall render a decision regarding an application that is not associated with an application for development, within 10 working days after the receipt of a complete application, or within 10 working days of the completion of the review under the California Environmental Quality Act (CEQA).
- C. The director shall issue a permit if:
1. The tree is determined to be dead;
  2. The tree is dying or diseased and removal is recommended by an arborist;
  3. The tree presents a danger to health and safety;
  4. The tree presents a danger to property improvements or structures;
  5. The tree interferes with public utilities in a manner that does not allow pruning as an option; or
  6. The tree interferes with the development or improvement of the property and there are no feasible alternatives available.
- D. If an application to remove a tree is being requested in conjunction with development, then the decision on the tree removal permit shall be rendered simultaneously with the decision on the development and shall be made by the body having final authority over the development application after consideration of the recommendation of the director. In deciding whether to approve a tree removal permit under this subsection, the body having final authority over the development application shall consider the

criteria set forth in subsection C, above.

- E. The director may refer any application to any city department for review and recommendation.

(Ord. 2286, Ord. 2402)

#### **16.66.085 Tree Replacement.**

If the director or the body having final authority over a development application grants a tree removal permit, then the director or body shall include a condition that the removed trees be replaced as follows:

- A. On-site. For every six inches in DBH removed, a new 15 gallon tree shall be planted on-site. Replacement trees shall be of similar species, unless otherwise approved by the urban forest manager, and shall be placed in areas dedicated for tree plantings. New plantings' survival shall be ensured for three years after the date of planting and shall be verified by the applicant upon request by the director. If any replacement trees die or fail within the first three years of their planting, then the applicant shall pay an in-lieu fee as established by a fee schedule adopted by the City Council.
- B. Off-site. If it is not feasible or desirable to plant replacement trees on-site, payment of an in-lieu fee as established by a fee schedule adopted by the City Council shall be required.

Replacement trees shall not receive credit as satisfying shade or street tree requirements otherwise mandated by this code. Removal of a Heritage Tree that has been so designated by the City Council pursuant to Chapter 16.68, that is removed pursuant to a tree removal permit, shall be exempt from this section.

(Ord. 2402)

#### **16.66.090 Appeals.**

- A. Any decision of the director, pursuant to this chapter, may be appealed to the council. Appeals shall be in writing, shall be signed by the applicant, shall state the reasons the appeal is made, and be filed with the city clerk within 10 calendar days of written notification of the decision by the director. Any appeal shall be accompanied by an appeal fee in the amount established by resolution of the council.
- B. Appeals shall be conducted in accordance with the procedures set forth in this code. The decision of the council shall be final.

(Ord. 2286)

#### **16.66.100 Protection of trees during construction.**

All applicants for demolition permits, grading permits, building permits, use permits, planned development permits, or parcel or tentative subdivision maps, on property containing one or more trees shall prepare a tree protection plan pursuant to Section 16.66.110. The tree protection plan shall comply with the city's "Best Practices Technical Manual: Tree Preservation Measures," as amended, and the approved parcel or tentative subdivision map, if applicable.

(Ord. 2286, Ord. 2402)

#### **16.66.110 Protection plan required prior to issuance of permit.**

- A. A plan to protect trees as described in Section 16.66.100 of this chapter shall be submitted to the director prior to the issuance of demolition permits, grading permits, building permits, use permits, planned development permits, or parcel or tentative subdivision maps. The plan shall ensure that the tree(s), including the root system,

will be adequately protected from potential harm during demolition, grading, and construction that could cause damage to the tree(s). Such harm may include excavation and trenching, construction and chemical materials storage, storm water runoff and erosion, and soil compaction. The plan shall be submitted by the applicant and approved by the director. The director may refer the plan to a city-selected arborist for review and recommendation. The cost of this review shall be borne by the applicant requesting a permit.

- B. The director may require that an arborist be present on the project site during grading or other construction activity that may impact the health of the tree(s) to be preserved. The director may also require that an arborist review and inspect projects and certify that the tree protection plan has been properly implemented. The cost of the review, inspection and certification shall all be borne by the permittee.
- C. Minimal or major damage to any tree(s) during construction shall be immediately reported to the director so that proper treatment may be administered. The director may consult with a city-selected arborist to determine the appropriate method of repair for any damage. The cost of any treatment or repair shall be borne by the permittee. Failure to notify the director of damage to tree(s) may result in the issuance of a stop work order.
- D. The permittee shall remain responsible for the health and survival of all trees under the tree protection plan within the development for a period of three years following acceptance of the public improvements of the development.
- E. The director may waive the requirement for a tree protection plan if the director determines that the demolition, grading, or construction activity is minor in nature and that the proposed activity will not significantly modify the ground area within or immediately surrounding the drip line of the tree(s).

(Ord. 2286, Ord. 2402)

#### **16.66.120 Enforcement.**

The director shall be responsible for the enforcement of this chapter.

(Ord. 2286)

#### **16.66.130 Violation—Penalty.**

- A. Any person who unlawfully removes, destroys, or causes major damage to any tree shall pay a civil penalty equal to twice the amount of the appraised value of each tree or \$5,000.00 per tree, whichever is greater. For purposes of calculating the penalties for each tree, the current edition of the “Guide for Establishing Values of Trees and Other Plants,” as amended, by the Council of Tree and Landscape Appraisers shall be presumed to provide the appropriate basis for determining penalties.
- B. Any person who unlawfully causes minimal damage to any tree shall pay a civil penalty of \$1,000.00 for each tree damaged.
- C. If any person commits three minimal damage violations within a 24-month period, all subsequent minimal damage violations within such 24-month period shall be penalized as major damage violations.
- D. In addition to the abovementioned penalties, any person violating any portion of this chapter that results in the loss of a tree, shall be required to replace said tree with a new tree and/or additional plantings, of the same species, or other species as may be determined by the director. The director shall determine the size and location of

replacement tree(s). The director may refer to the recommendation of a city-selected arborist.  
(Ord. 2286)

**16.66.140 Additional Provisions.**

The provisions of this chapter shall supplement but not supplant other provisions of this code relating to the preservation of trees.  
(Ord. 2286)

**Chapter 16.68****VOLUNTARY HERITAGE TREE PROGRAM****Section:****16.68.010 Voluntary Heritage Tree Program.****16.68.010 Voluntary Heritage Tree Program.**

- A. The purpose and intent of the Voluntary Heritage Tree Program is to identify, promote public awareness of, maintain, and protect designated trees within the City of Chico. This program acknowledges that Heritage Trees, whether located on public or private property, are distinct and unique living resources of the City of Chico.
- B. Any person may submit an application on a form supplied by the director and accompanied by the required fee, to designate a tree as a Heritage Tree. If an application is filed by a person other than the owner of the property on which the tree is located, then the application shall include the written and signed consent of the property owner and the property owner shall have the opportunity to be fully involved in the designation process. Applications shall be evaluated by the urban forest manager and forwarded to the Bidwell Park and Playground Commission for review and recommendation to the City Council. The City Council may designate a tree as a Heritage Tree if it meets any of the following criteria:
  1. Any native Oak (*Quercus*) species or Sycamore (*Platanus*) species, having a diameter at breast height of thirty-six (36) inches or greater when a single trunk, or a cumulative diameter of thirty-six (36) inches or greater when a multi-trunk, and with good health and structure; or
  2. The tree is an outstanding specimen of a desirable species of good health and quality structure; or
  3. The tree is of historical interest; or
  4. The tree is an unusual species, is of distinctive form, is a part of a significant grove or is otherwise unique.
- C. Once a tree is designated as a Heritage Tree, a Notice of Heritage Tree Designation shall be recorded against the property on which the tree is located. Heritage Trees located on public property are exempt from the recording requirement.
- D. Heritage trees may only be removed pursuant to Chapter 16.66 of this code.  
(Ord. 2402)

**19.68.060 Tree preservation measures.**

- A. Submittal Requirements. At the time of a land use entitlement, a tree inventory shall be submitted to the Department. The inventory shall locate all existing trees on the site over 6 inches in diameter at breast height, specify the species, and note whether the tree is to be protected or removed.
- B. Tree Protection Requirements.
1. As a condition of permit approval, the relocation of trees proposed for removal, or replacement of the removed trees with other trees planted elsewhere on the site, may be required. Replacement trees may be required on a more than one-for-one basis if the replacement trees are smaller than the trees being removed.
  2. The Director shall determine during project review which existing trees will require protection during construction. This decision shall be based upon the proximity of construction activity and the location of the trees relative to the structure and other facilities. All trees approved for removal shall be exempt from protection requirements.
  3. The natural grade around the dripline of existing trees shall remain undisturbed during and after construction. Preferably, the undisturbed area shall be at the dripline, but in no case closer than 20 feet from the tree trunk. The dripline of a tree is a projected radius on the ground formed by the outermost edge of the tree canopy.
  4. Where grade changes must occur within the dripline, a suitable mitigation plan shall be developed by either a certified arborist or the City Urban Forester. The plan shall protect the tree from excess fill and/or the removal of excess soil from the root zone.
  5. Prior to beginning construction, existing trees shall be pruned to remove limbs which may be dead or may become damaged during construction. Pruning shall be performed consistent with ANSI A300 Pruning Standards, prune to thin 1 inch.
  6. A temporary construction fence shall be installed at the dripline or no closer than 20 feet from the tree trunk. The fence shall be substantial enough to restrict activity to outside the area and shall be installed prior to any grading or other construction activity. During construction, maintenance shall be performed so that the fence remains in good repair. Removal of the fence shall only occur to allow required construction within the area or to complete site landscaping. City Planning staff shall be contacted, prior to commencement of construction, to inspect fencing and to approve any construction within the dripline.
  7. Underground facilities and trenches, (e.g., utility services, sanitary sewer, or storm drainage lines) shall be consolidated, to the extent feasible, and located to minimize impacts upon tree root systems. Any trenching or underground work should be located outside of the tree dripline. Any trenching required within the tree dripline shall be as far from the tree trunk as possible and shall be excavated by hand to minimize impact on roots. All trenching within the dripline shall be supervised by a certified arborist or the City Urban Forester.
  8. Roots 3/4 inches or greater in size encountered during trenching shall be cleanly cut and treated with a sealing agent to reduce loss of moisture to the tree. Roots greater than 1 1/2 inches shall be preserved and protected at the direction of a certified arborist.
  9. Construction vehicles, equipment, or materials shall not be parked or stored within the fenced area. No staging or storage area for construction shall be located closer than 50 feet to the dripline of any tree to be protected.

10. All construction wastes, including but not limited to building material debris, roofing materials, cleaning of cement trucks, chemicals/adhesives/solvents, etc., shall be stored or disposed of no closer than 50 feet from any tree dripline.
  11. Site irrigation and landscaping shall be planned with existing trees in mind. Native trees typically respond poorly to irrigation required of most ornamental landscapes. A rock, cobble, or other mulch, or native shrubs and groundcovers, in combination with drip irrigation systems shall be used within the dripline of native trees, particularly native oaks.
  12. Existing trees shall have a minimum of 20 feet of open space from the base of the tree, free of any site improvements such as sidewalks, driveways, bike racks, or similar elements.
- (Ord. 2185.)

**Chapter 19.70****PARKING AND LOADING STANDARDS**

<b>19.70.010</b>	<b>Purpose</b>
<b>19.70.020</b>	<b>Applicability</b>
<b>19.70.030</b>	<b>General parking regulations</b>
<b>19.70.040</b>	<b>Number of parking spaces required</b>
<b>19.70.050</b>	<b>Reduction of off-street parking</b>
<b>19.70.060</b>	<b>Design and development standards for off-street parking</b>
<b>19.70.070</b>	<b>Driveways and site access</b>
<b>19.70.080</b>	<b>Bicycle parking and support facilities</b>
<b>19.70.090</b>	<b>Off-street loading space requirements</b>

**19.70.010 Purpose.**

The purpose of these off-street parking and loading standards is to:

- A. Provide reasonable requirements to ensure sufficient parking facilities to meet the needs generated by the proposed use;
- B. Provide accessible, attractive, secure, properly lighted, and well-maintained and screened off-street parking and loading facilities;
- C. Expedite traffic movement and reduce congestion;
- D. Encourage the use of alternative modes of transportation by providing for adequate and conveniently located bicycle and carpool parking;
- E. Improve traffic and pedestrian safety and protect neighborhoods from the effects of vehicular noise and traffic;
- F. Ensure access and maneuverability for emergency vehicles;
- G. Provide loading and delivery services in proportion to the needs of the proposed use; and
- H. Discourage construction of excessive parking.

(Ord. 2185; Ord. 2394 §1)

**19.70.020 Applicability.**

Every permanent use, including a change or expansion of use, and structure shall have permanently maintained off-street parking areas in compliance with the provisions of this chapter. Except for single-family dwellings, the design of all off-street parking areas shall be subject to architectural review. A certificate of occupancy shall not be issued for a use or structure until the improvements required by this chapter are satisfactorily completed and ready for use.

(Ord. 2185)

**19.70.030 General parking regulations.**

- A. Deferral of Parking Installation. For non-residential developments of 10,000 square feet or more of gross floor area, the Director may approve deferral of one or more required off-street parking spaces to a future date. The applicant shall demonstrate, to the satisfaction of the Director, that the occupant(s) of the site will not need the required parking spaces and that the area temporarily occupied by landscaping or other aesthetic amenities can, in the future, be used for parking spaces. The Director may impose reasonable conditions, including the recordation of a legal agreement

which would provide that the landscaping or other amenity is to be removed by the applicant and the off-street parking spaces are to be installed when they are needed to serve the use(s) on the site.

- B. Recreational Vehicle Storage/Parking - Residential Areas. The storage of recreational vehicles and boats in residential zoning districts shall be allowed only in designated off-street parking areas outside the public right-of-way.

(Ord. 2185)

**19.70.040 Number of parking spaces required.**

Each land use shall provide the minimum number of off-street parking spaces required by this section, except where a greater number of spaces is required as a condition of an entitlement approval.

- A. Expansion of Structure, Change in Use. When a structure is enlarged or increased in capacity or intensity, or when a change in use is required by these Regulations to provide more off street parking, additional parking spaces shall be provided in compliance with this section. Development of additional residential dwellings on a parcel containing existing dwellings shall provide off-street parking in compliance with the requirements of this section. Exception: To the extent that reuse of an existing structure located within the Downtown In-Lieu Parking Benefit Area is consistent with the General Plan and permissible under the applicable zoning district, no parking beyond that associated with the prior use of the structure shall be required.
- B. Mixed Uses/Multiple Tenants. A site or facility proposed for multiple tenants or uses, including a hotel with meeting halls and a structure with ground-floor shops and second-floor offices, shall provide the aggregate number of parking spaces required by this section for each separate use; except where shared parking is allowed in compliance with Section 19.70.050-B (Reduction of off-street parking requirements).
- C. Single-Family Homes. If the required parking is within a garage or carport, the conversion of the parking structure will necessitate new required parking spaces which comply with the requirements of this section. Corner parcels may reduce the number of required spaces by one.
- D. Parking Required by Entitlements, Development Agreements, and Specific Plans. Parking requirements established by planned development permits, use permits, development agreements, or specific plans supersede the provisions of this section.
- E. Uses Not Listed. Land uses not specifically listed by Subsections J or K (Parking Requirements by Land Use), below, shall provide parking as required by the Director or other review authority. In determining appropriate off-street parking requirements, the Director or review authority shall use the requirements of Subsections J or K as a general guide in determining the minimum number of off-street parking spaces necessary to avoid undue interference with public use of streets.
- F. Rounding of Quantities. When calculating the number of required parking spaces results in fraction, the fractional requirement shall be rounded up to the next whole space for parking lots with less than 10 total spaces. Where a parking lot contains 10 or more spaces, the fractional requirement shall be rounded to the next highest whole number when the fraction is 0.5 or more, and to the next lowest whole number when the fraction is less than 0.5.
- G. Excessive Parking. Off-street parking spaces in excess of these standards create large amounts of paved areas and increase the surface run-off which could result in water quality and quantity impacts to local waterways and creeks. Additionally, impervious

surfaces increase radiant heat and may have a negative aesthetic appearance. Parking spaces which exceed the minimum number of spaces required by more than 25 percent may be administratively approved by the Director when a combination of additional landscaping, pedestrian/bicycle improvements, and/or pervious surfaces are provided above those required by this chapter. The area for off-street parking and open space on any parcel shall not exceed 75 percent of the gross area of the parcel.

- H. Excessive Parking in the Downtown In-Lieu Parking Benefit Area. The construction of parking spaces in a number greater than that required may be administratively approved by the Director only when a combination of additional landscaping, pedestrian/bicycle improvements, pervious surfaces, and/or measures to offset or decrease downtown traffic and/or carbon emissions are provided at levels significantly above those required by this chapter. In no case may the number of parking spaces exceed by more than 25% the number required by Table 5-4.1.
- I. Additional Parking Required. Where no adjacent on-street parking spaces are available, the Director may, in those cases occurring outside the boundary of the Downtown In-Lieu Parking Benefit Area, require additional off-street parking spaces above the required number identified in Subsection J (Parking Requirements by Land Use), below. Such requirement may be applied only when two or more additional spaces are needed to meet the demand for the use. Any such parking shall be provided on-site or located in an off-street parking area convenient to the particular use and approved as part of a development entitlement by the Director.”
- J. Parking Requirements by Land Use - Outside of the Downtown In-Lieu Parking Benefit Area. The minimum number of parking spaces shall be provided for each use as set forth in Table 5-4; additional spaces may be required through entitlement approval.
- K. Parking Requirements by Land Use - Within the Downtown In-Lieu Parking Benefit Area. The number of vehicular parking spaces provided for each use shall be as set forth in Table 5-4.1.

(Ord. 2185; Ord. 2223; Ord. 2243; Ord. 2263; Ord. 2394 §2)

**TABLE 5-4-A  
PARKING REQUIREMENTS - MANUFACTURING & PROCESSING**

<b>Land Use Type: Manufacturing &amp; Processing</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Machinery and equipment sales	1 space for each 500 sq.ft. of gross floor area, plus 1 space for each 2,000 sq.ft. of outdoor sales or service area.	5% of vehicle spaces.
Personal or mini-storage	2 spaces for an on-site manager/ caretaker, plus 1 space for each 300 sq.ft. of office space, with a minimum of 4 spaces.	1 space.
Recycling facilities (other than reverse vending machines and small collection centers)	If the facility is open to the public, an on-site parking area shall be provided for a minimum of 10 customers at any one time.	10% of vehicle spaces.
	1 employee parking space shall be provided on-site for each commercial vehicle operated by the processing center.	10% of vehicle spaces.
Wholesale operations and light manufacturing plants	1 space for each 1,000 sq.ft. of gross floor area, plus 1 space for each vehicle operated in connection with each on-site use.	10% of vehicle spaces.
Warehouses and storage buildings	1 space for each 1,500 sq.ft. of gross floor area, plus 1 space for each vehicle operated in connection with each on-site use.	5% of vehicle spaces.

**TABLE 5-4-B  
PARKING REQUIREMENTS - RECREATION, EDUCATION,  
PUBLIC ASSEMBLY**

<b>Land Use Type: Recreation, Education, Public Assembly</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Child day care centers	2 spaces for each employee, and adequate drop-off area as approved by the Director.	10% of vehicle spaces.
Churches and other places of worship and mortuaries	1 space for each 4 fixed seats or 1 space for each 8 feet of benches, or 1 space for every 28 sq.ft. of gross principal assembly area, whichever is greater.	10% of vehicle spaces for places of worship.
Golf courses	4 spaces per tee; plus clubhouse spaces as required for restaurants, bars, indoor recreation/fitness centers.	10% of vehicle spaces.
Driving ranges	1 space per tee; plus clubhouse spaces as required for restaurants, bars, indoor recreation/fitness centers.	10% of vehicle spaces.
Indoor recreation/fitness centers	1 space for each 200 sq.ft. of gross floor area.	20% of vehicle spaces.
Arcades		
Bowling alleys	2 spaces per lane, plus required spaces for ancillary uses.	
Dance/assembly halls and sports arenas	1 space for each 4 fixed seats or 1 space for each 8 feet of benches, or 1 space for every 100 sq.ft. of gross floor area used for assembly or dancing, whichever is greater.	10% of vehicle spaces.
Health/fitness clubs	1 space for each 100 sq.ft. of gross floor area.	10% of vehicle spaces.
Pool and billiard rooms	2 spaces per game table, plus adequate space for ancillary game uses.	10% of vehicle spaces.
Libraries, museums, art galleries, post office	1 space for each 300 sq.ft. of gross floor area plus 1 space per official vehicle.	10% of vehicle spaces.
Outdoor commercial recreation	Determined by use permit.	

**TABLE 5-4-B (Continued)**  
**PARKING REQUIREMENTS - RECREATION, EDUCATION,**  
**PUBLIC ASSEMBLY**

<b>Land Use Type: Recreation, Education, Public Assembly (Continued)</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Schools (public and private)	2 spaces for each employee and faculty member plus 1 space for every 42 sq.ft. of gross assembly area in the auditorium or assembly area. (1)	1 space for every 4 students..
Elementary/Junior High		
High School	3 spaces for each classroom plus 1 space for every 4 students. (1)	
Private College	1 space for every 2 full-time students (part-time students included as equivalents).	
Commercial trade or business schools	1 space for every 150 sq.ft. of gross classroom floor area.	10% of vehicle spaces.
Studios for dance and art	1 space for each 2 students.	10% of vehicle spaces.
Tennis/racquetball/handball or other courts	2 spaces per court, plus 1 space for each 250 sq.ft. of floor area excepting the court area, plus as required for ancillary uses.	10% of vehicle spaces.
Theaters, meeting halls, and membership organizations	1 space for each 4 fixed seats or 1 space for each 8 feet of benches, or 1 space for every 28 sq.ft. of gross principal assembly area.	10% of vehicle spaces.

**Notes:**

(1) Elementary and high schools must provide an adequate student drop-off area as approved by the Director.

**TABLE 5-4-C  
PARKING REQUIREMENTS - RESIDENTIAL USES**

<b>Land Use Type: Residential Uses</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Dormitories, fraternities, sororities, and rooming/boarded houses (1)	1 space per 2 occupants which the facility is designed to accommodate; 1 space per 2 beds, if central sleeping facilities are provided.	1 space per bedroom.
Dwelling units located on flag lots, streets, or alleys without on-street parking	1 additional space per dwelling unit shall be provided.	1 space per unit, except that none is required for single-family dwellings.
Dwelling units located on corner parcels	Number of required spaces may be reduced by 1 space; no less than 1 space shall be provided.	1 space per unit, except that none is required for single-family dwellings.
Large family day care homes	In addition to the required residential spaces, 1 space for each employee and one space for drop off and pickup.	None required.
Mobile homes (in mobile home parks)	2 spaces per mobile home.	Determined by use permit.
Multi-family housing	Studio unit - 1 space per unit.	1 space per unit.
	1 bedroom units - 1.5 spaces per unit.	
	2 bedrooms or more - 2 spaces per unit.	
	Guest parking - 25% of total number of units.	1 space per 10 units.
Mixed-use developments	Determined by use permit.	Determined by use permit.
Multi-family housing in a Transit Corridor overlay zone or in Downtown residential areas (CD and RD districts)	Studio unit - 0.75 space per unit.	1 space per unit.
	1 bedroom units - 1 space per unit.	
	2 bedrooms or more - 1.5 spaces per unit.	
Residential developments within an "impacted parking area" as designated by the Council	1 space per bedroom, less 1/2 space per unit, but not less than required by this table for the specific residential use.	1 space per unit or bedroom.
Residential second unit on a single-family parcel	1 additional space for each bedroom. The corner lot exception does not apply.	None required.
Senior housing projects	1 space per 2 dwelling units; half the spaces shall be covered.	5% of vehicle spaces.

**Notes:**

- (1) Fraternity and sorority houses which consist of single-family dwellings in existence on the effective date of this ordinance shall provide 4 off-street vehicle parking spaces and 4 bicycle parking spaces. Tandem parking, fully-contained on-site shall be permitted. All other fraternity and sorority houses shall be subject to the parking requirements of these Regulations.

**TABLE 5-4-C (Continued)**  
**PARKING REQUIREMENTS - RESIDENTIAL USES**

<b>Land Use Type: Residential Uses (Continued)</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Single-family housing	2 spaces per unit (see Section 19.70.040-C).	None required.
Single-room occupancies and specific one-bedroom apartment units	<p>For single-room occupancies and residential units containing 500 sq.ft. or less of gross floor area, 1 space per unit.</p> <p>For single-room occupancies and residential units containing more than 500 sq.ft., 1 space for the first unit on a parcel and 1 1/2 spaces for each additional unit on the same parcel.</p>	20% of vehicle spaces.
Studio apartments or single-room occupancies, designated for low or very low income households, restricted to these households for at least 30 years and located within 500 feet of an existing public transit route and/or commercial facilities supporting residential use	1 space per 2 dwelling units.	20% of vehicle spaces.

**TABLE 5-4-D  
PARKING REQUIREMENTS - RETAIL TRADE**

<b>Land Use Type: Retail Trade</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Auto, mobile home, vehicle machinery and parts sales	1 space for each 500 sq.ft. of gross floor area, plus 1 space for each 2,000 sq.ft. of outdoor display, sales, service area, plus 1 space for each 300 sq.ft. of gross floor area for the parts department.	5% of vehicle spaces.
Banks and financial services	1 space for each 300 sq.ft. of gross floor area.	10% of vehicle spaces.
Drug stores/pharmacies, 20,000 sq. ft. or less	1 space for each 300 sq.ft. of gross floor area.	10% of vehicle spaces.
Furniture, furnishings, appliances, and home equipment stores (with large showrooms)	1 space for each 600 sq.ft. of gross floor area and 1 space for each company vehicle.	5% of vehicle spaces.
Plant nurseries	1 space for each 300 sq.ft. of indoor display area, plus 1 space for each 1,000 sq.ft. of outdoor display area.	5% of vehicle spaces.
Restaurants, cafés, bars, and other eating/drinking places	1 space for each 4 seats or 1 space for each 75 sq.ft. of customer floor area, including outside dining, whichever is greater.	10% of vehicle spaces.
Retail stores	1 space for each 200 sq.ft. of gross floor area and 1 space for each company vehicle.	5% of vehicle spaces.
General merchandise	1 space for each 200 sq.ft. of gross floor area and 1 space for each company vehicle.	
Warehouse retail	1 space for each 200 sq.ft. of gross floor area and 1 space for each company vehicle.	
Shopping centers (shall use an unsegregated parking area)	1 space for each 200 sq.ft. of gross floor area for centers up to 30,000 sq.ft. and 1 space for each additional 300 sq.ft. of gross floor area greater than 30,000 sq.ft.	10% of vehicle spaces.

(Ord. 2381 §7, Ord. 2393)

**TABLE 5-4-D  
PARKING REQUIREMENTS - SERVICE USES**

<b>Land Use Type: Service Uses</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Bed and breakfast inns	1 space for each guest room, in addition to the required parking for the residential use.	1 space.
Depots; air, bus, freight, or rail	Determined by use permit.	Determined by use permit.
Gas stations	1 space for each 200 sq.ft. of non-service floor area; plus 3 spaces for each service bay.	5% of vehicle spaces.
Hotels and motels	1 space for each guest room and required spaces to accommodate other activities.	5% of vehicle spaces.
Kennels and animal boarding	1 space for each employee, plus 1 space for each 500 sq.ft. of gross floor area.	5% of vehicle spaces.
Medical services	1 space for each 200 sq.ft. of gross floor area.	10% of vehicle spaces.
Clinics, medical/dental offices		
Extended care (elderly, skilled nursing facilities, and residential care homes)	1 space for each 3 beds the facility is licensed to accommodate.	
Hospitals	1 space for each patient bed the facility is licensed to accommodate, plus required spaces for ancillary uses as determined by the Commission.	
Medical/dental labs	1 space for each 300 sq.ft. of gross floor area.	
Offices: administrative, corporate, industrial	1 space for each 300 sq.ft. of gross floor area.	10% of vehicle spaces.

**TABLE 5-4-D (Continued)**  
**PARKING REQUIREMENTS - SERVICE USES**

<b>Land Use Type: Service Uses</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Personal services  Barber/beauty shops (and other personal services: tattoo studios, massage therapy, and body piercing)	1 space for each employee and 1 space for each service chair.	10% of vehicle spaces.
Laundromats	1 space for every 3 washing machines.	5% of vehicle spaces.
Repair and maintenance - vehicle  Customer waiting service	3 spaces per service bay plus adequate queuing lanes.	1 space.
Repair garage	1 space for each 500 sq.ft. of gross floor area, plus 1 space for each 2,000 sq.ft. of outdoor service area, plus 1 space for each 300 sq.ft. of gross floor area for the parts department plus adequate queuing lanes.	1 space.
Self-service vehicle washing	2.5 spaces per washing stall, for queuing and drying.	None required.
Full-service vehicle washing	12 spaces, plus adequate queuing and drying area.	1 space.
Laboratories and research/development facilities	1 space for each 300 sq.ft. of gross floor area.	10% of vehicle spaces.
Veterinary clinics and hospitals	1 space per 200 sq.ft. of gross floor area.	5% of vehicle spaces.

**TABLE 5-4.1A**  
**PARKING REQUIREMENTS - MANUFACTURING & PROCESSING IN THE**  
**DOWNTOWN IN-LIEU PARKING BENEFIT AREA**

<b>Land Use Type: Manufacturing &amp; Processing</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Machinery and equipment sales	1 space for each 1000 sq.ft. of gross floor area, plus 1 space for each 4,000 sq.ft. of outdoor sales or service area.	10 % of vehicle spaces.
Personal or mini-storage	1 space for an on-site manager/ caretaker, plus 1 space for each 600 sq.ft. of office space, with a minimum of 2 spaces.	1 space.
Recycling facilities (other than reverse vending machines and small collection centers)	If the facility is open to the public, an on-site parking area shall be provided for a minimum of 5 customers at any one time.	20% of vehicle spaces.
	1 employee parking space shall be provided on-site for each commercial vehicle operated by the processing center.	20% of vehicle spaces.
Wholesale operations and light manufacturing plants	1 space for each 2,000 sq.ft. of gross floor area, plus 1 space for each vehicle operated in connection with each on-site use.	20% of vehicle spaces.
Warehouses and storage buildings	1 space for each 3,000 sq.ft. of gross floor area, plus 1 space for each vehicle operated in connection with each on-site use.	10% of vehicle spaces.

**TABLE 5-4.1B  
PARKING REQUIREMENTS - RECREATION, EDUCATION, PUBLIC  
ASSEMBLY IN THE DOWNTOWN IN-LIEU PARKING BENEFIT AREA**

<b>Land Use Type: Recreation, Education, Public Assembly</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Child day care centers	1 space for each employee, and adequate drop-off area as approved by the Director.	20% of vehicle spaces.
Churches and other places of worship and mortuaries	1 space for each 8 fixed seats or 1 space for each 16 feet of benches, or 1 space for every 56 sq.ft. of gross principal assembly area, whichever is greater.	20% of vehicle spaces for places of worship.
Indoor recreation/fitness centers		
Arcades	1 space for each 400 sq.ft. of gross floor area.	40% of vehicle spaces.
Bowling alleys	1 space per lane, plus required spaces for ancillary uses.	
Dance/assembly halls and sports arenas	1 space for each 8 fixed seats or 1 space for each 16 feet of benches, or 1 space for every 200 sq.ft. of gross floor area used for assembly or dancing, whichever is greater.	20% of vehicle spaces.
Health/fitness clubs	1 space for each 200 sq.ft. of gross floor area.	20% of vehicle spaces.
Pool and billiard rooms	1 space per game table, plus adequate space for ancillary game uses.	20% of vehicle spaces.
Libraries, museums, art galleries, post office	1 space for each 600 sq.ft. of gross floor area plus 1 space per official vehicle.	20% of vehicle spaces.
Outdoor commercial recreation	Determined by use permit.	
Schools (public and private)		1 space for every 4 students.
Elementary/Junior High	1 space for each employee and faculty member plus 1 space for every 84 sq.ft. of gross assembly area in the auditorium or assembly area. (1)	
High School	1.5 spaces for each classroom plus 1 space for every 8 students. (1)	
Private College	1 space for every 4 full-time students (part-time students included as equivalents).	1 space for every 4 students.
Commercial trade or business schools	1 space for every 300 sq.ft. of gross classroom floor area.	20% of vehicle spaces.
Studios for dance and art	1 space for each 4 students.	20% of vehicle spaces.

**TABLE 5-4.1B (Continued)**  
**PARKING REQUIREMENTS - RECREATION, EDUCATION, PUBLIC**  
**ASSEMBLY IN THE DOWNTOWN IN-LIEU PARKING BENEFIT AREA**

<b>Land Use Type: Recreation, Education, Public Assembly</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Tennis/racquetball/handball or other courts	1 space per court, plus 1 space for each 500 sq.ft. of floor area excepting the court area, plus as required for ancillary uses.	20% of vehicle spaces.
Theaters, meeting halls, and membership organizations	1 space for each 8 fixed seats or 1 space for each 16 feet of benches, or 1 space for every 56 sq.ft. of gross principal assembly area.	20% of vehicle spaces.

**Notes:**

- (1) Elementary and high schools must provide an adequate student drop-off area as approved by the Director.

**TABLE 5-4.1C  
PARKING REQUIREMENTS - RESIDENTIAL USES IN THE  
DOWNTOWN IN-LIEU PARKING BENEFIT AREA**

<b>Land Use Type: Residential Uses</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Dormitories, fraternities, sororities, and rooming/boarding houses (1)	1 space per 4 occupants which the facility is designed to accommodate; 1 space per 4 beds, if central sleeping facilities are provided.	1 space per bedroom.
Dwelling units located on flag lots, streets, or alleys without on-street parking	1 additional space per dwelling unit shall be provided.	1 space per unit, except that none is required for single-family dwellings.
Dwelling units located on corner parcels	Number of required spaces may be reduced by 1 space; no less than 1 space shall be provided.	1 space per unit, except that none is required for single-family dwellings.
Large family day care homes	In addition to the required residential spaces, 1 space for each employee and one space for drop off and pickup.	None required.
Mobile homes (in mobile home parks)	1 space per mobile home.	Determined by use permit.
Mixed-use developments	50% of cumulative total otherwise required. Further reductions permissible via Use Permit	Determined through Design Review or Use Permit.
Multi-family Residential	Studio unit - 0.75 space per unit.	1 space per unit.
	1 bedroom units - 1 space per unit.	
	2 bedrooms or more - 1.5 spaces per unit.	
Residential developments within an "impacted parking area" as designated by the Council	1 space per bedroom, less ½ space per unit, but not less than required by this table for the specific residential use.	1 space per unit or bedroom.
Residential second unit on a single-family parcel	1 additional space for each bedroom. The corner lot exception does not apply.	None required.
Senior housing projects	1 space per 2 dwelling units; half the spaces shall be covered.	5% of vehicle spaces.
Single-family housing	2 spaces per unit (see Section 19.70.040-C).	None required.
Single-room occupancies and specific one-bedroom apartment units	For single-room occupancies and residential units containing 500 sq.ft. or less of gross floor area, 1 space per unit.	20% of vehicle spaces.
	For single-room occupancies and residential units containing more than 500 sq.ft., 1 space for the first unit on a parcel and 1 ½ spaces for each additional unit on the same parcel.	

**TABLE 5-4.1C (Continued)**  
**PARKING REQUIREMENTS - RESIDENTIAL USES IN THE**  
**DOWNTOWN IN-LIEU PARKING BENEFIT AREA**

Land Use Type: Residential Uses	Vehicle Spaces Required	Bicycle Spaces Required (Minimum of 1 space)
Studio apartments or single-room occupancies, designated for low or very low income households, restricted to these households for at least 30 years and located within 500 feet of an existing public transit route and/or commercial facilities supporting residential use	1 space per 2 dwelling units.	20% of vehicle spaces.

**Notes:**

- (1) Fraternity and sorority houses which consist of single-family dwellings in existence on the effective date of the ordinance adding this Table 5-4.1 to the Code, shall provide 4 off-street vehicle parking spaces and 4 bicycle parking spaces. Tandem parking, fully-contained on-site shall be permitted. All other fraternity and sorority houses shall be subject to the parking requirements of these Regulations.

**TABLE 5-4.1D  
PARKING REQUIREMENTS - RETAIL TRADE IN THE  
DOWNTOWN IN-LIEU PARKING BENEFIT AREA**

<b>Land Use Type: Retail Trade</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Auto, mobile home, vehicle machinery and parts sales	1 space for each 1,000 sq.ft. of gross floor area, plus 1 space for each 4,000 sq.ft. of outdoor display, sales, service area, plus 1 space for each 600 sq.ft. of gross floor area for the parts department.	10% of vehicle spaces.
Banks and financial services	1 space for each 600 sq.ft. of gross floor area.	20% of vehicle spaces.
Furniture, furnishings, appliances, and home equipment stores (with large showrooms)	1 space for each 1,200 sq.ft. of gross floor area and 1 space for each company vehicle.	10% of vehicle spaces.
Plant nurseries	1 space for each 600 sq.ft. of indoor display area, plus 1 space for each 1,000 sq.ft. of outdoor display area.	10% of vehicle spaces.
Restaurants, cafés, bars, and other eating/drinking places	1 space for each 8 seats or 1 space for each 150 sq.ft. of customer floor area, including outside dining, whichever is greater.	20% of vehicle spaces.
Retail stores	1 space for each 500 sq.ft. of gross floor area and 1 space for each company vehicle.	10% of vehicle spaces.
General merchandise		
Warehouse retail	1 space for each 500 sq.ft. of gross floor area and 1 space for each company vehicle.	
Shopping centers (shall use an unsegregated parking area)	1 space for each 400 sq.ft. of gross floor area for centers up to 30,000 sq.ft. and 1 space for each additional 600 sq.ft. of gross floor area greater than 30,000 sq.ft.	20% of vehicle spaces.
Bed and breakfast inns	1 space for each guest room, in addition to the required parking for the residential use.	1 space.
Depots; air, bus, freight, or rail	Determined by use permit.	Determined by use permit.
Gas stations	1 space for each 400 sq.ft. of non-service floor area; plus 1.5 spaces for each service bay.	10% of vehicle spaces.
Hotels and motels	1 space for each guest room and required spaces to accommodate other activities.	10% of vehicle spaces.
Kennels and animal boarding	1 space for each employee, plus 1 space for each 1,000 sq.ft. of gross floor area.	10% of vehicle spaces.
Medical services	1 space for each 400 sq.ft. of gross floor area.	20% of vehicle spaces.
Clinics, medical/dental offices		

**TABLE 5-4.1D (Continued)**  
**PARKING REQUIREMENTS - RETAIL TRADE IN THE**  
**DOWNTOWN IN-LIEU PARKING BENEFIT AREA**

<b>Land Use Type: Retail Trade</b>	<b>Vehicle Spaces Required</b>	<b>Bicycle Spaces Required (Minimum of 1 space)</b>
Extended care (elderly, skilled nursing facilities, and residential care homes)	1 space for each 3 beds the facility is licensed to accommodate.	20% of vehicle spaces.
Hospitals	1 space for each patient bed the facility is licensed to accommodate, plus required spaces for ancillary uses as determined by the Commission.	20% of vehicle spaces.
Medical/dental labs	1 space for each 600 sq.ft. of gross floor area.	
Offices: administrative, corporate, industrial	1 space for each 600 sq.ft. of gross floor area.	20% of vehicle spaces.
Personal services  Barber/beauty shops (and other personal services: tattoo studios, massage therapy, and body piercing)	0.5 spaces for each employee and 0.5 spaces for each service chair.	20% of vehicle spaces.
Laundromats	1 space for every 6 washing machines.	10% of vehicle spaces.
Repair and maintenance - vehicle  Customer waiting service	1.5 spaces per service bay plus adequate queuing lanes.	1 space.
Repair garage	1 space for each 1,000 sq.ft. of gross floor area, plus 1 space for each 4,000 sq.ft. of outdoor service area, plus 1 space for each 600 sq.ft. of gross floor area for the parts department plus adequate queuing lanes.	1 space.
Self-service vehicle washing	1 space per washing stall, for queuing and drying.	None required.
Full-service vehicle washing	6 spaces, plus adequate queuing and drying area.	1 space.
Laboratories and research/development facilities	1 space for each 600 sq.ft. of gross floor area.	20% of vehicle spaces.
Veterinary clinics and hospitals	1 space per 400 sq.ft. of gross floor area.	10% of vehicle spaces.

(Ord. 2394 §3)

**19.70.050 Reduction of off-street parking.**

- A. Residential Parking Reduction. The Zoning Administrator may reduce off-street parking requirements, in compliance with Chapter 19.24 (Use Permits), as follows.
1. Area of Applicability. Off-street parking requirements for residential uses may be reduced within the following areas:
    - a. Mixed-use development areas;
    - b. The RD zoning district (Salem/Wall/Flume Corridors sub-areas); and/or
    - c. Transit corridors.
  2. Parking Reductions in the Downtown In-Lieu Parking Benefit Area. Off street parking requirements for any use in the Downtown In-Lieu Parking Benefit Area may be reduced based upon the findings in this Section.
  3. Findings for Reduction. The Zoning Administrator finds, in addition to those findings required by Chapter 19.24, that any requested reduction is necessary to retain the character of the area, and that the area is served by sufficient bicycle facilities or public transit, or is characterized by mixed-use development or has other features which encourage pedestrian access, or if the area is served by adequate on-street parking or other public parking, and will not result in a parking deficiency.
- B. Non-Residential Shared Parking Reduction. Non-residential parking facilities may be shared if multiple uses on the same parcel cooperatively operate the facilities and if some uses generate parking demands primarily when other uses are not in operation. For example, where one use operates during evenings or weekdays only, or where patrons are likely to visit more than one use on a single trip. The applicant shall provide documentation, including a shared parking use analysis, to the satisfaction of the Zoning Administrator, justifying the requested shared parking reduction. Shared parking may be approved only if:
1. The number of spaces provided will meet the greatest parking demand of any participating use; and
  2. Evidence, as deemed satisfactory by the Zoning Administrator, has been submitted by the parties operating the shared parking facility. The evidence shall describe the nature of the uses and the times when the uses operate so as to demonstrate the lack of potential conflict between them; and
  3. Additional documents, covenants, deed restrictions, or other agreements as may be deemed necessary by the Zoning Administrator and approved by the City Attorney, are executed to ensure that the parking spaces provided are maintained and used as approved for the life of the non-residential development.
- C. In-Lieu Parking Reduction. An in-lieu parking reduction program may only be accomplished in the following manner:
1. In any portion of a commercial zoning district, the exterior boundary of which has been fixed by the Council in compliance with these Regulations, the off-street parking space requirements may be satisfied by an in-lieu payment. The payment to the City shall be made prior to the issuance of a building permit, or any other required entitlement, and shall be in an amount established by the Council, in compliance with this chapter. The deposited funds shall be retained by the City and shall be used exclusively for the purpose of acquiring and developing public off-street parking facilities located, to the maximum extent feasible, in the vicinity of the use for which the payment is made.
  2. The Council shall, by resolution and following a public hearing, fix the exterior boundary of each area within which a sum of money may be deposited in lieu of

furnishing the parking facilities required by this chapter, and shall fix the amount of the deposit to be applicable within each area, provided that the Council shall take into consideration and be guided by the following:

- a. The historically projected cost to property owners within existing vehicle parking districts in the City in developing the present existing off-street parking facilities in the district; and
  - b. The estimated costs of providing off-street parking facilities within each area.
3. The Council may, by resolution and following a public hearing, change or modify the exterior boundary of each area or the amount of the required deposit.
  4. The Council shall have the sole determination as to when and where the off-street parking facilities contemplated to be provided shall be acquired and developed.
  5. In the event an owner or developer, having made a deposit in compliance with this chapter, subsequently brings the property into compliance with this chapter before the City shall have expended or otherwise obligated or committed any of the money deposited for the development of off-street parking facilities in the vicinity of the use, the owner or developer may request a refund of the previously submitted deposit. Upon certification of compliance furnished by the building and development services director to the finance director, the deposit shall be refunded to the depositor.
- D. Effects of Off-Street Parking Requirements on Vehicle Parking Districts.
1. The off-street parking requirements of this chapter shall not apply to commercial uses located on property which, prior to January 1, 1978, was part of either Vehicle Parking District No. 1, established by Ordinance No. 499, adopted June 7, 1955, or Vehicle Parking District No. 2, established by Ordinance No. 548, adopted July 2, 1957, and paid the required assessments, no matter what use is/was made of the property during the operation of the parking district(s). "Commercial uses" shall not include any uses described in Subsection D-2, below.
  2. Off-street parking requirements shall apply to auditoriums, hotels, lodge halls, motels, social clubs, and all uses allowed in the residential zoning districts, except for professional offices, to the same extent as required by this chapter, even when the property is located within an existing vehicle parking district or any existing district designated for in-lieu parking.

(Ord. 2185, Ord. 2364 §393; Ord. 2394 §4)

#### **19.70.060 Design and development standards for off-street parking.**

Off-street parking areas shall generally be provided outside of any public right-of-way in the following manner:

- A. Access. Access to off-street parking areas shall be provided in the following manner:
  1. Parking areas shall provide suitable maneuvering room so that all vehicles may enter an abutting street in a forward direction. Single-family homes and duplexes which gain access from local streets are exempt from this requirement and the Director may approve exceptions for other residential projects; and
  2. A minimum unobstructed clearance height of 7 feet 6 inches shall be maintained above all areas accessible to vehicles.
- B. Location. Off-street parking areas shall be located in the following manner:
  1. In order to minimize the visual impact of vehicles, the parking areas other than single-family residential shall generally be located to the rear or side of the parcel, rather than along the street frontages, with appropriate screening from both the

interior and exterior of the site. The parking areas shall not be located within a sight distance area;

2. Uncovered off-street parking for single-family and duplex uses in residential zoning districts may be located in the setback areas.
  3. Off-street parking for all uses outside the downtown area, except for single-family dwellings and duplexes, shall be located at least 10 feet behind the front and street-side property lines. The area between the parking area and the property line(s) shall be fully landscaped, except for point of access, and this landscaped shall not be counted as meeting the minimum 5 percent interior landscape requirement.
  4. Off-street parking in the CD and RD zoning districts shall be located at least 5 feet behind the front and street-side property lines. The area between the parking area and the property lines shall be fully landscaped, except for point of access, and this landscaped area shall be counted as meeting the minimum 5 percent interior landscape requirement.
- C. Parking Lot and Space Dimensions:
1. General Requirements. Minimum parking dimensions shall be as indicated in the following Table 5-5 and as illustrated by Figure 5-10.

**TABLE 5-5  
MINIMUM PARKING STALL AND LOT DIMENSIONS**

**Minimum Parking Stall Dimensions**

Standard Stall		Compact Stall		Parallel Parking	
Length	Width	Length	Width	Length	Width
20 feet, or 18 feet with bumper overhang per Section 19.70.060-E-4-c	9 feet	16 feet, or 14 feet with bumper overhang per Section 19.70.060-E-4-c	8 feet	22 feet	9 feet

**One-Way Traffic and Single-Loaded Aisles**

Parking angle (degrees)	Stall depth, with bumper overhang	Aisle width (travel lane)	Total bay depth
30	17 feet	13 feet	30 feet
45	19 feet	13 feet	32 feet
60	20 feet	16 feet	36 feet
75	20 feet	20 feet	40 feet
90	20 feet	24 feet	44 feet

**TABLE 5-5**  
**MINIMUM PARKING STALL AND LOT DIMENSIONS (Continued)**

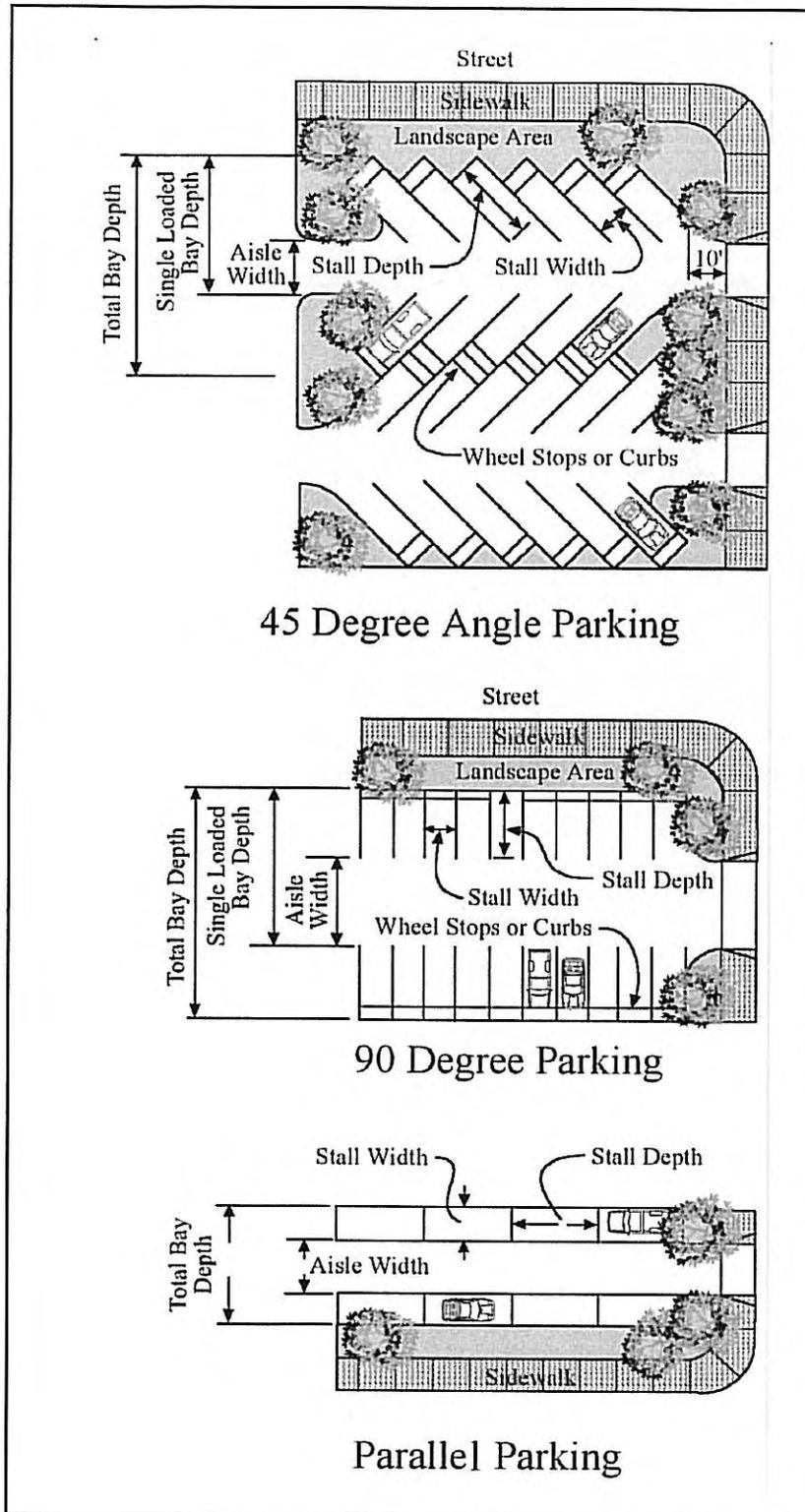
One-Way Traffic and Double-Loaded Aisles

Parking angle (degrees)	Stall depth, with bumper overhang	Aisle width (travel lane)	Total bay depth
30	18 feet	13 feet	49 feet
45	19 feet	13 feet	51 feet
60	20 feet	16 feet	56 feet
75	20 feet	20 feet	60 feet
90	20 feet	24 feet	64 feet

Two-Way Traffic and Double-Loaded Aisles

Parking angle (degrees)	Stall depth, with bumper overhang	Aisle width (travel lane)	Total bay depth
30	18 feet	24 feet	60 feet
45	19 feet	24 feet	62 feet
60	20 feet	24 feet	64 feet
75	20 feet	24 feet	64 feet
90	20 feet	24 feet	64 feet

2. Compact Parking Spaces. When two or more off-street parking spaces are required by this chapter, up to one-half of the parking spaces proposed for a residential project may be compact spaces. Up to one-third of the spaces proposed for a non-residential project may be compact spaces. Each compact space shall be clearly marked as "compact."
  3. Dimensions for Private Garages. A minimum unobstructed inside dimension of 10 feet by 20 feet shall be maintained for a private one-car garage. A minimum unobstructed inside dimension of 20 feet by 20 feet shall be maintained for a private two-car garage, except that when one of the two spaces may be a compact space, water heaters, laundry facilities, shelves, and other fixtures commonly located in garages may project up to four feet into one of the two spaces so as to reduce its length to a minimum of 16 feet.
- D. Drainage. All off-street parking/loading areas shall be designed and constructed:
1. So that surface water will not drain over any sidewalk or adjacent parcels. Drainage from a site to a street across a driveway may be approved; and
  2. In compliance with the stormwater quality and quantity standards and the City's Best Management Practices.



45 Degree Angle Parking

90 Degree Parking

Parallel Parking

Figure 5-10  
PARKING LOT DIMENSIONS

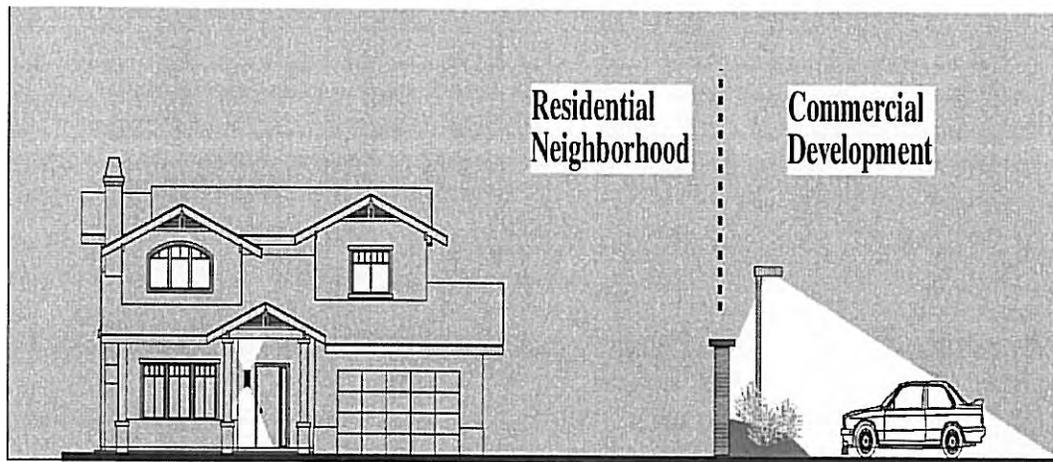


- E. Landscaping. Landscaping shall be provided for all parking areas, as follows and as shown on Figure 5-11, unless otherwise specified in this chapter:
1. Area of Landscaping Required. Landscaping shall be provided in all buffer areas between property lines and the off-street parking areas, to properly screen vehicles from view and minimize the expansive appearance of these areas. A minimum of 5 percent of the total interior off-street parking area shall be landscaped, unless the Architectural Review Board finds that a lesser or greater percentage would be compatible with the surrounding area.

Any landscaped buffer area required by these Regulations, along the perimeter of the parking areas, shall not be counted as meeting the minimum 5 percent interior landscape requirement. The total interior off-street parking area shall be computed by adding all areas used for access drives, aisles, stalls, and maneuvering within that portion of the site that is devoted to parking and circulation, excluding entrance drives.
  2. Area of Shading Required. Trees shall be planted and maintained in planters or landscaped areas so that at tree maturity, 15 years, at least 50 percent of the total paving area, not including the entrance drives, shall be shaded at solar noon on June 21. This shading requirement shall not apply to the development of single family residences. On sites with compacted or poor soils and/or drainage, additional installation measures such as, but not limited to, soil amendments and over-excavation of planting holes, shall be required to ensure that the shading standard can be reached. Areas covered by carports shall not be calculated as part of the required shaded areas.
    - a. Calculations. Shaded parking lot area is determined by using an appropriate percentage of crown square footages as indicated in the City of Chico Parking Lot Tree list. Overlapping canopies shall not count towards the calculation number, rather tree canopies shall be given full, three-quarter, one half, or one-quarter credit for shading of parking lot areas.
    - b. Calculation Table. Landscape shading plans shall include a table that includes the following information:
      - (1) Botanical name and common names of trees;
      - (2) Canopy quantity at full shade, 3/4 shade, 1/2 shade and 1/4 shade per square foot;
      - (3) Total square feet of shade provided;
      - (4) Total parking lot area to be shaded; and
      - (5) Total shade provided.
    - c. Shade Square Foot Bonuses: Trees planted on the western perimeter of parking lots and in linear planters with a minimum width of six feet and a minimum length of 36 feet shall receive a 10 percent square foot shade bonus for each tree canopy.
  3. Perimeter Landscaping:
    - a. Adjacent to Streets. Parking areas, for other than single family residential and residential duplex uses, adjoining a public right-of-way shall be designed to provide a landscaped planting strip between the right-of way and parking area a minimum of 5 feet in depth in the RD and CD zoning districts, and a minimum of 10 feet in all other zoning districts. Any planting, sign, or other structure within a sight distance area of a driveway shall not exceed 36 inches in height, with the exception of street trees.



**Figure 5-12**  
**PARKING AREA LIGHTING**



- G. On-Site Location Required. All parking spaces shall be located on the same parcel as the main use or structure unless granted a use permit in compliance with Chapter 19.24 (Use Permits) and Subsection H (Off-Site Location Requirements), below.
- H. Off-Site Location Requirements. The following requirements shall apply to providing off-street parking at an off-site location:
1. A portion or all of the required off-street spaces, including required access, may be located on an adjacent parcel;
  2. Developments providing 20 or more off-street parking spaces may provide for up to 15 percent of the spaces to be located in a non-contiguous parking area designated for employee parking;
  3. The approval shall be based on accessibility to the main use or structure, and the use and development of the neighboring parcel(s);
  4. The applicant shall provide evidence, as deemed satisfactory by the Zoning Administrator, that a suitable long-term lease or other binding agreement can be executed and recorded which would guarantee that the parcel containing the main use or structure has an irrevocable right to utilize the identified parcel for parking; and
  5. This provision shall not apply where joint use parking and/or access are included as part of a subdivision approval.
- I. Residential Guest Parking. Guest parking in residential zoning districts shall be so designated and restricted, with appropriate signs/pavement markings, for the exclusive use of the guests.
- J. Screening. Multi-family, commercial, manufacturing, and public parking areas abutting residentially zoned parcels shall have a wood fence or decorative masonry wall, not less than 6 feet high, to properly screen the parking areas, subject to approval by the Director. The Director may waive or modify this requirement to protect the views of adjacent residences. Wall treatments shall occur on both sides.
- K. Striping and Marking. Parking stalls shall be identified by stripes of paint, or other durable striping material specified and approved by the Director, on the parking lot surface. Double stripes may be used. Parallel spaces shall be marked with single

lines.

- L. **Surfacing.** All off-street parking areas, including driveways and maneuvering areas, shall be paved with all-weather surfacing and provided with storm drainage facilities subject to the approval of the building and development services director.  
All-weather surfacing shall be portland cement concrete, asphaltic concrete, or double chip seal. Porous surface materials which may reduce stormwater runoff may be used subject to review and approval of the building and development services director.
- M. **Tandem Parking.** Tandem parking may be allowed to satisfy off-street parking requirements for single-family dwellings or duplexes located on local residential streets or private streets. Tandem parking may be allowed to satisfy off-street parking requirements for multi-family dwellings only when the required maneuvering area is entirely on-site and vehicles are able to exit the property in a forward direction, subject to the issuance of a use permit.
- N. **Wheel Stops/Curbing.** Continuous concrete curbing at least 6 inches high and 6 inches wide shall be provided for all parking spaces located adjacent to fences, walls, property lines, and structures. All parking lots shall have curbing around all parking areas and aisle planters in compliance with Subsection E (Landscaping), above. Individual wheel stops may be used in lieu of continuous curbing when the parking stall is adjacent to a landscaped area and the drainage is directed to the landscaped area. Wheel stops shall be maintained to provide protection of landscaped areas and structures.

(Ord. 2185; Ord. 2223; Ord. 2243, Ord. 2364 §394; Ord. 2381 §8; Ord. 2394 §5; Ord. 2397 §9, Ord. 2402)

#### **19.70.070 Driveways and site access.**

Driveways providing access to off-street parking spaces shall be from an improved street, alley or other right-of-way, and shall be designed, constructed, and maintained as follows:

- A. **Number of Access Points.** One driveway access for each ownership shall be allowed unless the building and development services director determines that more than one access is required to handle traffic volumes or specific designs, including residential circular driveways. Additional access shall not be allowed if it is determined to be detrimental to traffic flow and the safety of adjacent public streets. Whenever a property has access to more than one road, access shall be generally limited to the lowest volume road where the impact of a new access will be minimized.  
Construction of access from private property to a public street shall require an encroachment permit in compliance with Chapter 14.08 of the Municipal Code.
- B. **Adjacent Site Access.** Applicants for non-residential developments should be encouraged to provide cross-access to adjacent non-residential properties for convenience, safety, and efficient circulation of motor vehicles. A use permit, in compliance with Chapter 19.24, and a joint access agreement are required wherever cross-access is provided.
- C. **Location of Access.**
1. **Distance From Street Intersections.** No portion of a driveway access shall be allowed within curb returns. The edge of the access shall be more than 10 feet from the end of curb return for single-family residential developments. For all other developments, this distance shall be more than 100 feet. Where the parcel size does not permit the access to be located 100 feet from the end of curb return, the access shall be located the maximum distance possible from the end of the

- curb return, subject to the approval of the building and development services director. This distance does not include the 3-foot transition or wing sections on each side of the driveway. Access in proximity to a controlled intersection shall be subject to the approval of the building and development services director.
2. Driveway Spacing. Driveways shall be separated at the street frontage as follows:
    - a. Single-Family and Duplex Residential Development. Where two or more driveways serve adjacent single-family or duplex residential parcels, the nearest points of the two driveways shall be separated by at least 6 feet, unless a shared, single driveway is approved by the Director. The 6-foot separation does not include the 3-foot transition or wing sections on each side of the driveway.
    - b. Multi-Family and Non-Residential Development. Where two or more driveways serve the same or adjacent multi-family or non-residential development, the centerlines of accesses shall be separated by at least 200 feet on streets with design speeds at or below 30 mph and 300 feet on streets with design speeds above 30 mph. Any exception to these standards shall be subject to the approval of the building and development services director.
    - c. Corner and Double Frontage Parcels. For corner and double frontage residential parcels, other than single-family and duplex residential, one access on each frontage may be allowed if it is determined by the building and development services director that two driveways are needed to provide safe access for traffic entering and leaving the parcel because of sight distance and geometric design considerations.
  3. Driveway Alignments - Commercial Development. Where commercial parcels are not large enough to allow accesses on opposite sides of the street to be aligned, the center of driveways not in alignment shall be offset a minimum of 150 feet on all collector roads, and 300 feet on all major and arterial roads. Greater distances may be required, if needed, for left-turn storage lanes. Exceptions to these standards shall be subject to the approval of the building and development services director.
- D. Driveway Width and Length.
1. Residential zoning districts. Driveway dimensions in the residential zoning districts shall be consistent with Title 18R (Design Criteria and Improvement Standards). The minimum length of a single-family driveway shall be 20 feet to permit a vehicle to park in the driveway without blocking the sidewalk. Where access to a garage, carport, or open parking space is perpendicular (90 degrees) to the driveway, a minimum 24-foot deep unobstructed back-out area shall be provided.
  2. Commercial and Manufacturing Zoning Districts. Driveway dimensions shall be consistent with Title 18R (Design Criteria and Improvement Standards).
- E. Clearance from Appurtenances. The nearest edge of any driveway curb cut shall be at least 3 feet from the nearest property line, except where the review authority has approved a shared driveway between two parcels, the centerline of a fire hydrant, utility pole, drop inlet, and/or appurtenances, traffic signal installations, light standards, or other facilities. The nearest edge of any driveway shall also be at least 5 feet from the nearest projection of this type of installation.
- F. Sight Distance at Driveways. At least 150 feet of clear sight distance shall be

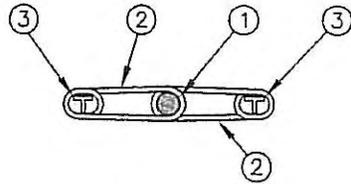
- provided for all access onto local streets, 250 feet for collector streets, and 450 feet for arterial streets, or as approved by the building and development services director.
- G. Fire Department Access. For multi-family residential and non-residential development, minimum clear turning radii shall be provided within parking lot and access aisles for Fire Department vehicles.
- H. Signs. All exits from parking lots shall be provided with adequate traffic control as approved by the building and development services director.  
(Ord. 2185, Ord. 2364 §395)

**19.70.080 Bicycle parking and support facilities.**

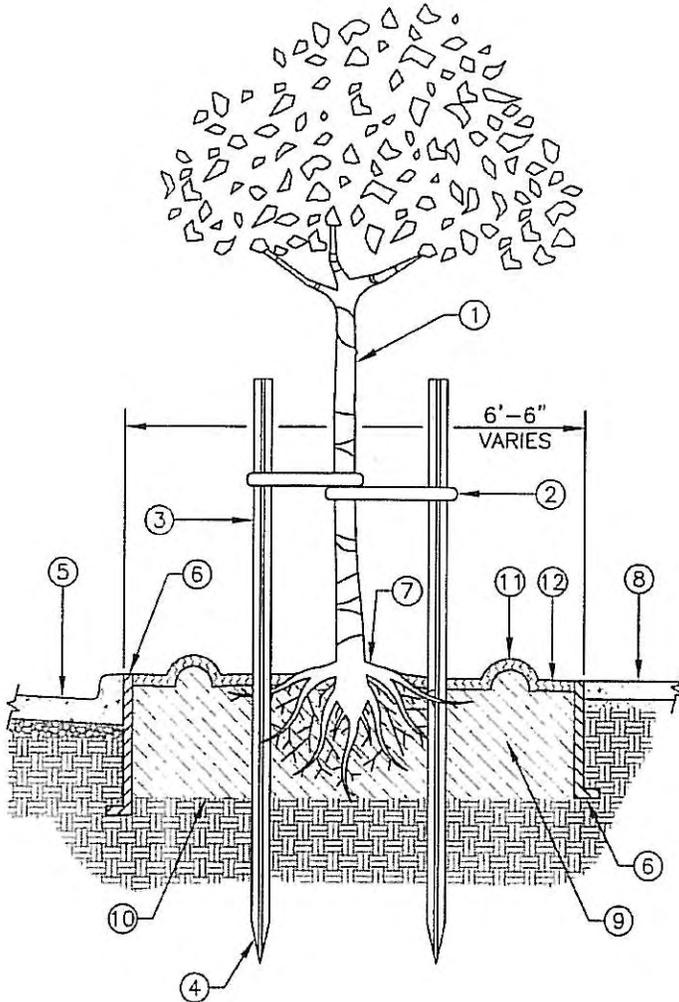
Bicycle parking facilities, showers, and lockers shall be provided in the following manner:

- A. Applicability. Bicycle parking shall be provided for all residential uses, except for single family residences which are detached and/or do not share common open space areas, as well as all commercial, service, manufacturing and industrial uses. These include structures owned by the City and used for governmental purposes. The number of bicycle spaces required is determined by Section 19.70.040 (Number of parking spaces required). Associated bicycle facilities, including showers and lockers, are addressed in Subsection C (Shower and Locker Facilities), below.
- B. Bicycle Parking Design and Devices. Bicycle parking areas shall be designed and provided in the following manner:
1. Parking Equipment. Each bicycle parking space shall include a stationary parking device to adequately support and secure the bicycle. Covered bicycle parking for multi-family, commercial and industrial use is recommended and reviewed through the architectural review process.
  2. Parking Layout:
    - a. Aisles. Aisles providing access to bicycle parking spaces shall be at least 5 feet in width for one-way traffic and 10 feet for two-way traffic.
    - b. Spaces. Each bicycle space shall be a minimum of 2 feet in width and 6 feet in length, and have a minimum of 7 feet of overhead clearance.
    - c. Relationship to Structure Entrances. Bicycle spaces shall be conveniently located and generally within proximity to the main entrance of a structure.
    - d. Relationship to Motor Vehicle Parking. Bicycle spaces shall be separated from motor vehicle parking spaces or aisles by a fence, wall, or curb, or by at least 5 feet of open area, marked to prohibit motor vehicle parking.
- C. Shower and Locker Facilities. The number of required vehicle parking spaces may be reduced by 5 percent if shower and locker facilities are provided.
1. Required Shower Facilities. Shower facilities shall be provided as required in Table 5-6.
  2. Required Locker Facilities. Lockers for personal effects shall be located near required showers and dressing areas.

(Ord. 2185; Ord. 2223)



PLAN VIEW



SECTION VIEW

**NOTES:**

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY STEEL GREEN T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN. INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 12" DEPTH (LB 12-2) NEXT TO SIDEWALKS AND 18" DEPTH (LB 18-2) NEXT TO CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑪ WATER RETENTION BERMS SHOULD BE SET 3' FROM THE TRUNK.
- ⑫ MULCH.

**NOTE:**  
 IN TURF AREAS PROVIDE ARBOR GUARD BRAND TRUNK PROTECTANT AND PROVIDE A BENDER BOARD AT THE OUTSIDE EDGE OF THE BERM.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

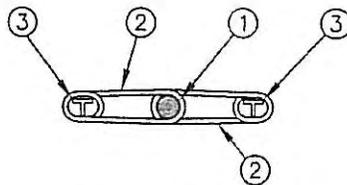
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 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 CHSD DIRECTOR

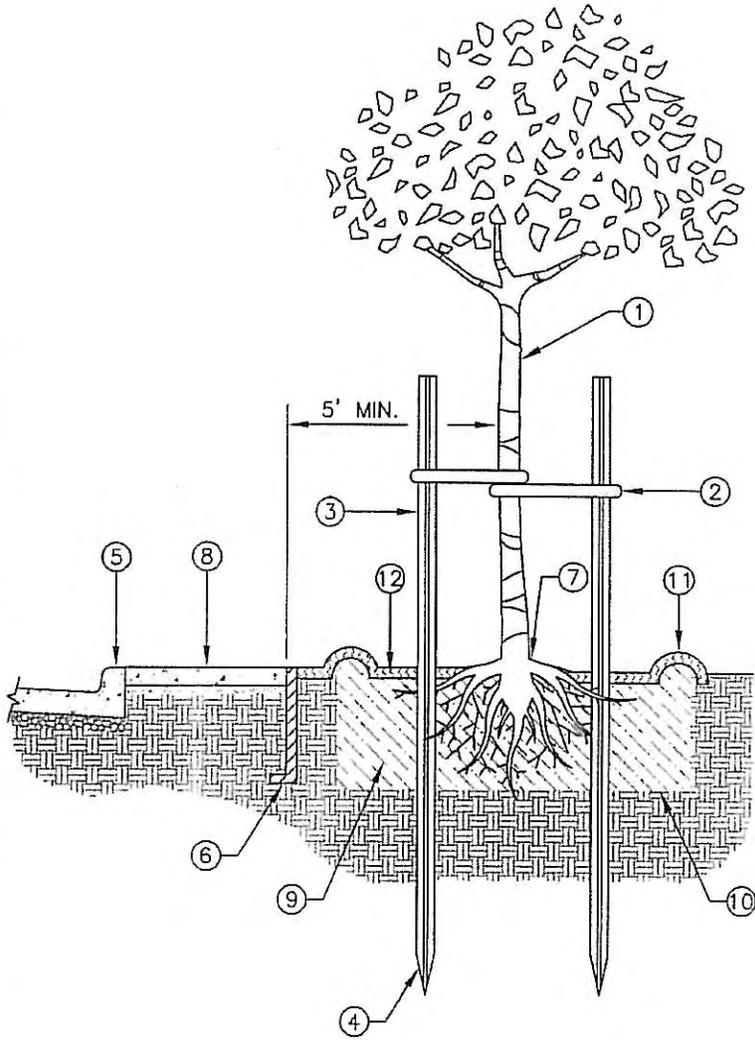
**FIFTEEN GALLON  
 TREE PLANTING DETAIL  
 AT PARKWAY STRIP**

NO.  
**LS-I**

SHEET 1 OF 3



PLAN VIEW



SECTION VIEW

**NOTES:**

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY GREEN STEEL T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 12" DEPTH (LB 12-2) ALONG SIDEWALKS.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND 2" DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF SOIL MAY BE REQUIRED.
- ⑪ WATER RETENTION BERMS IN SHRUB AREAS.
- ⑫ MULCH.

**NOTE:**

IN TURF AREAS PROVIDE ARBOR GUARD BRAND TRUNK PROTECTANT.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

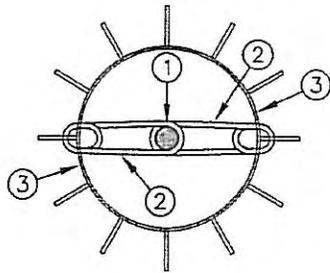
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 APPROVED: [Signature]  
 EPSD DIRECTOR

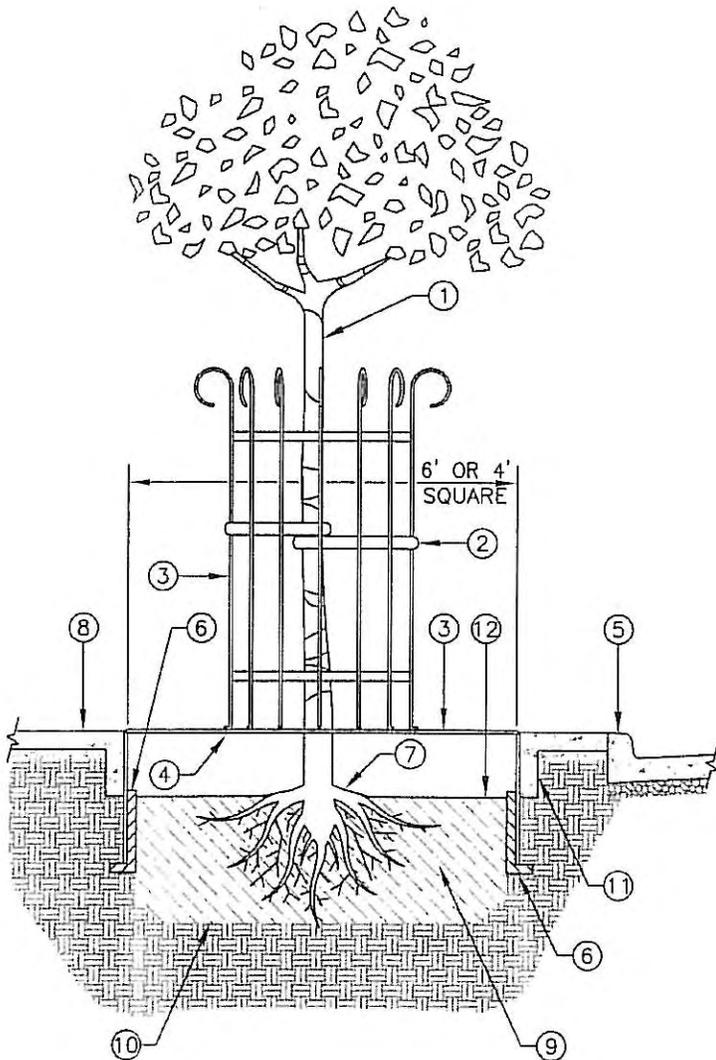
**FIFTEEN GALLON  
 TREE PLANTING DETAIL  
 AT BACK OF WALK**

NO.  
**LS-1**

SHEET 2 OF 3



PLAN VIEW



SECTION VIEW

NOTES:

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE, TWO PLACES.
- ③ NEENAH R-8713, 180" SQUARE, 60" OR 48" TREE GRATE WITH TREE GUARD, SEE CONSTRUCTION PLAN FOR DETAILS.
- ④ STEEL FLANGE 2"X3" PRE-DRILLED TO ACCEPT 2"X1/2"Ø THROUGH BOLT.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. 12" DEPTH (LB 12-2) NEXT TO SIDEWALKS AND 18" DEPTH (LB 18-2) NEXT TO CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT.
- ⑩ PLANTING HOLE SHALL BE THE WIDTH OF THE TREE WELL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑪ CONCRETE EDGE TO RETAIN SUBGRADE, 4" THICK MIN.
- ⑫ FINISH PLANTER GRADE - 7" BELOW TOP OF TREE GRATE.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

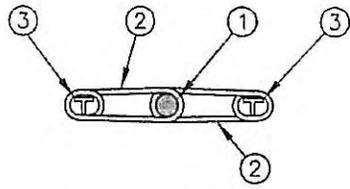
**STANDARD PLAN**

DRAWN BY: GL DATE: 9/09  
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 CPSD DIRECTOR

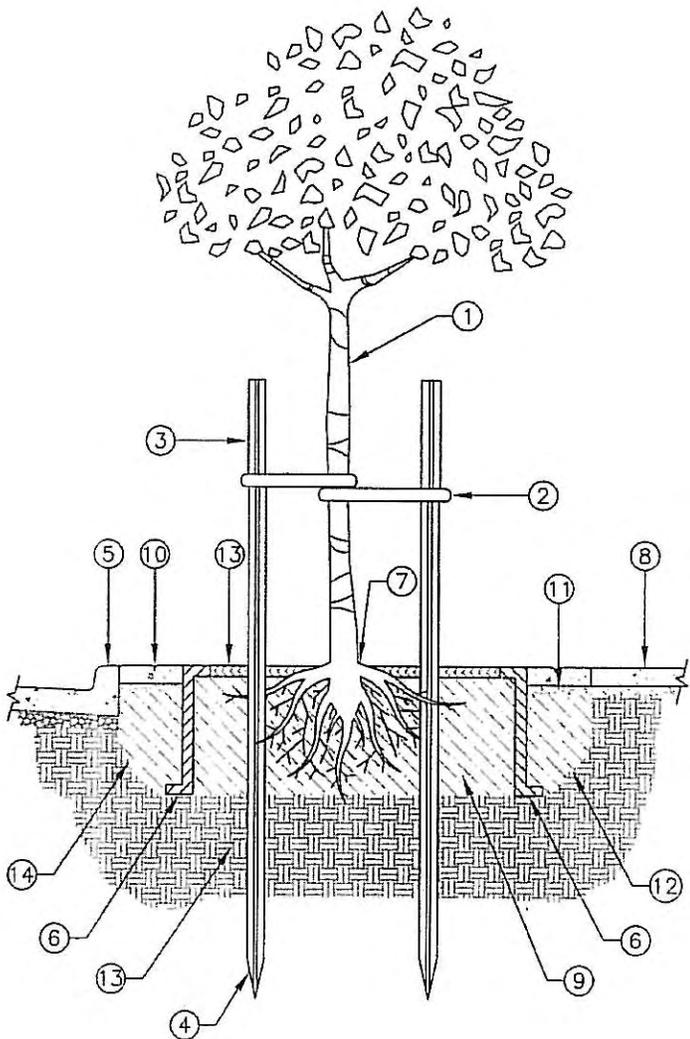
**FIFTEEN GALLON  
 TREE PLANTING DETAIL  
 WITH TREE GUARD**

NO.  
**LS-1**

SHEET 3 OF 3



PLAN VIEW



SECTION VIEW

**NOTES:**

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY STEEL T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 18" DEPTH (LB 18-2) ALONG CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ STAMPED CONCRETE, PER SPEC'S.
- ⑪ 2" SAND BASE.
- ⑫ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑬ MULCH.

REVISION	BY	DATE	APP. BY COUNCIL

<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>9/09</u>	<b>FIFTEEN GALLON TREE PLANTING DETAIL WITH STAMPED CONCRETE</b>	NO. <b>LS-2</b>
CHECKED BY: <u>DB</u>	SCALE: <u>NONE</u>		
APPROVED: 	CP&SD DIRECTOR		
			SHEET 1 OF 1

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## **Title 18R**

### **DESIGN CRITERIA AND IMPROVEMENT STANDARDS<sup>1</sup>**

#### **Chapter:**

- 18R.04 Application and Definitions**
- 18R.08 Design Criteria**
- 18R.12 Improvement Standards**
- 18R.36 Subdivision Improvement Requirements**

#### **Table: (Tables follow Chapter 18R.08)**

- 1 Horizontal Alignment Criteria**
- 2 Vertical Curve Criteria**
- 3 Runoff Coefficients**
- 4 Rainfall Intensity/Duration/Frequency  
Design Chart**
- 5 Design Criteria for Sanitary Sewers**
- 6 Sanitary Sewer Peak Flow Factors**

#### **Figure: (Figures follow Tables)**

- 1 Lot Configurations and Definitions**
- 2 Cross-Slope in Intersections**

#### **Standard Plans: (Standard Plans follow Chapter 18R.12)**

**Standard Plans S-1 through TN-22**

NOTE: Footnotes are numbered throughout the text and are located at the end of this title.

**Chapter 18R.04****APPLICATION AND DEFINITIONS****Section:****18R.04.010 Application of title.****18R.04.020 Definitions.****18R.04.010 Application of title.**

- A. The design criteria set forth herein are provided for the purpose of insuring that subdivision and nonsubdivision public right-of-way and private street improvements constructed within the city are designed in such a manner that each meets or exceeds uniform levels of sound engineering practice and that the individual elements contained therein have a uniform level of development with no single element overdesigned to the detriment of another.
- B. The improvement standards set forth herein are to insure that subdivision improvements and nonsubdivision public right-of-way and private street improvements are constructed in such a manner that they meet or exceed a uniform level of quality workmanship and construction.
- C. The design criteria and improvement standards set forth herein may be modified by the advisory agency incident to approval of a subdivision or any other entitlement or authorization provided for in Title 18 of this code upon making any of the findings provided for in Section 18.44.020 of Title 18 of this code. In addition, the design criteria and improvement standards set forth herein may be modified by the building and development services department incident to approval of a building permit, encroachment permit or any other permit or authorization requiring their approval upon making any of the findings provided for in Section 14.14.075 of Title 14 of this code.

(Res. No. 9 77-78 (part), Res. No. 110 86-87 §1, Ord. 1935 §8, Res. No. 133 95-96 §8, Res. No. 150 96-97, Res. No. 113-07)

**18R.04.020 Definitions.**

For the purpose of this title, the following words and phrases shall have the meanings defined in this section unless from the context a different meaning is intended; provided, however, that whenever any word or phrase used in this title is not defined, but is defined in Title 1, Title 14 or Title 18 of this code, such definitions are incorporated herein and shall be deemed to apply to such words and phrases when used in this title:

- A. "Accessway" means a parcel of land not dedicated as a public street but intersecting or connecting with a public or private street for which a private easement for road purposes has been granted to the owners of the property contiguous or adjacent thereto.
- B. "Backup lot" means a lot which has a rear yard which abuts an arterial street. See also Figure 1.
- C. "Block" means a parcel of land, containing one or more lots, surrounded on all sides by a street.

- D. “Construction specifications” means the construction specifications of the city.
- E. “Contractor” means the person responsible for the actual construction of a subdivision or public right-of-way improvement.
- F. “Curb return” means that portion of a curb which provides a curved transition in alignment between two curbs on intersecting streets.
- G. “Culvert” means any storm drainage conduit (other than an open channel) including a storm drainage pipe and box culvert structure which conveys surface water runoff beneath a street, easement or right-of-way.
- H. “Dead-end street” means a street which is closed to through traffic.
- I. “Density” means the residential density established by the Chico General Plan Land Use Element expressed as a number or range of dwelling units per gross acre. The number or fraction of gross acres contained in a site shall include the entire lot area measured in a horizontal plane together with the area between the property line and centerline of all abutting streets.
- J. “Design speed” means the vehicular speed which serves as the basis for the horizontal and vertical alignment criteria of a street.
- K. “Double frontage lot” means a lot which has access to more than one street. See also Figure 1.
- L. “Easement” means an interest in, on or over land owned by another that entitles the holder to a specific limited use.
- M. “Engineer” means the building and development services director of the city or an authorized representative.
- N. “Flag lot” means a lot so shaped and designed that the main building site area is set back from the street on which it fronts and includes an accessway not less than fifteen feet in width at any point connecting such main building site area to the frontage street. See also Figure 1.
- O. “Freeboard” means the distance between the design high water line and either the bottom surface of a bridge or a box culvert deck, the inside crown elevation of a storm drainage pipe or the top elevation of the bank of a storm drainage ditch containing the flow.
- P. “Functional street classification” means the classification of a street according to its function in the circulation pattern established by the general plan of the city.
- Q. “Grade” means the reference line by which the elevation for the pavement and other appurtenant features are established.
- R. “Highway Design Manual” means the Highway Design Manual of the State of California Department of Transportation.
- S. “Lateral” means the initial storm drain or sewer conduit connecting the source of the flow to the main line of the storm drain or sewer system.
- T. “Planning services department” means the planning services department of the city represented by the planning services director or an authorized representative.
- U. “Private street” means a privately owned and maintained street which is not a part of the street system of the city.
- V. “Profile” shall be used interchangeably with “grade.”
- W. “Reserve strip” means a narrow strip of land extending along the exterior boundary of a subdivision or at the dead end or side of a dedicated street.
- X. “R value” means a coefficient representing the resistance to a deformation of a

saturated soil at a given density which is determined by State of California Department of Transportation Test Method No. 301-F.

- Y. "Side-on lot" means a lot which has a side yard which abuts an arterial street. See also Figure I.
- Z. "Soils report" means a soil investigation and geological reconnaissance report prepared by a registered civil engineer, engineering geologist or geologist specializing and recognized in soil mechanics and foundation engineering.
- AA. "Standard plans" means the standard plans of the city of Chico.
- BB. "Standard specifications" means the standard specifications of the State of California Department of Transportation.
- CC. "State standard plans" means the standard plans of the State of California, Department of Transportation.
- DD. "Street" means any public street, avenue, road, parkway, boulevard, thoroughfare, highway, square, crossing, intersection, lane, alley, court or any other public place or way of whatever nature, located within a right-of-way, publicly maintained and open for use by the public for the primary purposes of vehicular and/or pedestrian travel. "Street" includes street surfacing, concrete curb, gutters and sidewalks, and all other improvements constructed within such right-of-way which are commonly considered a part of the public street system of the city.
- EE. "Superelevation" means the cross-slope of a traveled street which counteracts the effect of centrifugal force on a vehicle.
- FF. "Traffic index" means a coefficient used in the design of a street structural section and which represents predicted truck traffic volumes.

(Res. No. 9 77-78 (part), Res. No. 57 82-83 §§1, 2, Res. No. 59 90-91 §1, Res. No. 02 03-04, Res. No. 113-07)

## Chapter 18R.08

### DESIGN CRITERIA<sup>2</sup>

**Section:**

<b>18R.08.010</b>	<b>Subdivision layout.</b>
<b>18R.08.020</b>	<b>Public streets.</b>
<b>18R.08.030</b>	<b>Other public ways</b>
<b>18R.08.035</b>	<b>Private streets.</b>
<b>18R.08.040</b>	<b>Major structures.</b>
<b>18R.08.050</b>	<b>Storm drainage.</b>
<b>18R.08.060</b>	<b>Sanitary sewers.</b>
<b>18R.08.070</b>	<b>Water supply.</b>
<b>18R.08.075</b>	<b>Fire hydrants.</b>
<b>18R.08.080</b>	<b>Utility services.</b>
<b>18R.08.090</b>	<b>Street trees and landscaping.</b>
<b>18R.08.100</b>	<b>Traffic signals.</b>
<b>18R.08.110</b>	<b>Monuments.</b>
<b>18R.08.120</b>	<b>Railroad crossings.</b>
<b>18R.08.130</b>	<b>Public right-of-way improvements - Nonsubdivision.</b>
<b>18R.08.140</b>	<b>Certificates - Final subdivision maps.</b>

**18R.08.010 Subdivision layout.**

- A. Subdivision Density. The maximum number of dwelling units permitted within a proposed subdivision shall not exceed the density established by the general plan for the area or the maximum number of dwelling units permitted by the applicable zoning districts, whichever is less, and may be further restricted by considerations of safety, traffic access or circulation, the slope of the natural terrain, the physical suitability of the site, the nature or extent of existing development, the availability of public facilities, utilities, or open spaces or any other provision set forth herein.
- B. Blocks.
1. Size. Blocks shall be designed to allow for adequate building sites for the type of use proposed, to allow for convenient pedestrian and vehicular circulation, access, traffic control and safety, and with regard to limitations created by topography.
 

Block lengths shall be dependent upon intersection spacing as set forth in subsection G of Section 18R.08.020 of these criteria.

Block widths shall be sufficient to allow for two tiers of lots with rear easements as required.
  2. Corners. At intersections, all block corners shall be rounded at the property line on a 20-foot radius curve. Greater radii may be required where necessary for traffic safety.
- C. Lots Generally.
1. Width and Area. The minimum width the area of all lots shall conform to the requirements of the zoning districts in which the subdivision is located.
  2. Depth. The depth of a residential lot, exclusive of flag lots, shall not be greater

than three times the width of the lot. Minimum residential lot depth shall be 80 feet.

3. Lot Frontage. All lots within a proposed subdivision shall have frontage on a public or private street.
4. Lot Lines. The side lot lines wherever practical shall be at right angles or radial to street lines, except where the building and development services director determines an alternative design is acceptable.
5. Lots Adjoining City Limits. No lot shall be divided by a city boundary line.
6. Lot Grading. All lots shall be adequately drained. Surface water from each lot shall be conducted directly to the adjacent street or alley, or to underground storm drainage facilities or drainage channels.

D. Lot Configuration.

1. Flag Lots. Flag lots shall be approved only where required by topographic conditions or where there is no practical alternative design for the development of the interior portions of excessively deep parcels. Flag lots shall conform to all of the following requirements:
  - a. Flag lots shall conform to all of the requirements contained in these criteria except those provisions relating to lot line and lot frontages set forth in subsection C above, and shall have a minimum area of 6,000 square feet. The accessway serving the flag lot(s) shall not be included when calculating the required lot area of any lot.
  - b. The accessway to the rear lot(s) shall conform to the following design standards:
    - (1) An accessway serving one unit on a single lot shall be at least fifteen (15) feet wide, with twelve (12) feet thereof being paved. An accessway serving two or three lots, or a single lot with more than one unit, shall be at least twenty-five (25) feet wide with twenty (20) feet thereof paved the entire length of the accessway with an adequate turnaround provided at the end. The number of flag lots served by one accessway shall not exceed three, except that no more than two infill residential flag lots, as defined by section 19.76.180, shall be served by one accessway.
    - (2) Curbs and gutters may be required depending on drainage requirements, however, sidewalks shall not be required.
    - (3) The maximum length of a roadway serving one flag lot shall be 200 feet. The maximum length of a roadway serving two or three flag lots shall be 300 feet.
  - c. Each dwelling unit situated on a flag lot shall provide two (2) off-street parking spaces in addition to those spaces required by Title 19 of the Chico Municipal Code.
  - d. Prior to the time a flag lot is developed, the site plan therefor shall be reviewed and approved by the city fire chief for fire access and service requirements.
2. Double Frontage Lots. Double frontage lots will be approved only on collector and/or local streets and only if they meet at least one of the following requirements:
  - a. They are corner lots;
  - b. Their depth is greater than 200 feet;
  - c. Such lots are required by reason of unusual topographic or other physical

conditions.

For lots which do not meet these requirements, the subdivider shall eliminate the double frontage condition by providing the city with an access waiver which waives all vehicular and pedestrian access rights to street along one of the two frontages. In addition, the subdivider shall provide an approved fence, landscaping, and sprinkler system along such non-access frontage. Maintenance of said landscaping shall be the responsibility of the subdivider and/or future subdivision lot owners.

Lots with triple frontages will not be authorized.

3. Backup or Side-on Lots. Backup (reverse frontage) or side-on lots may be approved in lieu of a frontage road adjacent to an arterial street. Where such lots are approved, access waivers of vehicular and pedestrian access rights to the arterial street over rear or side lot lines shall be required. The subdivider shall provide two (2) feet of additional right-of-way, landscaping, and a suitable fence or other approved barrier along such non-access frontage.

Rear lot lines are those lines adjacent to the arterial street.

4. Property Remnants and Reserve Strips. Remnants of property which do not conform to lot requirements or are not required for a public or private utility or other public use or approved access purpose shall not be created by a subdivision.

Reserve strips designed to provide private control of access to streets, alleys, easements, or other public ways shall not be permitted.

The advisory agency may require an access waiver to provide public control of access and to protect and facilitate the future development and extension of public rights-of-way.

#### E. Easements.

1. Public Utility and Cable Television Easements. Where alleys are not provided, the advisory agency, public utility agencies or cable television grantee may require public utility and/or cable television easements on each side of rear lot lines and/or side lot lines. Rear lot easements shall, as nearly as practicable, follow a direct course through the entire subdivision.
2. Storm Drain and Sanitary Sewer Easements. Storm drain and/or sanitary sewer easements, as described in the improvement standards, shall be dedicated as requested by the director. Easements of greater width may be required along natural water courses, conforming substantially to the lines of such channels.

Acquisition and maintenance of temporary construction easements outside of the limits of the subdivision shall be the subdivider's responsibility.

(Res. No. 9 77-78 (part), Res. No. 57 82-83 §3, Res. No. 103 82-83 §§1, 2, Res. No. 127 86-87 §3, Res. No. 82 87-88 §2, Res. No. 105-07 §1, Res. No. 113-07)

### **18R.08.020 Public streets.**

#### A. Public Streets Generally.

1. The subdivider shall provide a comprehensive trafficway system, designed and constructed in accordance with these criteria, applicable standards and ordinances, and the city of Chico general plan. Design of streets shall provide for safe vehicular operation at a specified design speed.
2. Public streets shall be required when the street is shown as an arterial or collector street on a master street and highway plan, the general plan, or any other specific or precise plan; or when the street will be used by the general public as a through

access route; or when a public street is necessary for special needs including, but not limited to, bus routes, public service access, bike routes and pedestrian access.

**B. Street Layout.**

1. Existing Streets and Unsubdivided Land. Streets shall be laid out to complement the alignment of existing streets in adjoining subdivisions and to provide a logical continuation of existing streets where the adjoining land is not subdivided.

The advisory agency may require the realignment of streets in contemplation of the development or use of adjoining property and may require the provision of streets or dead-end street extensions to facilitate the subdivision of adjoining property.

Permanently dead-ended streets without cul-de-sacs shall not be approved. When a temporarily dead-ended street is extended to the boundary of the subdivision, a one-foot fee simple strip the width of the street right-of-way shall be dedicated to the city at the end of the street. A barricade, or temporary turning area, or temporary connection to another street shall be required for any such street.

2. Provision for Resubdivision. Where property is subdivided into lots substantially larger than the minimum size required by the zoning districts in which the subdivision is located, the advisory agency may require that streets and lots be laid out so as to permit future resubdivision in accordance with the provisions of these regulations.
3. Future Streets. Where determined necessary for the protection of the public welfare or substantial property rights, the advisory agency may require or approve the reservation of streets within a proposed subdivision for future public use; provided, that all land so reserved shall be dedicated in fee simple to the city.
4. Streets Parallel to Rights-of-Way. Where a subdivision borders on or contains a railroad right-of-way, canal, or limited access highway right-of-way, the advisory agency may require a street approximately parallel to such right-of-way at a distance suitable for the appropriate use of the intervening land. Such distance shall be determined with due regard for the requirements of approach grades and future grade separations.
5. Local Streets. Local streets shall be designed so that their use by through traffic will be discouraged. Excessively long, straight residential streets, conducive to high-speed traffic, shall not be approved.

- C. Street Names. Proposed street names shall not be similar to present street names, except that streets that are a prolongation or approximate prolongation of existing streets shall be given the same names as the existing streets. No street shall be designated by the same name as any other street even though differentiated by a suffix (avenue, boulevard, way, place or other term), except that a frontage road shall be given the same name as the street on which it borders. Generally no street should change direction by more than 90 degrees without a change in street name.

All proposed street names must be approved by the city fire chief and the Butte County street coordinator.

**D. Horizontal Alignment.**

1. Specific Requirements. The criteria for the following design elements for each functional street classification shall be as set forth in Table 1:
  - a. Minimum design speed;
  - b. Minimum curve radius at centerline;

- c. Minimum length of tangent between reversing curves; reversing curves without an intervening tangent shall not be permitted;
    - d. Minimum stopping sight distance at the given design speed.
  2. Superelevation. Superelevations other than those set forth in the standard plans will be acceptable only in extraordinary circumstances and will be designed on an individual basis.
- E. Profile.
  1. Profile Generally. The grade line should coincide with the centerline of the street. To improve appearances and to reduce the number of sight distance restrictions, vertical curves should, when possible, be superimposed on horizontal curves. For safety reasons, the horizontal curve should lead the vertical curve. Sharp horizontal curves shall not be introduced at or near a pronounced grade sag or summit.
  2. Minimum Grade. Minimum grades for all streets with paved gutters shall be 0.25%. Streets with unpaved gutters shall have a minimum grade along centerline of 0.50%.
  3. Maximum Grades. Maximum grades shall be 6% for arterial and collector streets and 8% for local streets. A maximum grade of 4% is desirable whenever possible, especially at intersections.
  4. Vertical Curves. Parabolic vertical curves shall be used when the algebraic difference in grade is greater than 1.0%. The criteria for the following design elements for each functional street classification and its corresponding minimum design speed shall be as set forth in Table 2:
    - a. Minimum length of vertical curve;
    - b. Minimum stopping sight distance;
    - c. Minimum passing sight distance;
    - d. Maximum rate of change of grade in percent per 100 feet at the minimum stopping sight distance. This criteria may dictate a vertical curve longer than the minimum stated in this section.
- F. Cross Section.
  1. Geometric Cross Section. Standard widths for street geometric cross sections shall be as set forth in the improvement standards.

Subdividers of subdivisions with five (5) or more lots shall be required to install full improvements on existing streets adjacent to the subdivision in accordance with the limits of construction required by the improvement standards. In the event that the subdivision will generate sufficient vehicular traffic to require additional traffic lanes or street extensions, the subdivider may be required to provide and improve these facilities.

Subdividers of subdivisions having fewer than five (5) lots shall be required to install full improvements on existing streets adjacent to the subdivisions from the subdivision property line to the existing edge of street pavement, or beyond as may be needed to maintain a maximum five percent (5%) shoulder cross slope, in accordance with the improvement standards.
  2. Structural Section. The subdivider's engineer shall prepare a soils report and determine the R value of the proposed subgrade material. Minimum structural section thicknesses shall be as set forth in the improvement standards. These minimums are based upon a subgrade material having an R value of 25 or more. If the R value is less than 25, the structural section shall be increase accordingly.

The director will determine the traffic index and, if needed, will require an increase in the structural section. Pavement structural section design shall be in accordance with the methods shown in the Highway Design Manual.

3. Curb and Gutter. Curb and gutter shall be installed adjacent to streets in all subdivisions and shall be constructed in accordance with the improvement standards.
4. Sidewalks. Sidewalks shall be installed within all streets in all subdivisions and shall be constructed in accordance with the improvement standards. Sidewalks shall be separated from the adjacent curb and gutter by a parkway unless a contiguous sidewalk is specifically approved to save trees or to conform to an existing contiguous sidewalk configuration. All sidewalks shall be installed within the public right-of-way.

The advisory agency may require the installation of sidewalks outside of the subdivision to maintain continuity of pedestrian access from the subdivision to other areas in the immediate vicinity.

5. Half-streets. Half-streets shall not be approved.

#### G. Intersections.

1. Intersections Generally. The criteria for intersections set forth in this subsection shall be minimum requirements. Based upon traffic analysis, the director may require additional features such as speed change lanes, tapers, separate turning lanes, refuse areas and traffic-control devices. Intersections with more than four approaches shall not be approved.
2. Intersection Spacing. Intersection spacing shall be determined in accordance with these criteria and those set forth in subsection B above, entitled "Street Layout."
  - Maximum spacing between intersections shall be 1320 feet.
  - Minimum spacing of intersections shall be as follows:
    - a. Local streets, 250 feet;
    - b. Collector streets, 300 feet;
    - c. Arterial streets, 500 feet.

3. Geometrics.

- a. Alignment. A secondary street shall intersect a primary street at right angles (radial when the primary street is curved). The secondary street alignment shall be perpendicular to the primary street from the centerline of the primary street to the end of the curb return on the secondary street.
- b. Cross-Slope in Intersections. The criteria for treatment of cross-slope in intersection areas shall be as set forth in Figure 2.
- c. Curb Returns. The standard curb return radius shall be 30 feet, measured to the face of curb.
- d. Handicapped Ramp. The standard handicapped ramp shown in the improvement standards shall be installed at all curb returns.

#### H. Cul-de-Sacs. Cul-de-sac streets shall not exceed 500 feet in length.

The advisory agency may require reduced length, or may require the elimination of a proposed cul-de-sac in order to provide for the efficient circulation of traffic, the future development of the neighborhood street system, or the deployment of emergency services.

Cul-de-sacs shall be constructed in conformance with the improvement standards.

#### I. Access.

1. General. Street access control may be required by permitting ingress and egress

only at specific locations determined by the advisory agency.

Access to arterial streets shall, in general, be permitted at intersections only. The advisory agency may require installation of backup (reverse frontage) lots, or side-on lots adjacent to arterial streets.

Access to other than arterial streets shall, in general, be limited to one opening per lot.

Access to the subdivision from adjacent streets shall be designed to utilize the most efficient circulation pattern within the subdivision.

2. Driveways. Driveways shall be constructed in accordance with the improvement standards.
- J. Traffic Control and Safety Devices and Street Name Signs. Traffic control and safety devices shall be installed on all streets as required by the improvement standards and the building and development services director in order to promote traffic control and safety. Traffic control and safety devices shall include but not be limited to regulatory signs, warning signs, guide markers, construction signs, pavement markings, lane delineations and traffic signals. Street name signs shall be installed at all public, private and public/private intersections in accordance with the improvement standards.
- K. Street Lights. City-owned street lights shall be installed on all public streets in accordance with the improvement standards. Street light spacing shall be as required by the building and development services director.
- L. House Numbers. House and unit numbers shall be assigned by the building official and shall be placed and maintained in a manner which is clearly visible from the street.

(Res. No. 9 77-78 (part), Res. No. 57 82-83 §4, Res. No. 110 86-87 §§3-4, Res. No. 59 90-91 §§2-6, Res. No. 167 92-93 §1, Res. No. 113-07)

### **18R.08.030 Other public ways.**

- A. Alleys. Alleys may be required as part of a subdivision circulation system.
  - Alleys shall be constructed in accordance with the improvement standards.
  - Intersections of two alleys will be discouraged but may be acceptable in special instances.
- B. Bicycle Paths, Pedestrian Ways and Equestrian Ways.
  1. Generally. Bicycle paths, pedestrian ways, and equestrian ways may be required in conformance with an established city-wide plan or as required by the advisory agency. Design of said ways and paths shall be consistent with the principle of keeping separation between motorized vehicular traffic and other modes of traffic.
  2. Bicycle Paths. Bicycle paths shall be constructed in accordance with the improvement standards. Recommended geometric criteria shall be as follows:
    - a. Design speed, 20 mph;
    - b. Sight distance, 120 feet;
    - c. Minimum curve radius, 65 feet;
    - d. Overhead clearance, 8 feet;
    - e. Maximum grade, 5%.

Adequate access points and bicycle parking facilities shall be provided as necessary.

Bicycle stands conforming with the improvement standards shall be provided at parking facilities.
  3. Pedestrian Ways. In addition to sidewalk required adjacent to public roadways,

pedestrian ways may be required where needed for traffic safety; and access to schools, playgrounds, shopping facilities, or other community facilities. The required width and location shall be as determined by the advisory agency.

4. Equestrian Ways. The minimum required typical section shall be as shown in the improvement standards. Minimum vertical clearance shall be 10 feet.
- (Res. No. 9 77-78)

**18R.08.035 Private streets.**

- A. Private Streets Generally. Private streets may be permitted subject to compliance with the following design criteria and improvement standards of this chapter, Title 18 of this code, and Standard Plan No. S-18F.
- B. Private Street Length.
  1. Cul-de-sacs. Private street cul-de-sacs shall not exceed 500 feet in length.
  2. Loop Streets. Private loop streets improved to the standards set forth in this section shall not exceed 1,000 feet in length.
  3. Standards for private streets exceeding 1,000 feet in length shall be determined on a case-by-case basis.
- C. Horizontal Alignment. Private streets shall conform to the following minimum standards:
  1. Minimum curve radius at centerline shall be 50 feet.
  2. Minimum cul-de-sac or turnaround radius to face of curb shall be 46 feet.
- D. Profile. The maximum grade for a private street shall not exceed 8%. The minimum grade shall correspond to the standards for a public street.
- E. Cross Section.
  1. Geometric cross section.
    - a. Private streets servicing less than 26 lots shall have a minimum street width of 24 feet without on-street parking and 36 feet with on-street parking.
    - b. Private streets serving 26 lots or more shall have a minimum street width of 30 feet without on-street parking and 40 feet with on-street parking.
    - c. Private streets may be either crowned streets or valley gutter streets. Valley gutters shall not be used on streets serving 26 lots or more.
  2. Curb and Gutter.
    - a. Crowned Streets. Curb and gutter shall be constructed in accordance with city of Chico public street improvement standards.
    - b. Valley Gutter Streets. Curb and gutter may be constructed in accordance with the public street improvement standards, or curbing with a minimum width of 6 inches above the surfaced section of the private street at the curb line may be constructed. A 4-foot wide longitudinal P.C.C. valley gutter shall be constructed along the street centerline when the slope is less than 1%.
  3. Structural Section. The subdivider's engineer shall prepare a soils report and determine the "R" value. If the "R" value is 25 or more, the minimum structural section shall consist of four inches of compacted aggregate base with a one and one-half inch asphalt concrete overlay, or an equivalent full depth asphalt section as approved by the building and development services director. If the "R" value is less than 25, the structural section shall be as determined by the building and development services director.
- F. Intersection with Public Street.
  1. A private street shall intersect a public street at right angles.

2. Private streets shall have standard driveway approaches installed at intersections with public streets, unless curb returns are authorized by the building and development services director.
- G. Sidewalks. Pedestrian access shall be provided either by constructing sidewalks in accordance with the design criteria, or pedestrian access may be provided by a comprehensive on-site pedestrian access system approved as part of a subdivision, zoning or permit approval.
- H. Street Lights. Street lights shall be installed as required by the building and development services director.
- I. Street Names. Proposed street names shall not be similar to present street names, except that streets that are a prolongation or approximate prolongation of existing streets shall be given the same names as the existing streets. No street shall be designated by the same name as any other street even though differentiated by a suffix (Terrace, Court, Lane, Place, or other term). Generally, no street should change direction by more than 90 degrees without a change in street name. Private street names shall be suffixed "Terrace," "Court," "Lane," or "Place."
- J. Signs. Street signs shall be installed at all street intersections in accordance with city of Chico public street improvement standards. The street sign shall clearly indicate that the street is a private street. Stop signs shall be installed on all private streets that intersect a public street.
- J. House Numbers. House and unit numbers shall be assigned by the building official and shall be placed and maintained in a manner which is clearly visible from the street.
- L. Parking.
  1. All private streets approved for no on-street parking shall be signed for "NO PARKING" and all curbs within 15 feet of any fire hydrant shall be painted red.
  2. All private streets providing emergency vehicle access shall provide additional signage and markings as directed by the fire chief and chief of police.
  3. All development utilizing private streets without on-street parking shall provide off-street parking in the amount specified in Title 19 of this code plus two (2) additional spaces for each residential unit.
  4. At the time the private street is created, a statement shall be included in the conditions, covenants and restrictions or other recorded document approved by the city attorney that sets forth the following:
    - a. On-street parking is prohibited on private streets (if appropriate).
    - b. The California Vehicle Code does not apply to routine traffic matters on private streets.
    - c. The city of Chico police department does not enforce or respond to routine traffic matters on private streets.
- M. Setbacks. On any lot abutting a private street, any setback required by this code shall be measured from the edge of the private street easement.
- N. Private Street Maintenance. Whenever private streets are approved for a residential subdivision, the developer or subdivider through recorded conditions, covenants and restrictions, or other instrument approved by the city attorney shall provide for the following:
  1. Maintenance of the private street and related private facilities, including but not limited to the following:
    - a. Street;

- b. Street lights;
  - c. Traffic-control devices, if any;
  - d. Sanitary sewer facilities;
  - e. Storm drainage facilities.
2. If the private street and related private facilities are not adequately maintained, the city, after prior notice to the organization responsible for maintenance and property owners, shall have the right to:
    - a. Enter upon and maintain and repair the facilities, and to recover the prorata costs of such maintenance or repairs from each owner of a lot having access to a private street or utilizing private facilities, which costs shall constitute a lien upon the lot until paid; and/or
    - b. Form a maintenance district or benefit assessment district to provide for the maintenance of such private streets or facilities.
  3. A private homeowners' association shall be formed to maintain all private streets and other related private facilities whenever conditions, covenants and restrictions are prepared for a residential subdivision containing five or more lots.

(Res. No. 110 86-87 §5, Res. No. 22 88-89, Res. No. 59 90-91 §§6-7, Res. No. 67 90-91, Res. No. 167 92-93 §2, Res. No. 113-07)

#### **18R.08.040 Major structures.**

The subdivider may be required to provide major structures such as retaining walls, bridges or dams. Each structure shall be designed and approved on an individual basis. The subdivider shall provide the city with all engineering calculations used in the design of a major structure.

(Res. No. 9 77-78 (part))

#### **18R.08.050 Storm drainage.**

- A. General Requirements. The subdivider shall provide storm drainage facilities that will convey stormwater runoff, whether originating within the subdivision or in adjacent areas, to an existing drainage channel or drainage system. Adequate access for maintenance of the system shall be provided. The capacity of an existing drainage system must be large enough to accommodate the additional runoff generated by the subdivision. Drainage patterns existing prior to construction of the subdivision shall be maintained, and full consideration must be given to the rights of adjacent property owners with regard to surface water drainage.

The city will determine the capacity of an existing storm drain system.

The subdivider's engineer shall prepare an analysis and design of the proposed storm drainage system. When stage construction is proposed, the analysis shall provide for the design of the entire storm drainage system.

The analysis shall consider all existing and future contributory drainage area, regardless of whether or not said area is in the subdivision.

The preliminary analysis shall accompany the tentative map.

- B. Hydrology.

1. Storm Runoff. Runoff shall be computed by the rational method.

( $Q = CIA$ ) where:

Q = rate of runoff in cfs

C = coefficient of runoff

I = intensity of rainfall in inches/hr during the time of concentration  $t_c$  (min.) – the elapsed time between the beginning of the storm and peak flow at the

drainage structure

A = drainage area, acres

Computations should be clear and complete with all assumptions clearly stated. In making such computations, the following information shall be used:

- a. Coefficient of Runoff. Typical values for runoff coefficients are set forth in Table 3.
- b. Intensity of Rainfall. A rainfall intensity versus duration design chart for the Chico area is shown on Table 4. A minimum time of concentration of 10 minutes should be used whenever computations indicate a shorter time. For urban area drainage, the maximum initial time of concentration to the first drainage facility shall be 20 minutes. For unimproved areas, drainage time of concentration shall be determined by the method shown for small basins in the Highway Design Manual. The method of computation of time of concentration should be clearly indicated.
- c. Design Storm Frequency. The design storm frequency shall be as follows:
  - (1) Bridges, 200 years;
  - (2) Open channels, 10 years;
  - (3) Culverts, 10 years;
  - (4) Major outfall lines, 10 years;
  - (5) Collector lines, 5 years;
  - (6) Local lines, 2 years.

A minimum freeboard of three feet shall be provided for bridges and box culverts, two feet for open channels, and one foot for storm drainage pipe inlets and outlets.

#### C. Roadway Drainage.

1. Grade. The minimum grade for side ditches and gutters will be 0.25% if paved, 0.50% if earth.
2. Limits of Flooding. Street drainage facilities shall be designed to keep flooding within six (6) feet of the face of curb for a design storm frequency of two (2) years for local streets and ten (10) years for all other streets. The depth of flow at gutter flow line shall not exceed 0.25 feet.

Concentrated flow across the traveled way is prohibited.

#### D. Conduit Design.

1. Type. For storm drain systems, circular pipes of reinforced concrete or cast-in-place concrete may be used. Class II pipe shall be the minimum for nonroadway areas. The minimum required strength for all pipe in the roadway area shall be Class III as designated by ASTM Specification C-76.

Culverts may be of any of the above materials in any standard manufactured shape. Reinforced concrete box culverts, if used shall be constructed in accordance with state standard plans.

2. Size. Pipes shall have a minimum diameter of 10 inches. For flows exceeding the capacity of 54-inch diameter pipe, open channels meeting the requirements of subsection H below may be acceptable.
3. Slope. Slope will be controlled by physical conditions and velocity criteria. Abrupt changes in slope are undesirable and are to be avoided wherever possible.
4. Velocity. Minimum velocity at full flow shall be two (2) feet per second (fps). The maximum velocity for storm drains shall be critical velocity at full flow. Culverts may have velocities greater than critical provided full consideration is

given to the effects of abrasion.

5. Head and Head Losses. To facilitate the passage of debris and detritus, storm drains shall, unless otherwise approved, be designed to pass the design flow with a free water surface. Culverts shall be designed to provide a minimum freeboard of one foot from top of culvert to top of ditch bank at the entrance and exit points.
  6. Roughness Coefficient. Suggested values for Manning's roughness coefficient (n) are:
    - Reinforced concrete pipe . . . . .0.012
    - Cast-in-place concrete pipe . . . . 0.013
  7. Alignment. Alignment should be as straight as possible without undue bends and angle points. Where dictated by physical conditions, curved alignment is permissible as long as there is no reduction in the quality and soundness of joints. The minimum radius of curvature shall be 500 feet.
  8. Cover. Except for culverts, outside the hinge point, the minimum cover shall be two (2) feet, measured from the top of the pipe to the roadway or ground surface. Cast-in-place concrete pipes shall have a minimum cover of two and one-half (2.5) feet except under roadways where three (3) feet is required. Where less than minimum cover is necessary the concrete cradle shown in the improvement standards shall be used.
  9. Pipe Strength. The class of conduit recommended should be adequate for most conditions. Unusual situations may dictate selection of a higher strength conduit.
  10. Location. The location of storm drains relative to roadway centerline shall be in accordance with the improvement standards. Care should be taken that storm drains and other underground facilities do not conflict with each other. Location and elevation of existing and proposed sanitary sewer laterals shall be a primary consideration in the design of the storm drainage facility.
- E. Drop Inlets.
1. Types. The standard S-7 drop inlet as set forth in the improvement standards shall be used with pipes up to 30 inches in diameter. A modified S-7 drop inlet or a manhole will be used for pipe larger than 30 inches. Special situation drop inlets are shown in Standards S-7A and S-26.
  2. Laterals. Laterals shall have a minimum slope 1%.
  3. Location. Drop inlets shall be installed at all gutter low points and at locations such that the flooding limitations of subsection C above are met. They should not be spaced further than 500 feet apart.
- F. Manholes.
1. Type. The type of manhole to be utilized shall be as set forth in the improvement standards.
  2. Location. Manholes shall be placed:
    - a. Where two or more storm drain pipes join;
    - b. Where the conduit changes in size;
    - c. At angle points;
    - d. At points where a change of slope in the conduit occurs;
    - e. At changes in type of pipe.
  3. Spacing. The maximum manhole spacing shall be 1,200 feet for pipe diameters of 48 inches or more. Spacing may vary from 350 to 700 feet for diameters less than 48 inches to 33 inches. Maximum spacing shall be 350 feet for conduit 30 inches or smaller.

4. Access Shaft. The access shaft shall be centered over the axis of the drain for conduits less than 42 inches in diameter. The shaft shall be offset and made tangent to one side of the pipe when the drain diameter exceeds 42 inches.
  5. Special Structures. Special structures may be required for larger diameter pipes and shall be designed on an individual basis.
  6. Grade. The crowns of all conduits intersecting at a manhole shall generally match. A minimum fall of 0.10 foot across the manhole shall be provided except in cases where the conduit is continuous through the manhole.
- G. End Structures.
1. General. Headwalls and other end structures shall be installed to increase hydraulic efficiency, prevent erosion adjacent to the conduit and provide a counterweight to prevent flotation.
  2. Entrances. When a drop inlet is not installed, flared end sections should be used. Headwalls may be used where dictated by physical conditions. Both installations shall conform to the state standard plans.
  3. Exits. Where exists are installed, headwalls or flared end sections should be used for culverts. Where drainage systems discharge into a channel, standard headwalls shall be installed in accordance with the improvement standards.  
An approved energy dissipater shall be installed at outlets where velocities are erosive.
- H. Open Channels. The director may approve the use of open channels on an individual basis.  
The finished channel shall have maintenance free bottom and sides. Minimum bottom width shall be three feet. Side slopes shall be no steeper than 1-1/2:1.  
All open channels shall be located in dedicated easements. An access road 12 feet wide shall be provided adjacent to the channel.
- I. Bank Protection. Bank protection such as slope paving, sacked riprap, and facing rock may be required to protect drainage facilities, property or structures. The need and nature of bank protection will be determined by the director on an individual basis.
- J. Temporary Leach Field Type Storm Drainage System. In accordance with the provisions of the "Nitrate Action Plan - Greater Chico Urban Area - Butte County," adopted by city council Resolution No. 141 84-85 on March 19, 1985 as subsequently amended, temporary leach field type storm drainage systems may be installed for temporary use in cases where the building and development services director determines that storm water cannot be conveyed to the city's storm drainage system or drainage channel because facilities are not available. The following criteria shall apply to design of such systems:
1. Percolation tests shall be conducted in accordance with environmental health department procedures. Tests shall be taken at the proposed depth of the drainage trench(es) at such locations as required by the building and development services director to verify the drainage capacity of the soil. Percolation rate shall be converted from minutes/inch to cubic feet per second/square foot.
  2. The trench(es) shall be designed to contain a one-in-ten year frequency storm.
  3. The bottom of the trench(es) shall be at least ten feet above the high water table and there shall be at least ten feet of soil capable of percolation below the bottom of the trench(es).
  4. The rational formula,  $Q=CIA$ , shall be used to determine inflow into trench(es).

5. One-third of the trench(es) volume as void area shall be used in computing amount of storm water storage available in trench(es). Rock size in trench(es) shall be from one-half inch to four inches in size.
  6. Fifty percent of the trench(es) bottom area and one-half of the depth of the trench(es) side walls and end walls shall be used in determining the area available for percolation out of the trench(es).
  7. Where more than one trench is utilized, there shall be a minimum separation of four (4) feet between trench walls.
  8. Limitation on Use of Infiltration Best Management Practices (BMPs). Three factors significantly influence the potential for storm water to contaminate ground water. They are: (i) pollutant mobility, (ii) pollutant abundance in storm water, and (iii) soluble fraction of pollutant. In addition, the distance of the groundwater table from the infiltration BMP may also be a factor determining the risk of contamination. A water table distance separation of ten feet in depth in California presumptively poses negligible risk for storm water not associated with industrial activity or high vehicular traffic. Site specific conditions must be evaluated when determining the most appropriate BMP. Additionally, monitoring and maintenance must be provided to ensure groundwater is protected and that the infiltration BMP is not rendered ineffective by overload. This is especially important for infiltration BMPs in areas of industrial activity or areas subject to high vehicular traffic (25,000 or greater average daily traffic (ADT) on a main roadway or 15,000 or more ADT on any intersecting roadway). In some cases pretreatment may be necessary.
- K. Post-Construction Structural or Treatment Control Best Management Practices. Post-construction treatment control Best Management Practices (BMPs) shall incorporate, at a minimum, either a volumetric or flow based treatment control design standard, or both, as identified below to mitigate (infiltrate, filter or treat) storm water runoff:
1. Volumetric Treatment Control BMPs
    - a. The 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or
    - b. The volume of annual runoff based on unit basin storage water quality volume to achieve 80 percent or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook –Industrial/Commercial, (2003); or
    - c. The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for “treatment” that achieves approximately the same reduction in pollutant loads achieved by the 85<sup>th</sup> percentile 24-hour runoff event.
  2. Flow Based Treatment Control BMPs
    - a. The flow of runoff produced from a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the area; or
    - b. The flow of runoff produced from a rain event that will result in treatment of the same portion of runoff as treated using volumetric standards above.
- (Res. No. 9 77-78 (part), Res. No. 57 82-83 §5, Res. No. 201 84-85 §1, Res. No. 59 90-91 §§8-10, Res. No. 11 95-96 §1, Res. No. 113-07, Res 65-08)

### **18R.08.060 Sanitary sewers.**

- A. Generally. The subdivider shall provide a sanitary sewer system in accordance with the following criteria:
1. The system shall be of a size not less than that which is specified by the sanitary sewer master plan on file with the building and development services director.
  2. The system shall have adequate capacity to serve the subdivision and the full service area tributary thereto in accordance with the city design standards. The tributary area shall be determined by the building and development services director.
  3. When required, the subdivider shall provide a pumping plant to convey the effluent to an existing system.  
The director will determine the point of connection to the existing sewer system. The subdivider's engineer shall prepare a design analysis of the proposed sanitary sewer system in accordance with the sanitary sewer master plan on file with the Building and Development Services Director. When staged construction is proposed, the analysis shall thoroughly cover the design of the entire system.
- B. Design Flow. Recommended design criteria for the determination of the sanitary sewer design flow for residential and commercial development are given in Table 5.  
The director will determine on all individual basis if industrial waste will be accepted into the city system or if other provision for its on-site disposal will be made.
- C. Conduit Design.
1. Type. Sewer conduits shall be extra-strength vitrified clay pipe conforming to ASTM Designation C 200, with plastisol, or equal, compression joints, or polyvinyl chloride (PVC) sewer pipe with a maximum DR of 35, conforming to ASTM Designations D 2784 and D 3034, with flexible elastomeric seals conforming to ASTM Designation D 3212.  
In new sewer line construction, wyes to tees for house service connections shall be complete fittings. Saddle type connections will not be permitted.
  2. Size. The minimum sanitary sewer size shall be eight (8) inches in diameter except that six (6) inch pipe may be used in the last run in residential areas on cul-de-sacs and in locations where no future extensions of the main are intended.  
No sewer pipe shall have a diameter less than that of the pipe immediately upstream from it.
  3. Slope. Slope will be controlled by physical conditions and velocity criteria. Abrupt changes in slope are undesirable and should be avoided wherever possible.
  4. Velocity. The minimum velocity shall be 1.8 fps when the pipe is flowing full and/or half-full.
  5. Head and Head Losses. Sanitary sewers shall be designed to pass the design flow with a free water surface. Proper consideration shall be given to minor head losses.
  6. Alignment. Alignment will be straight between manholes with no bends except that curved alignment with a minimum radius of 500 feet may be used in special cases.
  7. Location. The location of sanitary sewers relative to roadway centerline shall be in accordance with the improvement standards. Care should be taken that sanitary sewers and other underground facilities do not conflict with each other.
  8. Depth. Minimum sewer depth shall be four and one-half (4.5) feet from flowline

to finish grade. For unimproved streets where street grades have not been set, the minimum depth shall be five (5) feet from the flowline to existing grade.

D. Manholes.

1. Type. The type of manholes to be utilized shall be as set forth in the improvement standards.
2. Location. Manholes shall be placed:
  - a. Where two or more sewer mains join;
  - b. Where the conduit changes in size;
  - c. At angle points;
  - d. At points where a change of slope in the conduit occurs.
3. Spacing. Manholes shall be spaced no farther than 350 feet apart.
4. Grade. The crowns of all conduits intersecting at a manhole shall match.

E. Flushing Holes. Flushing holes shall be of the type shown in the improvement standards and shall be placed in accordance with the improvement standards. They shall not be used except in cul-de-sacs or at temporary ends of lines if the end of line does not occur at a manhole. Flushing holes shall be placed no more than 150 feet from a manhole.

F. Laterals.

1. Size. Minimum lateral size for single-family dwellings shall be four (4) inches in diameter. All others will require special design, and design calculations shall be submitted for approval.
2. Slope. Laterals shall have a minimum slope of two (2) percent.
3. Location. Laterals shall be provided for every lot and shall generally be centered on each lot. They shall be at right angles or radial to the sanitary sewer main.

Laterals shall be installed to a point at least five (5) feet into the property prior to other utility installation, pressure testing and subsequent connection to the effluent source.
4. Depth. Laterals shall have a three (3) foot minimum cover at the back of the sidewalk. Where the sewer main is ten (10) feet or greater in depth, deep sewer risers shall be installed.

G. Temporary Pumping Plants. The subdivider's engineer shall design any needed pumping plants subject to the approval of the director. Each design will be considered on an individual basis.

(Res. No. 9 77-78 (part), Res. No. 87 86-87 §1, Res. No. 86 87-88, Res. No. 113-07)

**18R.08.070 Water supply.**

- A. Size and Type. The size and type of water main pipe shall be determined by California Water Service Company. The sizing shall be based upon the company's distribution needs and fire flow requirements determined by the city fire department. The type of pipe will be determined by the California Water Service Company.
- B. Installation. Installation of water main and services shall be the responsibility of the subdivider. Trench backfill and surfacing shall be in accordance with the city of Chico improvement standards.
- C. Certification. Prior to filing the final map, the subdivider shall provide the city with the certification from California Water Service Company. This certification shall state that the company will provide water service to the subdivision and that the subdivider has met all of the company's conditions necessary to provide water service.

(Res. No. 9 77-78 (part))

**18R.08.075 Fire hydrants.**

- A. Installation; Location; Number. Installation of fire hydrants shall be the responsibility of the subdivider.

The number and location of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on the public right-of-way and/or on the site to be protected as determined by the fire chief. Standard hydrant spacing shall be at 300-foot intervals in all areas except areas containing only single-story single-family or duplex dwellings, in which case standard hydrant spacing shall be at 500-foot intervals.

When the fire chief determines that it would not be adverse to the city's fire protection capabilities, the fire chief shall have the authority to make minor modifications to the hydrant placement distances set forth above. In no case shall fire hydrants be spaced closer than 300-foot intervals.

- B. Hydrant Type. Approved fire hydrant models are the Long Beach Iron Works Model 614 and 615 or Clow Model 950 or 960. Other hydrant models may be utilized upon approval of the fire chief.
- C. Method of Installation. The subdivider shall make all arrangements for the installation and inspection of all fire hydrants with the California Water Service Company.

(Res. No. 9 77-78 (part), Res. No. 149 78-79 §1, Res. No. 196 80-81 §1, Res. No. 59 90-91 §11, Res. No. 02 03-04)

**18R.08.080 Utility services.**

- A. Location and Capacity. All utilities (gas, water, electric, telephone and cable TV) shall be installed and placed underground. Their location shall be subject to the requirements of the improvement standards, the recommendation of the utility company and the approval of the director.
- B. Access. The location of all utilities shall allow satisfactory equipment and personnel access for maintenance and operation.
- C. Certification. Prior to filing the final map, the subdivider shall provide the city with a certification from each appropriate utility company. This certification shall state that the company will provide its service to the subdivision and that the subdivider has met all of the company's conditions necessary to provide the service.

(Res. No. 9 77-78 (part), Res. No. 89 87-88, Res. No. 59 90-91 §12)

**18R.08.090 Street trees and landscaping.**

- A. Street Tree Requirements. Street trees shall be planted as directed by the park director. In lieu of planting the trees, the subdivider shall deposit with the city a street tree fee. Such fee shall provide the tree purchasing and planting by the city and shall relieve the subdivider of any further street tree obligation.
- B. Landscape Requirements. Landscaping may be required by the advisory agency. All such landscaping shall be installed and maintained by the subdivider until the city accepts the subdivision. In addition, the subdivider may be required to provide irrigation facilities for the landscaping.
- C. Planting and Installation Guidelines. All street trees and landscaping required within a public right-of-way or public service easement or on other city property shall be planted and installed in compliance with the following guidelines:

1. All trees, shrubs, ground covers, vines and turf shall be of a type approved by the park director and, to the greatest extent practicable, shall be of a drought-resistant and drought-tolerant type of variety.
2. Irrigation controllers shall be equipped with independent station control, multiple start time and multiple program capabilities.
3. All irrigation systems shall include independent station or “zone” moisture sensors. Plant materials with similar watering requirements shall be irrigated using common controller circuits.
4. Irrigation systems shall be designed to match precipitation rate to evapo-transpiration potential of selected plant materials given soil percolation rates.
5. Whenever possible, irrigation systems shall include drip irrigation, individual adjustable bubblers, weep-tubing, matched precipitation sprinkler heads and other low volume systems.
6. Wind direction and wind speed shall be considered as a design element for the purpose of minimizing overspray and to provide even precipitation distribution.
7. A water audit shall be performed before installing plant material, to ensure equal precipitation rate.
8. Wherever practical, landscape installations shall be performed with minimum soil compaction. All attempts shall be made by the landscape contractor to keep construction equipment and vehicles off the landscape site once final soil tilling and grading is complete.

(Res. No. 9 77-78 (part), Res. No. 102 92-93)

#### **18R.08.100 Traffic signals.**

If the anticipated traffic demand created by the subdivision warrants the installation of traffic signals, the subdivider shall install same.

Determination of the need for traffic signals, and their subsequent design, will be the responsibility of the director. The subdivider shall provide and install these facilities in accordance with requirements of the director.

(Res. No. 9 77-78 (part))

#### **18R.08.110 Monuments.**

The installation and the type of monuments shall be in accordance with the pertinent provisions of the Subdivision Map Act, Title 18 of the Chico Municipal Code, and the improvement standards.

(Res. No. 9 77-78 (part))

#### **18R.08.120 Railroad crossings.**

The design of crossing protection facilities shall be the subdivider’s responsibility subject to the requirements of the State of California Public Utilities Commission. The facilities shall be installed by the affected railroad company subject to any necessary permits and agreements.

(Res. No. 9 77-78 (part))

#### **18R.08.130 Public right-of-way improvements - Nonsubdivision.**

Public right-of-way improvements, as required by Title 14 of this code and which are not part of a subdivision, shall be constructed in accordance with these design criteria and improvement standards except as follows:

- A. Street improvements (including but not limited to curb, gutter, sidewalk, storm

drainage facilities, and street lighting) shall be required from lot or parcel property line to the edge of existing street pavement, or beyond as may be needed to maintain a maximum five percent (5%) shoulder cross slope on said existing street.

B. In lieu of constructing alley improvements, an alley improvement fee shall be paid as established by resolution of the city council, except that alley improvements shall be constructed in the following cases:

1. All non-residential development;
2. All property uses permitted subject to a use permit in an R-3 high density residence district, and all residential development of four (4) or more dwelling units on a parcel, which utilize the adjacent alley for access.

When improvement of an alley is required, it shall be constructed between the property and the nearest street as well as along the full width of the property abutting the alley. The building and development services director may determine that an alley improvement fee be paid where alley construction would otherwise be required in the event it is determined that grade constraints or extensive storm drainage requirements make construction impractical.

C. Where adjacent existing improvements do not meet current criteria, the director may elect to alter the criteria so that proposed improvements match existing improvements in the most practical, yet satisfactory manner.

(Res. No. 9 77-78 (part), Res. No. 57 82-83 §6, Res. No. 88 84-85 §1, Res. No. 113-07)

**18R.08.140 Certificates - Final subdivision maps.**

The following certificates shall be included upon all final subdivision maps filed with the city, as applicable:

A. City Clerk’s Certificate When Dedication of Real Property Not Made. When offer of dedication of real property to the city for street and/or public easement purposes is not made as part of the final map, the certificate shall read as follows:

“I hereby certify that on the ..... day of ....., 20..., the City Council of the City of Chico officially approved this map, subject to the installation and completion of all required subdivision improvements (if applicable).

.....”  
Date City Clerk

B. City Clerk’s Certificate When Dedication of Real Property is Made. When an offer for the dedication of real property to the city for street and/or public utility easement purposes is made as part of the final map, the certificate shall read as follows:

“I hereby certify that on the .... day of ....., 20., the City Council of the City of Chico officially approved this map, subject to the installation and completion of all required subdivision improvements (if applicable), and accepted (describe area(s) of dedication) for dedication to the City of Chico on behalf of the public.

.....”  
Date City Clerk

C. City Manager’s Certificate When Dedication of Real Property is Made as Part of a Non-City Subdivision. When a final map is filed for a subdivision not within the city but which is adjacent to a city roadway, and an offer for the dedication of real property to the city for street and/or public utility easement purposes is made, the certificate shall read as follows:

“I hereby certify that (describe area(s) of dedication), as shown hereon and herein offered for dedication to the City of Chico, is accepted by the undersigned officer

on behalf of the City Council of the City of Chico pursuant to the authority conferred by Resolution No. 79 61-62 of the City Council of the City of Chico, adopted March 6, 1962, and that the grantee consents to the recordation thereof by its duly authorized officer.

.....  
Date

.....”  
City Manager

(Res. No. 9 77-78 (part))

**Table 1  
HORIZONTAL ALIGNMENT CRITERIA**

	Arterial	Type of Street Collector	Local
Minimum Design Speed (mph)	40	35	25
Minimum Curve Radius at Centerline	600'	450'	200'
Minimum Tangent between Reversing Curves	200'	150'	100'
Minimum Stopping Sight Distance	275'	240'	165'

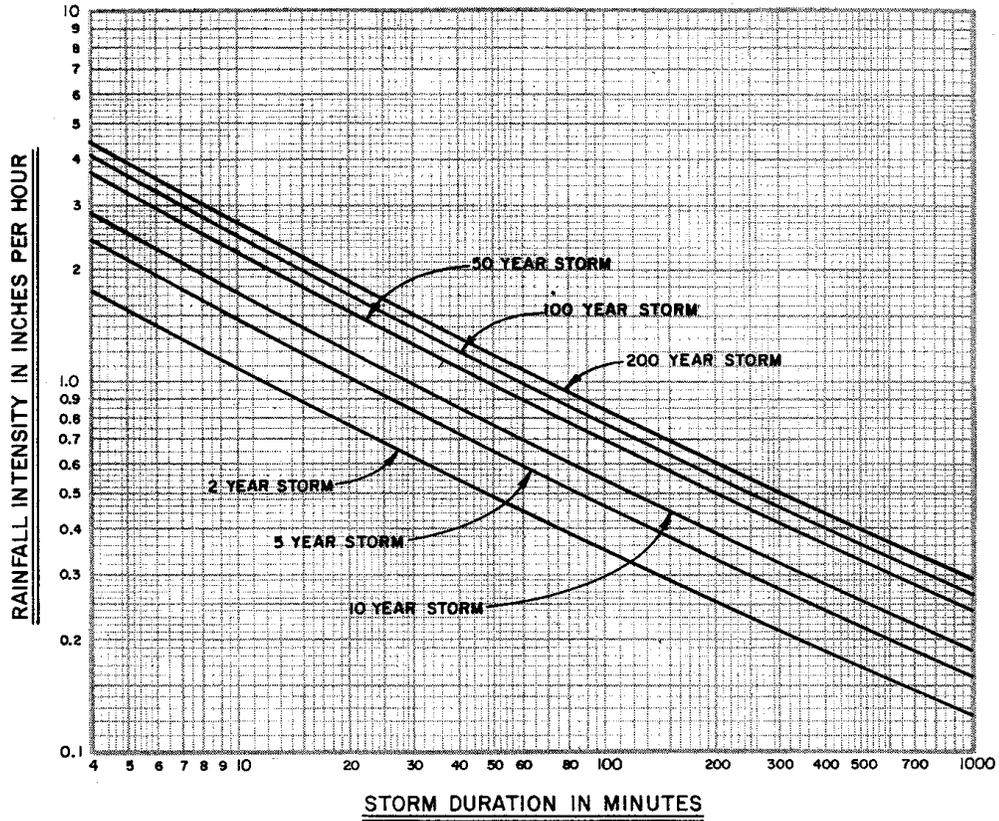
**Table 2  
VERTICAL CURVE CRITERIA**

Type of Street	Design Speed (mph)	Min. Length Vertical Curve	Min. Stopping Sight Distance	At Min. Stopping Crest V.C.- Max. Rate of Change- %/100'	Sight Distance Sag. V.C.- Max. Rate of Change- %/100'	Passing Sight Distance*
Arterial	40	200'	275'	1.80	1.80	1500'
Collector	35	150'	240'	2.50	2.20	1300'
Local	25	100'	165'	5.25	3.70	900'

\*Passing sight distance criteria do not apply to sag vertical curves. For design of crest vertical curves that meet passing sight distance criteria, refer to “Caltrans Highway Design Manual of Instructions” or “AASHTO Policy on Geometric Design of Rural Highways.”

**Table 3  
RUNOFF COEFFICIENTS**

Land Use	C
Landscaped area	0.25
Residential	
Rural (up to 2 units/acre)	0.35
Low-density (2+ to 6 units/acre)	0.50
Medium-density (6+ to 14 units/acre)	0.60
High-density (14+ and up)	0.75
Public	0.40 - 0.70
Schools, Hospitals	0.35 - 0.70
Commercial	0.70 - 0.90
Industrial	0.70 - 0.90
Highway	0.80 - 0.90



**NOTES**

1. DURATION OF STORM EQUALS TIME OF CONCENTRATION ( $T_c$ ).
2. MINIMUM  $T_c$  = 10 MINUTES. MAXIMUM  $T_c$ , INITIAL INLET OF STORM DRAIN SYSTEM, = 20 MIN.
3. THIS CHART IS BASED ON DATA FROM BULLETIN 195 RAINFALL ANALYSIS FOR DRAINAGE DESIGN, STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES, 1976

REV.	DATE	BY

<b>CITY OF CHICO</b>	<b>DEPARTMENT OF PUBLIC WORKS</b>
TABLE 4 CHICO AREA RAINFALL INTENSITY- DURATION-FREQUENCY DESIGN CHART	DRAWN BY: <u>R. F.</u> CHECKED BY: <u>M. H.</u> DATE: <u>APRIL 1988</u> STATE: <u>NONE</u> APPROVED BY: <u>[Signature]</u> DIRECTOR OF PUBLIC WORKS      R.C.E. NO.

SHEET 1 OF 1 SHEETS

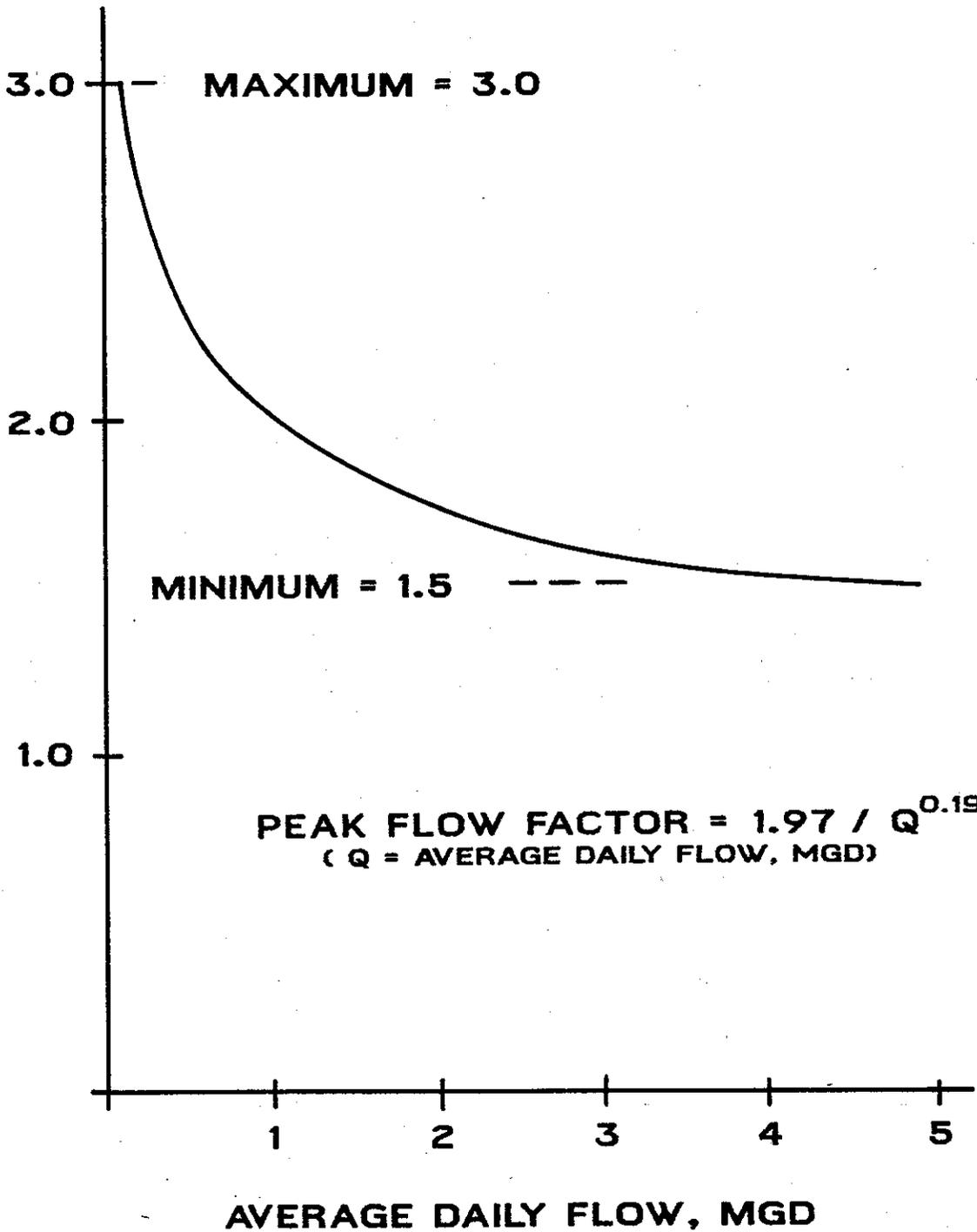
Table 5

## DESIGN CRITERIA FOR SANITARY SEWERS

ZONING	DESIGN CRITERIA
<b>RESIDENTIAL</b>	
Domestic flow	80 gpcd (average)
Infiltration	650 gad
Peak flow factor	1.5 - 3.0 (see Table 6)
<b>1. Rural Density</b>	
Units/acre	2
People/unit	3.6
Peak design flow	$[(80)(3)(2)(3.6)] + 650 = 2,378$ Use 2,400 gad
<b>2. Low Density (R-1)</b>	
Units/acre	5
People/unit	3.6
Peak design flow	$[(80)(3)(5)(3.6)] + 650 = 4,970$ Use 5,000 gad
<b>3. Medium Density (R-2)</b>	
Units/acre	13
People/unit	2.3
Peak design flow	$[(80)(3)(13)(2.3)] + 650 = 7,826$ Use 7,800 gad
<b>4. High Density (R-3)</b>	
Units/acre	24
People/unit	2.0
Peak design flow	$[(80)(3)(24)(2.0)] + 650 = 12,170$ Use 12,200 gad
<b>COMMERCIAL/INDUSTRIAL</b>	
Average flow	1,500 gad
Peak flow	3,000 gad

gpcd = gallons per capita per day  
gad = gallons per acre per day

PEAK FLOW FACTOR



REVISION	BY	DATE

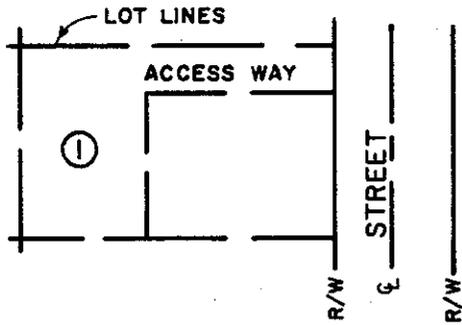
CITY OF CHICO

DEPARTMENT OF PUBLIC WORKS

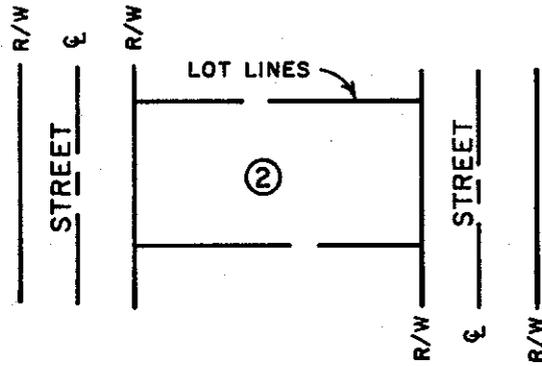
DRAWN BY JK DATE 4/23/91  
CHECKED MH SCALE N/A  
APPROVED E. C. Rose  
ASST. DIRECTOR OF PUBLIC WORKS

**TABLE 6**  
SANITARY SEWER PEAK  
FLOW FACTOR

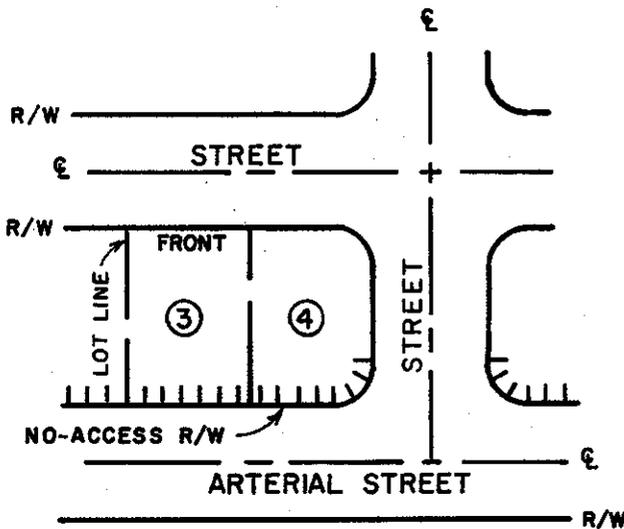
SHEET 1 OF 1



① FLAG LOT - AN INTERIOR LOT OF A SUBDIVIDED PARCEL WITH ACCESS TO THE STREET VIA A NARROW STRIP.



② DOUBLE FRONTAGE LOT - A LOT HAVING ACCESS TO TWO STREETS.



③ BACK-UP LOT - A LOT WHOSE REAR LOT LINE COINCIDES WITH THE NO-ACCESS R/W OF AN ARTERIAL STREET.

④ SIDE-ON LOT - A BACK-UP LOT WHICH IS ALSO A CORNER LOT.

REV.	DA	BY

CITY OF CHICO

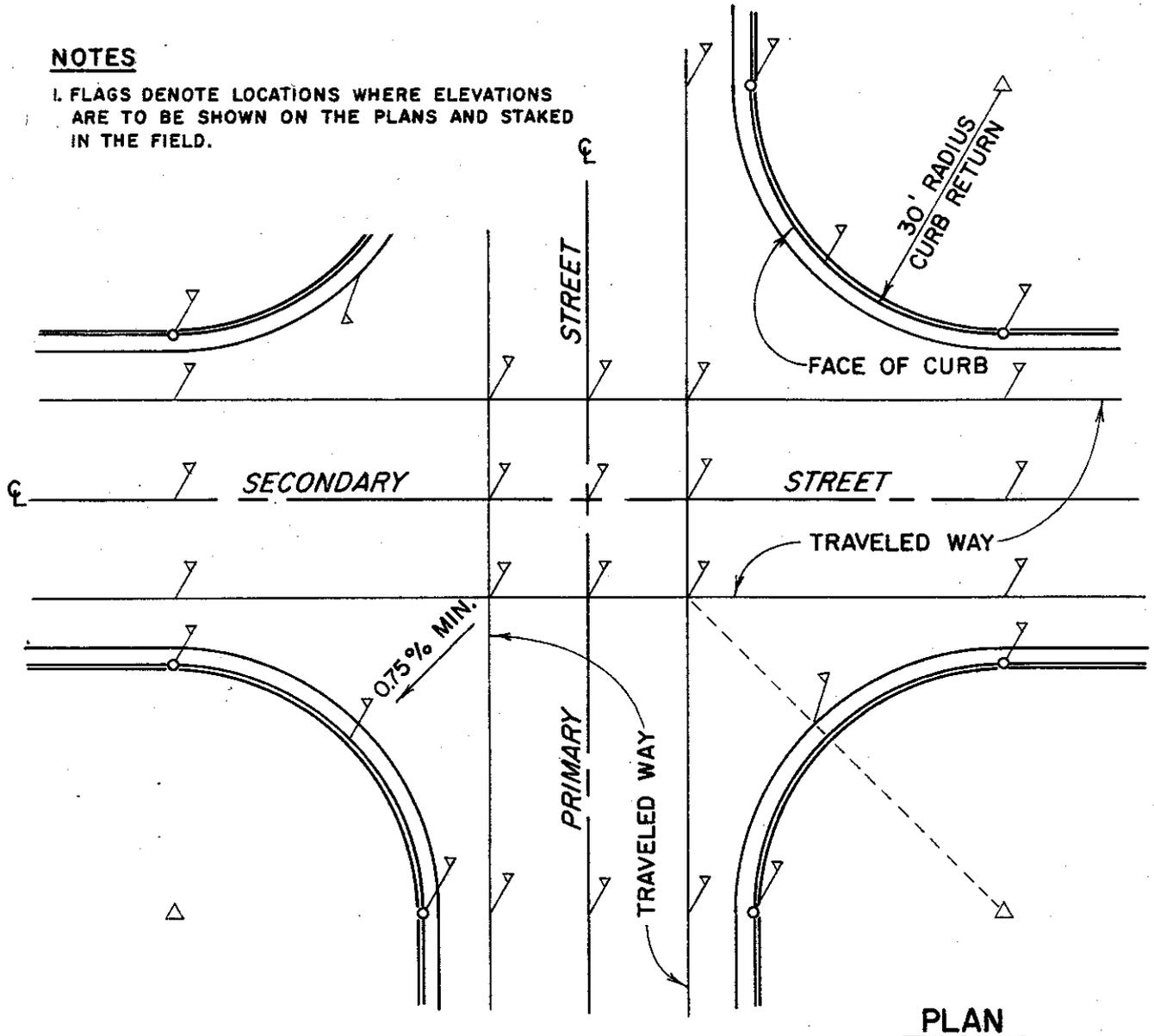
DEPARTMENT OF PUBLIC WORKS

FIGURE 1  
LOT CONFIGURATIONS AND  
DEFINITIONS

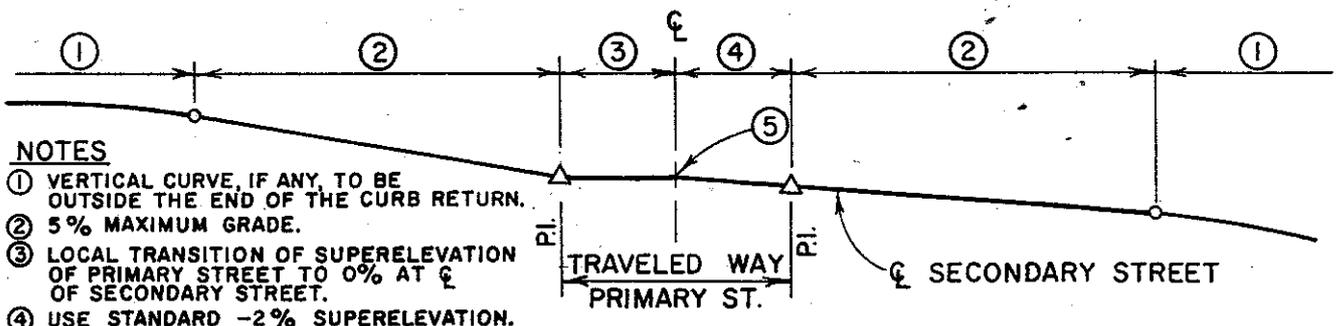
DRAWN BY M.H. CHECKED BY [Signature]  
 DATE 1-5-77 SCALE [Signature]  
 APPROVED BY [Signature] 11838  
 DIRECTOR OF PUBLIC WORKS R.C.E.NO.

**NOTES**

1. FLAGS DENOTE LOCATIONS WHERE ELEVATIONS ARE TO BE SHOWN ON THE PLANS AND STAKED IN THE FIELD.



**PLAN**



**NOTES**

- ① VERTICAL CURVE, IF ANY, TO BE OUTSIDE THE END OF THE CURB RETURN.
- ② 5% MAXIMUM GRADE.
- ③ LOCAL TRANSITION OF SUPERELEVATION OF PRIMARY STREET TO 0% AT  $\epsilon$  OF SECONDARY STREET.
- ④ USE STANDARD -2% SUPERELEVATION.
- ⑤ PROFILE GRADE OF PRIMARY STREET NOT TO BE LOCALLY ADJUSTED.

**PROFILE**

REV.	DA	BY

**CITY OF CHICO**

**DEPARTMENT OF PUBLIC WORKS**

**FIGURE 2  
CROSS-SLOPE IN INTERSECTIONS**

DRAWN BY M.H.      CHECKED BY \_\_\_\_\_  
 DATE 1/20/77      SCALE NONE  
 APPROVED BY \_\_\_\_\_ 11838  
 DIRECTOR OF PUBLIC WORKS      R.C.E.NO.

## Chapter 18R.12

### IMPROVEMENT STANDARDS<sup>3</sup>

**Section:**

- 18R.12.010 Construction specifications.**  
**18R.12.020 Standard plans.**  
**18R.12.030 Standard plans - TND zoning district.**

**18R.12.010 Construction specifications.**

**A. Roadway Grading.**

1. Roadway Grading. Roadway grading shall consist of performing all operations necessary to excavate earth, rock and all other materials upon which the imported borrow, selected fill, aggregate base, cement treated base or other material is to be constructed; to build embankment in the location and to the elevation and form required; to backfill ditches and depressions caused by the removal of obstructions; to furnish all equipment necessary for these operations, and the performance of all incidental work of whatsoever nature may be required to build the grade and maintain it in the form specified.
2. Roadway Earthwork. All roadway earthwork shall be constructed and maintained as specified in Section 19 of the standard specifications.
3. Surplus Excavation. Surplus material from excavation shall be disposed of by the contractor, unless special instructions for such disposal are shown on the plans or in the special provisions.

**B. Aggregate Base - Class No. 2.** Aggregate Base - Class No. 2, shall be constructed as provided in Section 26 of the standard specifications. The thickness shall be of the dimensions indicated on the plans and shall conform to the grading specifications set forth in the standard specifications. The size of aggregate shall be three-quarter (3/4) inch (maximum) as set forth in Section 26, or as specified by the engineer.

**C. Asphalt Concrete.**

1. Asphalt Concrete. Asphalt concrete shall be constructed according to the shape and thickness between curbs and gutters as shown on the plans and as herein specified, and otherwise shall conform to the requirements of Section 39 of the standard specifications. Asphalt concrete shall be Type "B." Paving asphalt shall be of the penetration range specified by the engineer.
2. Prime Coat and Paint Binder. A prime coat of liquid asphalt or a paint binder of asphaltic emulsion shall be applied to the areas to be surfaced in accordance with Section 39-4 of the standard specifications. Prime coat will be required on all base rock.
3. Leveling Course. Leveling course shall consist of surface course material and shall be placed as specified in Section 39-6 of the standard specifications.
4. Base Course. The base course shall be of the thickness as shown on the plans and shall conform to the requirements of the standard specifications.
5. Surface Course. The surface course shall be of the thickness as shown on the plans and shall conform to the requirements of the standard specifications. The aggregate for the surface course shall conform to the grading specified for 1/2-inch maximum (medium) grading.

- D. Seal Coat. Seal coat shall consist of the material and shall be placed as specified in Section 37 of the standard specifications. The bituminous binder shall be 200-300 grade paving asphalt or emulsion spread at the rate as set forth in the standard specifications and as specified by the engineer. The preparation of surface prior to seal coating shall be as specified in Section 37 of the standard specifications.
- E. Pavement Replacement. Pavement replacement shall consist of Type "A" Alternate 1, Type "A" Alternate 2, Type "B," Type "C" or Type "D" as shown on the city of Chico Standard Plan No. S-17. The specific type of pavement replacement shall be as shown on the plans.

All work necessary to complete the pavement replacement, as shown on said Standard Plan, shall be done in accordance with the applicable sections of the standard specifications.

- F. Tapering Into Adjacent Streets. The contractor shall construct smooth tapers into all adjacent streets. The exact length of taper and the grade of the taper shall be under the direction of the engineer. The contractor shall butt all pavement tapers as directed by the engineer. The tapers shall consist of a minimum of six (6) inches aggregate base and two (2) inches asphalt concrete.
- G. Portland Cement Concrete Curbs, Gutters, Sidewalks, Driveways, Accessible Ramps, and Alleys.
  - 1. General. Portland cement concrete curbs, gutters, sidewalks, driveways, handicapped ramps, and alleys shall be constructed at the location shown on the plans, or as directed by the engineer, and shall conform to the details and dimensions as shown on the following city of Chico, standard plans:
    - a. Standard Plan No. S-1, "P.C.C. Sidewalk Details";
    - b. Standard Plan No. S-2, "P.C.C. Curb and Gutter";
    - c. Standard Plan No. S-2A, "Curb, Gutter & Sidewalk Installation at Trees";
    - d. Standard Plan No. S-3, "Existing Curb and/or Gutter - Replacement Details";
    - e. Standard Plan No. S-5, "Residential Driveway Approach";
    - f. Standard Plan No. S-5A, "Commercial Driveway Approach";
    - g. Standard Plan No. S-5B, "Curb, Gutter, & Driveway Details";
    - h. Standard Plan No. S-5C, "Curbed Driveway Entrance";
    - i. Standard Plan No. S-9, "Alley Pavement";
    - j. Standard Plan No. S-27, "P.C.C. Accessible Ramp";
    - k. Standard Plan No. S-27-A, "P.C.C. Accessible Ramp."
  - 2. Materials.
    - a. Concrete. Construction of all curbs, gutters, sidewalks, driveways, accessible ramps, and alleys shall be of class "A" Portland cement concrete as specified in Section 90, "Portland Cement Concrete" of the standard specifications, and shall conform to the provisions of Section 90-10, "Minor Concrete" of the standard specifications.
    - b. Adhesives. Adhesives or bonding agents used to join new concrete to existing concrete shall be approved by the engineer prior to use in the work.
    - c. Lampblack. Lampblack of approved quality shall be mixed with all of one pound per cubic yard of concrete.
    - d. Joint Filler. Premolded expansion joint filler shall conform to the provisions of Section 51-1.12C of the standard specifications.
    - e. Dowels. Steel dowels, where specified, shall conform to the provisions of Section 51-1.13 and 52-1.02A of the standard specifications.

- f. Curing. The curing method for Portland cement concrete shall conform to Section 90-7.01B of the standard specifications. The curing compound shall consist of the compound specified in Section 90-7.01B(4) of the standard specifications.
3. Construction.
  - a. Construction of all curbs, gutters, sidewalks, driveways, and accessible ramps shall conform to the provisions of Section 73, "Concrete Curbs and Sidewalks" of the standard specifications.
  - b. Construction of all alleys shall conform to the provisions of Section 90-10, "Minor Concrete" of the standard specifications.
  - c. Subgrade preparation shall conform to the provisions of Section 73-1.02 of the standard specifications. Where subgrade occurs in a fill section, the base material shall be compacted to a relative density of 95 percent in conformance with California Test Method No. 216.
  - d. No concrete shall be placed until the subgrade and forms have been reviewed for satisfactory compaction, alignment, and grade and approved by the engineer.
  - e. Premolded expansion joints, 1/4 inch wide, shall be installed in all curbs, gutters, driveways and sidewalks as follows:
    - (1) As shown on city of Chico Standard Plans S-1, S-2, S-2A, S-3, S-5, S-5A, S-5C, S-7, S-27 and S-27A;
    - (2) At maximum 48-foot intervals in all new curb and gutter constructions;
    - (3) At locations of expansion joints in existing sidewalks, curbs or gutters.
  - f. Control joints, 1/8-inch wide, scored at least 1/10 the depth of concrete being placed, shall be constructed at maximum 12-foot intervals in all new curbs, gutters and sidewalks.
  - g. Extruded curb construction shall not be used without a prior test demonstration of proposed equipment and procedures, off the side of work, and shall not be used without prior approval by the engineer.
- H. Standard Fence. Standard fence shall conform to the requirements of Section 80-2 of the standard specifications except as provided herein.

New fence shall be 32-inch wire mesh fabric, as specified in Section 80-2.01E, with 3-strand barbed wire on top, with steel posts at 12 feet center to center, set a minimum of 2.5 feet into the ground.

All fencing removed shall become the property of the contractor and shall be removed from the premises.
- I. Bore and Jack Pipe. Bore and jack pipe shall consist of boring and jacking casing and installing pipe inside the casing at locations shown on the plans. Casing and pipe shall be of the types and sizes shown on the plans.

The casing designated in the contract item will be determined for vertical load only. Additional reinforcement or strength of casing required to withstand jacking pressure shall be determined and furnished at the contractor's expense.

Variations from theoretical grade at the time of completion of placing shall not exceed 0.1 foot for each 30 feet of casing placed.

The excavated hole shall not be more than 0.1 feet greater than the outside limits of the casing. Sluicing and jetting with water will not be permitted. When material tends to cave in from outside these limits, a metal shield shall be used ahead of the first section of casing.

Areas resulting from caving or excavation outside the above limits and the area between the casing and the pipe shall be backfed with sand or grout by a method which will fill the voids.

- J. Cast Iron Pipe. Cast iron pipe shall be heavy duty cast iron soil pipe. Pipe joints shall be in accordance with applicable provisions of the Uniform Plumbing Code. The pipe shall be installed in strict accordance with the manufacturer's instructions.
- K. Reinforced Concrete Pipe. Reinforced concrete pipe shall conform to the requirements for materials and methods of installation as set forth in Section 65 of the standard specifications. Reinforced concrete pipe shall be of the class shown on the plans. Backfill shall be in accordance with subsection L below.
- L. Trench Backfill. Trench backfill for storm drainage, sanitary sewers, or any other underground utility installation shall conform to, and be constructed in conformance with the requirements as set forth below:
  - 1. New Street Constructions.
    - a. 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:
      - (1) Backfill material, from the bottom of the trench to a plane two (2) feet below subgrade 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.
      - (2) Backfill material from two (2) feet below subgrade to subgrade shall conform to the requirements of Section 19-3.06 of the standard specifications.
    - b. For remaining portions of a new street right-of-way, the following materials and installation procedures shall be used: Backfill material, from the bottom of the trench to finished grade, and installation, shall conform to the requirements of paragraph 1a(1) of this subsection.
  - 2. Existing Street, Alley, Easement Construction.
    - a. For any portion of a public right-of-way which has any existing improvements for vehicular traffic, the following materials and installation procedures shall be used:
      - (1) Backfill material, from the bottom of the trench to bottom of the section depicted in Standard S-17, Pavement Replacement, as noted on the plans, shall conform to the requirements of paragraph 1a(1) of this subsection.
      - (2) Compaction of backfill material by ponding or jetting will not be allowed unless specifically authorized by the engineer.
  - 3. State Highways.
    - a. For any existing state highways, any future state highways or freeways, the following materials and installation procedures shall be used: Backfill material shall conform to and be placed in accordance with the requirements of Section 19-3.06 of the standard specifications.
- M. Standard Precast Concrete Manholes.
  - 1. Manholes.
    - a. The contractor shall furnish all materials for the construction, complete, of all standard and other manholes shown on the plans and specifications and all

manholes shall be constructed either of precast concrete sections or reinforced concrete. The contractor shall furnish all materials, labor, tools, equipment, and do all the work involved and necessary to complete the manholes as shown on city of Chico Plans S-10 and S-11.

- b. Frames and Covers. All manhole frames and covers shall be of the dimensions and weights shown on city of Chico Standard Plans S-14 and S-14A. Each frame and cover shall have its weight indicated on the bottom outside rim of the cover. The seat of the frame shall in each case be machined sufficiently so that the cover will sit evenly and firmly in place without rocking.
2. Portland Cement Concrete Precast.

- a. Manholes shall be constructed along the sewer line at such places as shown on the plans.

Manholes shall consist of precast concrete sections set on a concrete base, with cast iron cover as shown on the Standard Plans.

“Kent Seal,” “Ram Neck” or an approved equal, shall be installed at all manhole joints.

Manufacture of these sections shall be governed by specifications for reinforced concrete sewer pipe, ASTM Designation C-76.

- b. Portland Cement. Portland cement shall be of standard accepted brand and shall fully meet the requirements of the ASTM specifications for Portland cement, Designation C-150.
- c. Coarse Aggregate. Coarse aggregate shall consist of clean, hard, durable screened and washed gravel, or crushed rock, free from organic matter. Aggregate shall be properly graded in conformity with the class of concrete specified, and to secure concrete of not less than twenty-five hundred (2500) pounds per square inch at twenty-eight (28) days.
- d. Fine Aggregate. Fine aggregate shall consist of well-graded, hard, durable, clean, natural sand free from all deleterious matter. Use of bank sand, fine river sand, or any other uniformly fine sand, shall not be permitted.
- e. Mixing. All concrete mixing shall be done in machine batch mixers of approved type, having a capacity of not less than a full one-sack batch. Each batch shall be run long enough for the conglomerate to become a homogenous mixture, continuing a minimum time of one and one-half (1½) minutes after the last aggregate has been placed in the mixer.

Placing of concrete shall be done immediately after mixing. No concrete shall be placed or used after it has begun to set and no retempering will be allowed.

The ratio of water to cement shall not exceed seven and one-half (7½) gallons of water per sack of cement used, including the water in the aggregates, in order to obtain a concrete having an ultimate strength not less than 2500 pounds per square inch at twenty-eight (28) days.

- N. Tree Removal. Tree removal shall consist of removing all trees as shown on the plans and as designated by the engineer. Tree removal shall be performed as herein specified.

All roots of trees to be removed shall be cleared to a point not less than two (2) feet below the surface of the parkway between the back of existing curb and existing sidewalk. Root void shall be backfilled to surface of parkway with native material and shall be jetted into place.

All portions of trees shall be removed from the public right-of-way. The sidewalk, parkway and street areas shall be left in a condition equal to or better than prior to start of work.

- O. Portland Cement Concrete Drop Inlets. Portland cement concrete drop inlets shall be of Class "A" Portland cement concrete as per Section 90 and shall be mixed and placed as specified in Section 51 of the standard specifications.

Portland cement concrete drop inlets shall be of the dimensions as shown on the city of Chico, building and development services department, Standard Plans S-7, S-7A and S-26.

- P. Materials for Sewer Lines and Sewer Line Construction.

1. Work to be Done. The work to be done under this section comprises the furnishings of all materials, labor, tools, implements and equipment necessary for construction of the sewer lines, complete and ready for operation. All work shall be in accordance with the details shown on the plans and the provisions of these improvement standards and in conformity with the highest standards of workmanship of this type of construction.

The work shall include the following items and related construction:

- a. The construction of all portions of the intercepting and main sewer lines under this contract;
  - b. Cutting of pavement over trenches;
  - c. Excavating and dewatering of all trenches;
  - d. Bracing and shoring of trenches;
  - e. Bedding, laying and jointing of pipe;
  - f. Backfill and compaction of backfill;
  - g. Disposal of excess materials.
2. Excavation for Sewers. 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.
    - a. 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 wider on each side, or a total of twelve (12) inches 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. Sheeting 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 two (2) feet above the top of 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 fitted 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.
- b. 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. Gravel, as herein specified, shall be placed, spread and compacted to provide a firm uniform bed for supporting the pipe.
  - c. 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.
  - d. Preparation of Subgrade. Rough excavation in trenches shall not be carried lower than a distance equal to one-tenth (1/10) of the internal diameter of the pipe above the specified grade elevation, and the remainder of the excavation shall be done as the pipe subgrade is prepared and immediately prior to installing the pipe. As an alternate method, the trench may be excavated to depth four (4) inches below the elevation of the outside of the pipe barrel, and embedment material placed and compacted the full width of the trench to the elevation of the outside of the pipe barrel. 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 seating of the pipe joints. Bell holes of below the elevations of the pipe subgrade shall not be larger than one-fourth (1/4) of the distance between pipe joints.
3. Overcut. Excavations shall be carried to the exact depth indicated on the plans or as specified. Should the contractor, through the contractor's negligence or other fault, excavate below the designated lines, the contractor shall replace such excavation with approved materials at the contractor's own expense.
  4. Protection of Excavation. The contractor shall, where necessary, protect excavations from caving by installing suitable shoring. Any damage resulting from failure to provide shoring shall be repaired at the contractor's own expense. All shoring shall be removed unless otherwise specifically authorized.
  5. 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.
  6. Vitrified Clay Pipe. All vitrified clay pipe for sanitary sewers shall comply with ASTM Specification 200-69 requirements for absorption, straightness and permissible cracks, chips, fractures and blisters and will also comply with the chemical resistance tests.

All vitrified clay pipe shall be extra strength unglazed vitrified clay pipe meeting the requirements of extra strength pipe for crushing strength, barrel thickness, and other measurements as set forth in the "Clay Pipe Engineering Manual," issued by the National Clay Pipe Institute.
  7. Polyvinyl Chloride (PVC) Pipe. All polyvinyl chloride sewer pipe, sizes 4-inch through 15-inch, shall be DR 35 maximum and shall conform to the requirements of ASTM D 3034.

All joints shall be made with flexible elastomeric seals meeting the requirements of ASTM D 3212, and shall be capable of passing all tests specified

in said standards and in these specifications. A factory applied reference mark shall be provided on the spigot end of each pipe to insure proper positioning in the receiving bell.

8. Quality Control Tests and Certification. Written certification by the manufacturer shall be submitted for all sewer pipe stating that the pipe conforms to all specifications referenced herein.

The director may select pipe specimens at random at the point of delivery or at the job site for testing. Tests on these specimens shall be made at a testing facility approved by the director. Tests shall be in accordance with applicable ASTM designations. The cost of all failing tests shall be borne by the contractor.

9. Handling and Storage. Care shall be taken during transporting of the pipe to insure that the binding and tiedown methods do not cut or crack the pipe. Pipe bowed, deformed, cracked or otherwise damaged during shipping or storage shall be rejected. Polyvinyl chloride pipe which shows any change in color or surface finish due to exposure to ultraviolet light shall not be used without the approval of the director.
10. Inspection of Sewer Pipe. Wherever possible, the contractor shall avoid distribution of pipe to the job site too far in advance of laying operations. The contractor shall also supply experienced help for the unloading of the pipe so as to avoid damage caused by unloading operations. Immediately preceding placing and laying of the sewer pipe, it shall be checked for defects in accordance with these improvement standards.
11. Laying Sewer Pipe. Each sewer pipe shall be laid uphill in perfect conformity with the lines and grades as given by the engineer from stakes which the engineer has previously set for the purpose.

The grade line of the pipe shall be obtained by use of batter boards and a "top"

line stretched tight and supported every 25 feet, and the contractor will be required at all times to maintain the top lines for a distance covering at least three grade stakes. The contractor shall at all times have available one competent person, whose duty it shall be to set and maintain the top line and to give the line and grade for the pipe.

With the approval of the director, the grade line may be set by use of a construction laser, installed in the trench.

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

- a. 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.
- b. Bell holes shall be excavated in subgrade and made as small as possible still permitting un-obstructed placing of the jointing material and joint runner and not allowing foreign material to enter the joint. The length of the bell hole shall not exceed one-fourth (1/4) the length of the pipe.
- c. The pipe shall be lowered into place in a manner that will insure that the pipe remains clean, care being exercised not to disturb the top line. The pipe shall

not be lowered by sliding it down the side of the trench.

- d. All pipe shall be fitted together and matched while being laid so that when joined, the inverted forms a true straight grade line. The ends of the pipe shall be brought in contact with each other.
- e. 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 compounds. 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.
- f. The pipe shall be checked for position in the trench by using a plumb bob below the "top" line for alignment and the grade shall be obtained by means of a "grade pole" held vertically with one side touching the "top" line and a right angle bracket at the bottom extending and resting on the invert of the pipe in its final position. The vertical distance from the "top" line to the pipe invert grade shall be a multiple of one (1) foot, at a distance above the invert as approved by the engineer.

If the use of a construction laser has been approved, line and grade shall be checked by means of the laser beam.

12. Sewer Pipe Jointing. Unless otherwise approved by the engineer in writing, the jointing material for all sewer pipe, under all conditions of laying, shall be as hereinafter described.
13. Plastisol Joints. Mechanical compression joints shall be an approved type of interlocking, self-centering, resilient, push-type mechanical compression joint, formed or fused on the pipe at the factory, made of plastisol (polyvinyl chloride) to specifications established by the National Clay Pipe Research Corporation.
 

The annular space shall be controlled either by precision grinding the bell and spigot, or by casting an approved material onto the outside of the spigot and on the inside of the bell, or by a combination of these methods.

The seal shall be obtained by compressing a rubber, plastisol (polyvinyl chloride) or other approved resilient element as the joint is assembled.

Vitrified clay pipe utilizing mechanical compression joints shall be "Wedge-Lock" as manufactured by Pacific Coast Clay Products, or "Speed-Seal Mainline" as manufactured by Gladding McBean Company. No other make of plastisol joint pipe will be permitted except as approved in writing by the engineer.

Pipe shall be installed in strict accordance with the manufacturer's instructions.
14. Elastomeric Joints. Elastomeric joints shall conform to ASTM D 3212 and shall utilize a single gasket for sealing. All joints shall be made in conformance with the manufacturer's recommendations and shall be closed to align the reference mark with the pipe bell.
15. Embedment Materials. Embedment material shall be one of the following types:
  - a. Clean washed sand, with a maximum particle size of 1/4 inch, and with a minimum of 70 percent passing a No. 20 screen.
  - b. 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 of the state standard specifications.

16. Embedment Procedure.
  - a. After excavating the trench to a grade at least 4 inches below the pipe barrel elevation, carefully place bedding material the full width of the trench to provide uniform support along the entire length of pipe to be installed.
  - b. 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.
  - c. Place and compact embedment material to the top of the pipe.
  - d. Place and compact embedment material to a minimum depth of 6 inches over the top of the pipe.
17. Alternate Embedment Procedure. With the approval of the engineer, the following alternate embedment procedure may be used, at the option of the contractor:
  - a. Excavate the trench and place bedding material as described in subsection P16a of this section;
  - b. After installing the pipe, place embedment material to a depth at least 8 inches above the top of the pipe;
  - c. Flood the embedment zone with water by either puddling or jetting. Adequate water must be applied to insure that the entire embedment zone is saturated;
  - d. Consolidate the embedment material with internal vibrators, applied at sufficiently close intervals that the visible effects of the vibration overlap. Care shall be exercised to avoid disturbance of the pipe during vibration, or contacting the pipe with the vibrator;
  - e. Allow sufficient drying time that the embedment material will support a man's weight before placing backfill.
18. Straightness. The full diameter of the pipe shall be visible when viewed between consecutive manholes, unless curved alignment is specified. Testing may be by photography or by lamping with lights or mirrors.
19. Manhole Connections. Sewer pipe shall be connected to manhole bases in a manner which will provide a watertight seal. With polyvinyl chloride sewers, special adaptors with resilient seals or waterstops shall be installed in manhole bases to provide a flexible, watertight connection.
20. Test for Leakage. On the completion of each section of the sewer between structures, where the soil is wet due to ground water, the end of the sewer at the upper manhole or structure shall be closed sufficiently to prevent the entrance of water, and the sewer treated for leakage, which if found to occur, shall be located, uncovered, and stopped. Where such leaks are discovered before the completion of the sewer, the sewer shall be immediately uncovered and the leaks stopped. Leakage shall be tested with an air pressure test. The pipeline to be tested shall be suitably plugged at all openings.

Test procedures and allowable pressure loss for vitrified clay sewers shall be as specified by the pamphlet entitled "Low Pressure Air Test for Sanitary Sewers," published by the National Clay Pipe Institute. Polyvinyl chloride sewers shall be pressurized to 4.0 PSI greater than the average pressure of any groundwater which may submerge the pipe. At least 2 minutes shall be allowed for pressure stabilization. The rate of air loss shall then be determined by measuring the time interval required for the internal pressure to decrease from 3.0 to 2.5 PSI above the average pressure of any groundwater submerging the pipe. The pipeline shall be considered acceptable when the pressure drop described

above occurs over a time period of at least (36.3 seconds) x (pipe diameter in inches).

If air pressure testing equipment is not available, water testing may be substituted. Permissible leakage for vitrified clay and polyvinyl chloride sewers will not exceed that allowed by the National Clay Pipe Institute's pamphlet listed above.

Final tests of sewers 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 by infiltration or exfiltration, or similar causes shall be basis of nonacceptance.

21. Backfilling. Backfilling shall be done in accordance with subsection L of this section. Compaction of backfill material by ponding or jetting will not be allowed unless specifically approved by the engineer.

Where the sewer crosses streets or highways, ponding or jetting will not be permitted.

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, who shall reimburse the city by cash payment.

22. Test for Deflection. Polyvinyl chloride (PVC) sewers shall be tested for deflection after final backfill and compaction has been completed, but before paving is placed. 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 reexcavated, bedded and backfilled to adequately support the pipe and reduce the deflection to 5% or less of the average inside diameter of the pipe. The pipeline shall then be retested for both leakage and deflection.

Should tests performed by the city, within one year of the original testing and acceptance, show deflection in excess of 7.5% of the average inside diameter of the pipe, the contractor shall reexcavate, bed and backfill the pipe to provide adequate support and reduce the deflection to 5% or less. The pipeline shall be retested for deflection. The contractor shall reimburse the city's cost of testing for all lines which require repair.

23. Disposal of Excess Material. Excess materials which have been excavated from trenches, and which cannot be utilized for backfill, or spread adjacent to the work, shall be removed by the contractor.
24. Protection of Work. 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 or trash, but under no circumstances made watertight.

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.

Upon completion of the sewers and prior to the final inspection and before acceptance, when ordered by the engineer, the contractor shall, at the contractor's own expense, flush and cleanse the sewers of all dirt clods, small rocks, sand or silt deposits and any other materials that may be detrimental to the proper flow and operation of the sewer. The outlet end of the lowest manhole in the system shall be tightly plugged and a pump suction line placed in the manhole ready for use.

A fire hose shall be connected to a fire hydrant nearest to the last structure in the upper end of the system and the fire hose inserted in the sewer pipe as a jet.

The volumes and velocity obtained from the water system should be sufficient to flush any materials in the pipe to the lowest manhole where the pumps will be put into operation to remove the wash water and suspended solids. Disposal of this wash water shall be into the nearest storm drain.

When, in the opinion of the engineer, the wash water is sufficiently clear to indicate that the sewer is clean, the water shall be shut off and the sewer line allowed to drain down. When the lower manhole has been pumped and/ or bailed dry, the remaining residue shall be removed and the manhole left clean.

**Q. Trench Sheeting, Shoring and Bracing.**

1. Trench sheeting, shoring and bracing shall be installed for any trench or boring and jacking pit five feet or more in depth. Shoring system shall conform to the latest edition of the State Division of Industrial Safety Construction Safety Orders, Sections 1539, 1540, 1541 and 1542 pursuant to State Assembly Bill No. 150 dated October 2, 1973.
2. Permits. The contractor is required to obtain a permit from the State Division of Industrial Safety prior to the excavation of any trench or boring and jacking pit five feet or more in depth.
3. Shoring and Bracing Plans. The contractor shall be required to submit to the building and development services department, prior to excavation, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from hazard of caving ground during the excavation of trench or trenches. If such plan varies from the shoring system standards of the State Division of Industrial Safety Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer.

**R. Maintenance of Trees.** Any excavation within the drip line of any trees shall conform to the following requirements:

1. No trees shall be removed unless specifically so designated on the plans or in the special provisions.
2. No roots over two (2) inches in diameter shall be cut.
3. Hand trenching and tunneling will be required when excavation exposes roots two (2) inches in diameter or larger.
4. Roots two (2) inches in diameter or larger which are exposed to the air shall be

kept moist.

5. Roots two (2) inches in diameter or larger which are accidentally damaged shall be treated with material approved by the city of Chico park superintendent.
6. If roots two (2) inches in diameter or larger are accidentally cut or broken, the tree shall be trimmed to compensate for the decreased root system. Such trimming shall be done to the satisfaction of the park superintendent.
7. Boring pits shall not be installed within twenty (20) feet of any tree trunk.
8. All work shall be done to the satisfaction of the engineer.

(Res. No. 9 77-78 (part), Res. No. 87 86-87 §2, Res. No. 92 89-90, Res. No. 59 90-91 §§13-17, Res. No. 11 95-96 §§2-3, Res. No. 48 97-98 §§5-6, Res. No. 02 03-04, Res. No. 113-07)

### **18R.12.020 Standard plans.**

The following plans, copies of which are incorporated into this section, are hereby adopted as the Standard Plans of the City of Chico:

<u>Plan No.</u>	<u>Title</u>
S-1	P.C.C. Sidewalk Details
S-2	P.C.C. Curb and Gutter
S-2A	Curb, Gutter & Sidewalk Installation at Trees
S-3	Existing Curb and/or Gutter Replacement Details
S-4	Deleted
S-5	Residential Driveway Approach
S-5A	Commercial Driveway Approach
S-5B	Curb, Gutter & Driveway Details
S-5C	Curbed Driveway Entrance
S-6	Storm Drain Headwall
S-7	36" Drop Inlet (two plans), Grate Detail, & Grate Frame
S-7A	Flat Grate Inlet (Caltrans "G-I")
S-8	Storm Drain Marker Detail
S-9	Deleted
S-10	Storm Drain and Sanitary Sewer Manhole
S-11	Drop Manhole
S-12	Approved Methods of Laying Pipe
S-12A	Pipe Crossing Cradle
S-12M	Modified Concrete Cradle
S-13	Typical Method for Setting Appurtenances
S-14	Manhole Frame & Cover Details
S-14A	Bolt Down Manhole Frame & Cover Details
S-15	Flushing Hole - Cast Iron Frame and Cover
S-16	Street Name Sign Details
S-17	Typical Details of Pavement Replacement
S-18A	Typical Cross-Section - Streets (2 plans)
S-18B	Typical Cul-De-Sac
S-18D	Improvement of Existing Street (2 plans)
S-18E	Typical Cross-Section - Other Public Ways
S-18F	Typical Cross-Section - Private Streets
S-19	Alley Pavement
S-20	City Monuments, Construction & Location

S-21	Street Barricades
S-26	Flat Grate Inlet
S-27	P.C.C. Handicapped Ramp
S-27A	P.C.C. Handicapped Ramp
S-28	Bus Turnout
S-35	Bicycle Barrier Post
SL-1	Street Lights (11 plans)
LS-1	Fifteen Gallon Tree Planting Detail (2 plans)
LS-2	Fifteen Gallon Tree Planting Detail with Stamped Concrete
LS-3	Containerized Shrub Planting Detail
LS-4	Ground Cover Planting Detail
LS-5	Header Detail (2 plans)
LS-6	Deleted
LS-7	Reduced Pressure Backflow Preventer
LS-8	Remote Control Valve (2 plans)
LS-9	Remote Control Valve in Paving (Non Vehicular)
LS-10	Quick Coupling Valve
LS-11	Tru-Union Ball Valve
LS-12	Controller Enclosure with Fan
LS-13	Controller Service Pull Box
LS-14	Trenching Detail (3 plans)
LS-15	Typical Thrust Block Details for Ring-Tite and Solvent Weld Pipe
LS-16	Impact Riser with Swing Joint
LS-17	Sprinkler/Bubbler Pop-Up
LS-18	Turf Impact Rotor with Swing Joint
LS-19	Subterranean Drip Spacing
LS-20	Subterranean Dripline Layout
LS-21	Dripline Flushing Valve
LS-22	Air/Vacuum Relief Valve
LS-23	Dripline Layout for Trees
LS-24	Sight Distance Clearance at Non-Signalized Intersections
LS-25	Tree and Pavement Layout in Median Island
LS-26	Stamped Concrete Bullnose and Mow Band
LS-27	Metered Electrical Service Enclosure (2 plans)

(Res. No. 59 90-91 §19, Res. No. 167 92-93 §3, Res. No. 60 95-96, Res. No. 26 97-98; Res. No. 42 99-00 §§1 & 2, Res. No. 118 00-01, Res. No. 120-06, Res. No. 39-07, Res. No. 107-07, Res. No. 55-09, Res. No. 69-09)

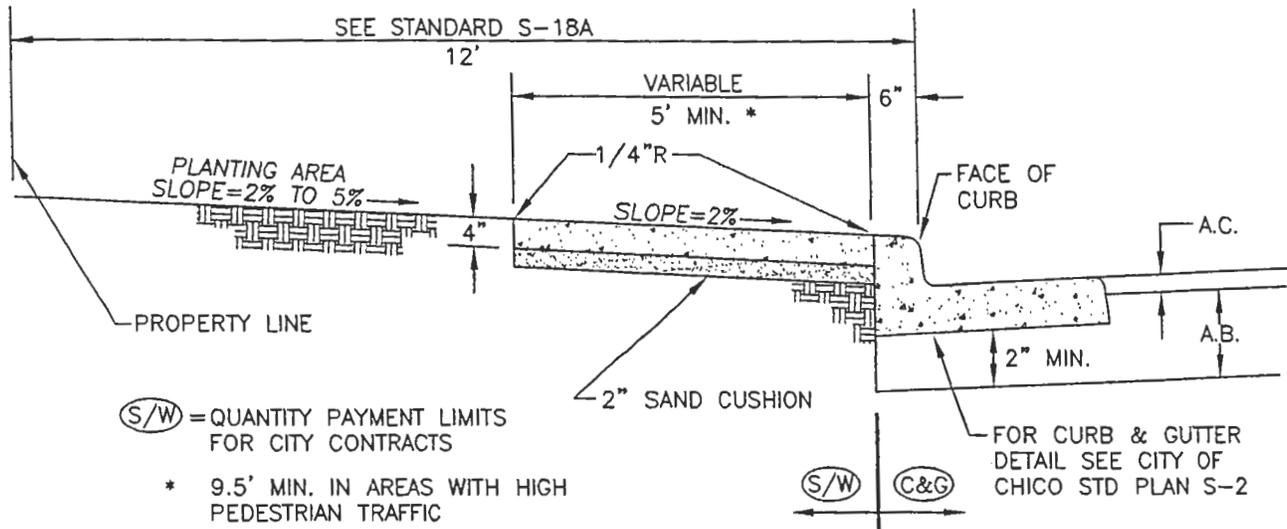
#### **18R.12.030 Standard plans - TND zoning district.**

The following plans, copies of which are incorporated into this section, are hereby adopted as the Standard Plans of the city of Chico for use in the TND zoning district. These plans shall not be used for any improvements constructed outside of the TND zoning district.

<u>Plan No.</u>	<u>Title</u>
TN-1	High Capacity Boulevard with Frontage Lanes
TN-2	Boulevard with Frontage Lanes
TN-3	Boulevard
TN-4	36' Avenue

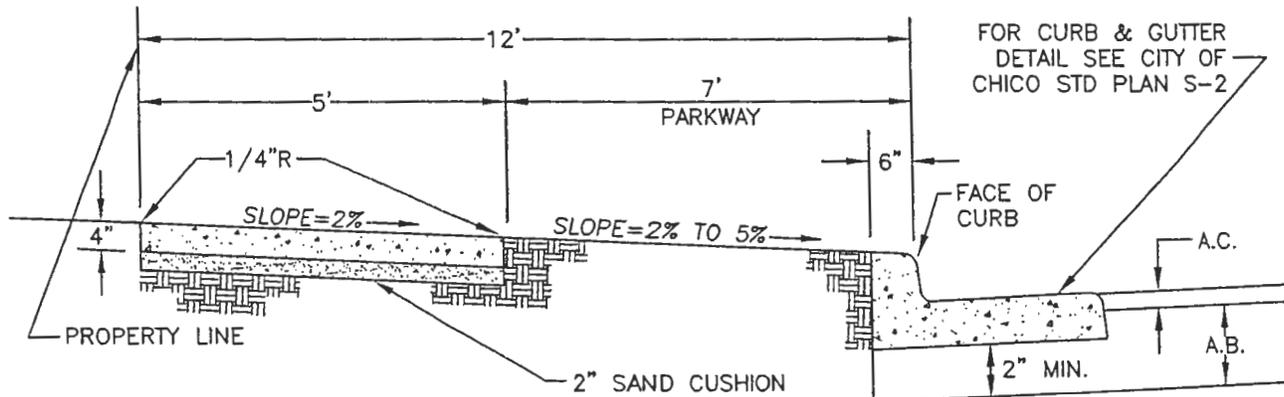
TN-5	32' Interior Street
TN-6	27' Interior Street
TN-7	27" Drive at Greenway
TN-8	26' Interior Street (One Way)
TN-9	19' Interior Street (One Way)
TN-10	19' Interior Street (One Way on Neighborhood Green)
TN-11	Alley Commercial
TN-12	Alley
TN-13	Typical Plan View Neighborhood General Alley
TN-14	Pedestrian Passage
TN-15	Mid-block Passage
TN-16	Street - Existing Modified Arterial Intersection on Network
TN-17	Street - Existing Arterial Intersection on Network
TN-18	Boulevard - Avenue Intersection on Network
TN-19	Avenue - Street Intersection on Network
TN-20	Street - "T" Intersection off Network
TN-21	Street - Alley Intersection off Network
TN-22	Sidewalk Details: Planter and Tree Grate Options

(Res. No. 85-07)



**CONTIGUOUS CURB,  
GUTTER & SIDEWALK**

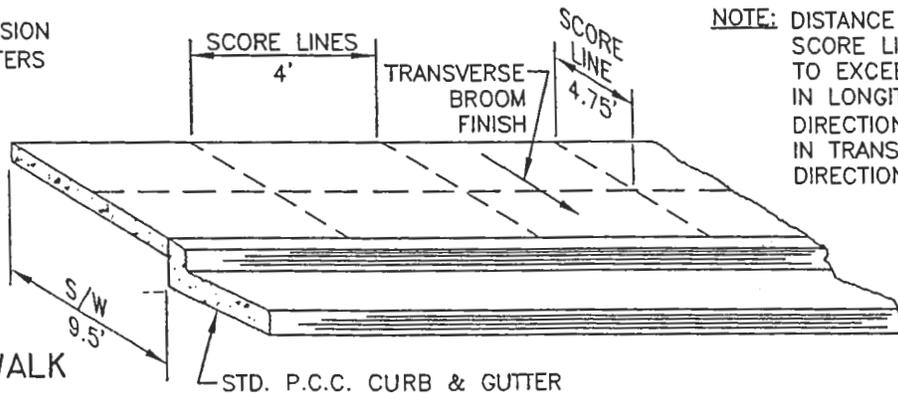
**NOTE:** IF AUTHORIZED, THIS SIDEWALK CONFIGURATION MAY BE USED IN EXISTING DEVELOPED AREAS TO MATCH AN ESTABLISHED SIDEWALK CONFIGURATION.



**SEPARATED CURB,  
GUTTER & SIDEWALK**

**NOTE:** THIS SIDEWALK CONFIGURATION SHALL BE USED IN CONJUNCTION WITH ALL NEW DEVELOPMENT AND/OR NEW CONSTRUCTION.

**NOTE:** INSTALL 1/4" EXPANSION JOINTS ON 48' CENTERS



**NOTE:** DISTANCE BETWEEN SCORE LINES NOT TO EXCEED 4 FEET IN LONGITUDINAL DIRECTION OR 4.75' IN TRANSVERSE DIRECTION

**TYPICAL SIDEWALK  
SCORE LINES**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**P.C.C. SIDEWALK DETAILS**

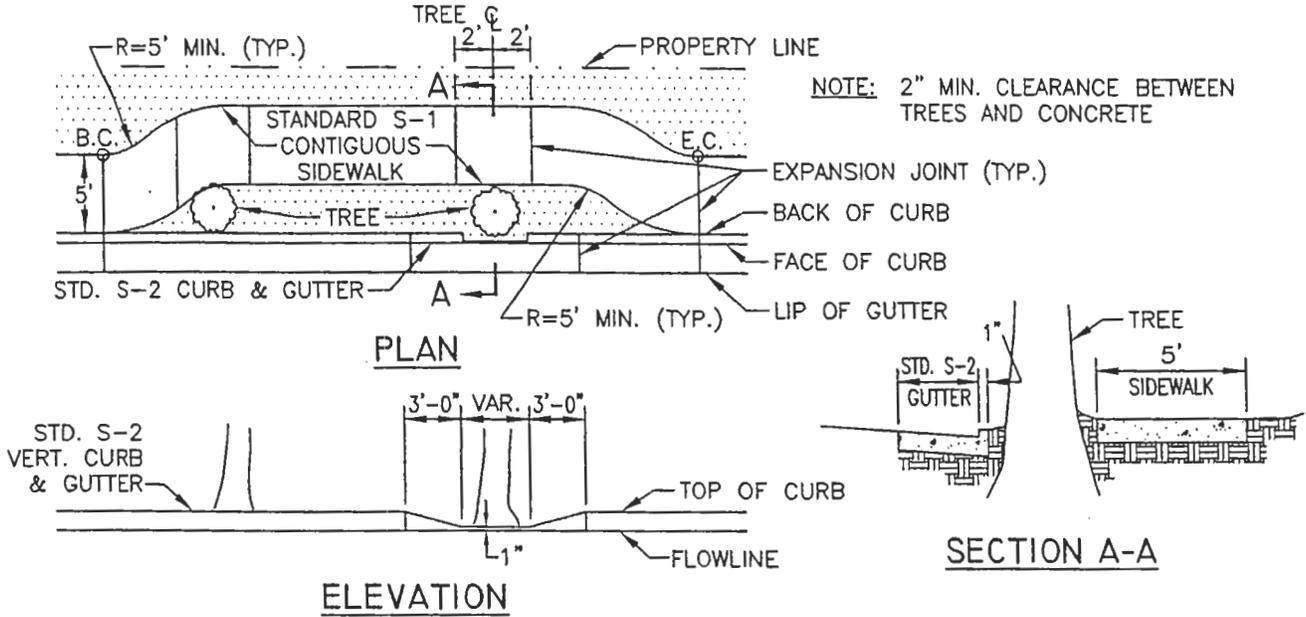
NO. **S-1**

SHEET 1 OF 1

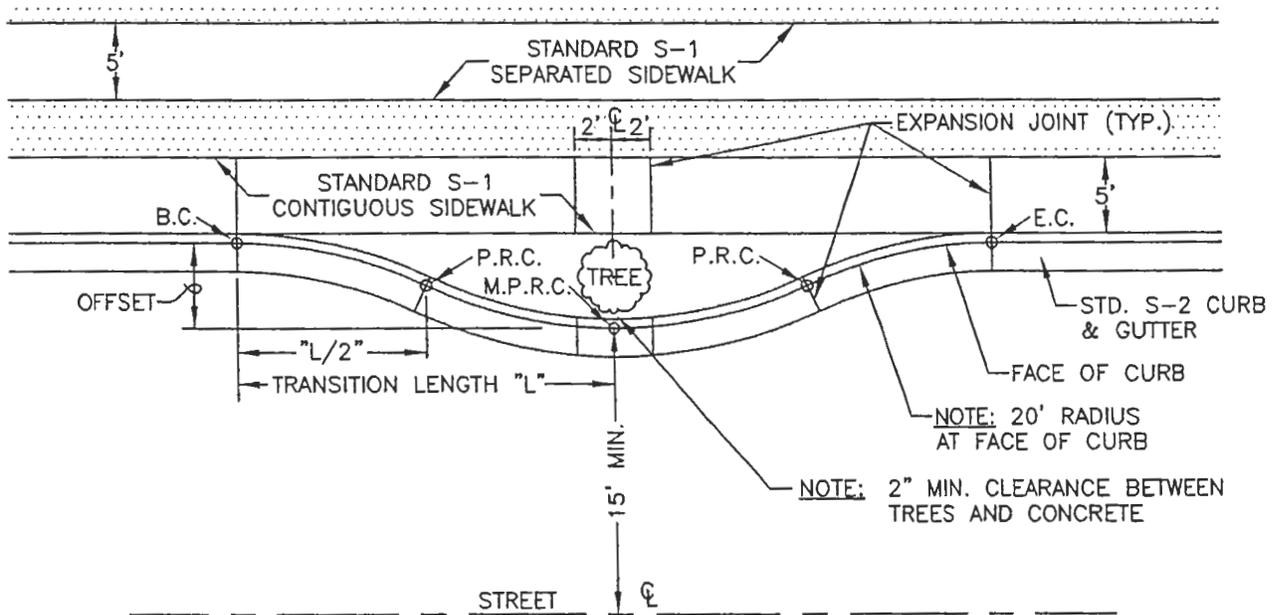
**EXHIBIT A**



# STRAIGHT CURB ALIGNMENT- CONTIGUOUS SIDEWALK



# OFFSET CURB ALIGNMENT- SEPARATED OR CONTIGUOUS SIDEWALK



OFFSET	RADIUS	TRANSITION LENGTH	L/2	OFFSET	RADIUS	TRANSITION LENGTH	L/2
1'	20'	8.9'	4.45'	6'	20'	21.1'	10.55'
2'	20'	12.5'	6.25'	7'	20'	22.6'	11.30'
3'	20'	15.2'	7.60'	8'	20'	24.0'	12.00'
4'	20'	17.4'	8.70'	9'	20'	25.3'	12.65'
5'	20'	19.4'	9.70'				

**CITY OF CHICO**

**STANDARD PLAN**

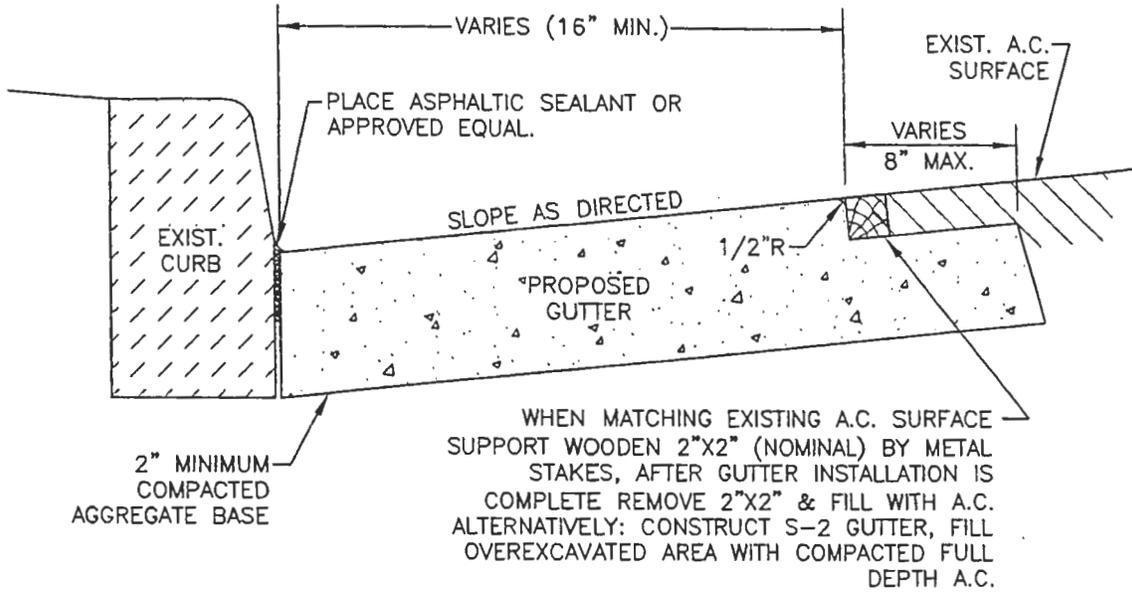
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**CURB, GUTTER & SIDEWALK  
 INSTALLATION AT TREES**

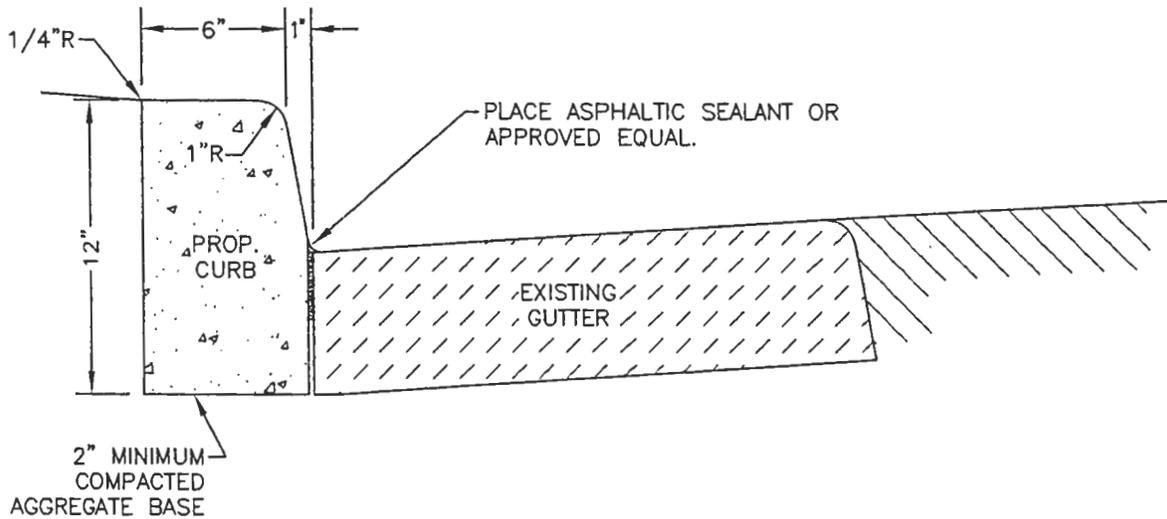
NO. **S-2A**

SHEET 1 OF 1

REVISION	BY	DATE	APP. BY COUNCIL



EXISTING CURB-PROPOSED GUTTER



PROPOSED CURB-EXISTING GUTTER

NOTES:

1. WHEN INSTALLING BOTH CURB & GUTTER, POUR MONOLITHIC SECTION.
2. WHEN REPLACING ROLLED CURB & GUTTER, USE STANDARD NO. S-2 IN COMBINATION WITH METHOD OF MATCHING EXISTING A.C. DETAIL (TOP).
3. INSTALL 1/4\"

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

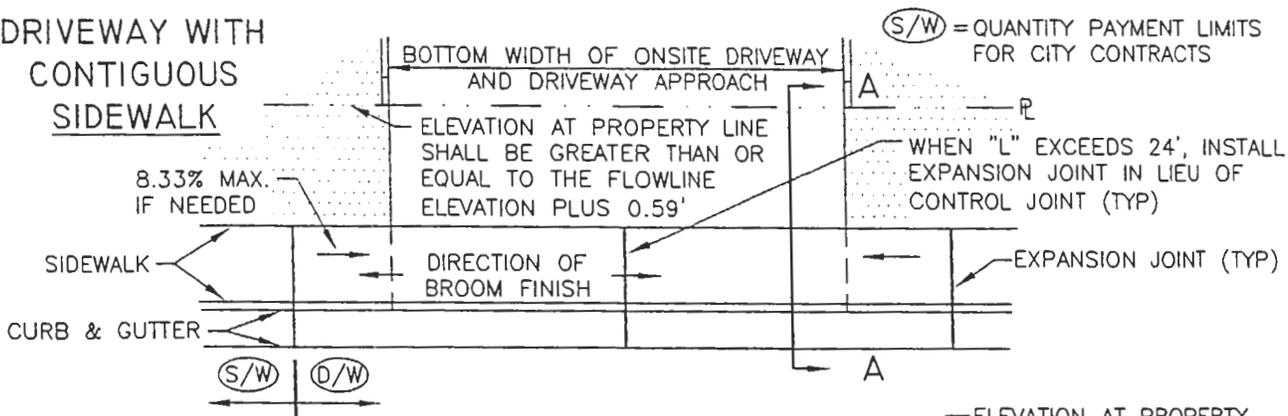
DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**EXISTING CURB AND/OR  
 GUTTER REPLACEMENT  
 DETAILS**

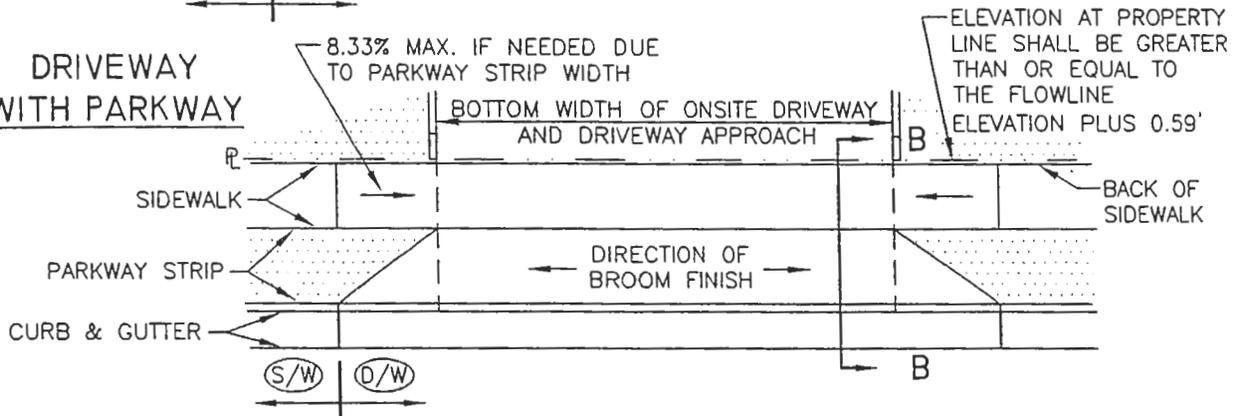
NO.  
**S-3**

SHEET 1 OF 1

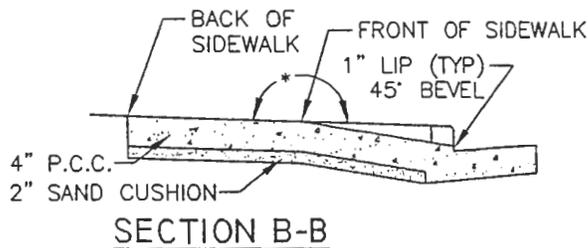
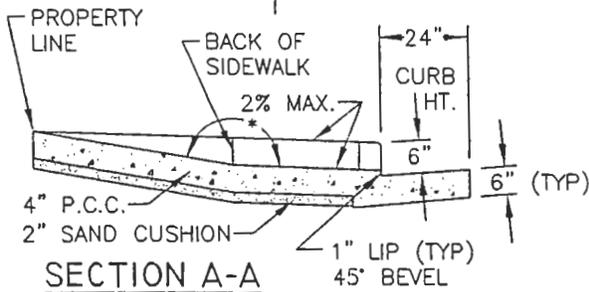
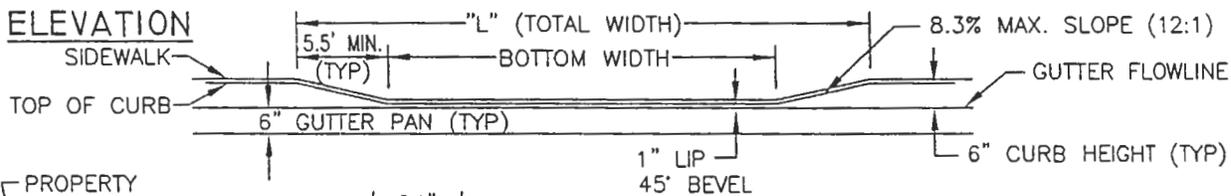
**DRIVEWAY WITH  
CONTIGUOUS  
SIDEWALK**



**DRIVEWAY  
WITH PARKWAY**



**ELEVATION**



**NOTES:**

\* MAX. ALGEBRAIC DIFFERENCE OF 17.5%

1. STANDARD S-5 SHALL BE USED FOR RESIDENTIAL DEVELOPMENTS WITH 8 OR LESS ONSITE PARKING SPACES.
2. BOTTOM WIDTH AT FACE OF CURB:
 

A) SINGLE SPACE AND TANDEM PARKING - 12'	C) ONE WAY - 14' MINIMUM, 18' MAXIMUM
B) TWO SPACES (SIDE BY SIDE) - 18'	D) TWO WAY - 24' MINIMUM, 30' MAXIMUM
3. WHERE CURB HEIGHT IS GREATER THAN 6" AND/OR DISTANCE BETWEEN FACE OF CURB AND FRONT OF SIDEWALK IS LESS THAN 4'6", THE SIDEWALK SHALL BE DEPRESSED TO MAINTAIN MAXIMUM SLOPES.
4. STANDARD S-5 IS NOT REQUIRED IN CONJUNCTION WITH ROLLED CURB AND GUTTER.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

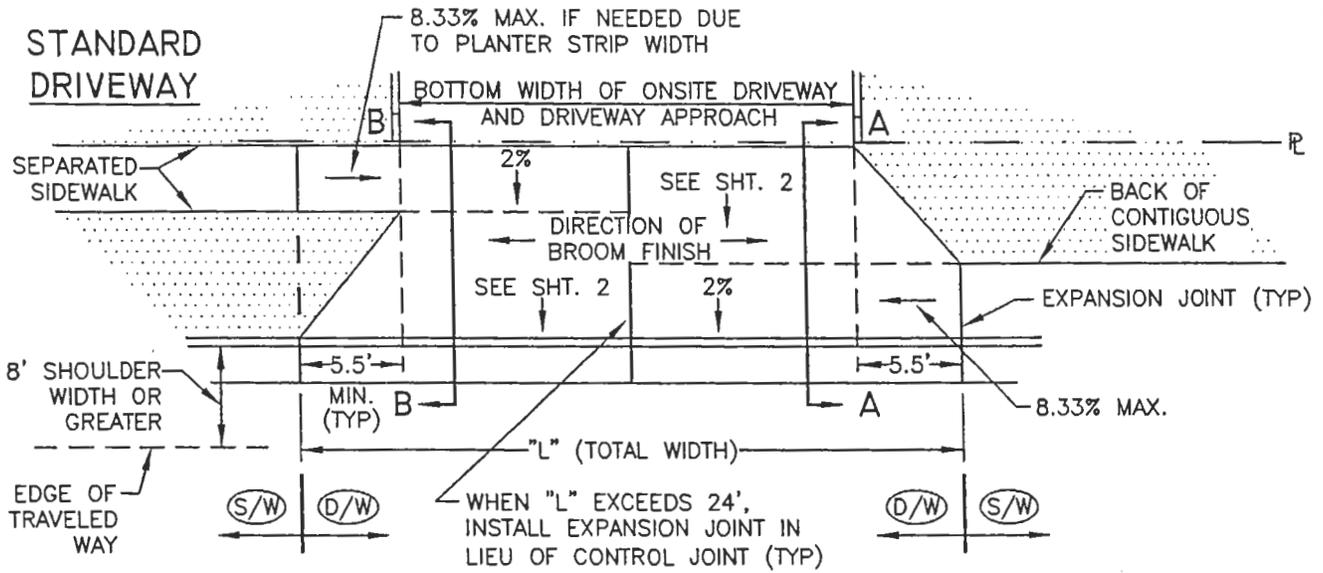
DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**RESIDENTIAL  
DRIVEWAY APPROACH**

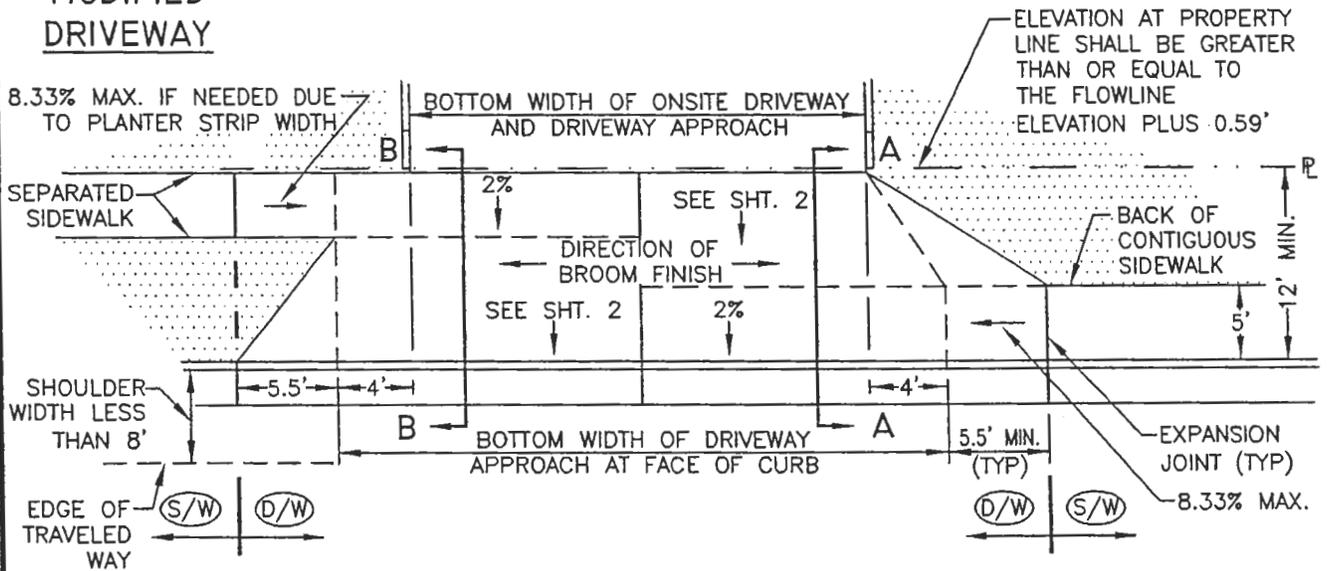
NO.  
**S-5**  
SHEET 1 OF 1

(S/W) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS

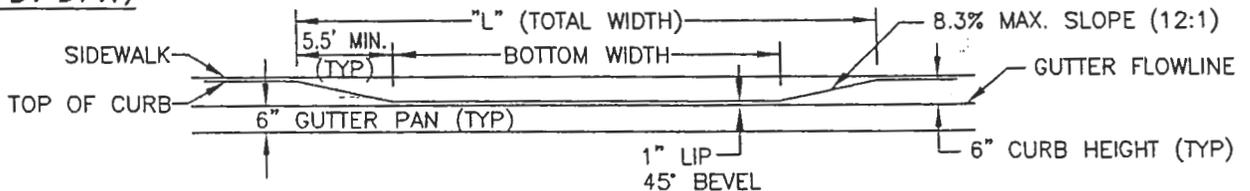
### STANDARD DRIVEWAY



### MODIFIED DRIVEWAY



### ELEVATION (STD. D/W)



REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

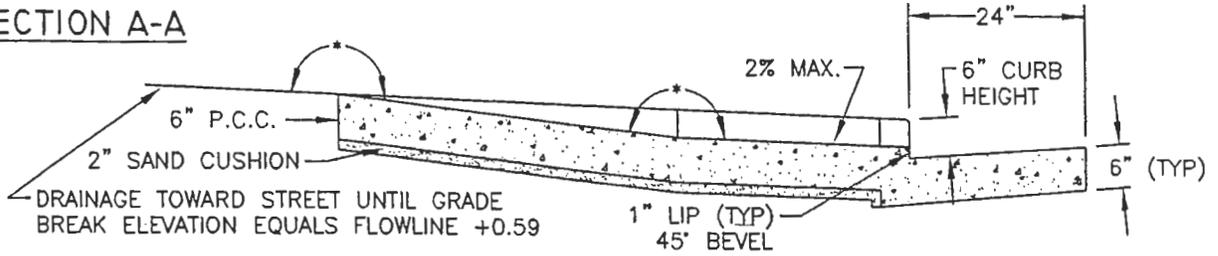
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

COMMERCIAL DRIVEWAY APPROACH

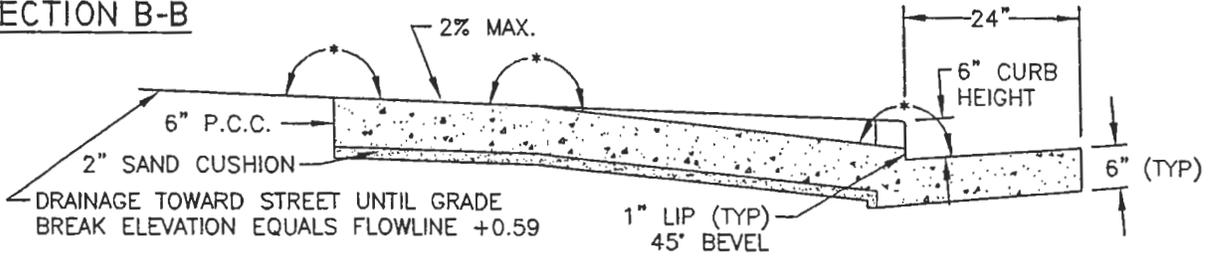
NO. S-5A

SHEET 1 OF 2

**SECTION A-A**



**SECTION B-B**



\* MAX. ALGEBRAIC DIFFERENCE OF 17.5%

**NOTES:**

1. STANDARD S-5A SHALL BE USED FOR COMMERCIAL AND INDUSTRIAL DEVELOPMENTS, RESIDENTIAL DEVELOPMENTS WITH GREATER THAN 8 ONSITE PARKING SPACES AND PRIVATE STREET SUBDIVISIONS.
2. MODIFIED DRIVEWAY SHALL BE USED WHERE ROADWAY SHOULDER IS LESS THAN 8'.
3. BOTTOM WIDTH OF STANDARD DRIVEWAY AT FACE OF CURB:
  - A) ONE WAY - 14' MINIMUM, 18' MAXIMUM
  - B) TWO WAY - 24' MINIMUM, 30' MAXIMUM
4. BOTTOM WIDTH OF MODIFIED DRIVEWAY AT FACE OF CURB:
  - A) ONE WAY - 22' MINIMUM, 26' MAXIMUM
  - B) TWO WAY - 32' MINIMUM, 38' MAXIMUM

REVISION			
BY			
DATE			
APP. BY COUNCIL			

**CITY OF CHICO**

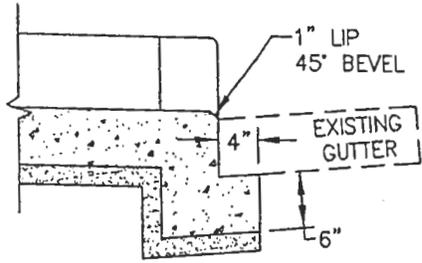
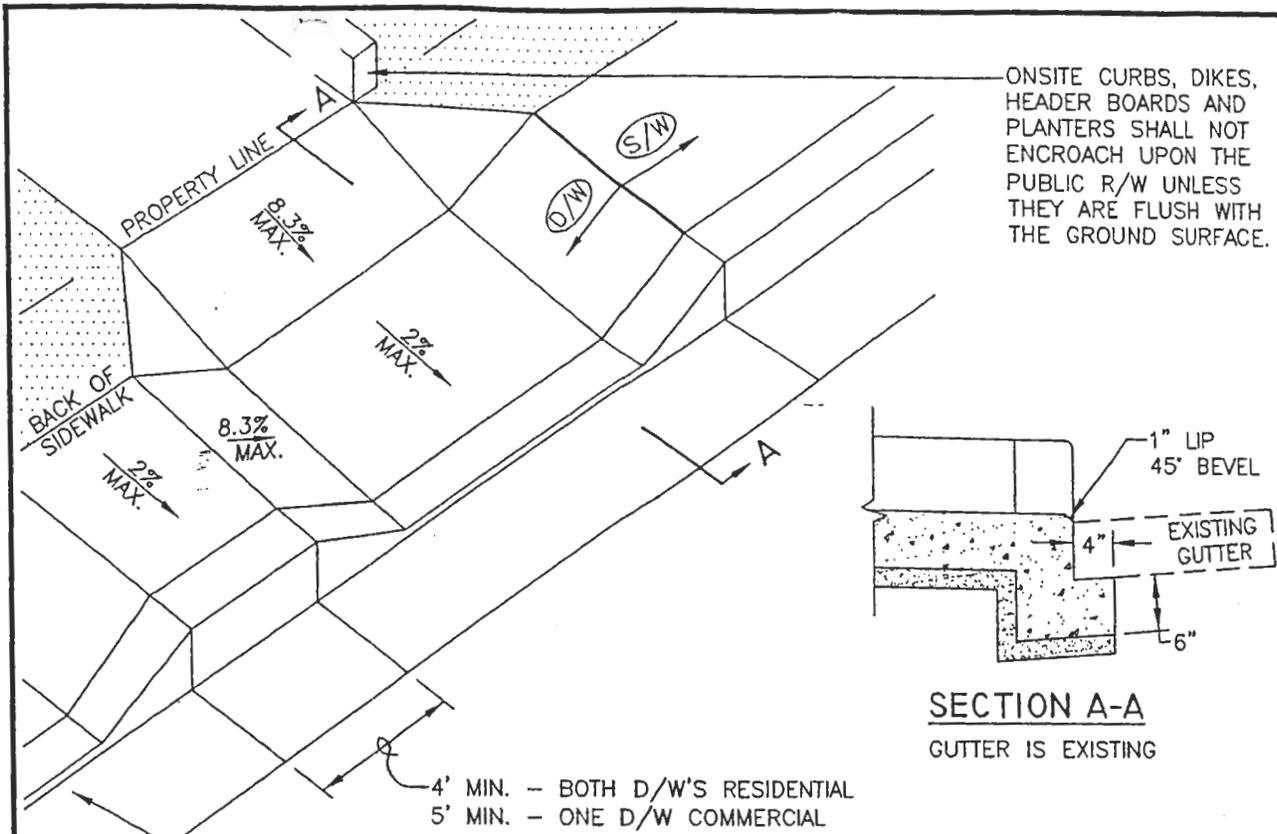
**STANDARD PLAN**

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**COMMERCIAL  
 DRIVEWAY APPROACH**

NO.  
**S-5A**

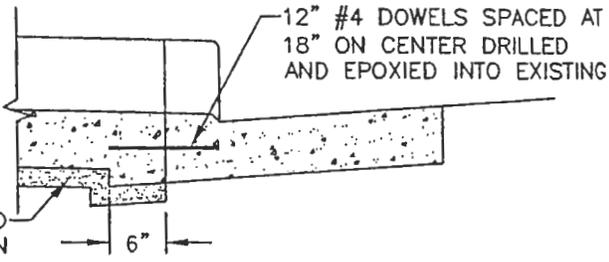
SHEET 2 OF 2



**SECTION A-A**  
GUTTER IS EXISTING

4' MIN. -- BOTH D/W'S RESIDENTIAL  
5' MIN. -- ONE D/W COMMERCIAL

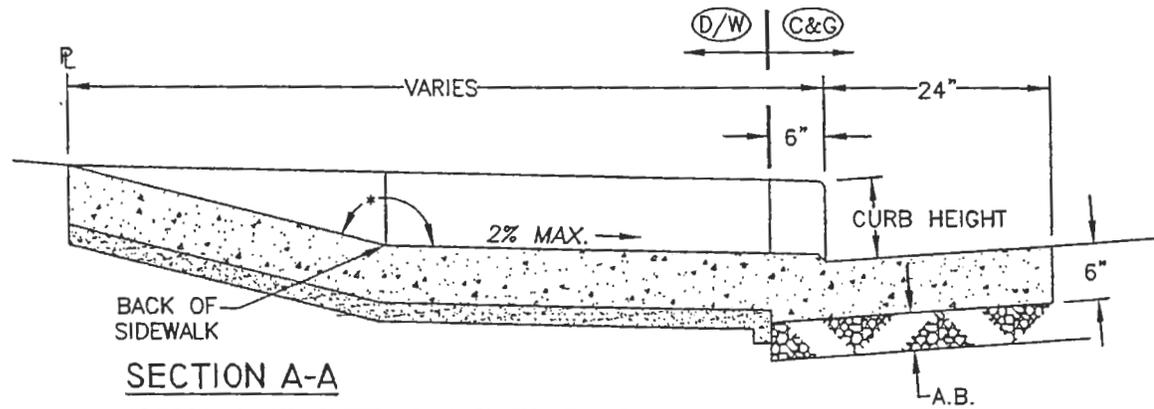
PEDESTRIAN RAMP,  
D/W OR ADJACENT  
PROPERTY



**SECTION A-A**  
CURB OR CURB & GUTTER IS  
EXISTING OR POURED SEPERATELY  
(COMMERCIAL DRIVEWAY ONLY)

(S/W) = QUANTITY PAYMENT LIMITS  
FOR CITY CONTRACTS

\* MAX. ALGEBRAIC  
DIFFERENCE OF 17.5%



**SECTION A-A**  
APPROACH AND GUTTER POURED TOGETHER

REVISION	BY	DATE	APP. BY COUNCIL

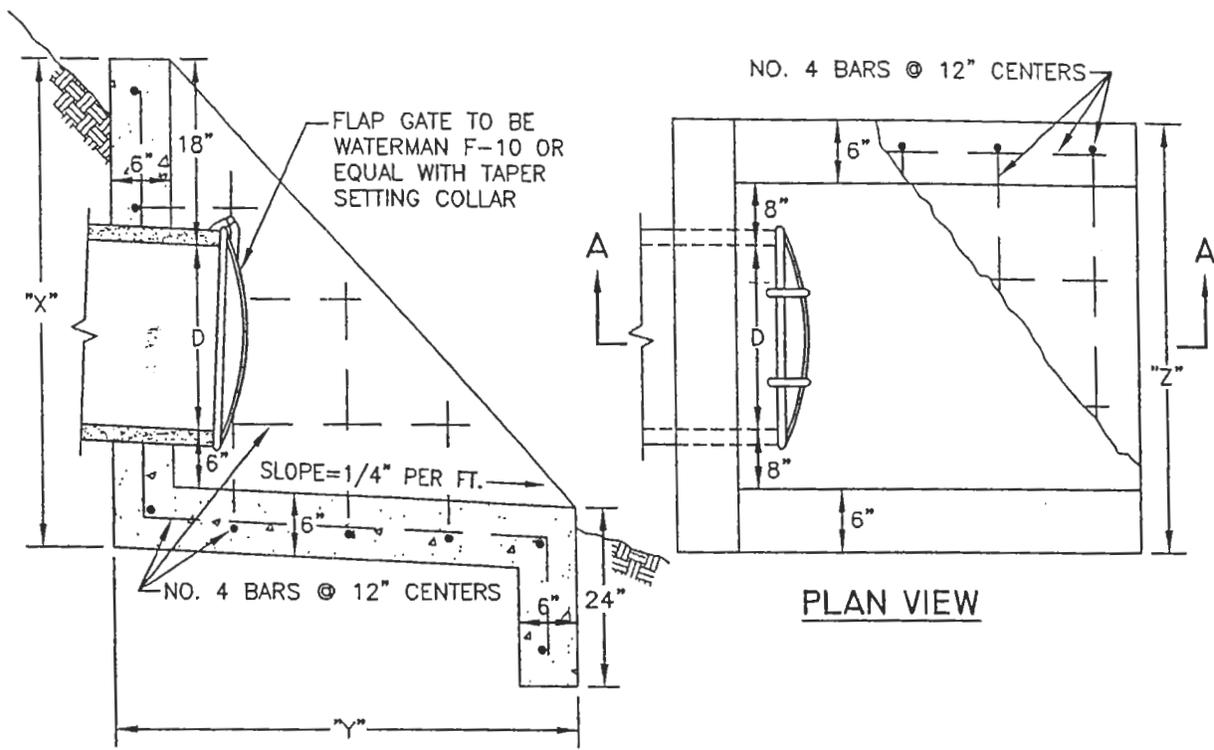
**CITY OF CHICO STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**CURB, GUTTER AND  
DRIVEWAY DETAILS**

NO.  
**S-5B**  
SHEET 1 OF 1



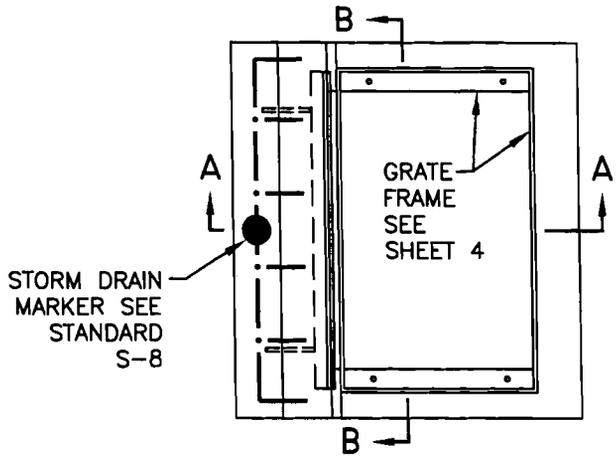


SECTION A-A

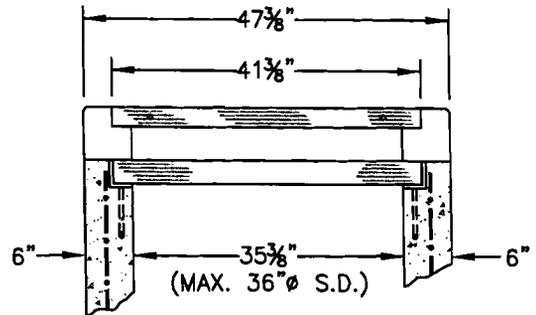
PIPE DIAMETER	HEADWALL WIDTH	VARIABLE DIMENSIONS					
		SLOPE = 1:1		SLOPE = 1.5:1		SLOPE = 2:1	
D	"Z"	"X"	"Y"	"X"	"Y"	"X"	"Y"
	D+2'-4"	D+2'-6"	D+2'-6"	D+2'-6"	1.5(D+2'-6")	D+2'-6"	2(D+2'-6")
8"	3'-0"	3'-2"	3'-2"	3'-2"	4'-9"	3'-2"	6'-4"
10"	3'-2"	3'-4"	3'-4"	3'-4"	5'-0"	3'-4"	6'-8"
12"	3'-4"	3'-6"	3'-6"	3'-6"	5'-3"	3'-6"	7'-0"
15"	3'-7"	3'-9"	3'-9"	3'-9"	5'-7½"	3'-9"	7'-6"
18"	3'-10"	4'-0"	4'-0"	4'-0"	6'-0"	4'-0"	8'-0"
21"	4'-1"	4'-3"	4'-3"	4'-3"	6'-4½"	4'-3"	8'-6"
24"	4'-4"	4'-6"	4'-6"	4'-6"	6'-9"	4'-6"	9'-0"
27"	4'-7"	4'-9"	4'-9"	4'-9"	7'-1½"	4'-9"	9'-6"
30"	4'-10"	5'-0"	5'-0"	5'-0"	7'-6"	5'-0"	10'-0"
36"	5'-4"	5'-6"	5'-6"	5'-6"	8'-3"	5'-6"	11'-0"
42"	5'-10"	6'-0"	6'-0"	6'-0"	9'-0"	6'-0"	12'-0"

REVISION	BY	DATE	APP. BY COUNCIL

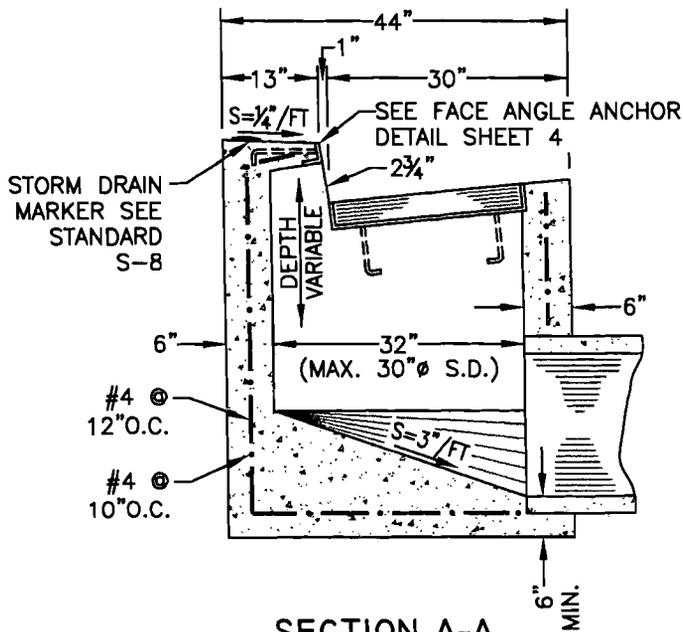
<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>10/05</u>	<b>STORM DRAIN HEADWALL</b>	NO. <b>S-6</b>
CHECKED BY: <u>MJ</u>	SCALE: <u>NONE</u>		SHEET 1 OF 1
APPROVED: <u>[Signature]</u>	DIRECTOR OF ENGINEERING		



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**

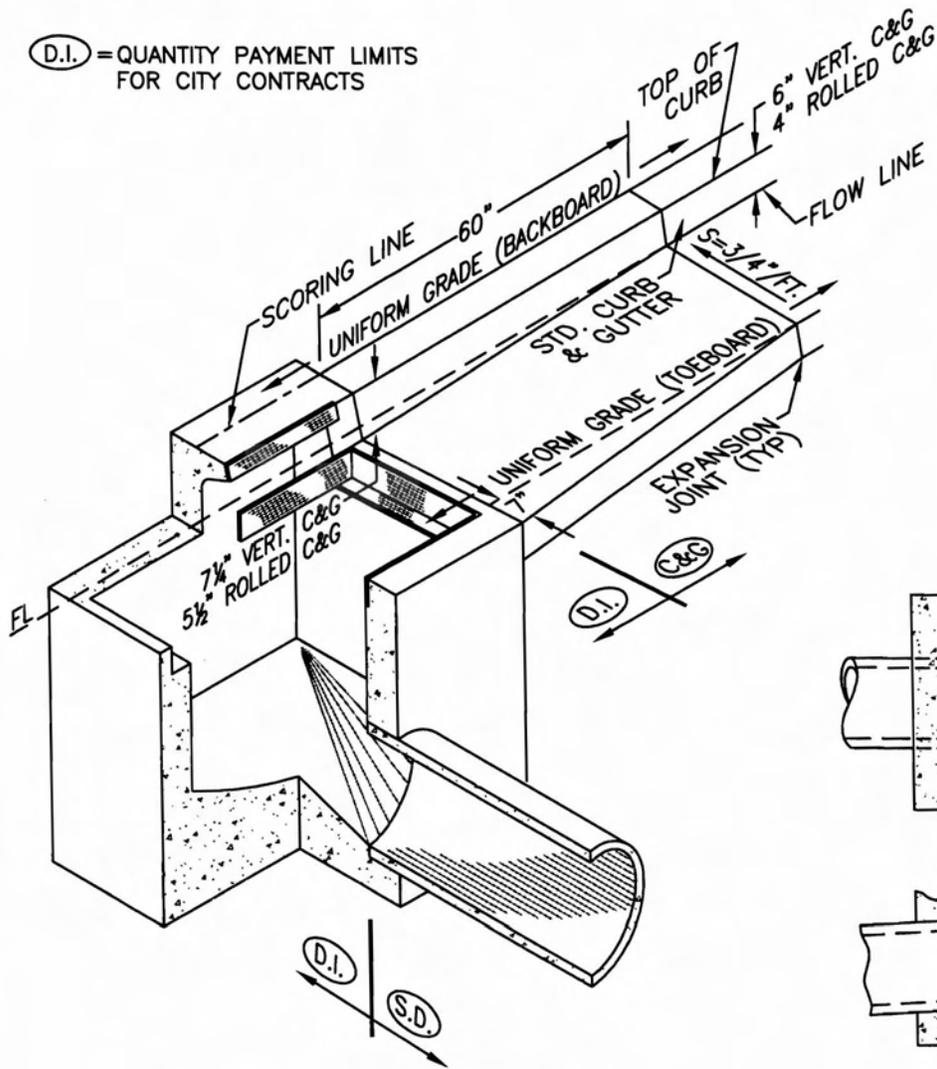
DRAWN BY: GL      DATE: 8/09  
 CHECKED BY: MT      SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

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

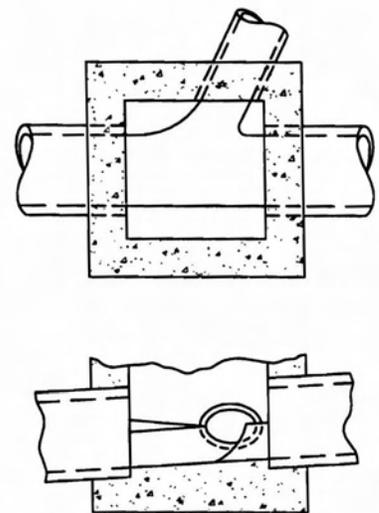
NO.  
**S-7**

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.
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**

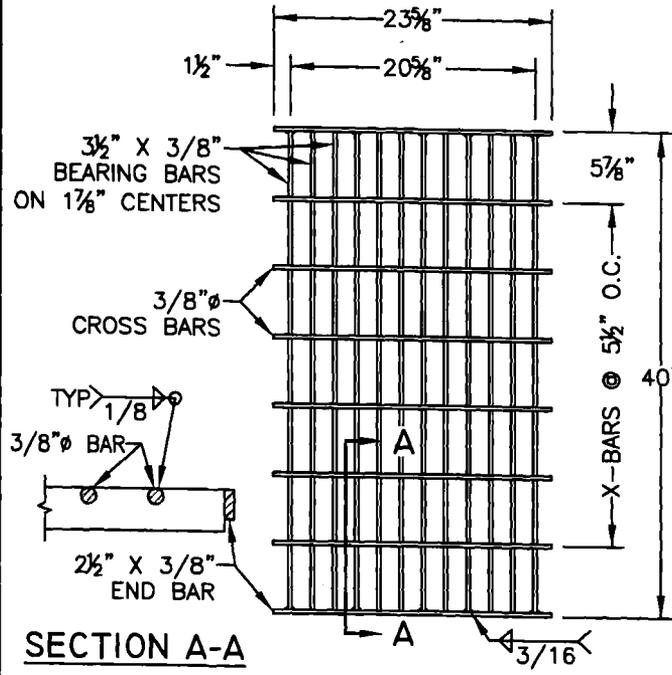
DRAWN BY: GL      DATE: 8/09  
 CHECKED BY: MT      SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

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

NO.  
**S-7**

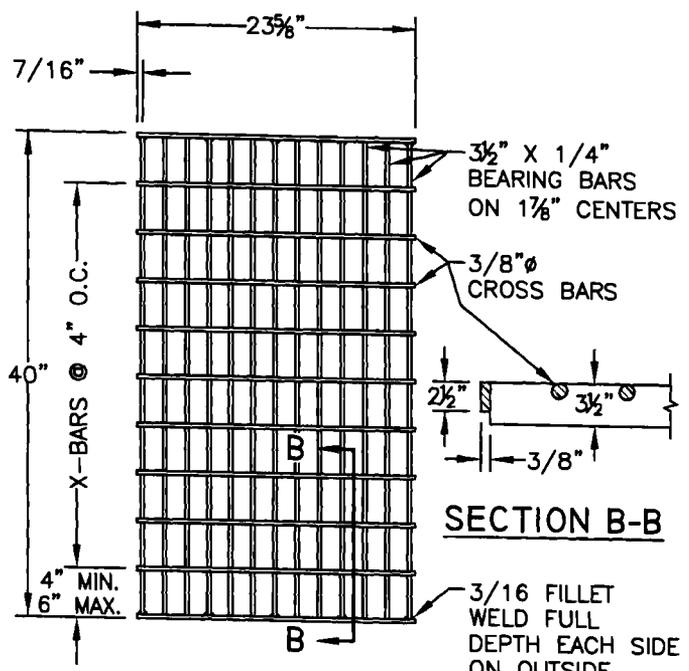
SHEET 2 OF 4

**EXHIBIT A**



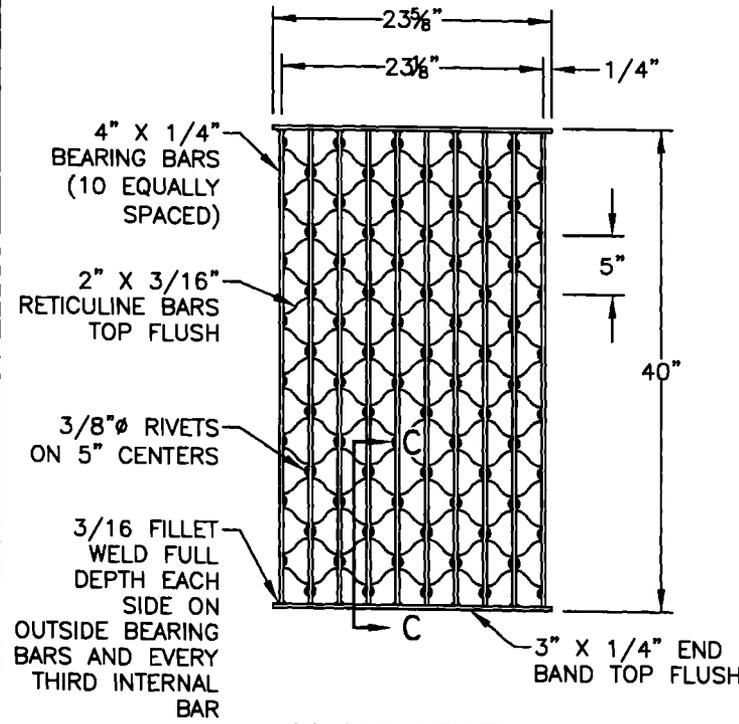
**SECTION A-A**

**24-12X GRATE**  
(WELDED STEEL)

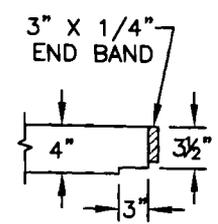


**SECTION B-B**

**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

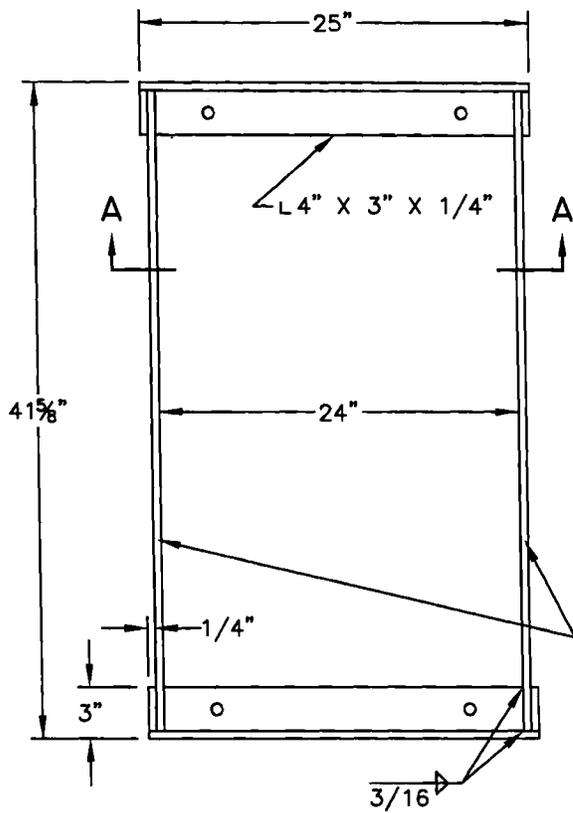
**CITY OF CHICO**

**STANDARD PLAN**

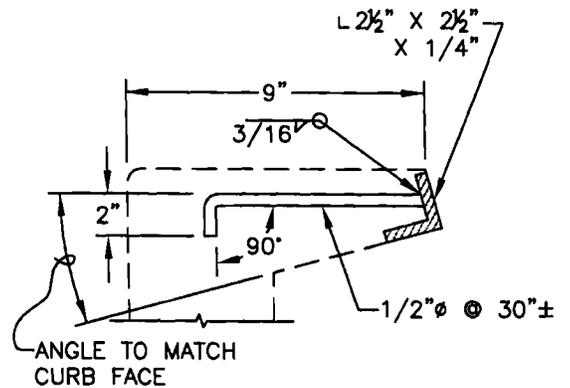
DRAWN BY: GL DATE: 8/09  
 CHECKED BY: MT SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

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

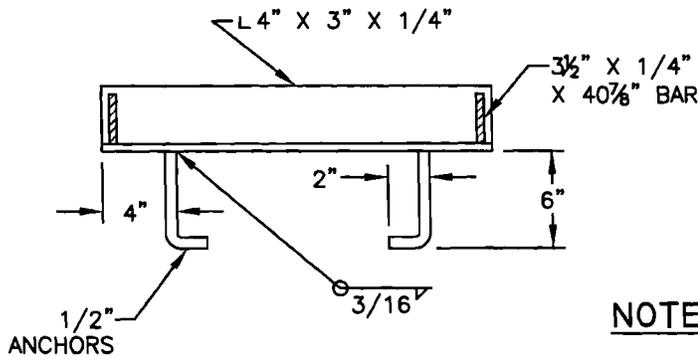
NO. **S-7**  
 SHEET 3 OF 4



**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

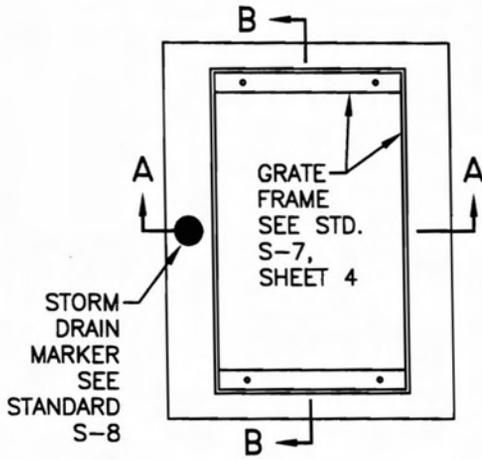
**CITY OF CHICO**

**STANDARD PLAN**

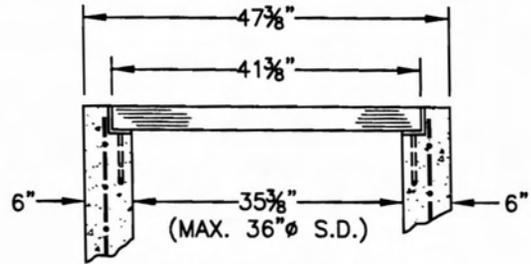
DRAWN BY: GL      DATE: 8/09  
 CHECKED BY: MT      SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

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

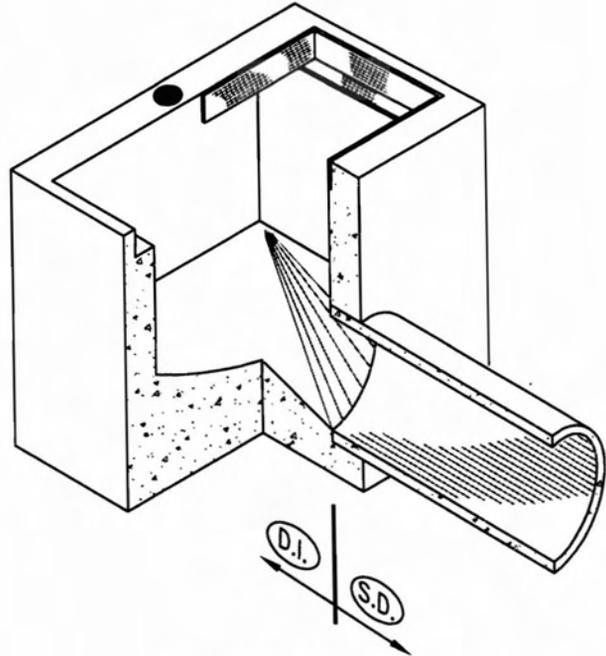
NO. **S-7**  
 SHEET 4 OF 4



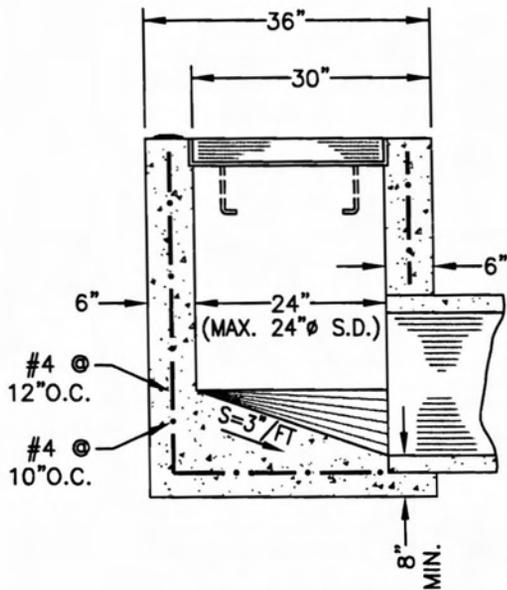
**PLAN**



**SECTION B-B**



**D.I. CUT AWAY VIEW**

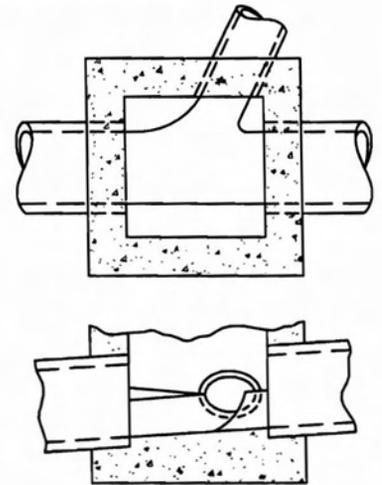


**SECTION A-A**

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

**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.



**SHAPING OF INVERT**

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

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

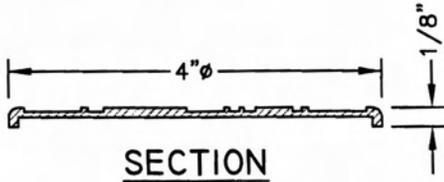
**STANDARD PLAN**

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

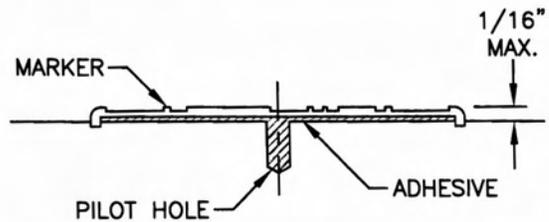
**FLAT GRATE INLET  
(CAL - TRANS "G-1")**

NO. **S-7A**

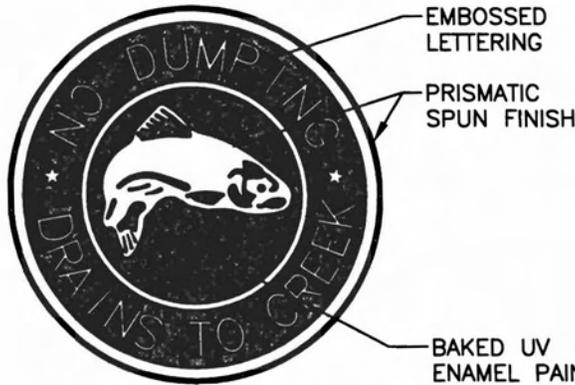
SHEET 1 OF 1



SECTION



INSTALLATION DETAIL



PLAN

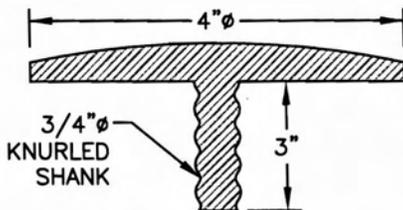
NOTES:

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

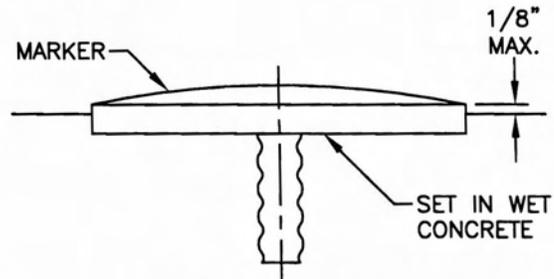
MANUFACTURED BY: ALMETEK INDUSTRIES  
PART NO. SDS4R0301BLNAX OR  
APPROVED EQUAL ([www.almetek.com](http://www.almetek.com))

TYPE "A" MARKER

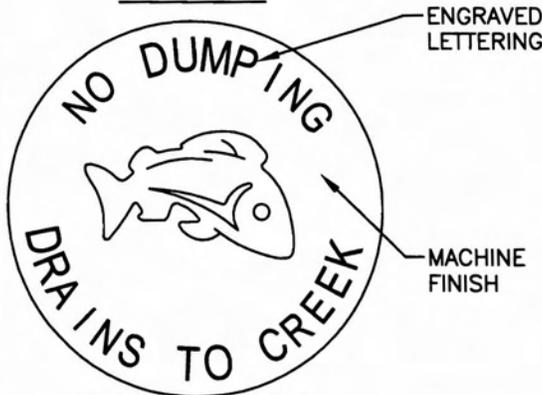
STAMPED STAINLESS STEEL



SECTION



INSTALLATION DETAIL



PLAN

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](http://www.surv-kap.com))

TYPE "B" MARKER

CAST ALUMINUM

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

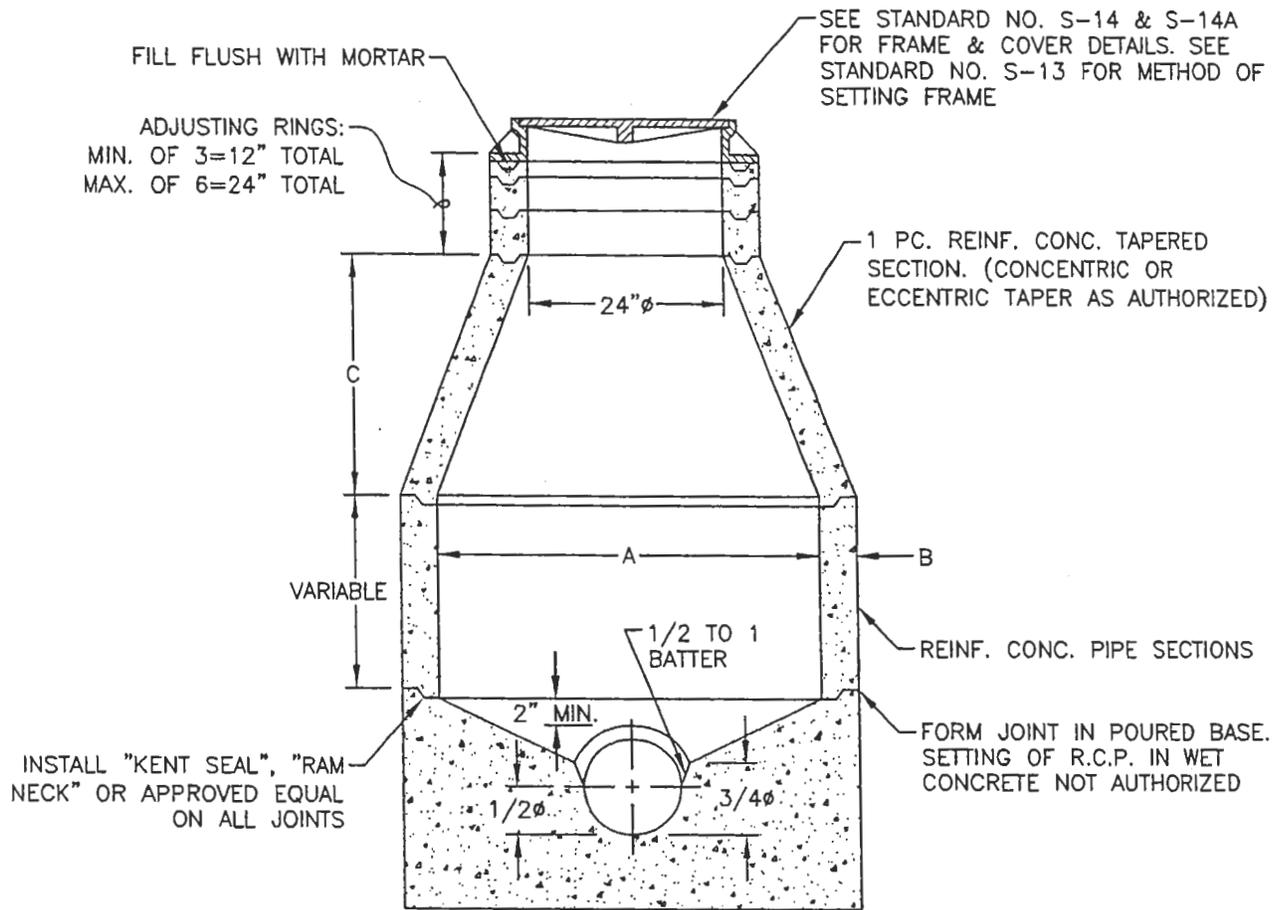
DRAWN BY: GL DATE: 8/09  
CHECKED BY: MT SCALE: NONE  
APPROVED: [Signature]  
CPSD DIRECTOR

**STORM DRAIN  
MARKER DETAIL**

NO.  
**S-8**

SHEET 1 OF 1

**EXHIBIT B**



**THE MANHOLE 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.

A	B	C	NOTES
M.H. DIA. 36"	3½"	12"	MANHOLE FOR CONNECTION OF PRIVATE LINE TO PUBLIC MAIN WHEN SHOWN ON PLANS.
M.H. DIA. 48"	4"	30"	MANHOLE SHALL BE USED UNLESS OTHERWISE SPECIFIED.
M.H. DIA. 60"	-	-	DIMENSIONS IN ACCORDANCE WITH A.S.T.M. C-478-70 AS AMENDED.

**CITY OF CHICO**

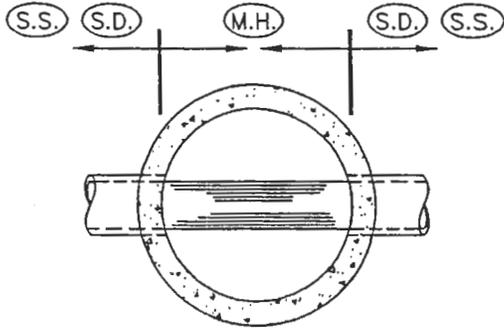
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

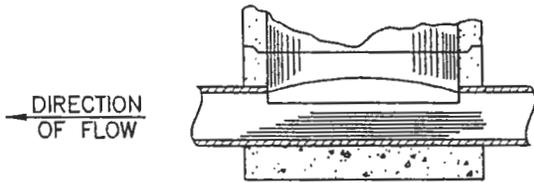
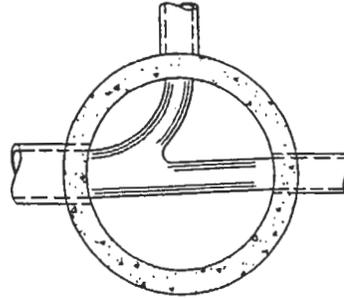
**STORM DRAIN AND  
 SANITARY SEWER MANHOLE**

NO.  
**S-10**

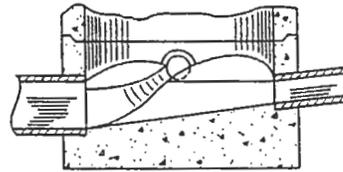
SHEET 1 OF 2



BREAK AWAY TOP  
1/2 OF PIPE



SECTION OF PIPE CONTINUOUS  
THROUGH MANHOLE



JUNCTION MANHOLE BETWEEN  
DIFFERENT PIPE SIZES

SHAPING BOTTOM OF MANHOLE

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

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

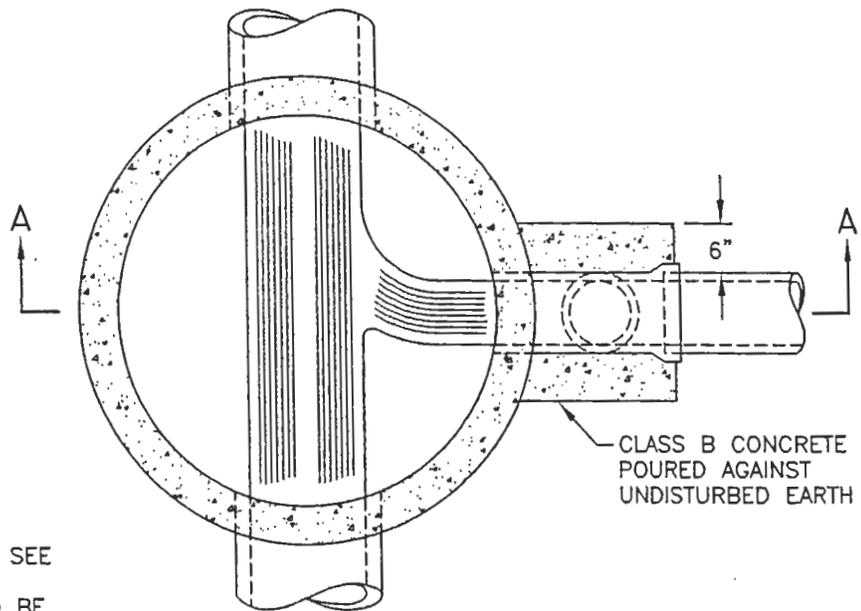
STANDARD PLAN

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

STORM DRAIN AND  
SANITARY SEWER MANHOLE

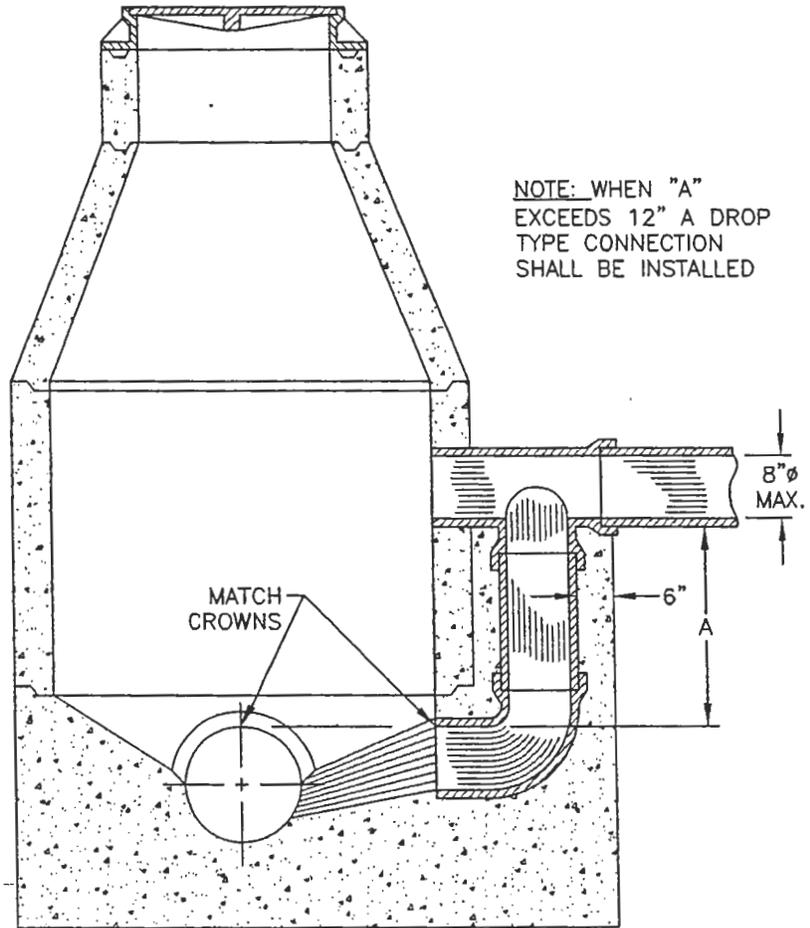
NO.  
S-10

SHEET 2 OF 2



CLASS B CONCRETE  
POURED AGAINST  
UNDISTURBED EARTH

NOTE: FOR STANDARD  
MANHOLE DIMENSIONS SEE  
STANDARD NO. S-10.  
DROP CONNECTION TO BE  
USED ONLY FOR LINES OF  
8"Ø OR LESS



SECTION A-A

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

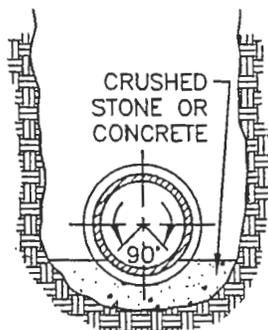
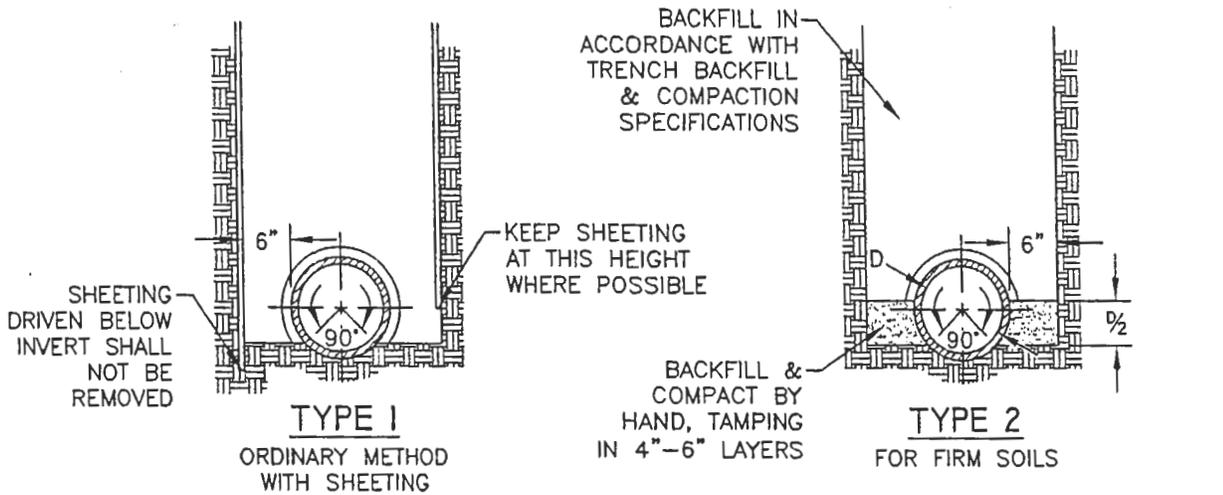
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

DROP MANHOLE

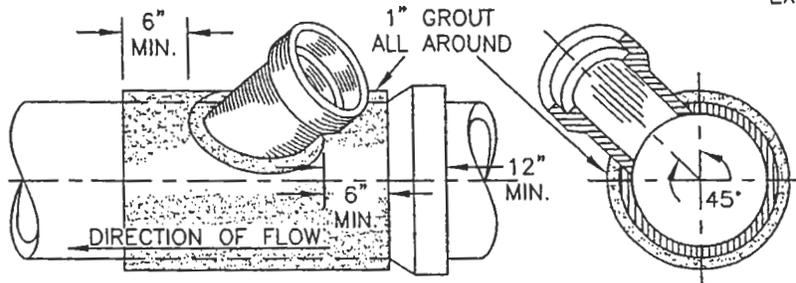
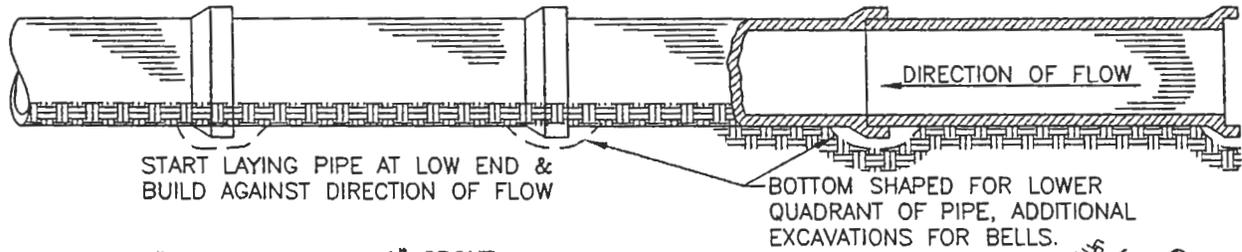
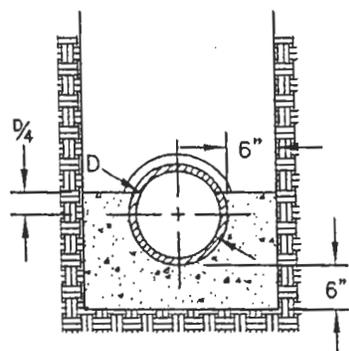
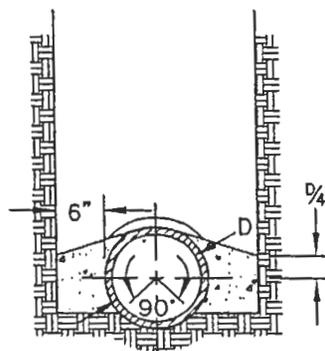
NO.  
S-II

SHEET 1 OF 1

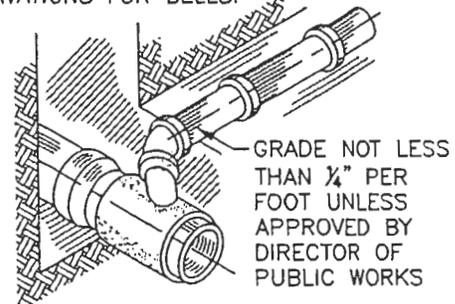
EXHIBIT M



TYPE 3A  
CONCRETE FOR ROCK TRENCH BOTTOM



TAPPING SADDLE



TYPICAL HOUSE LATERAL

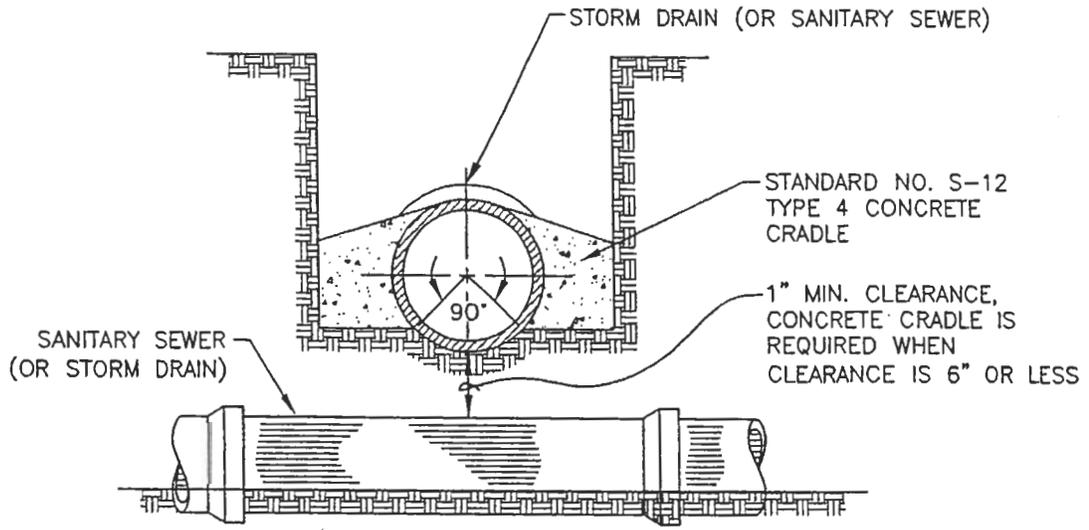
REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO STANDARD PLAN

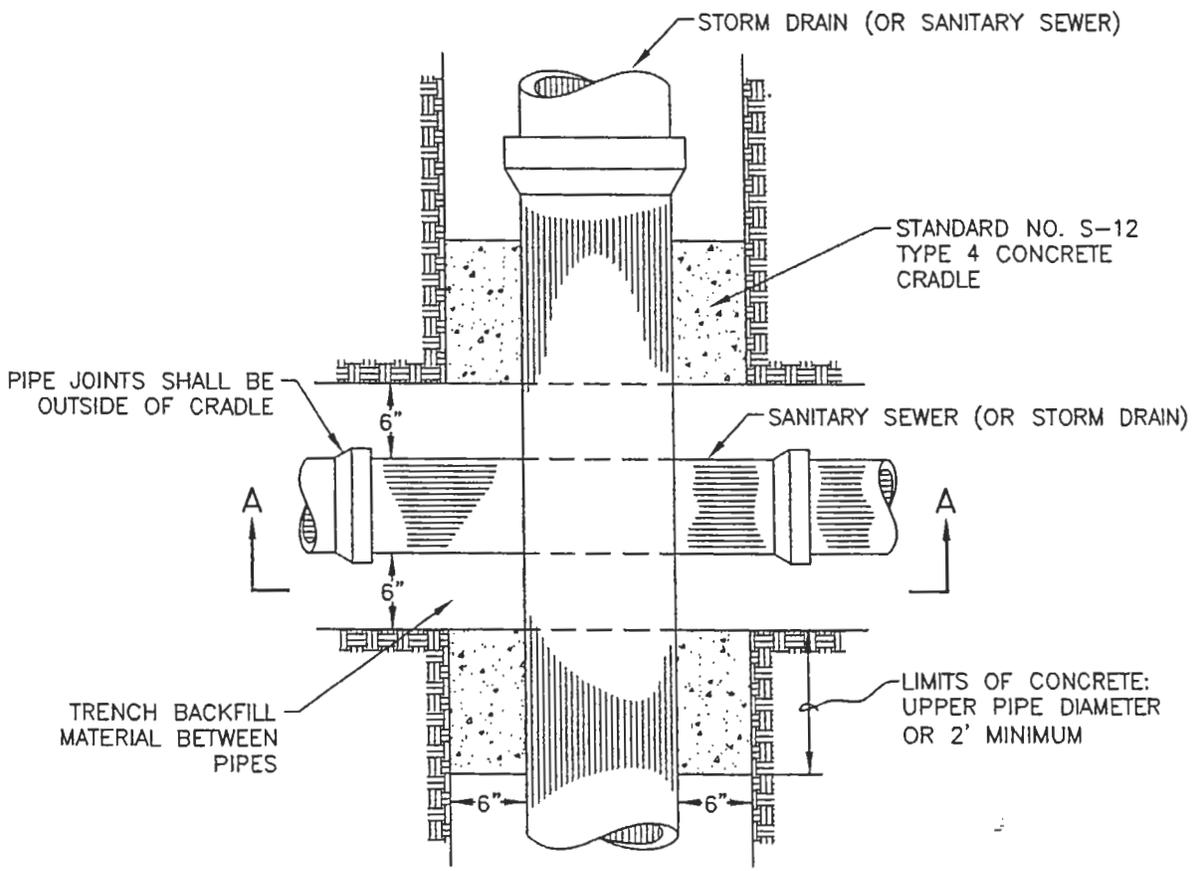
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: *[Signature]*  
 DIRECTOR OF ENGINEERING

APPROVED METHODS OF LAYING PIPE

NO. S-12  
 SHEET 1 OF 1



SECTION A-A



PLAN VIEW

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

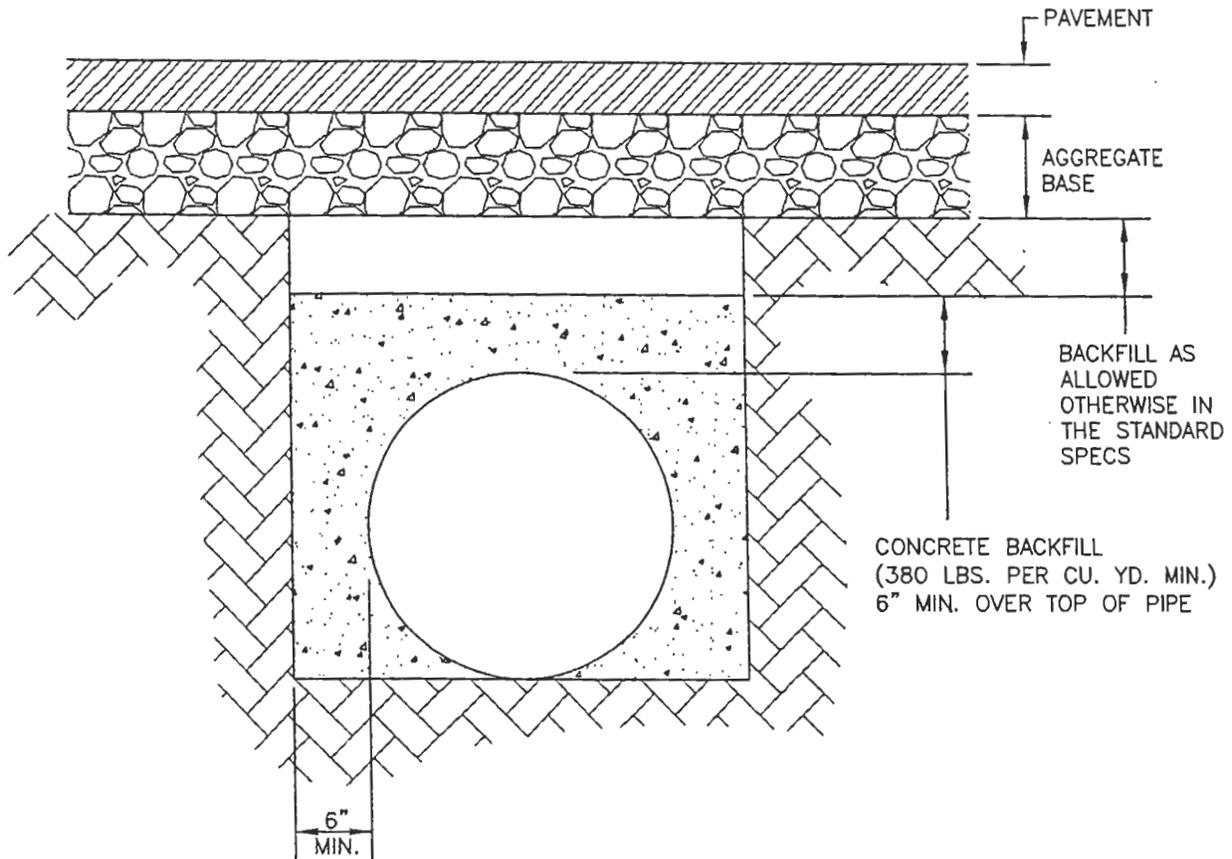
DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**PIPE CROSSING CRADLE**

NO. **S-12A**

SHEET 1 OF 1

**EXHIBIT O**



**NOTES:**

1. THIS DETAIL IS TO BE USED WHERE THERE WILL BE LESS THAN TWO FEET OF COVER BETWEEN THE TOP OF PLASTIC PIPES AND THE FINAL GRADE
2. PRIOR APPROVAL OF THE DIRECTOR OF PUBLIC WORKS IS REQUIRED
3. THE CRADLE MUST BE INSTALLED THE FULL DISTANCE BETWEEN STRUCTURES

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: MT DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**MODIFIED CONCRETE  
CRADLE**

NO.  
**S-12M**

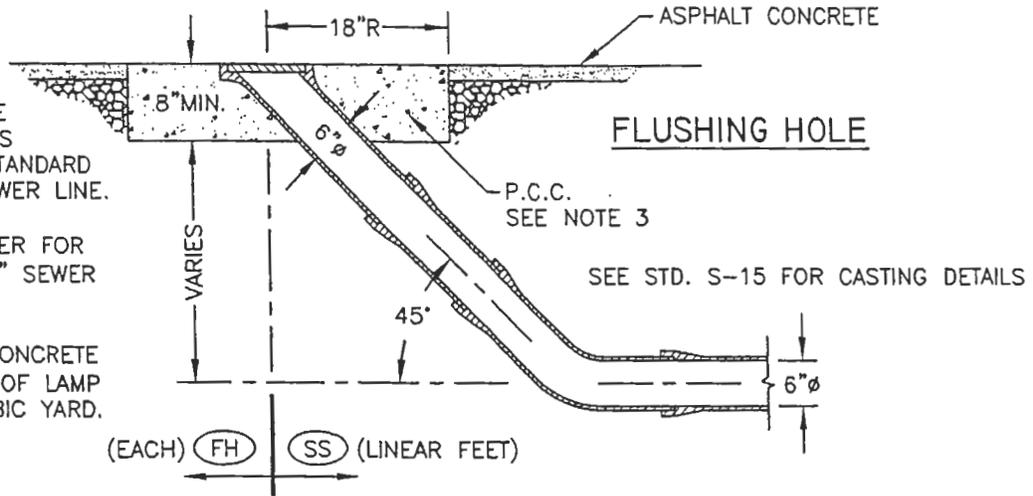
SHEET 1 OF 1

**EXHIBIT P**

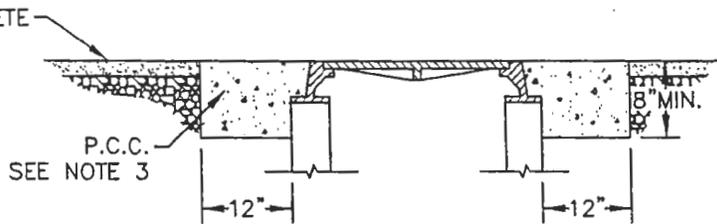
**LOCATED IN STREET OR ALLEY**

**NOTES:**

1. JOINTS TO BE CONSTRUCTED AS REQUIRED BY STANDARD SPECS. FOR SEWER LINE.
2. USE 8"Ø RISER FOR TERMINUS OF 8" SEWER MAIN.
3. CLASS "A" CONCRETE W/ 5 POUNDS OF LAMP BLACK PER CUBIC YARD.



**VALVE/MANHOLE FRAME & COVER**

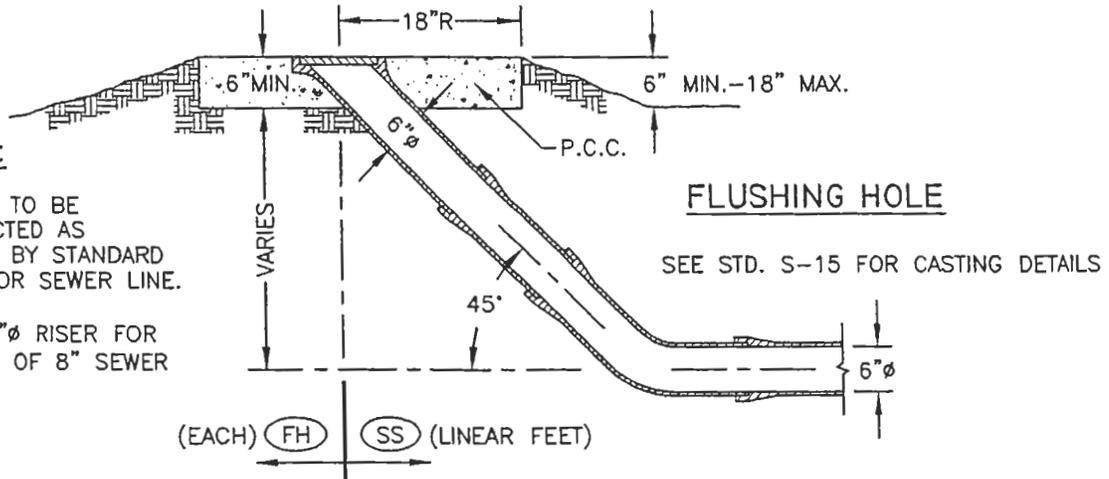


SEE STD. S-14 & S-14A FOR MH CASTING DETAILS

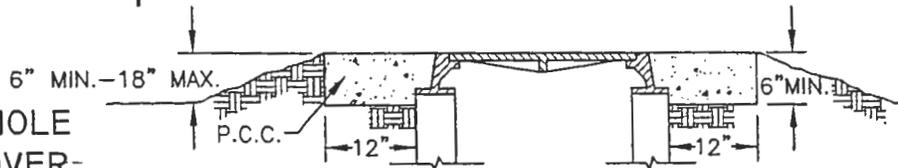
**LOCATED IN EASEMENT**

**NOTES:**

1. JOINTS TO BE CONSTRUCTED AS REQUIRED BY STANDARD SPECS. FOR SEWER LINE.
2. USE 8"Ø RISER FOR TERMINUS OF 8" SEWER MAIN.



**VALVE/MANHOLE FRAME & COVER**



SEE STD. S-14 & S-14A FOR CASTING DETAILS

(SS) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**TYPICAL METHOD FOR  
SETTING APPURTENANCES**

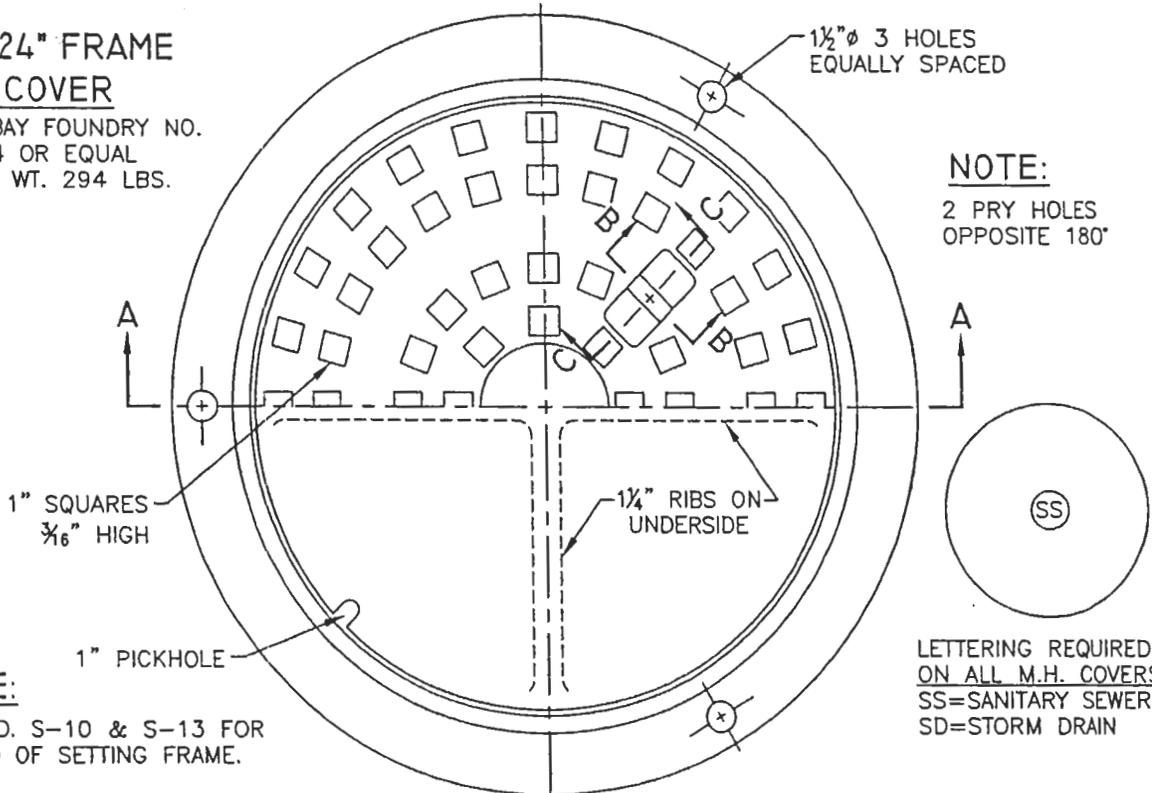
NO. **S-13**

SHEET 1 OF 1

**EXHIBIT Q**

**STD. 24" FRAME  
& COVER**

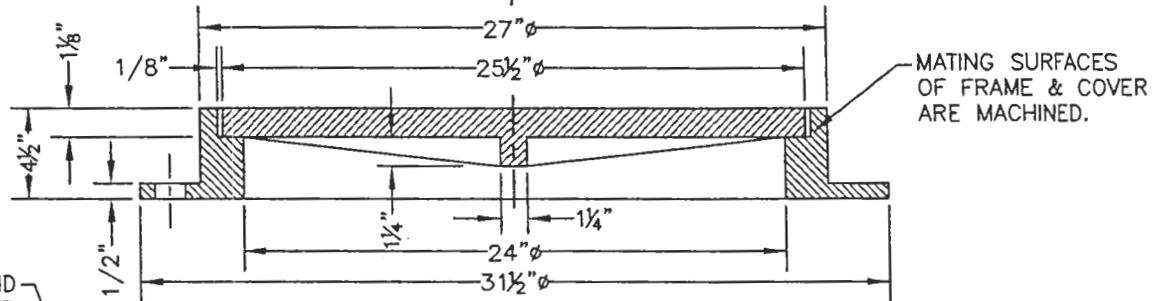
SOUTH BAY FOUNDRY NO.  
SBF-624 OR EQUAL  
APPROX. WT. 294 LBS.



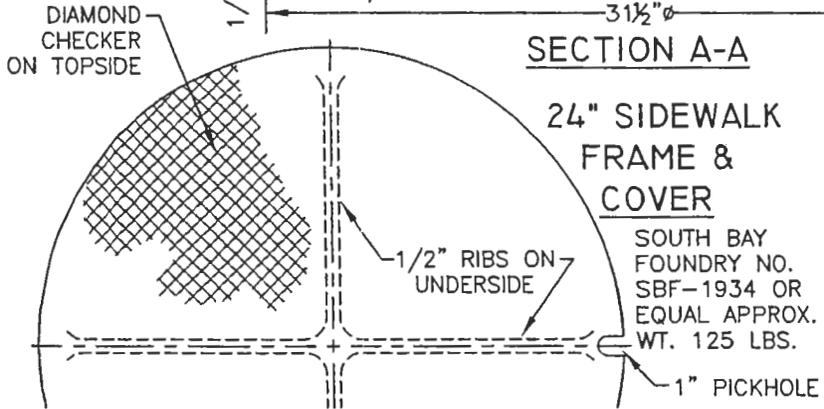
**NOTE:**  
2 PRY HOLES  
OPPOSITE 180°

**NOTE:**  
SEE STD. S-10 & S-13 FOR  
METHOD OF SETTING FRAME.

LETTERING REQUIRED  
ON ALL M.H. COVERS:  
SS=SANITARY SEWER  
SD=STORM DRAIN

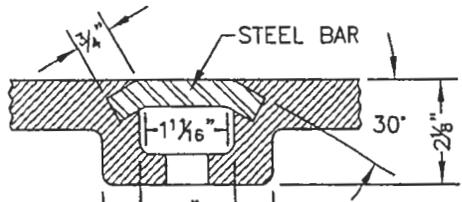


MATING SURFACES  
OF FRAME & COVER  
ARE MACHINED.

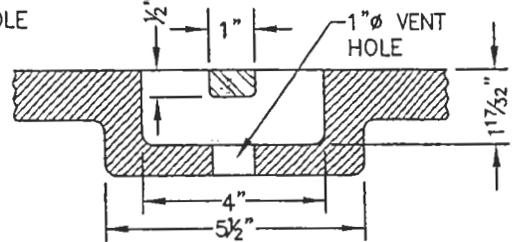


**24" SIDEWALK  
FRAME &  
COVER**

SOUTH BAY  
FOUNDRY NO.  
SBF-1934 OR  
EQUAL APPROX.  
WT. 125 LBS.



**SECTION B-B**



**SECTION C-C**

REVISION	BY	DATE	APP. BY	COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**MANHOLE FRAME  
& COVER DETAILS**

NO.  
**S-14**  
SHEET 1 OF 1

**EXHIBIT R**

**NOTE:**

SEE STD. S-10 & S-13 FOR METHOD OF SETTING FRAME.

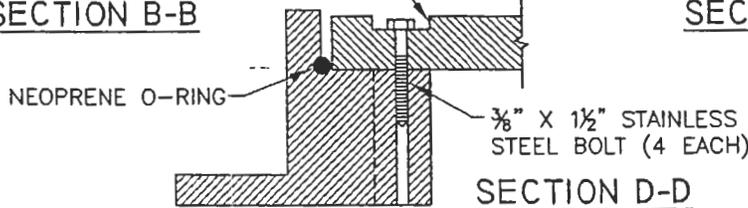
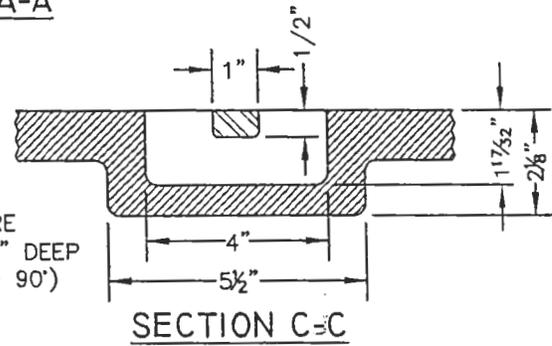
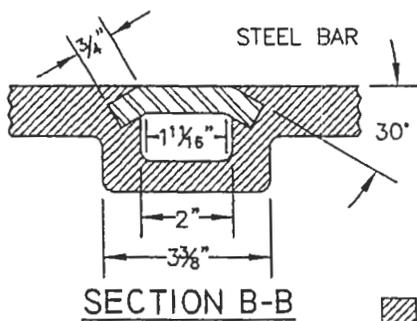
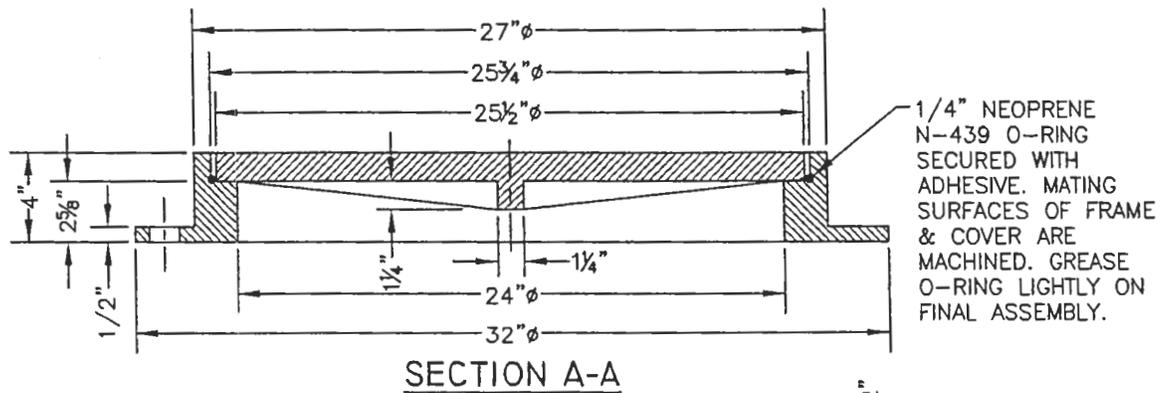
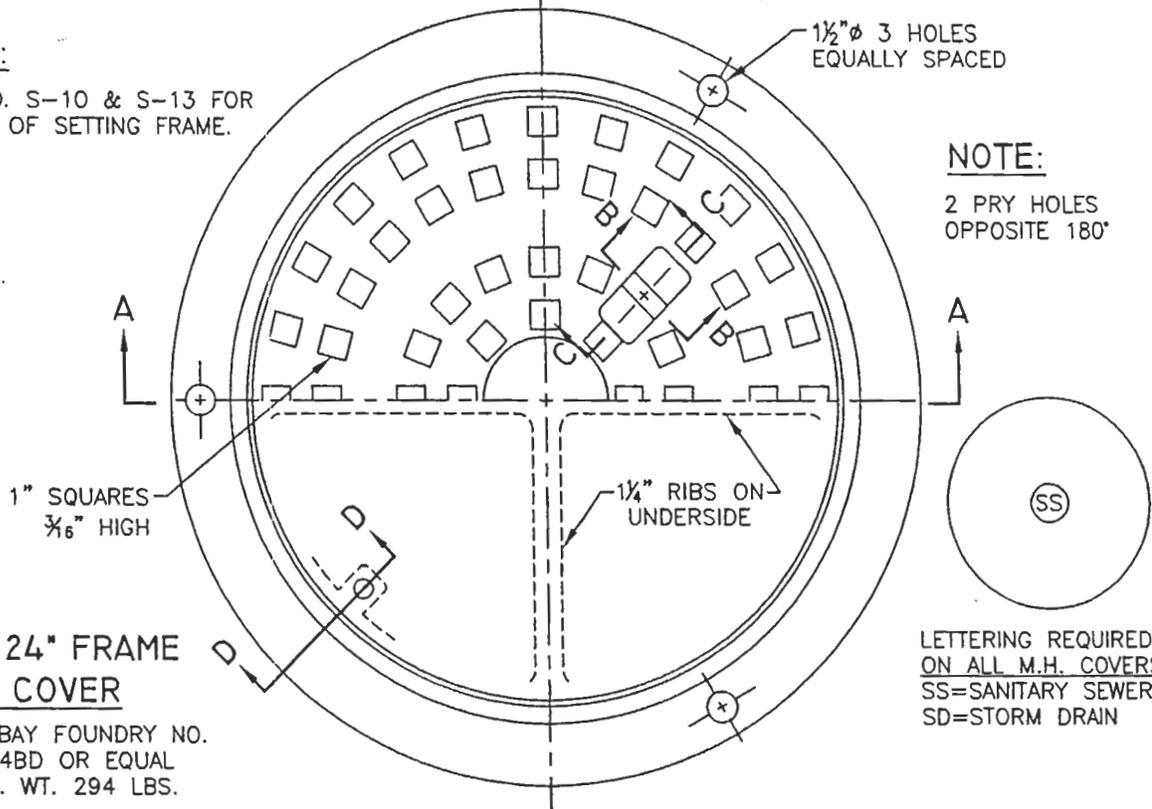
**NOTE:**

2 PRY HOLES OPPOSITE 180°

**STD. 24" FRAME & COVER**

SOUTH BAY FOUNDRY NO. SBF-624BD OR EQUAL APPROX. WT. 294 LBS.

LETTERING REQUIRED ON ALL M.H. COVERS:  
SS=SANITARY SEWER  
SD=STORM DRAIN



REVISION	BY	DATE	APP. BY	COUNCIL

CITY OF CHICO

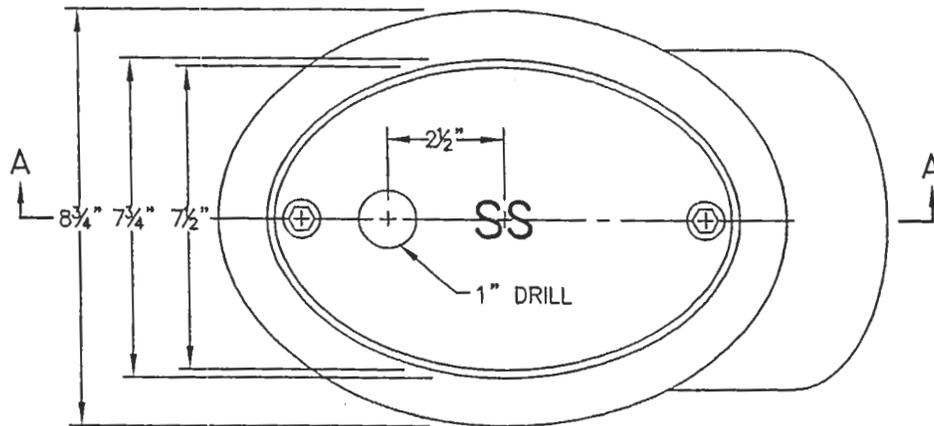
STANDARD PLAN

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: *[Signature]*  
 DIRECTOR OF ENGINEERING

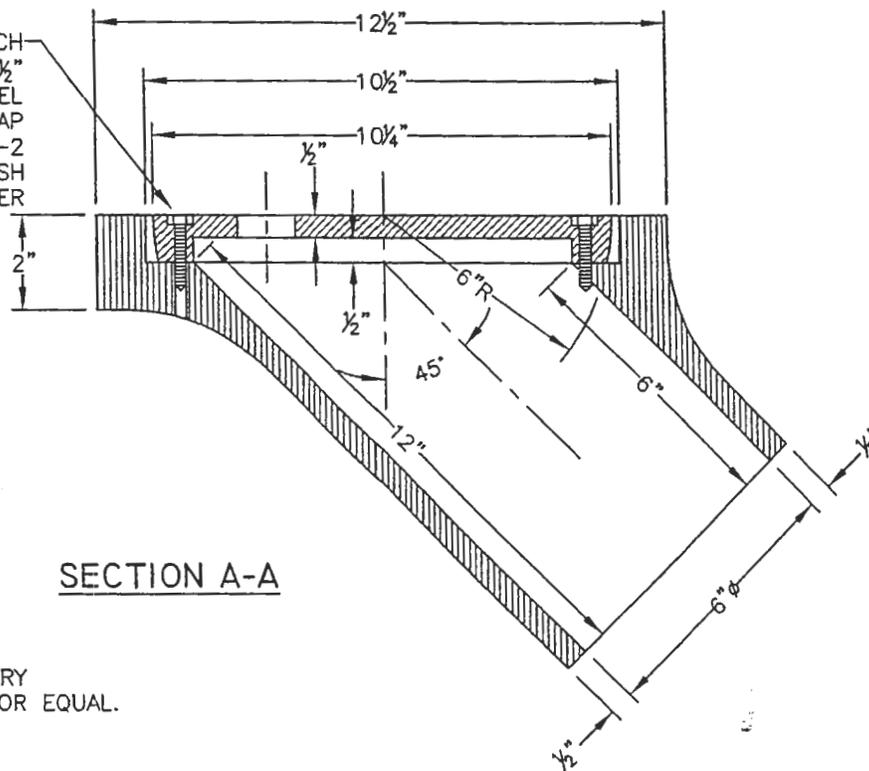
BOLT DOWN MANHOLE  
 FRAME & COVER DETAILS

NO. S-14A

SHEET 1 OF 1



INSTALL 2 EACH  
 1/4" X 1 1/2"  
 STAINLESS STEEL  
 HEX. HD. CAP  
 SCREW-20 NC-2  
 RECESSED FLUSH  
 WITH COVER



SECTION A-A

SOUTH BAY FOUNDRY  
 NO. SBF-1248BD OR EQUAL.

NOTES:

1. SEE STD. S-13 FOR METHOD OF INSTALLATION & RISER CONSTRUCTION.
2. USE 8"Ø CASTING FOR TERMINUS OF 8" SEWER MAIN.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

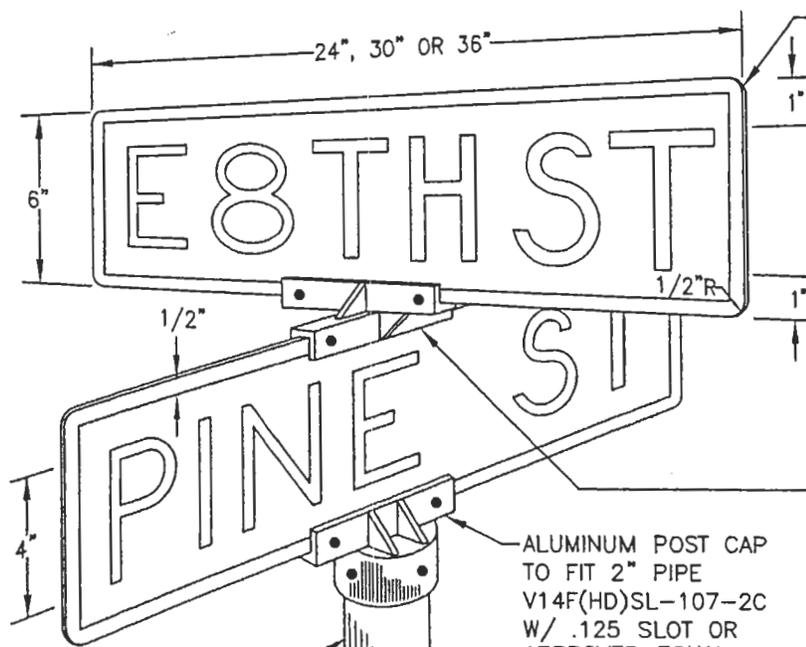
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**FLUSHING HOLE  
 CAST IRON FRAME & COVER**

NO.  
**S-15**

SHEET 1 OF 1

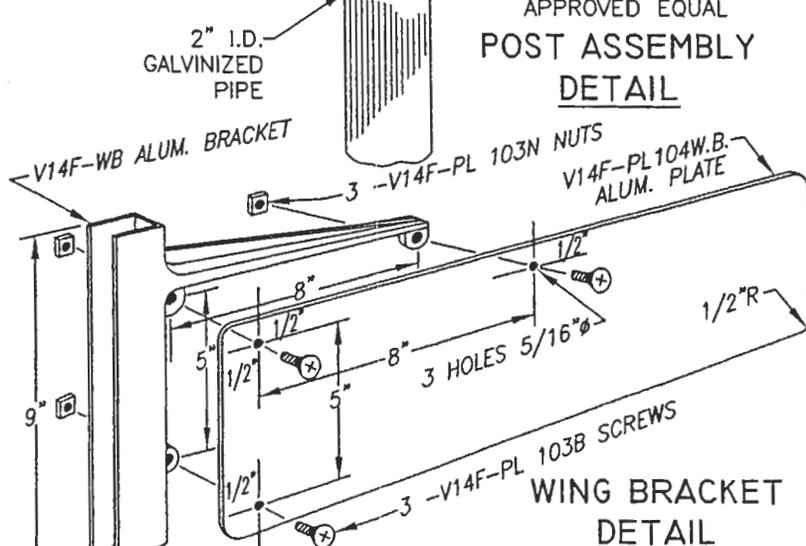
**EXHIBIT T**



ALUMINUM PLATE, .125 THICK 5052 H38 ALLOY WITH ENG. GRADE REFLECTIVE WHITE 2290 SCOTCHLITE BOTH SIDES OR APPROVED EQUAL

ALUMINUM CROSSPIECE  
 90°=V14F(HD)SL-105-90  
 45° RIGHT=V14F(HD)SL-105R  
 45° LEFT=V14F(HD)SL-105L  
 W/.125 SLOTS OR APPROVED EQUAL

**POST ASSEMBLY  
 DETAIL**



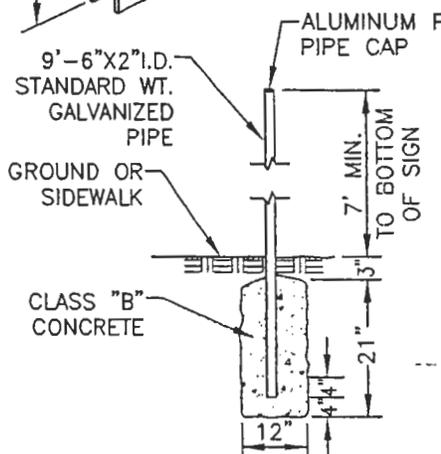
**WING BRACKET  
 DETAIL**

**NOTES:**

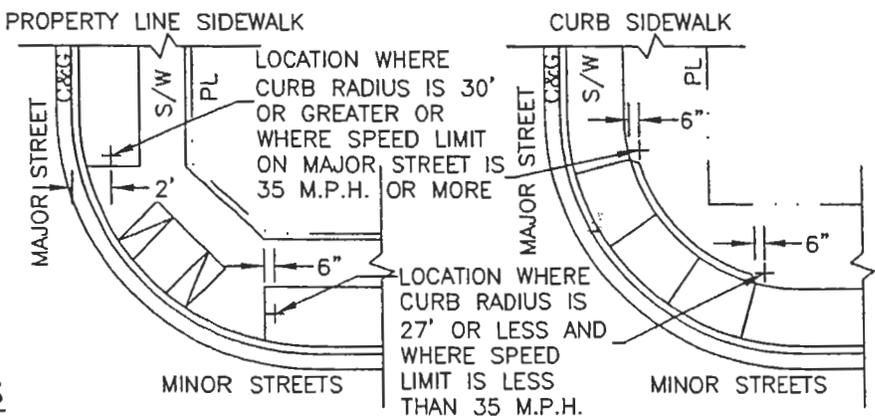
1. LETTERING TO BE STD. HWY. SIGN ALPHABET, U.S. PUBLIC ROAD ADMIN. CUT FROM SCOTCHLITE ELECTROCUT TRANSLUCENT FILM (E.C.FILM), SERIES 1170, GREEN OR BLUE, WITH 1/2-1 INCH WHITE BORDER AND WHITE LETTERING
2. STREET NAMES (INCLUDING ABBREVIATIONS: ST., AVE., ETC.) SHALL BE 4-INCHES HIGH AND SERIES B, C, D OR E. 2-INCH HIGH LETTERS TO FOLLOW NUMBERED STREETS (1ST, 2ND, ETC.). EACH NAME SHALL BE INDIVIDUALLY LAID OUT AND SPACED TO FIT 24, 30 OR 36-INCH PLATES. USE LETTER SERIES NECESSARY TO FIT WITHIN 36-INCHES, USING THE LARGEST LETTERS POSSIBLE FOR BALANCED LAYOUT
3. ALL CATALOGUE NUMBERS ARE HAWKINS & HAWKINS, 1255 EASTSHORE HIGHWAY, BERKELEY, CALIFORNIA 94710

**LOCATION DETAILS**

SIGNS TO BE INSTALLED GENERALLY ON NEAR LEFT AND FAR RIGHT CORNERS OF MAJOR STREETS



**INSTALLATION DETAILS**



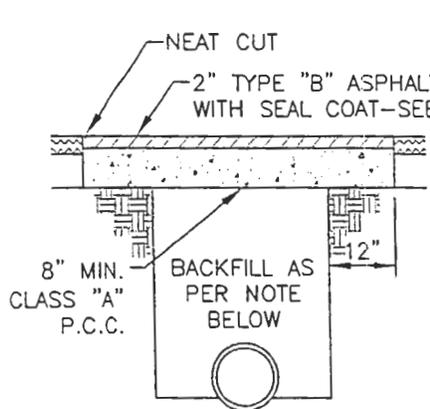
REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: *[Signature]*  
 DIRECTOR OF ENGINEERING

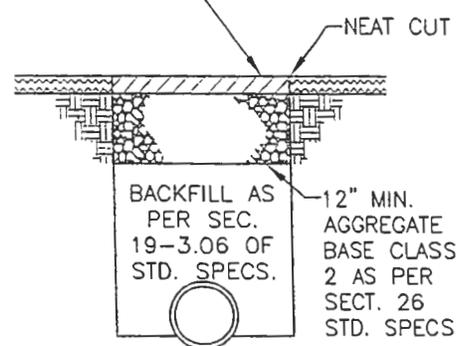
**STREET NAME SIGN DETAILS**

NO. S-16  
 SHEET 1 OF 1



ALTERNATE #1

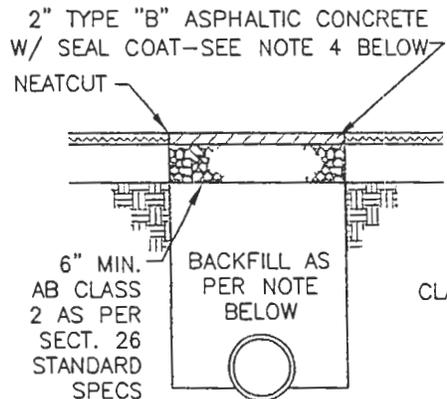
3" TYPE "B" ASPHALTIC CONCRETE WITH SEAL COAT—SEE NOTE 4 BELOW



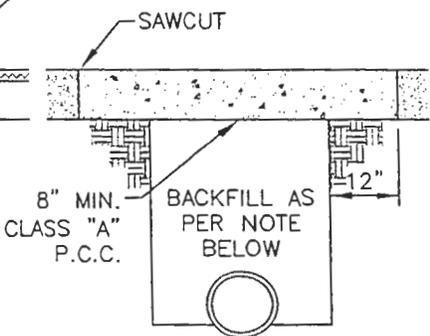
ALTERNATE #2

NOTE  
INSTALL ALT. 1 PAVEMENT REPLACEMENT UNLESS ALT. 2 IS SPECIFICALLY AUTHORIZED BY APPROVED PLANS OR THE ENGINEER

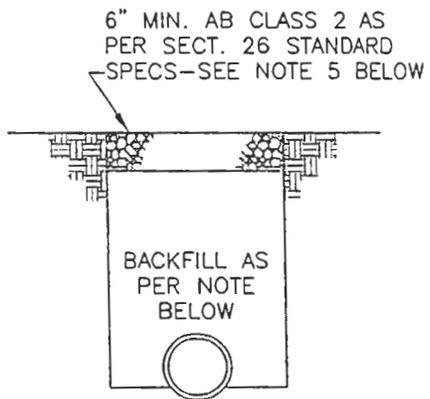
TYPE "A"  
IMPROVED ASPHALTIC CONCRETE STREETS



TYPE "B"  
IMPROVED ARMOR COAT OR SEAL COAT STREETS



TYPE "C"  
PORTLAND CEMENT CONCRETE STREETS



TYPE "D"  
UNIMPROVED STREETS, ALLEYS OR EASEMENTS

NOTES:

1. ALL WORK SHOWN ABOVE SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE STANDARD SPECIFICATIONS.
2. ALL EXCAVATIONS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE BACKFILLED IN ACCORDANCE WITH SECTION ENTITLED "TRENCH BACKFILL" CITY OF CHICO STANDARD SPECIFICATIONS OR SEC. 19-3 OF THE STANDARD SPECIFICATIONS.
3. AREA ADJACENT TO THE TRENCH SHALL BE LEFT IN A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING PRIOR TO CONSTRUCTION.
4. SEAL COAT—APPLY A BITUMINOUS BINDER COVERED WITH EITHER SAND OR SCREENINGS TO MATCH EXISTING SURFACE WHEN AND AS DIRECTED BY THE ENGINEER.
5. TYPE "D"—INSTALL 6" OF CONSOLIDATED TOPSOIL IN LANDSCAPED AREAS.

REVISION	BY	DATE	APP. BY COUNCIL

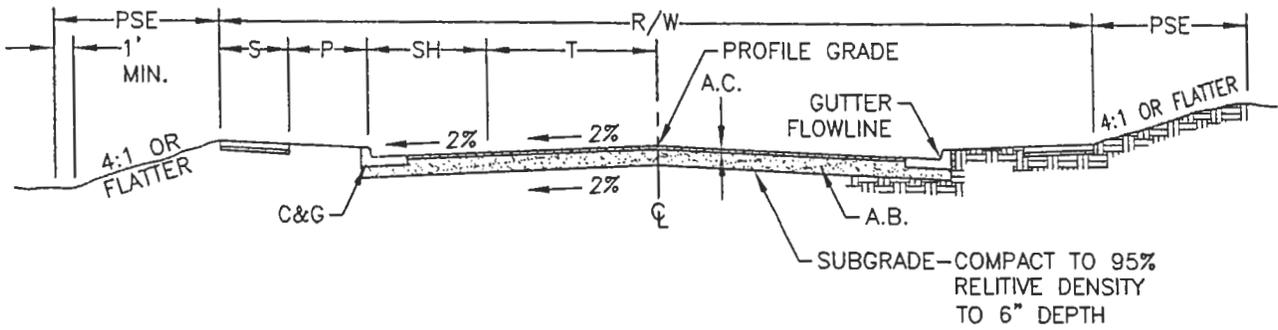
CITY OF CHICO

STANDARD PLAN

DRAWN BY: GL DATE: 6/06  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature] DIRECTOR OF ENGINEERING

TYPICAL DETAILS OF PAVEMENT REPLACEMENT

NO. S-17  
 SHEET 1 OF 1



**TABLE OF MINIMUM STREET CROSS SECTION WIDTHS**

SEE LEGEND, SHEET 2 OF 2, FOR NOTES

TYPE OF STREET		R/W	S	P	SH	T
ARTERIAL	NO PARKING	(1)	5'	7'	8'	12'
COLLECTOR	(1)	64'	5'	7'	8'	12'
LOCAL-RESIDENTIAL						
≤10 LOTS, THROUGH STREET OR ≤25 LOTS, CUL-DE-SAC & LOOP STREETS	NO PARKING	44'	5'	7'	0'	10'
	PARKING, 1 SIDE	50'	5'	7'	6'	10'
	PARKING, BOTH SIDES	56'	5'	7'	6'	10'
>11 LOTS & ≤50 LOTS, THROUGH STREET OR >26 LOTS & ≤50 LOTS, CUL-DE-SAC & LOOP STREETS	NO PARKING	48'	5'	7'	0'	12'
	PARKING, 1 SIDE	50'	5'	7'	6'	10'
	PARKING, BOTH SIDES	56'	5'	7'	6'	10'
>50 LOTS, ≤1/2 MILE BETWEEN STREET INTERSECTIONS	NO PARKING	48'	5'	7'	0'	12'
	PARKING, 1 SIDE	50'	5'	7'	6'	10'
	PARKING, BOTH SIDES	56'	5'	7'	6'	10'
>50 LOTS, >1/2 MILE BETWEEN STREET INTERSECTIONS	NO PARKING	48'	5'	7'	0'	12'
	PARKING, 1 SIDE	50'	5'	7'	6'	10'
	PARKING, BOTH SIDES	56'	5'	7'	6'	10'
LOCAL-COMMERCIAL	PARKING, BOTH SIDES	64'	5'	7'	8'	12'
INDUSTRIAL-ALL TYPES	PARKING, BOTH SIDES	68'	5'	7'	10'	12'

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**TYPICAL CROSS-SECTION  
STREETS**

NO.  
**S-18A**

SHEET 1 OF 2

# TABLE OF MINIMUM STREET CROSS SECTION WIDTHS

SEE LEGEND, SHEET 2 OF 2, FOR NOTES

TYPE OF STREET	A.C.	A.B.	CURB & GUTTER
ARTERIAL	3"	8"	VERTICAL
COLLECTOR	2"	6"	VERTICAL
LOCAL-RESIDENTIAL			
≤50 LOTS	1 1/2"	4"	ROLLED
>50 LOTS	2"	6"	VERTICAL
LOCAL-COMMERCIAL	2"	6"	VERTICAL
INDUSTRIAL-ALL TYPES	3"	8"	VERTICAL

## LEGEND AND NOTES:

T-TRAVELED WAY. ON OTHER THAN LOCAL STREETS, TRAFFIC VOLUME MAY DICTATE ADDITION OF A 14' MEDIAN AND/OR 12' LANES.

SH-SHOULDER. SHOULD A BIKE LANE BE REQUIRED, EITHER 1) PARKING WILL BE PROHIBITED WITH "SH"=5' OR 2) PARKING WILL BE RETAINED WITH "SH"=11'.

S-SIDEWALK. A 9.5' SIDEWALK WILL BE REQUIRED ON COMMERCIAL STREETS DESIGNATED BY THE D.P.W. AS "PEDESTRIAN ORIENTED"

PSE-10' WIDE PUBLIC SERVICE EASEMENT.

R/W-RIGHT-OF-WAY. A CHANGE IN "T" OR "SH" FROM THE VALUES GIVEN IN THE TABLE WILL REQUIRE A CORRESPONDING CHANGE IN "R/W".

SE-SLOPE EASEMENT. WIDTH TO BE AS REQUIRED BY THE D.P.W.

A.C. & A.B.-MINIMUM THICKNESS GIVEN. AN INCREASED THICKNESS WILL BE REQUIRED 1) IF NEEDED, BASED UPON D.P.W. TRAFFIC INDEX CALCULATION, OR 2) IF THE "R" VALUE OF THE SUBGRADE IS LESS THAN 25.

P-PARKWAY.

(1)-SHALL BE DETERMINED BY THE D.P.W. ON A CASE-BY-CASE BASIS.

ALLEYS-SEE STANDARD PLAN S-9

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

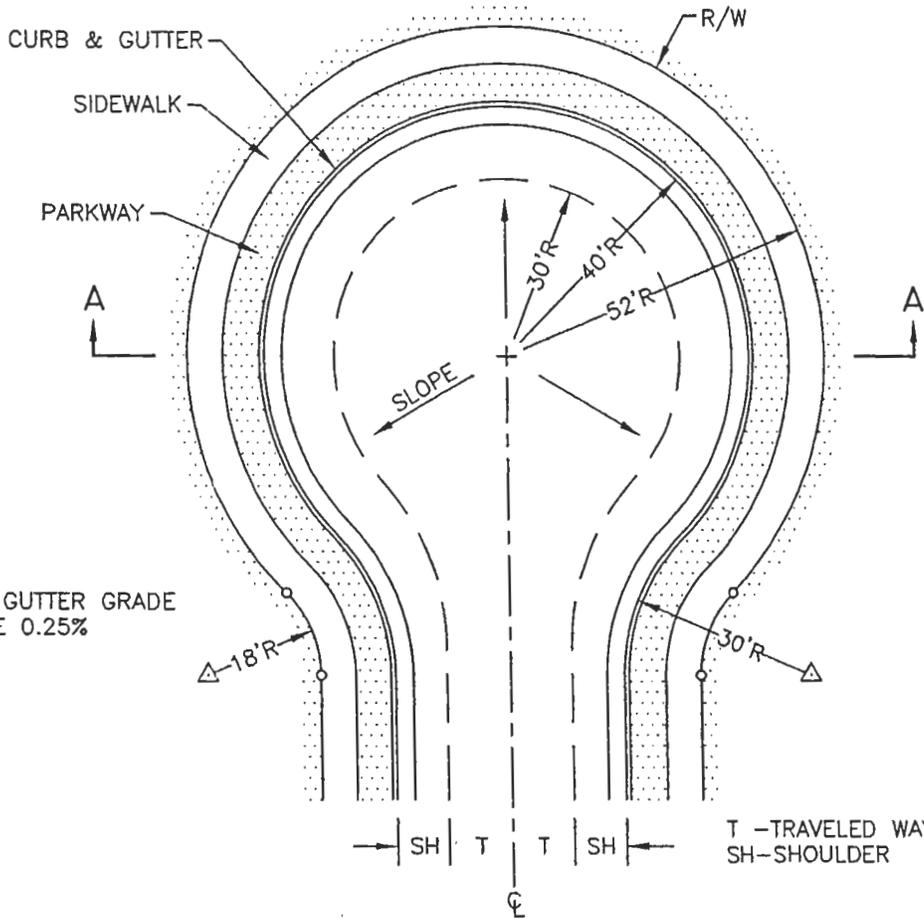
STANDARD PLAN

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

TYPICAL CROSS-SECTION  
STREETS

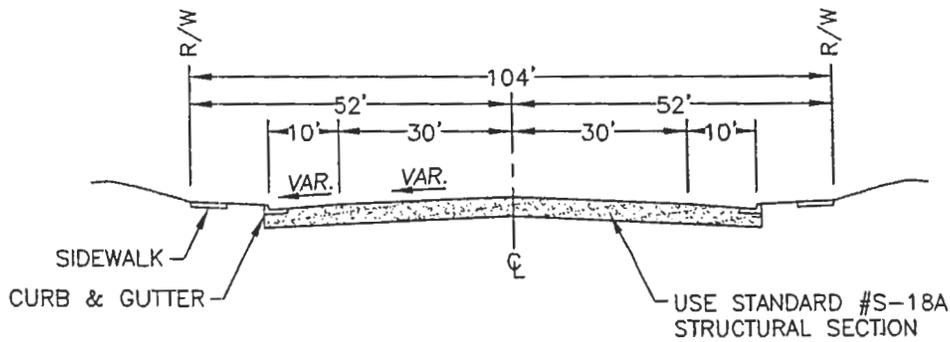
NO.  
S-18A

SHEET 2 OF 2



**NOTE:**  
 MINIMUM GUTTER GRADE  
 SHALL BE 0.25%

**PLAN**



**SECTION A-A**

**NOTE:**  
 LIMITS OF CROSS-SLOPE VARIATION  
 IN SECTION A-A:  
 30' TRAVELED WAY - 1½% TO 2%  
 10' SHOULDER - 2% TO 5%

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

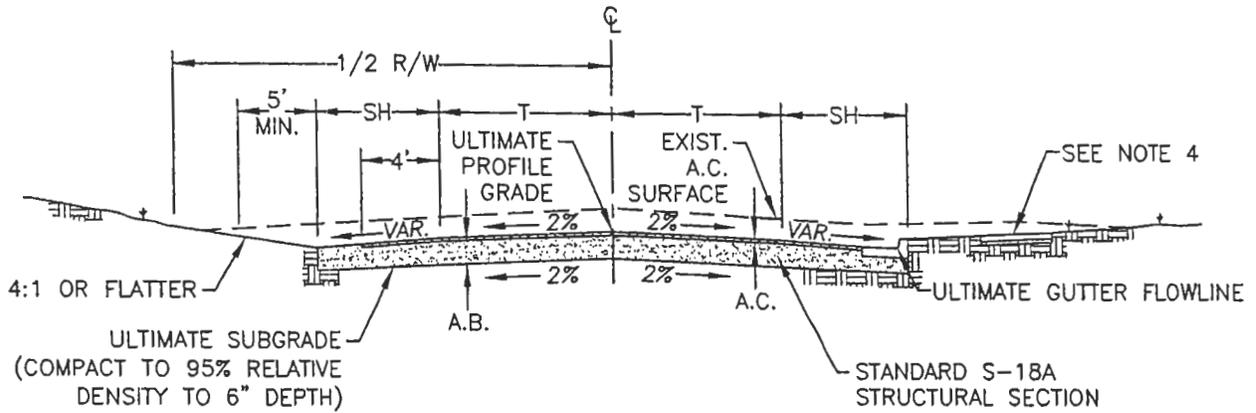
**STANDARD PLAN**

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

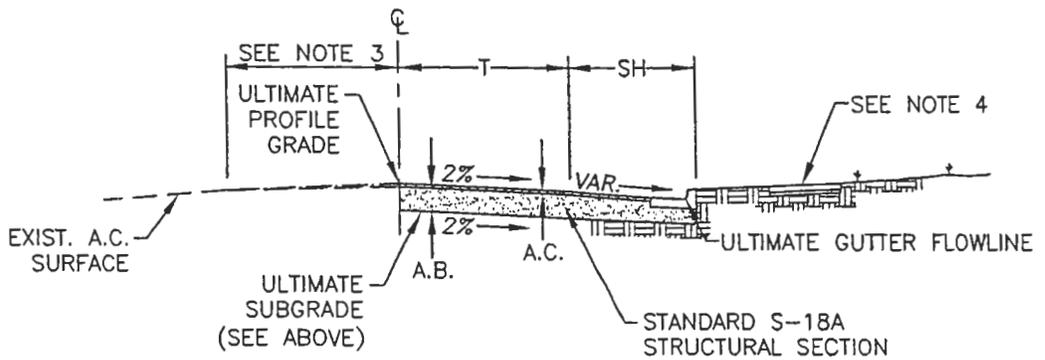
**TYPICAL CUL-DE-SAC**

NO.  
**S-18B**

SHEET 1 OF 1



EXISTING  $\text{CL}$  GRADE ABOVE ULTIMATE PROFILE GRADE



EXISTING  $\text{CL}$  GRADE AT OR BELOW ULTIMATE PROFILE GRADE

**NOTES:**

1. STREET IMPROVEMENTS SHOWN ON THIS SHEET ARE REQUIRED IN CONJUNCTION WITH DEVELOPMENT OF SUBDIVISIONS WITH 5 OR MORE LOTS.
2. SEE STANDARD NO. S-18A FOR CROSS-SECTION WIDTHS ("T", "SH", "R/W" AND "S").
3. PLACE A FEATHERED A.C. OVERLAY TO A WIDTH AS DIRECTED BY THE ENGINEER.
4. CONSTRUCT CURB, GUTTER, SIDEWALK AND SLOPE GRADING PER STANDARD NO. S-18A.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

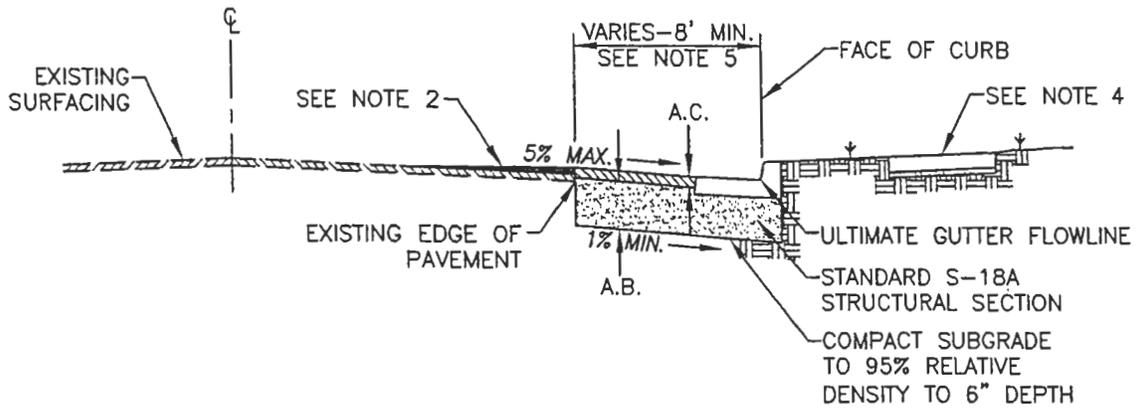
**STANDARD PLAN**

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**IMPROVEMENT OF  
 EXISTING STREET  
 (SEE NOTE 1)**

NO.  
**S-18D**

SHEET 1 OF 2



**NOTES:**

1. STREET IMPROVEMENTS SHOWN ON THIS SHEET TO BE CONSTRUCTED IN CONJUNCTION WITH BUILDING PERMITS AND SUBDIVISIONS OF FOUR (4) LOTS OR LESS.
2. PLACE A FEATHERED A.C. OVERLAY AS NECESSARY TO PROVIDE MIN. 1% CROSS SLOPE ON NEW CONSTRUCTION.
3. ALTERNATE STRUCTURAL SECTION: STRUCTURALLY EQUIVALENT FULL DEPTH A.C. SECTION ON COMPACTED NATIVE SUBGRADE.
4. CONSTRUCT CURB, GUTTER, SIDEWALK AND SLOPE GRADING PER STANDARD NO. S-18A.
5. RECONSTRUCT STREET SHOULDER AREA TO EDGE OF EXISTING PAVEMENT OR BEYOND AS MAY BE NEEDED TO MAINTAIN A MAXIMUM FIVE PERCENT (5%) CROSS SLOPE.

REVISION	BY	DATE	APP. BY COUNCIL

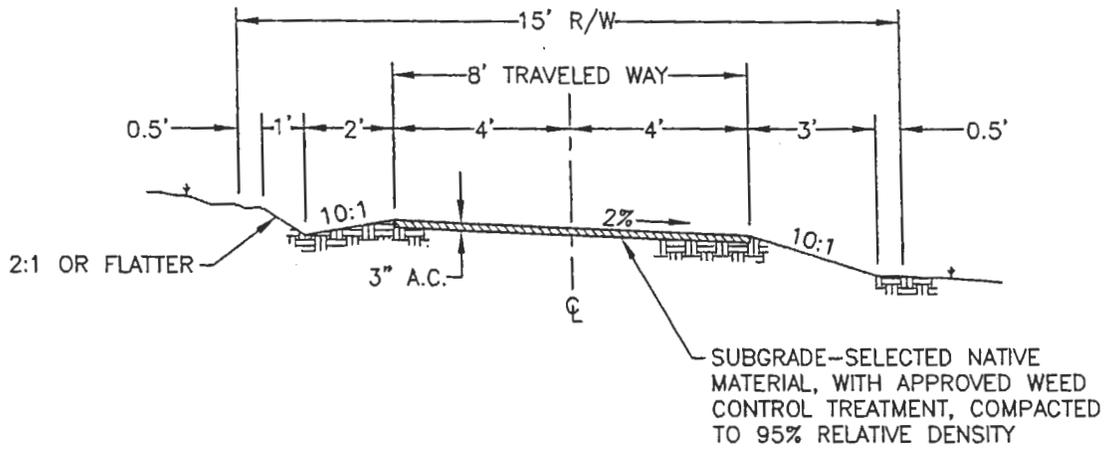
**CITY OF CHICO**

**STANDARD PLAN**

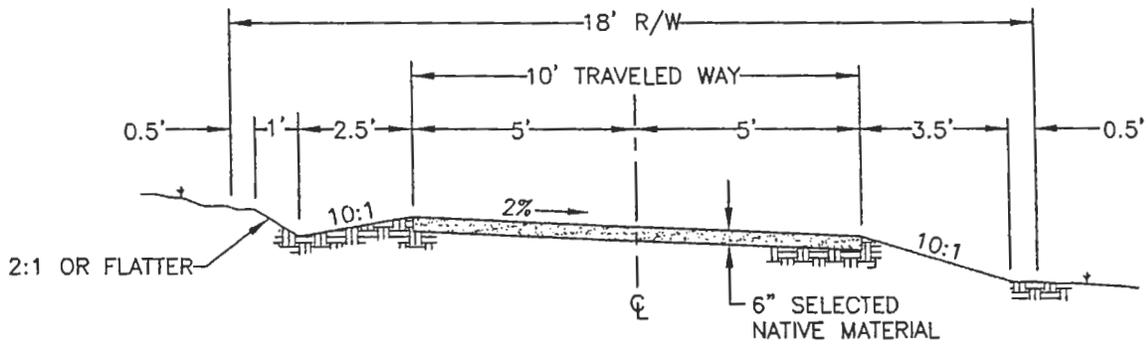
DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**IMPROVEMENT OF EXISTING  
 STREET-SHOULDER ONLY  
 (SEE NOTE 1)**

NO. **S-18D**  
 SHEET 2 OF 2



BICYCLE PATH



EQUESTRIAN WAY

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

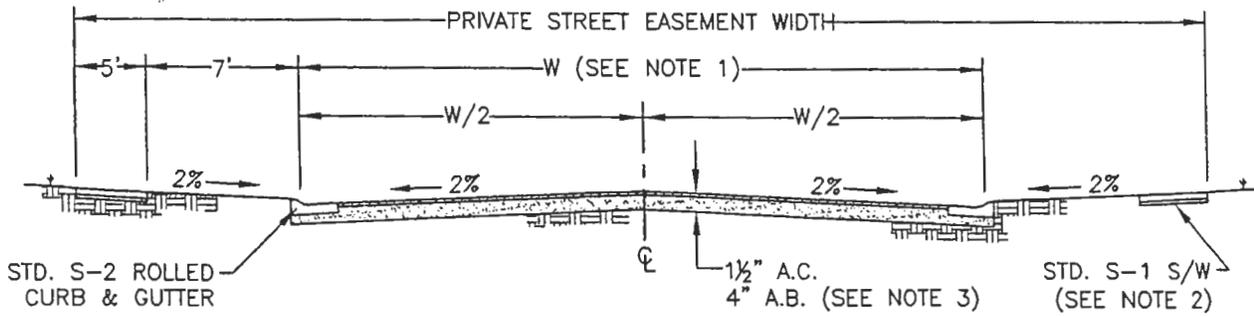
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

TYPICAL CROSS-SECTIONS  
 OTHER PUBLIC WAYS

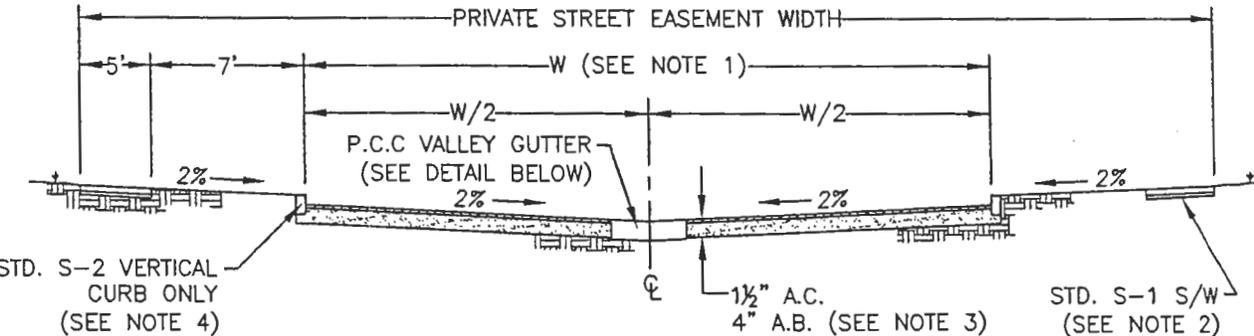
NO.  
 S-18E

SHEET 1 OF 1

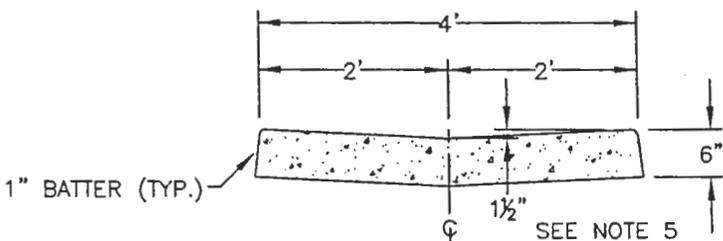
EXHIBIT Z



**CROWNED SECTION**



**VALLEY GUTTER SECTION**



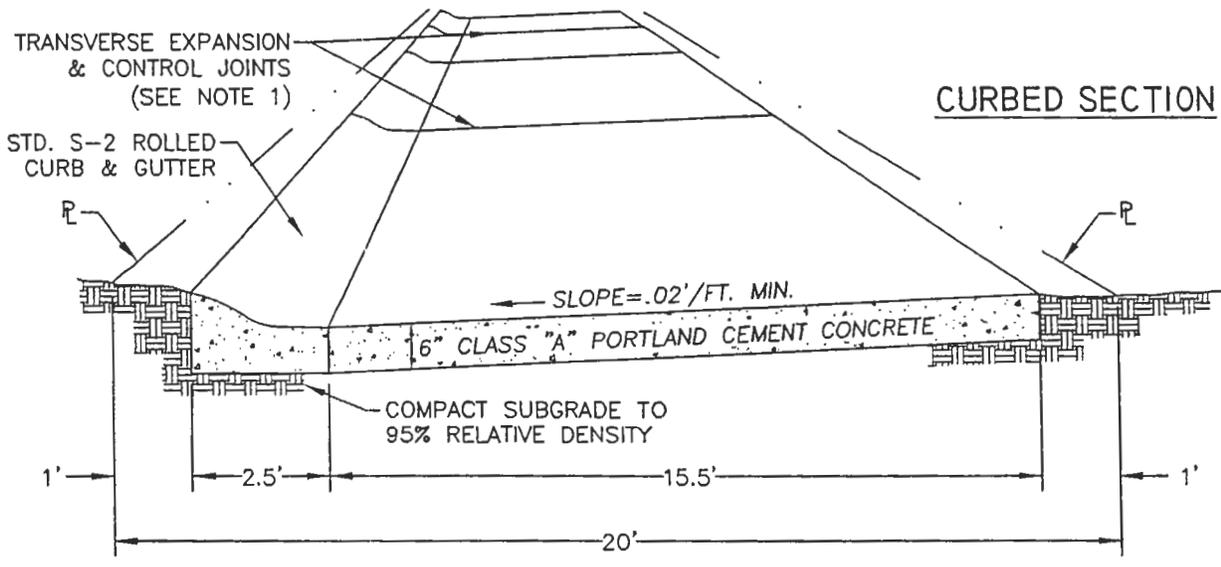
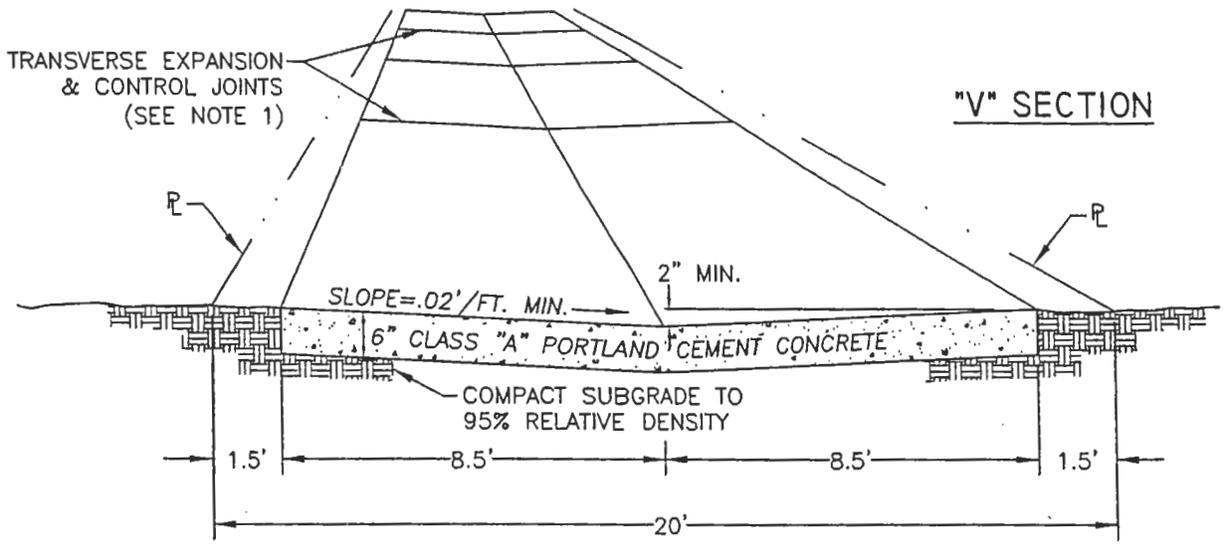
**P.C.C. VALLEY GUTTER DETAIL**

**NOTES:**

1.  $W=T+SH$ , PER STANDARD PLAN S-18A.
2. SIDEWALKS MAY BE DELETED IF AN APPROVED COMPREHENSIVE ONSITE PEDESTRIAN SYSTEM IS PROVIDED.
3. MINIMUM THICKNESS GIVEN. AN INCREASED THICKNESS WILL BE REQUIRED DEPENDING ON TRAFFIC INDEX AND SOIL R VALUE.
4. ROLLED CURB AND GUTTER MAY BE INSTALLED AS AN ALTERNATIVE TO VERTICAL CURB.
5. P.C.C. VALLEY GUTTER NOT REQUIRED WHEN LONGITUDINAL SLOPE OF STREET IS 1% OR GREATER.
6. A VALLEY GUTTER SECTION SHALL NOT BE USED ON STREETS SERVING 26 OR MORE LOTS.

REVISION	BY	DATE	APP. BY COUNCIL

<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>1/05</u>	<b>TYPICAL CROSS-SECTION PRIVATE STREETS</b>	NO. <b>S-18F</b>
CHECKED BY: <u>MJ</u>	SCALE: <u>NONE</u>		
APPROVED: <u>[Signature]</u>	DIRECTOR OF ENGINEERING		
		SHEET 1 OF 1	



**NOTES:**

1. INSTALL 1/4" WIDE TRANSVERSE EXPANSION JOINTS AT 48' INTERVALS AND 1/8" TRANSVERSE SCORED CONTROL JOINTS AT 12' INTERVALS.
2. ALL EXPANSION JOINTS AND THE FINISHING OF THE CONCRETE SURFACE SHALL BE DONE IN ACCORDANCE WITH STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION.
3. DIMENSIONS SHOWN ARE PRESENT MINIMUM STANDARDS. DIMENSIONS OF ALLEY RIGHTS OF WAY EXISTING PRIOR TO ADOPTION OF MINIMUM STANDARDS MAY VARY. CONSTRUCT TO THE WIDTH AND ALIGNMENT SHOWN ON THE IMPROVEMENT PLANS.
4. THE CURBED SECTION SHALL BE USED WHEN SANITARY SEWER FACILITIES ARE AT THE CENTERLINE OF THE ALLEY.

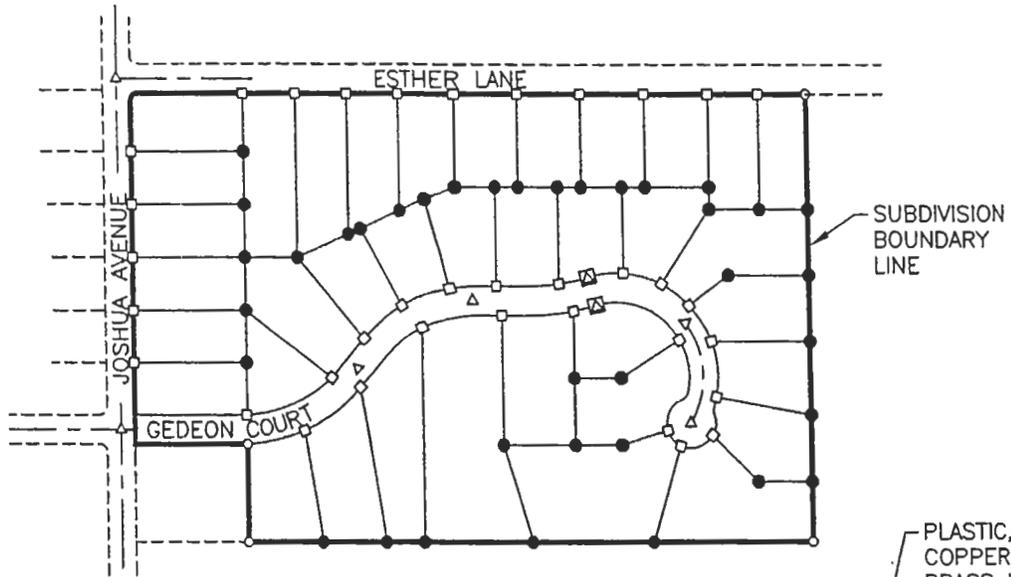
REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO STANDARD PLAN**

DRAWN BY: GL DATE: 10/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**ALLEY PAVEMENT**

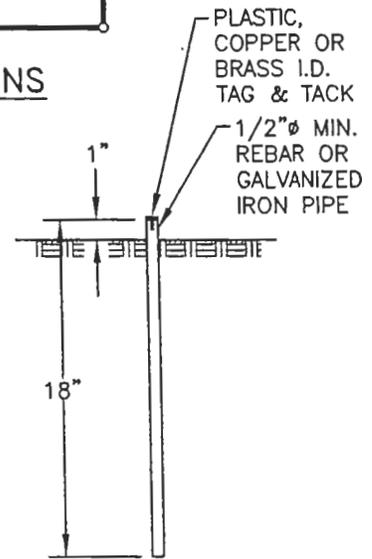
NO. **S-19**  
 SHEET 1 OF 1



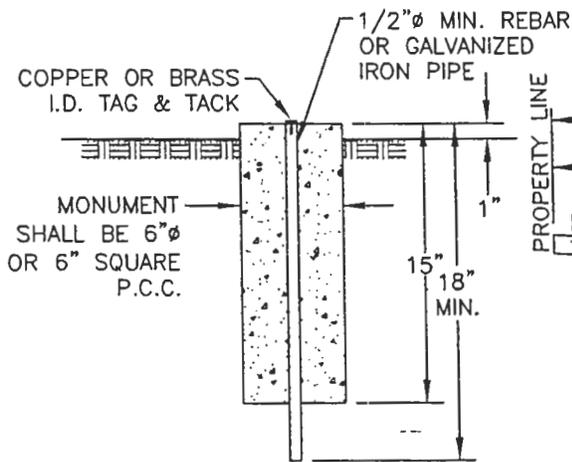
**STANDARD MONUMENT LOCATIONS**

**LEGEND**

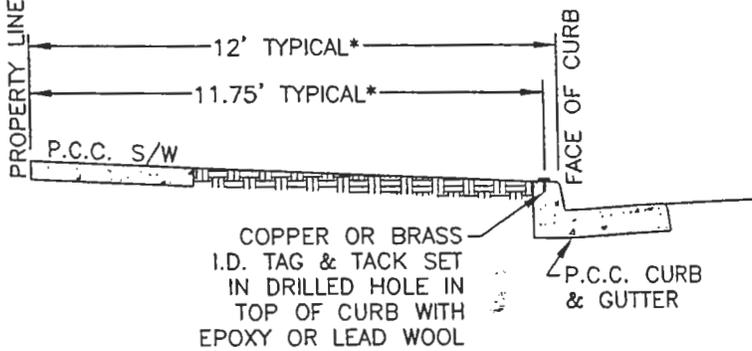
- 1/2" PIPE/REBAR MONUMENT.
- PERMANENT MONUMENT. (SUBDIVISION OR PARCEL MAP BOUNDARY CORNERS AND BOUNDARY LINE ANGLE POINTS)
- WITNESS CORNER. SET IN TOP OF CURB ON PROLONGATION OF LOT LINES. SHOW DISTANCE TO PROPERTY LINE ON RECORD OF SURVEY AND SUBDIVISION MAPS.
- △ 1 1/2" BRASS CAP MONUMENT W/18" X 1/2" SHAFT. SET AT INTERSECTIONS AND AT INTERVALS NOT TO EXCEED 500'. SET POINTS SHALL BE INTERVISABLE.
- ⊠ WITNESS MONUMENT. SET IF CENTERLINE MONUMENT CANNOT BE SET.



**PIPE/REBAR MONUMENT**



**PERMANENT MONUMENT**



**WITNESS CORNER**

\*NOTE: SEE STD. S-18A FOR PARKWAY WIDTH

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

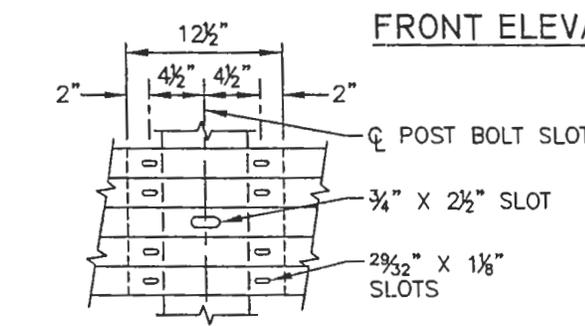
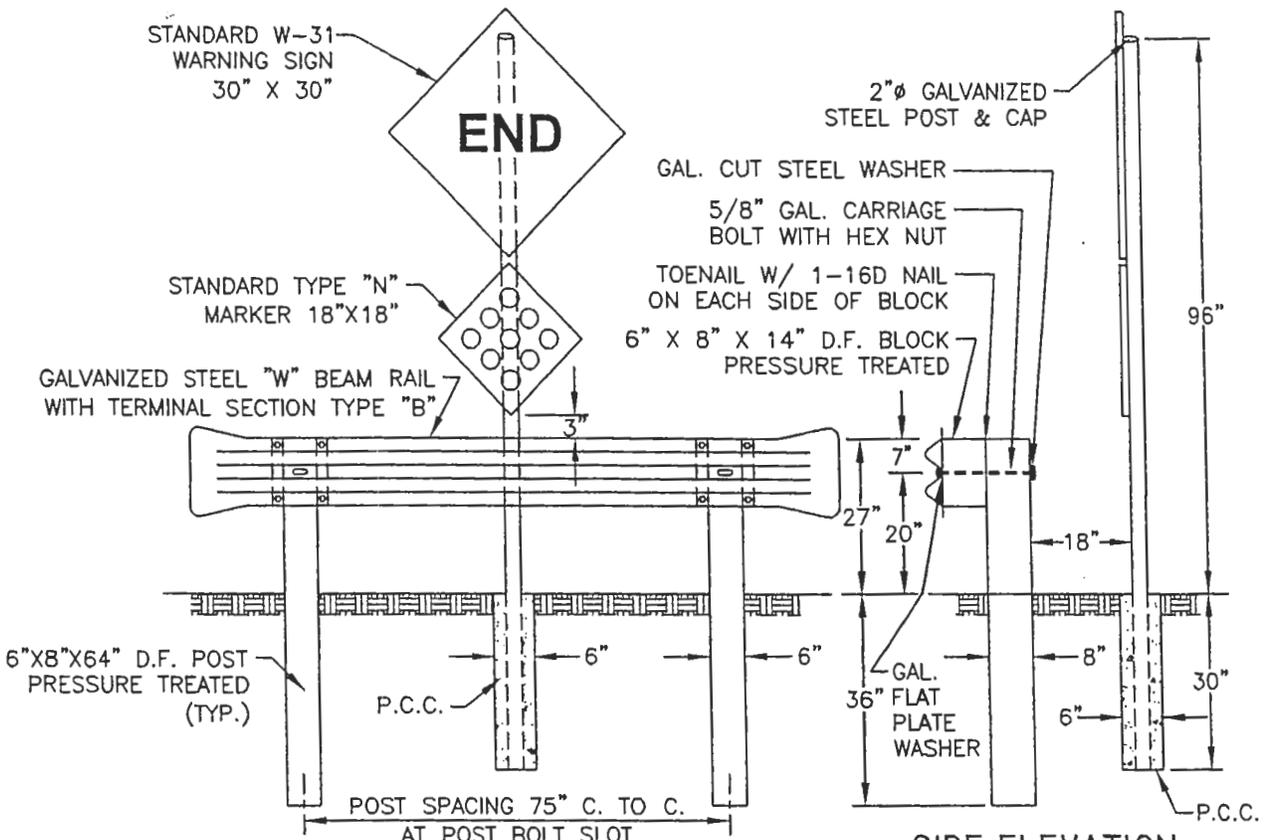
**STANDARD PLAN**

DRAWN BY: GL DATE: 5/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**CITY MONUMENTS  
 CONSTRUCTION & LOCATION**

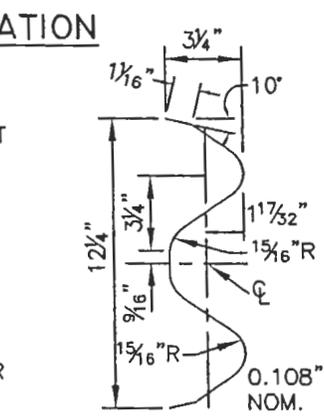
NO.  
**S-20**

SHEET 1 OF 1

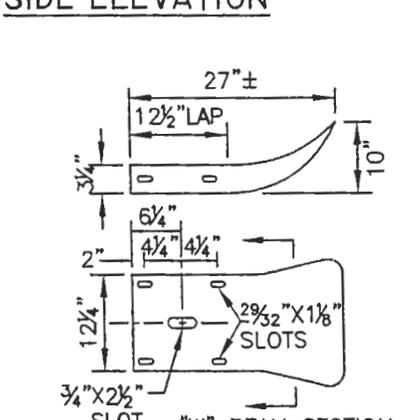


5/8"x1 1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH 1 1/4" RECESSED HEX NUTS - TOTAL 8 PER SPLICE AND 4 PER TERMINAL SECTION

**RAIL SPLICE**



**SECTION THRU "W" BEAM RAIL ELEMENT**



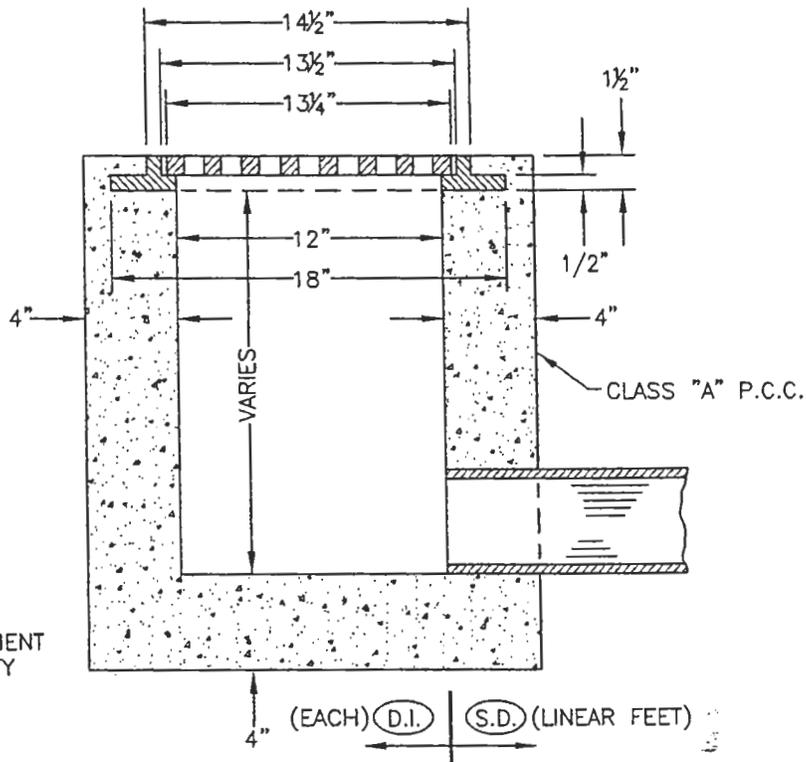
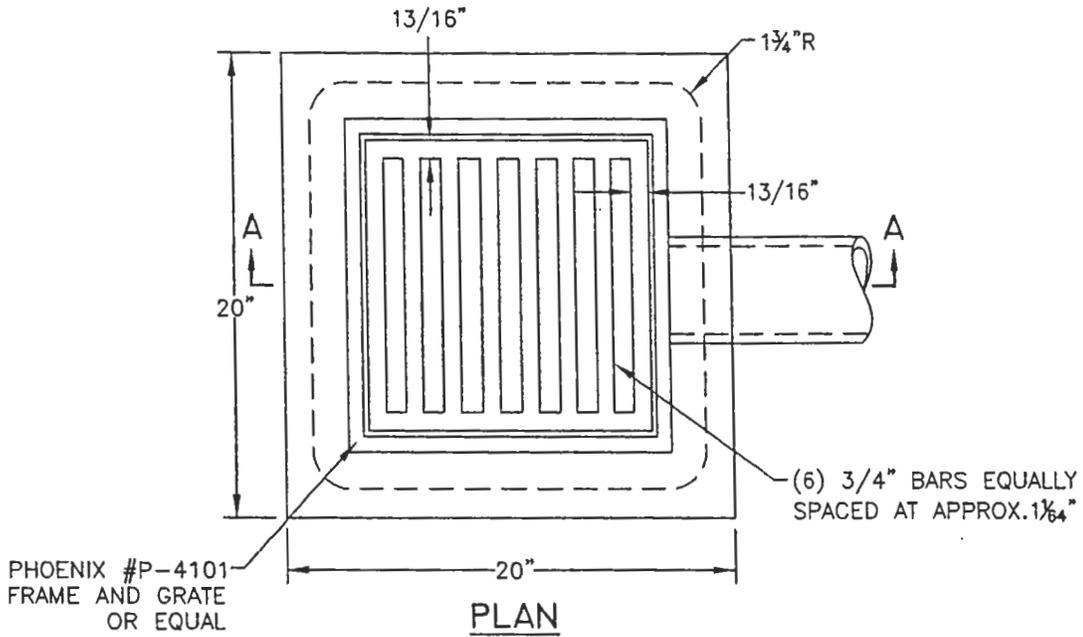
**TERMINAL SECTION**  
(TYPE "B" CALTRANS STD. A-77C-1)

**NOTES:**

1. END SIGNS AND TYPE "N" MARKERS SHALL CONFORM TO THE PROVISIONS IN SECTION 56-2, "ROADSIDE SIGNS", OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, JULY 2002. SIGNS AND MARKERS SHALL BE ALUMINUM PANELS NOT LESS THAN 0.080 INCH THICK. SIGN FACING SHALL BE HIGH INTENSITY GRADE, REFLECTIVE SHEETING CONFORMING TO THE STATE OF CALIFORNIA SPECIFICATIONS FOR REFLECTIVE SHEETING ALUMINUM SIGNS, JUNE 1985.
2. SIGNS AND MARKERS SHALL BE MOUNTED TO THE STEEL POSTS USING A HAWKINS - HAWKINS M2G-S2S "SIGN SADDLE" OR APPROVED EQUAL.
3. METAL BEAM GUARD RAILING SHALL CONFORM TO THE PROVISIONS IN SECTION 83-1, "RAILINGS", OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, JULY 2002.

REVISION	BY	DATE	APP. BY COUNCIL

<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>10/05</u>	<b>STREET BARRICADES</b>	<b>NO. S-21</b>
CHECKED BY: <u>MJ</u>	SCALE: <u>NONE</u>		
APPROVED: <u>[Signature]</u>	DIRECTOR OF ENGINEERING		
		SHEET 1 OF 1	



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

**NOTE:**

THIS DROP INLET SHALL BE USED FOR "THROUGH THE CURB" AREA DRAINS AND ALLEY DRAINS ONLY.

**SECTION A-A**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

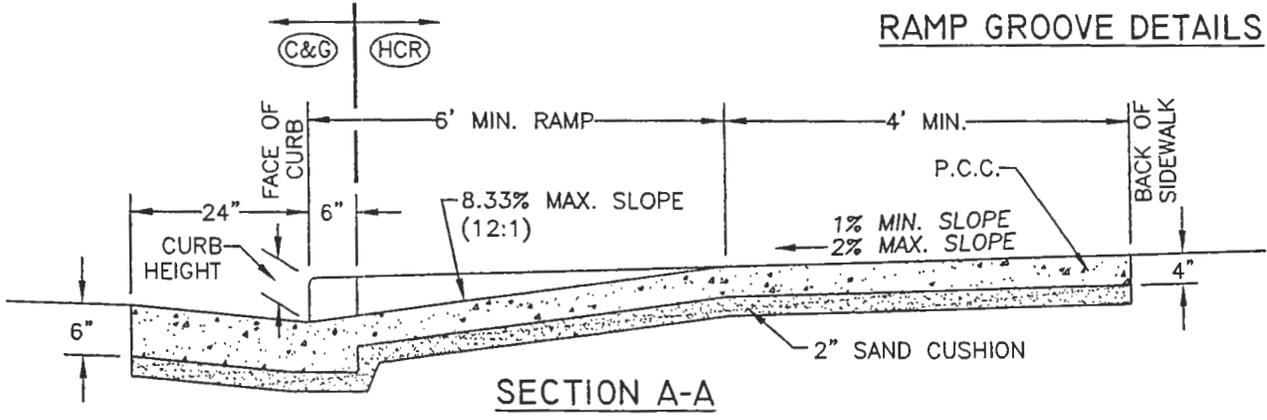
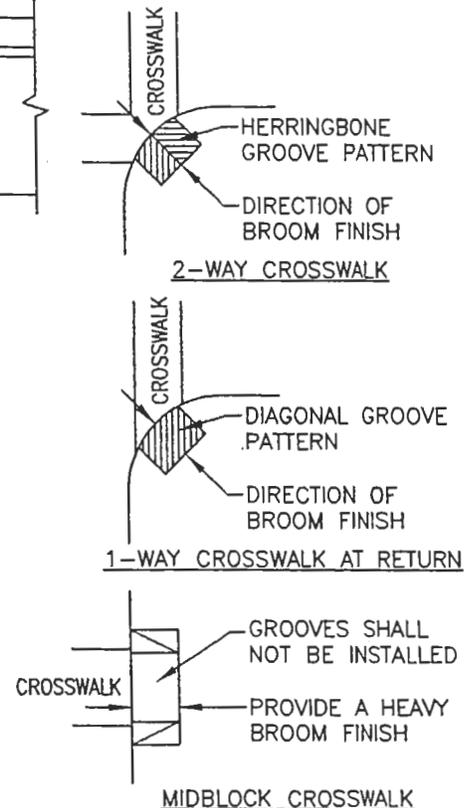
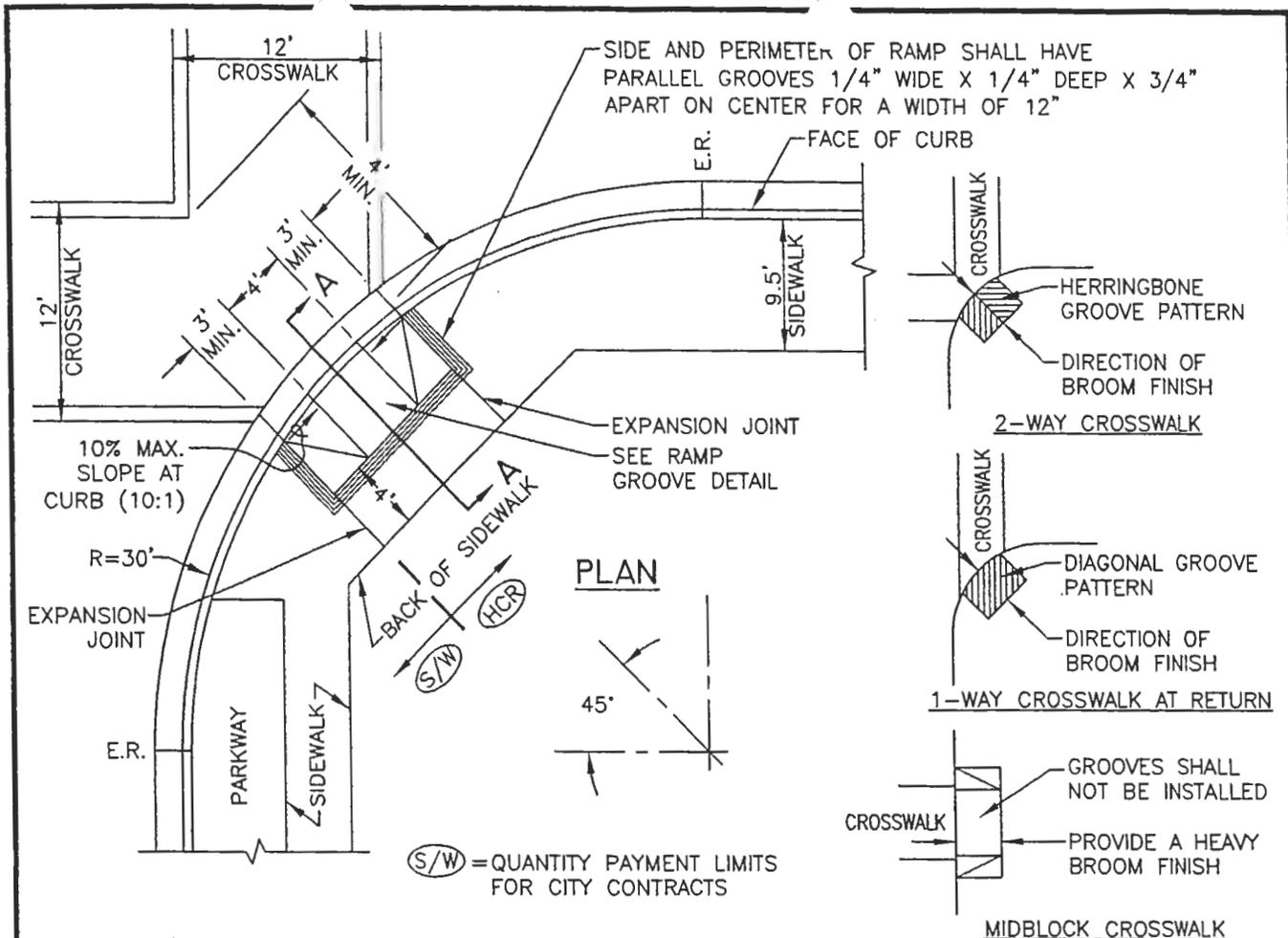
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**FLAT GRATE INLET**

NO. **S-26**

SHEET 1 OF 1

**EXHIBIT EE**



**NOTES:**

1. STANDARD S-27 SHALL BE USED WHERE THE SIDEWALK IS 9.5' WIDE AND CONTIGUOUS TO THE CURB AND WHERE STANDARD 5' SIDEWALK IS NOT CONTIGUOUS TO THE CURB.
2. SEE STANDARD S-5B, SECTION A-A FOR APPROVED METHODS OF POURING THE RAMP, CURB AND GUTTER.
3. RAMP SHALL HAVE PARALLEL GROOVES 1/4" WIDE BY 1/4" DEEP BY 1 1/2" ON CENTER, PARALLEL TO THE CROSSWALK AS SHOWN ON THE "RAMP GROOVE DETAILS".

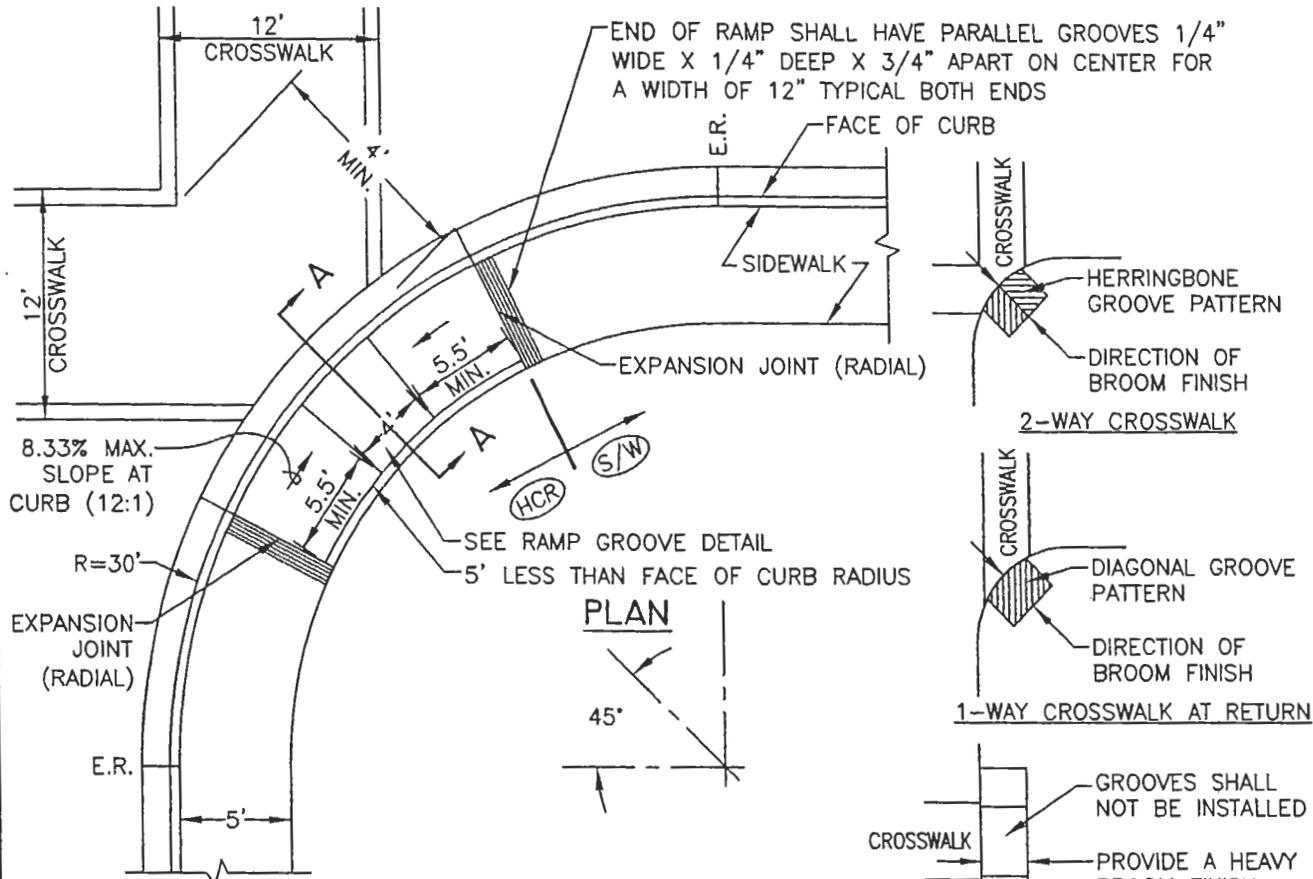
REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

P.C.C. HANDICAPPED RAMP

NO. **S-27**  
 SHEET 1 OF 1

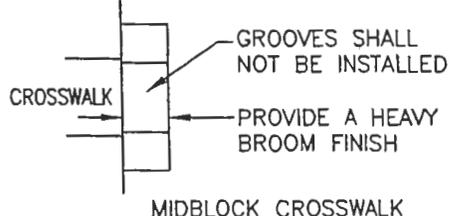
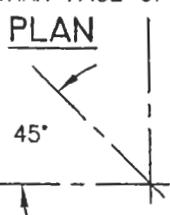


8.33% MAX. SLOPE AT CURB (12:1)

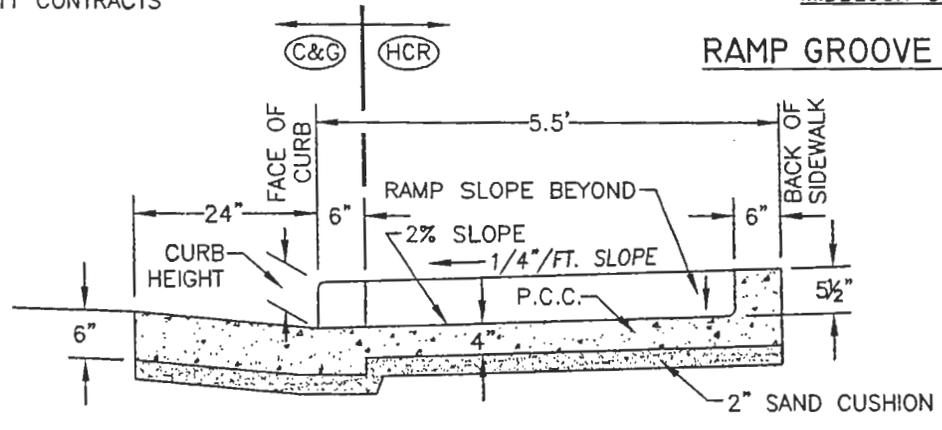
R=30'

EXPANSION JOINT (RADIAL)

(S/W) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS



RAMP GROOVE DETAILS



SECTION A-A

NOTES:

1. STANDARD S-27A SHALL BE USED WITH STANDARD 5' SIDEWALK CONTIGUOUS TO THE CURB.
2. SEE STANDARD S-5B, SECTION A-A FOR APPROVED METHODS OF POURING THE RAMP, CURB AND GUTTER.
3. RAMP SHALL HAVE PARALLEL GROOVES 1/4" WIDE BY 1/4" DEEP BY 1/2" ON CENTER, PARALLEL TO THE CROSSWALK AS SHOWN ON THE "RAMP GROOVE DETAILS".

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

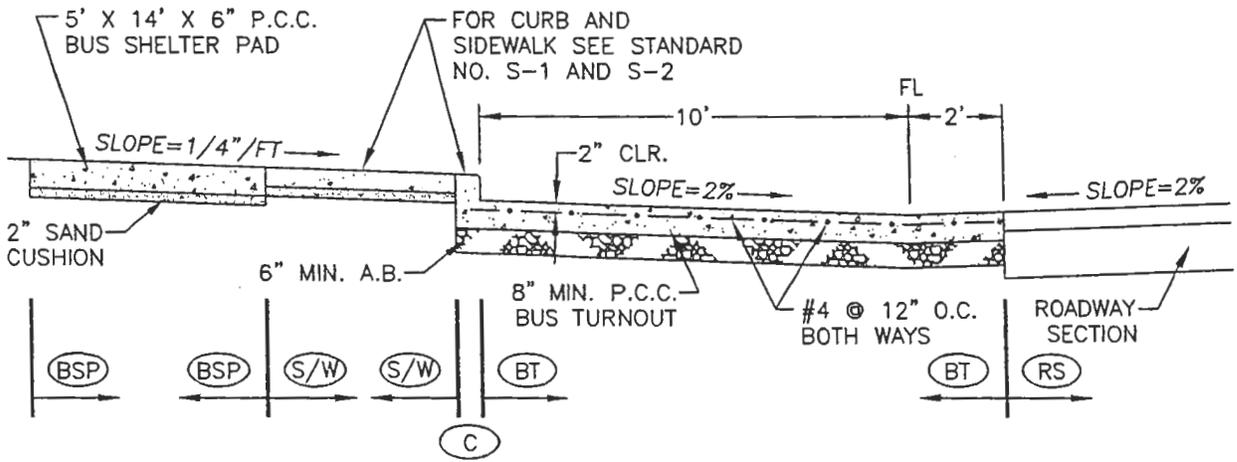
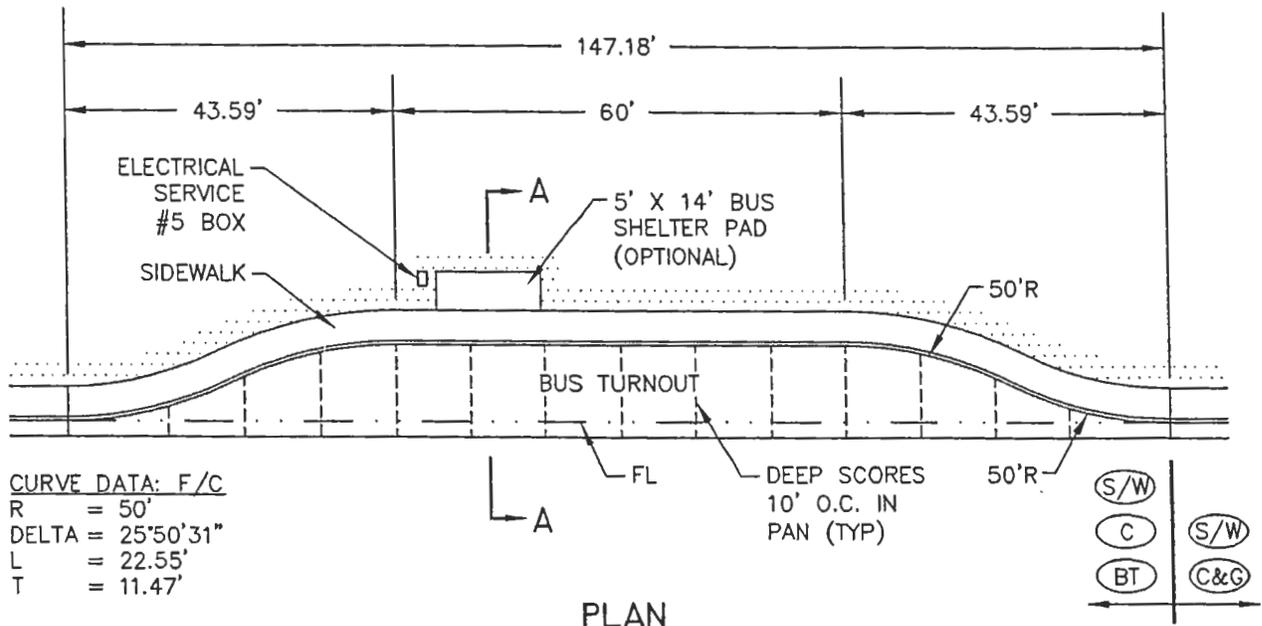
DRAWN BY: GL DATE: 5/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

P.C.C. HANDICAPPED RAMP

NO. **S-27A**

SHEET 1 OF 1

EXHIBIT GG



**NOTES:**

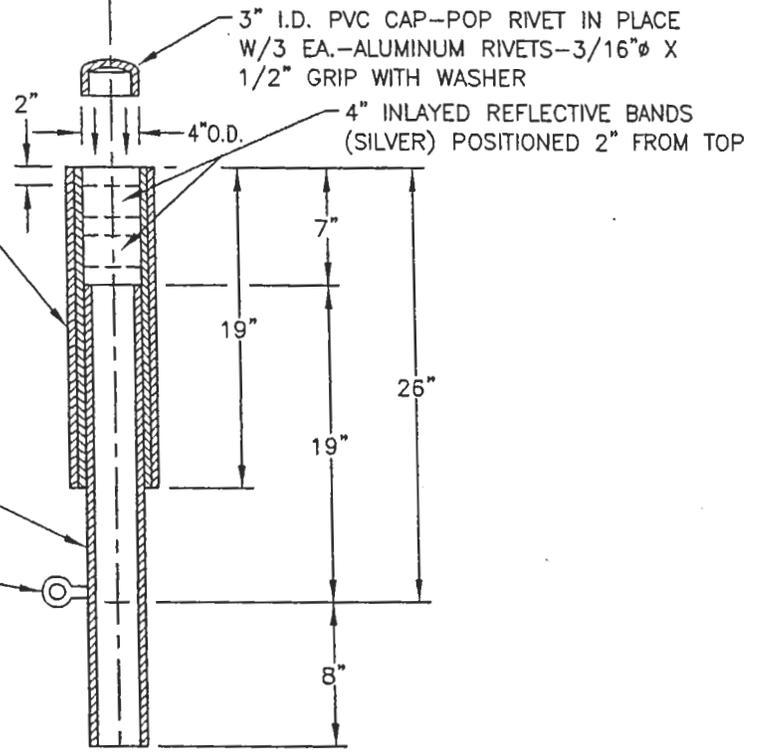
1. FOR EACH ADDITIONAL PASS THROUGH BUS SPACE ADD 50' AND FOR EACH ADDITIONAL LAYOVER BUS SPACE ADD 80'.
2. CONCRETE SHALL BE CLASS-A, REBAR STEEL SHALL BE 60 GRADE.
3. STANDARD BUS SHELTER: TOLAR MODEL #13NALD-GL

(BT) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS

REVISION	BY	DATE	APP. BY COUNCIL

<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>10/05</u>	<b>BUS TURNOUT</b>	<b>NO. S-28</b>
CHECKED BY: <u>MJ</u>	SCALE: <u>NONE</u>		
APPROVED: <u>[Signature]</u>	DIRECTOR OF ENGINEERING		
		SHEET 1 OF 1	

FLUORESCENT ORANGE PLASTIC DELINEATOR HAWKINS-HAWKINS #V8E-42-PO-2(S) 3 3/4" I.D. X 42" LONG CUT TO 19" LENGTH USE EXCESS TO PROVIDE DOUBLE LAYER FOR SNUG FIT. SLIP INNER LAYER AND POP RIVET TO PIPE WITH 6 EA. ALUMINUM RIVETS 3/16" Ø X 1/2" GRIP.



3" I.D. X 27" STANDARD WEIGHT GALVANIZED PIPE

WELD 1 1/2" X 1/2" EYEBOLT TO PIPE AND FLANGE ALIGN FOR PADLOCK

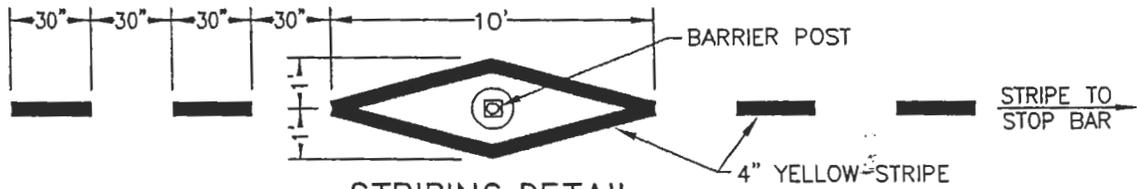
6" X 6" X 1/4" STEEL PLATE WELDED TO:

3 1/2" I.D. X 12" STANDARD WEIGHT GALVANIZED PIPE SLEEVE

CONCRETE FOOTING

DRAIN GRAVEL

**BARRIER POST**



**STRIPING DETAIL**

**NOTE:**

ALL FERROUS METALS SHALL BE GALVANIZED-FIELD WELDS WILL BE PERMITTED WELDS MUST BE PAINTED IN ACCORDANCE WITH STATE STANDARD SPECIFICATION: SECTION 59-3

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

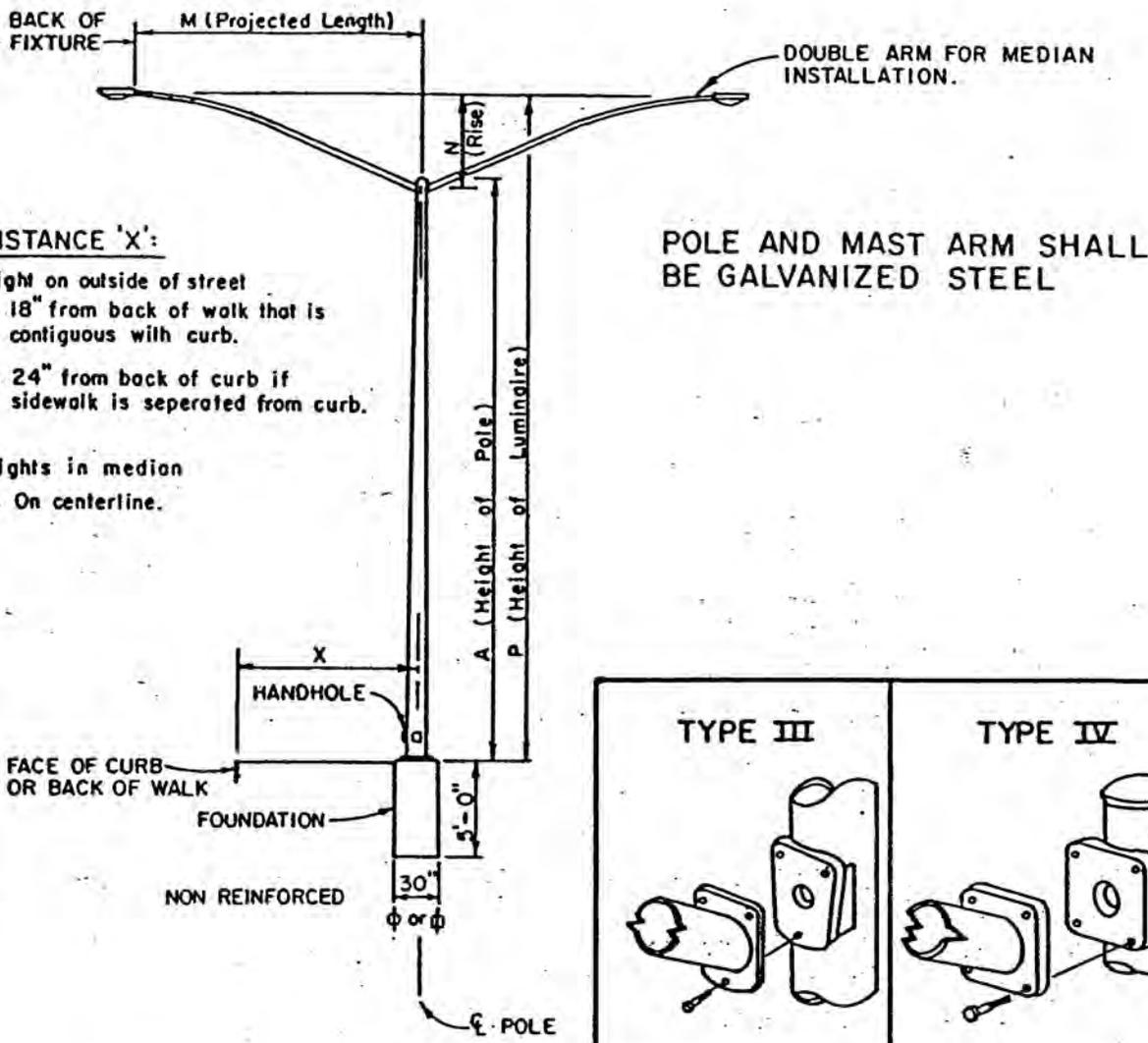
**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**BICYCLE BARRIER POST**

NO. **S-35**

SHEET 1 OF 1

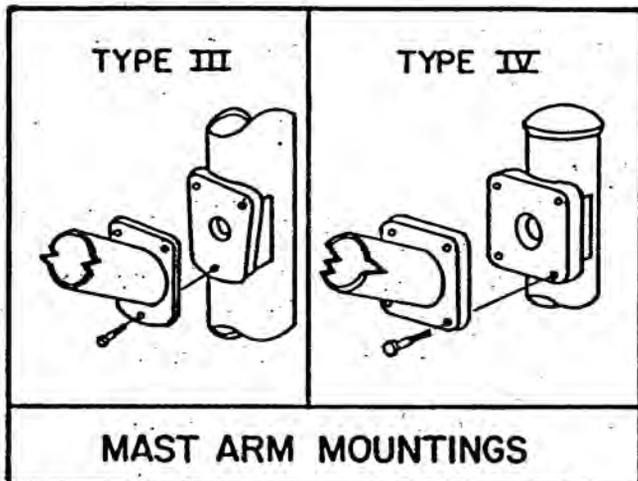


**DISTANCE 'X':**

- Light on outside of street
  - 18" from back of walk that is contiguous with curb.
  - 24" from back of curb if sidewalk is separated from curb.
- Lights in median
  - On centerline.

POLE AND MAST ARM SHALL BE GALVANIZED STEEL

**POLE ELEVATION**



**MAST ARM MOUNTINGS**

STREET WIDTH feet	M* feet	A* feet	N* feet	WATTAGE	MAXIMUM SPACING (see note 11, sheet 11) feet
20 - 32	6	30	1.5	70	150
36 - 40	6	30	1.5	100	200
44	6	30	1.5	150	110
60 - 68	12	30	2.5	200	100
74 - 80	12	30	2.5	150	150

LIGHTS IN MEDIAN

\* MINOR VARIATIONS - ON APPROVAL BY DIRECTOR OF PUBLIC WORKS

**CITY OF CHICO**

**STANDARD PLAN**

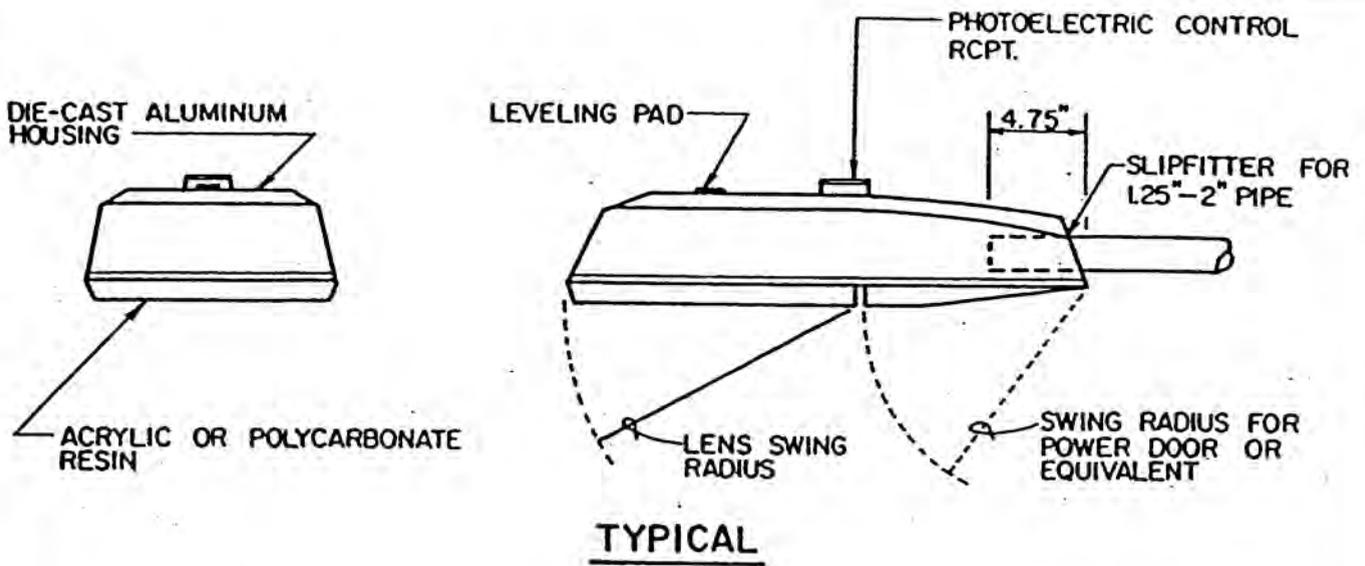
DRAWN BY JG DATE OCT., 1998  
 CHECKED RB SCALE N.T.S.  
 APPROVED [Signature]  
 DIRECTOR OF PUBLIC WORKS R.C.E.NO.

STREET LIGHTS  
 POLE AND MAST ARM DETAIL

NO.  
**SL-1**  
 SHEET 1 OF 11

REVISION	BY	DATE	APP. BY
FOUNDATION; SPACING	E.C.R.	3/12/99	

REVISION	BY	DATE	APP. BY
ORIGINAL	M.H.	10/16/90	#59 90-91
POLE SCHEDULE	M.E.T.	1/6/93	
PARKWAY	M.H.	5/18/93	#167 92-93



ALL LUMINAIRES WILL BE ROADWAY TYPE (COBRA HEAD). ALL LUMINAIRES WILL BE INSTALLED WITH OPERATIONAL PHOTOCELL. PHOTOCELL WILL BE INSTALLED WITH SENSOR FACING NORTH. REFRACTOR SHALL HAVE I.E.S. TYPE III LIGHT DISTRIBUTION PATTERN EXCEPT WHERE DIRECTED BY THE DIRECTOR OF PUBLIC WORKS. ALL LUMINAIRES SHALL BE HIGH PRESSURE SODIUM.  
 LUMINAIRES SHALL OPERATE AT 120 VOLTS UNLESS OTHERWISE APPROVED BY THE D.P.W.  
 LUMINAIRES SHALL BE CUTOFF TYPE UNLESS OTHERWISE APPROVED BY D.P.W.

POLES AND LUMINAIRES SHALL BE FROM THIS LIST OF APPROVED MATERIALS.

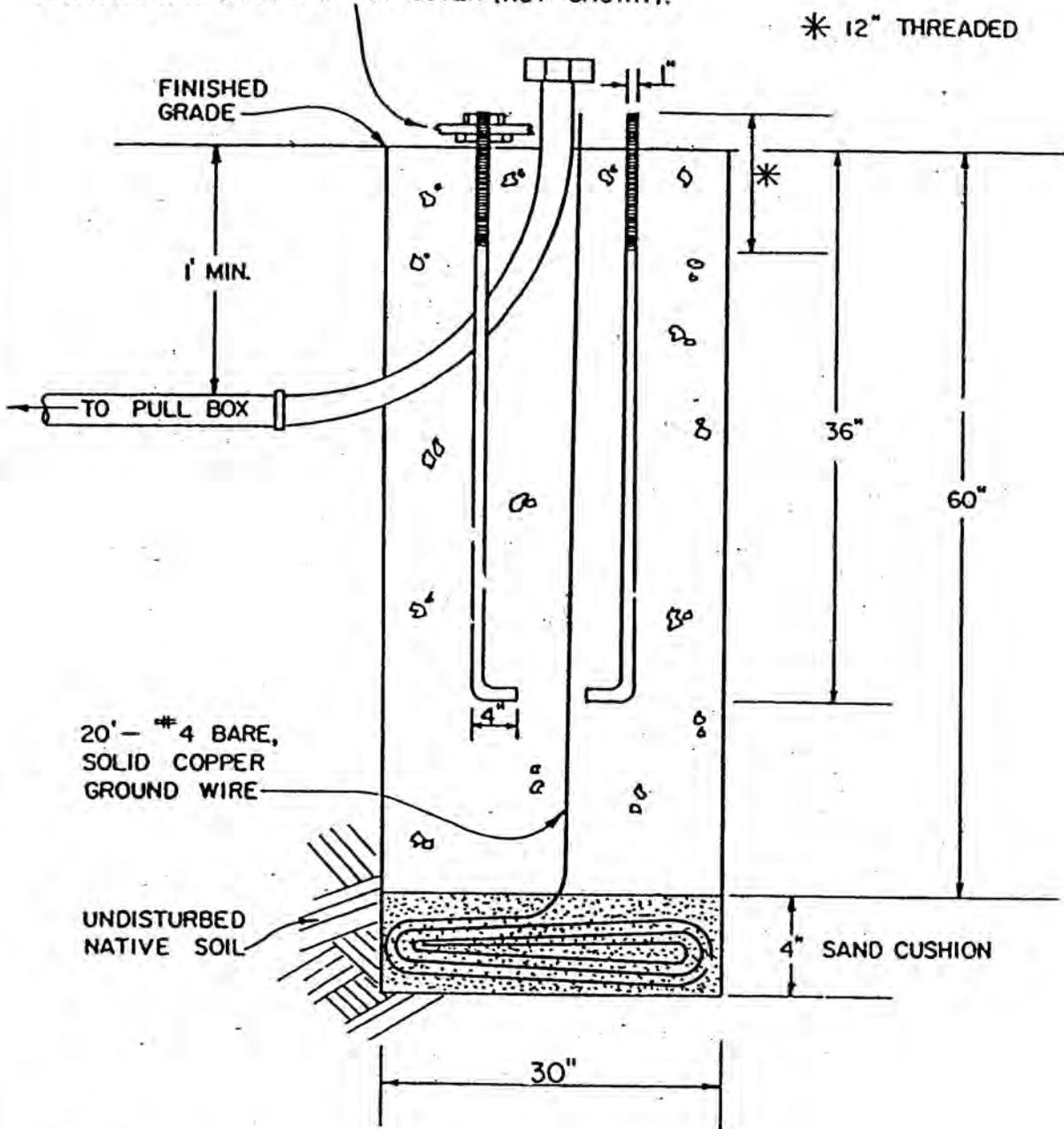
POLES	LUMINAIRES
AMERON N SERIES	GENERAL ELECTRIC M2AC xx S 1 N 2 (G or A) MC3 I G = 200 watts P or A = others
ANY POLE OF CALTRANS TYPE 15	
	ANY MEETING CALTRANS SPECS FOR H.P.S. TYPE III

REVISION	BY	DATE	APP BY COUNCIL
ORIGINAL	M.H.	10/16/90	#59 90-91
LUMINAIRE LIST	M.E.T.	3/18/93	#167 92-93
GENERAL NOTES	E.C.R.	3/12/99	

CITY OF CHICO		STANDARD PLAN	
DRAWN BY <u>JG</u>	DATE <u>OCT. 1998</u>	STREET LIGHTS LUMINAIRE DETAIL	NO. <b>SL-1</b>
CHECKED <u>RB</u>	SCALE <u>N.T.S.</u>		
APPROVED <u>[Signature]</u>	DIRECTOR OF PUBLIC WORKS R.C.E. NO.	SHEET 2 OF 11	

LEVELING NUT (BOTTOM), BASE PLATE (MIDDLE),  
SECURING NUT (TOP) AND NUT COVER (NOT SHOWN).

\* 12" THREADED



**NOTES:**

- 1) PRECAST FOUNDATIONS
  - a) may be used.
  - b) must be backfilled with a one-sack of cement per cubic yard cement sand slurry.
- 2) BOLT-COVER SHALL BE PROVIDED
- 3) WITH PRECAST FOUNDATION, THE POLE MAY BE GROUNDED VIA A BARE NO. 4 SOLID COPPER WIRE CLAMPED TO A 1/2 INCH X 10 FOOT GROUNING ROD INSTALLED IN PULL BOX. (SEE PULL BOX DETAIL)
- 4) INSTALLATION SHALL INCLUDE SECURING NUTS, LEVELING NUTS, WASHERS, AND NUT COVERS.

REVISION	BY	DATE	APP. BY COUNCIL
ORIGINAL	M.H.	10/16/90	#59 90-91
NONE	M.H.	5/18/93	#167 92-93
FOUNDATION	E.C.R.	3/12/99	

**CITY OF CHICO**

**STANDARD PLAN**

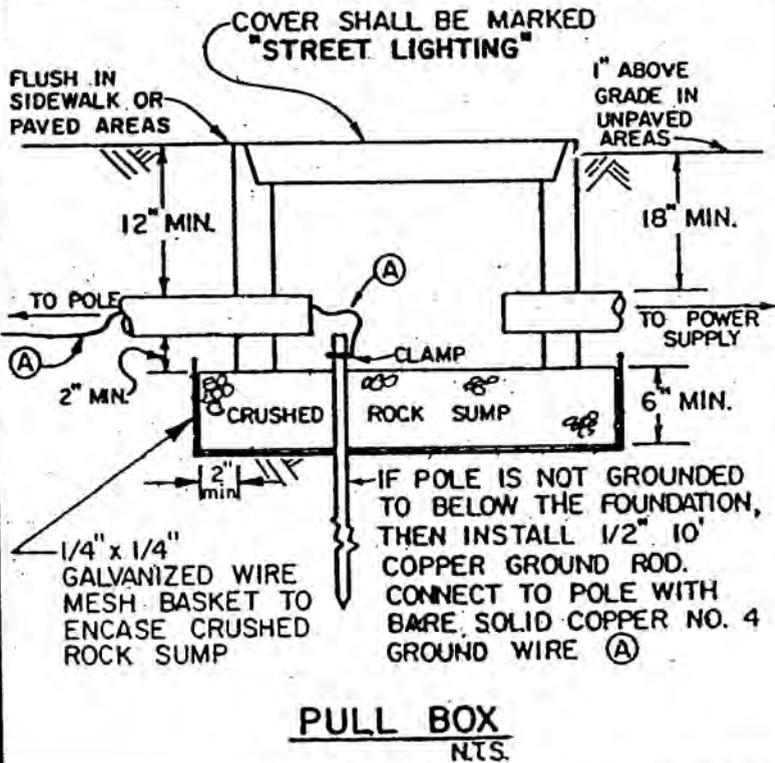
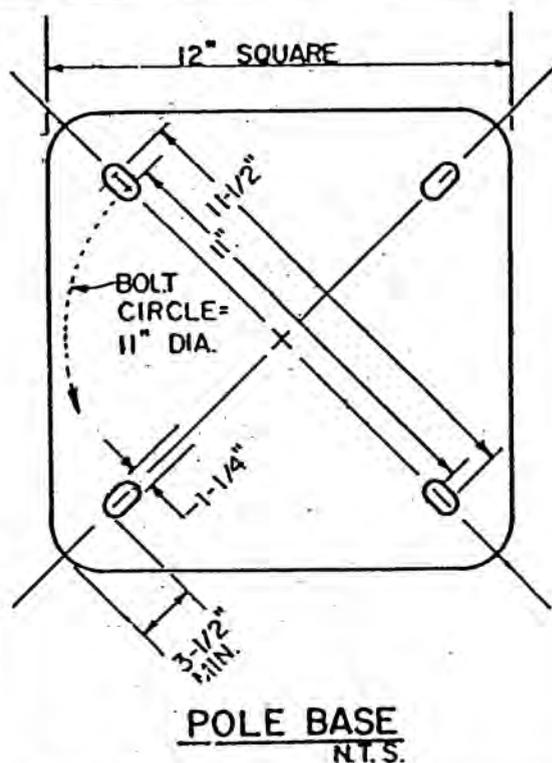
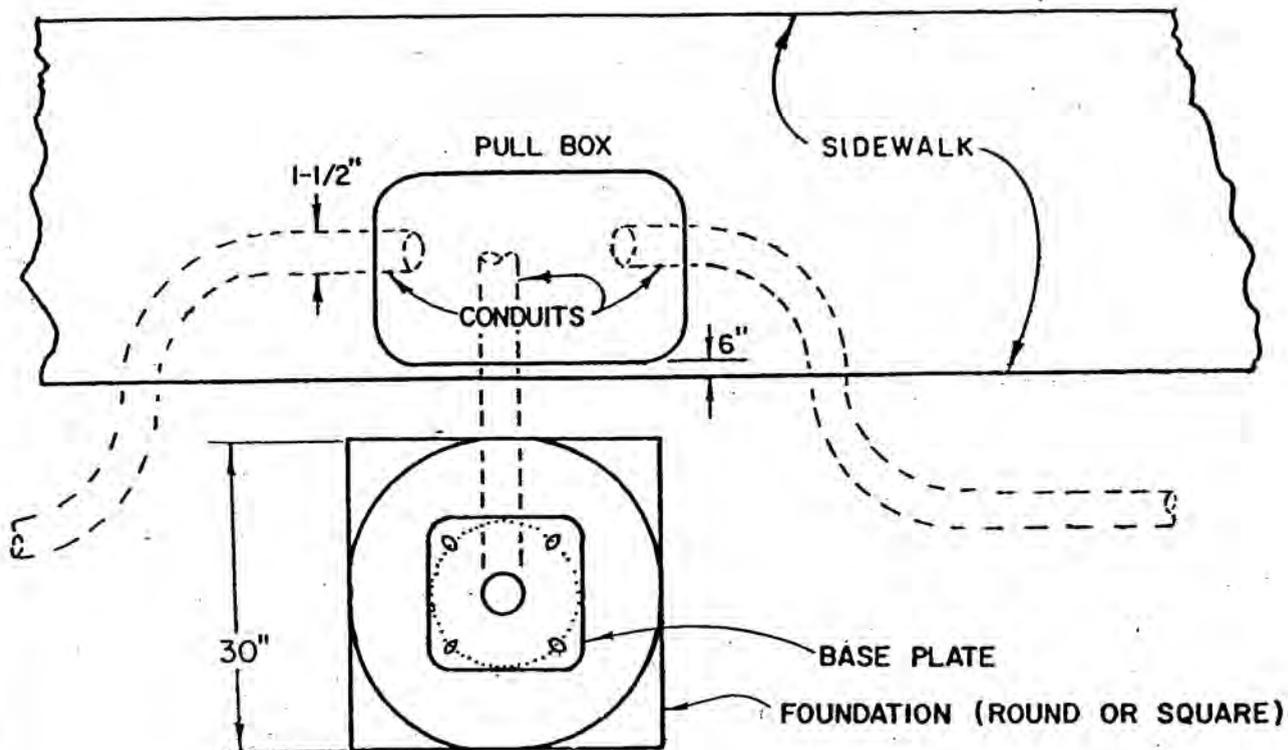
DRAWN BY JG DATE OCT, 1998  
 CHECKED RB SCALE N.T.S.  
 APPROVED [Signature]  
 DIRECTOR OF PUBLIC WORKS R.C.E. NO.

**STREET LIGHTS  
POLE FOUNDATION DETAIL**

NO.  
**SL-1**

SHEET 3 OF 11

**PLAN VIEW**  
N.T.S.



**CITY OF CHICO**

**STANDARD PLAN**

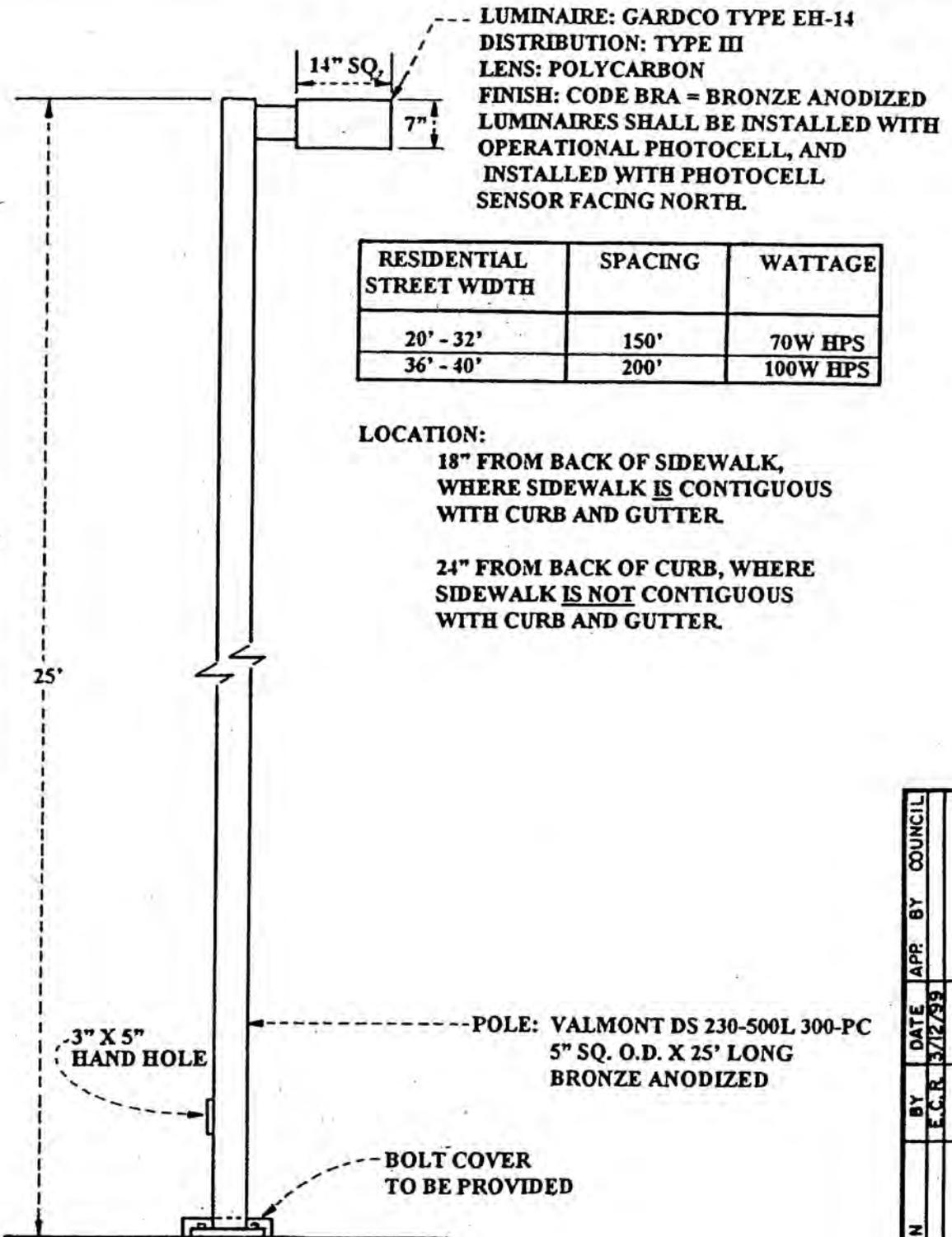
DRAWN BY JG DATE OCT., 1998  
 CHECKED RB SCALE N.T.S.  
 APPROVED [Signature]  
 DIRECTOR OF PUBLIC WORKS R.C.E. NO.

**STREET LIGHTS**  
 POLE BASE AND PULL BOX DETAIL

NO. **SL-1**  
 SHEET 4 OF 11

REVISION	BY	DATE	APP. BY COUNCIL
ORIGINAL	M.H.	10/16/90	# 59 90-91
PULL BOX DETAIL	M.E.T.	1/7/93	
PARKWAY	M.H.	5/18/93	# 167 92-93

REVISION	BY	DATE	APP. BY COUNCIL
FOUNDATION	ECR.	3/12/99	



REVISION	BY	DATE	APR.	BY	COUNCIL
ORIGINAL	E.C.R.	3/2/99			

CITY OF CHICO

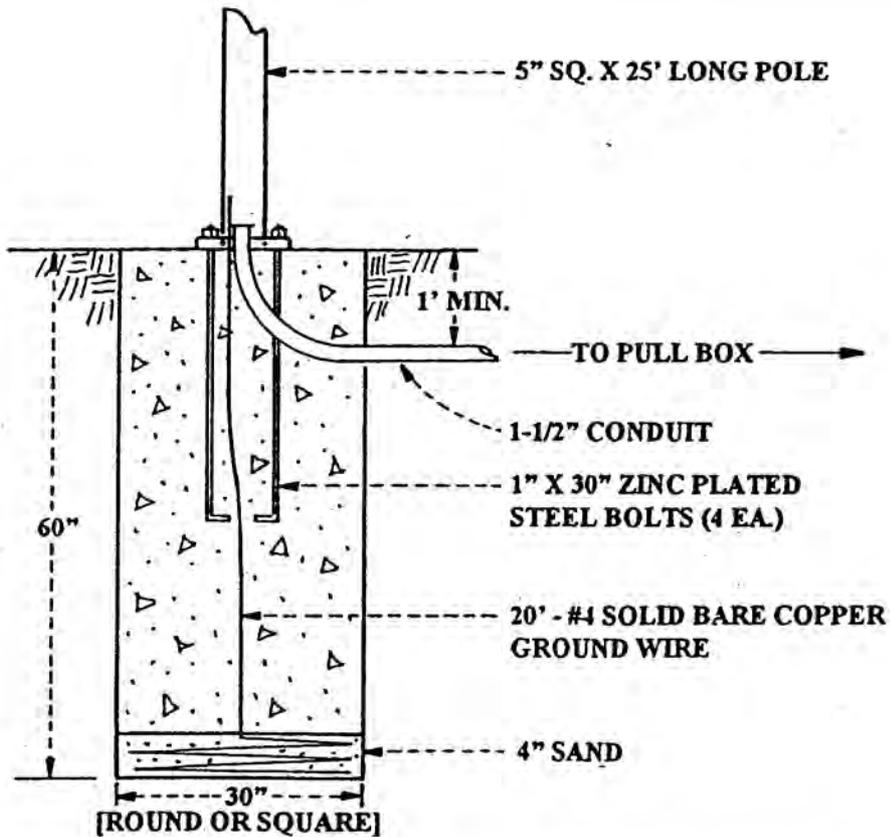
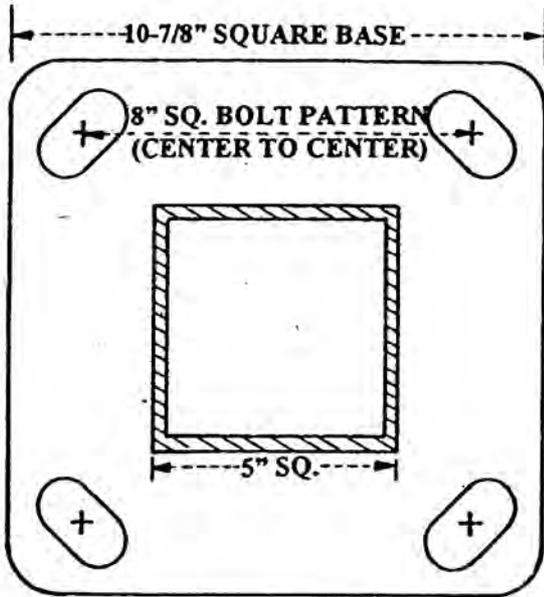
STANDARD PLAN

DRAWN BY JG DATE OCT. 1998  
 CHECKED RB SCALE NTS  
 APPROVED Eric Ross  
 DIRECTOR OF PUBLIC WORKS

RESIDENTIAL STREET LIGHTING  
 GARDCO LUMINAIRE  
 POLE AND LUMINAIRE DETAIL

SL - 1

SHEET 5 OF 11



REVISION	BY	DATE	APP. BY	COUNCIL
ORIGINAL	E.C.R.	3/2/99		

CITY OF CHICO

STANDARD PLAN

DRAWN BY JG DATE OCT. 1998  
 CHECKED RB SCALE NTS  
 APPROVED [Signature]  
 DIRECTOR OF PUBLIC WORKS

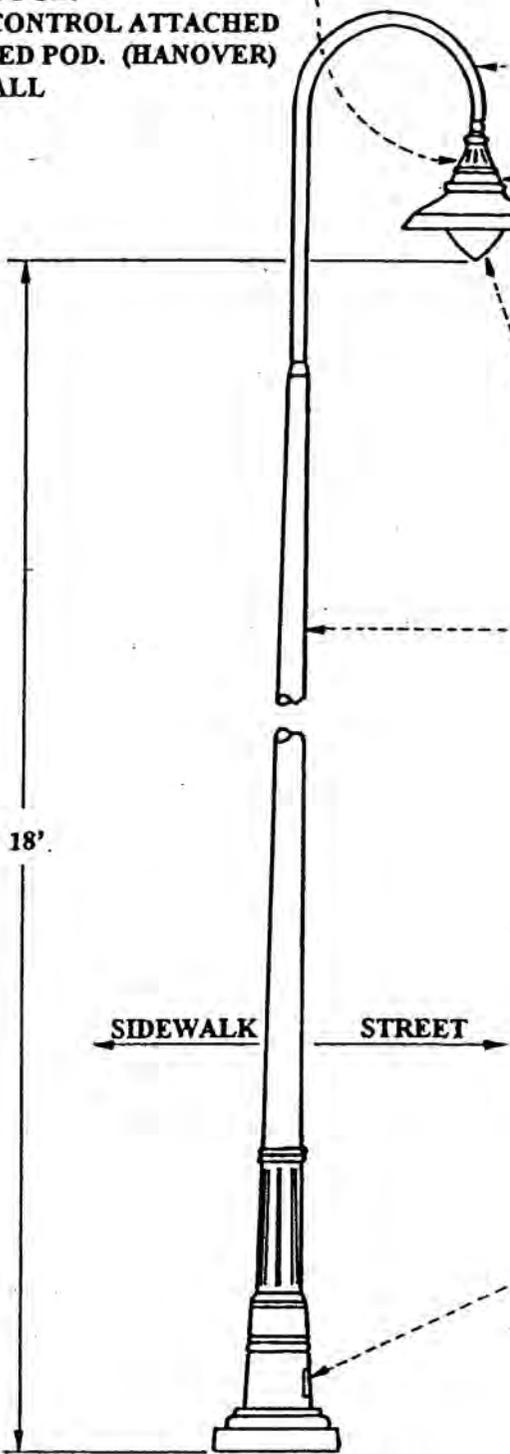
RESIDENTIAL STREET LIGHTING  
 GARDCO LUMINAIRE  
 FOUNDATION AND BASE DETAIL

SL - 1

SHEET 6 OF 11

**LIGHT POLE DETAIL**

CAST ALUMINUM FLUTED BALLAST POD.  
PHOTO CONTROL ATTACHED TO FLUTED POD. (HANOVER)  
0.250" WALL



2" DIA., 0.125" WALL (STERNBERG)  
2" DIA., 0.188" WALL (HANOVER)  
6061 - T6 STRUCTURAL GRADE ALUMINUM

BUTTON PHOTOCELL IN FITTER ORIENT NORTH (STERNBERG)

24" DIA. RLM (STERNBERG)  
30" DIA. RLM (HANOVER)

UNDERSIDE FINISHED IN HIGH REFLECTIVITY WHITE ENAMEL

POLYCARBONATE ACORNS  
STERNBERG - 12" X 12"  
HANOVER - 15-3/4" DIA.

TAPERED POLE - 0.250" WALL  
6061-T6 STRUCTURAL GRADE ALUMINUM WELDED FOR SINGLE CONSTRUCTION  
STERNBERG (5" BOTTOM - 3" TOP)  
HANOVER (5" BOTTOM - 4" TOP)

COLOR:  
STERNBERG - ANTIQUE BRONZE  
HANOVER - BRONZE

18'

← SIDEWALK      STREET →

ACCESS DOOR WITH STAINLESS STEEL ALLEN HEAD SCREWS

STERNBERG MDL. 1910 - RLM 24 - 2518 RRT 508  
OR  
HANOVER MDL. L55390

CITY OF CHICO

STANDARD PLAN

DRAWN BY JG DATE OCT. 1998  
CHECKED RB SCALE NTS

RESIDENTIAL STREET LIGHTING  
ARCHED INVERTED LANTERN TYPE  
LUMINAIRE AND POLE DETAIL

**SL - 1**

APPROVED *ECR*  
DIRECTOR OF PUBLIC WORKS

SHEET 7 OF 11

REVISION	BY	DATE	APP. BY
	ORIGINAL	E.C.R.	3/12/99

BOTTOM VIEW OF BASE



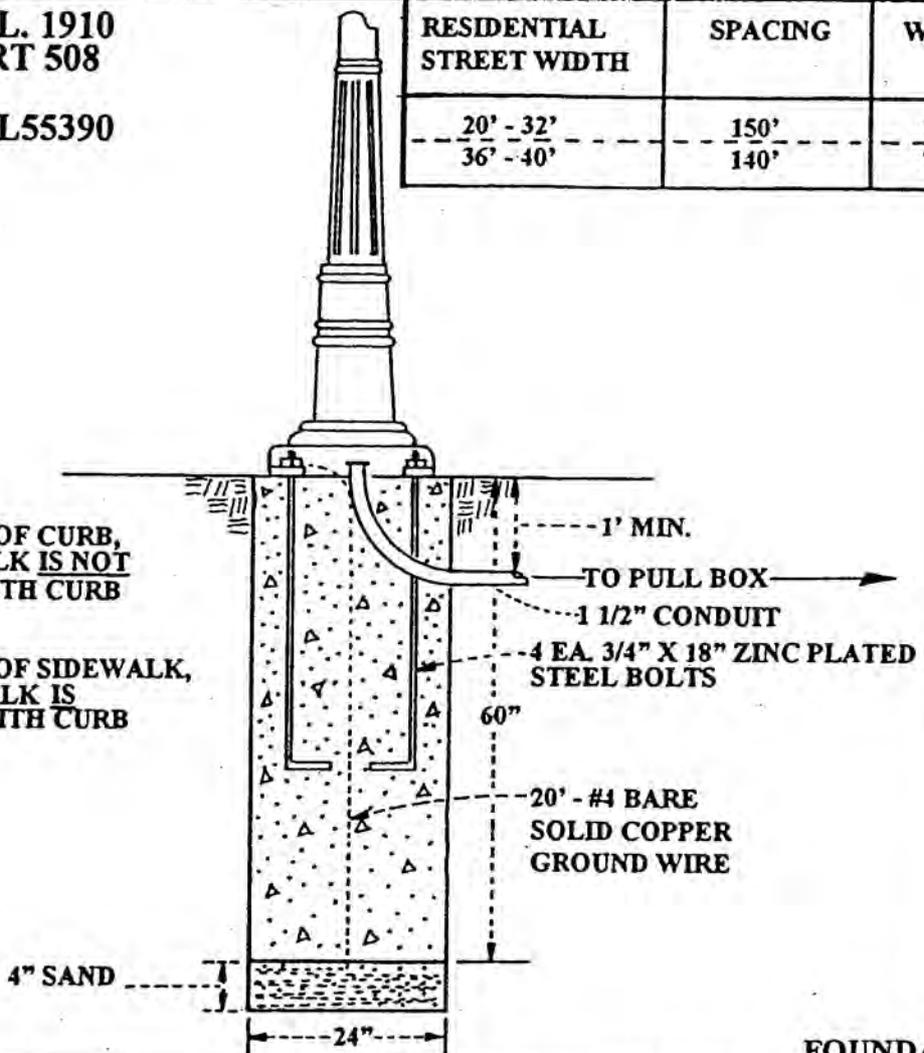
STERNBERG MDL. 1910  
RLM 24 - 2518 RRT 508  
OR  
HANOVER MDL. L55390

RESIDENTIAL STREET WIDTH	SPACING	WATTAGE
20' - 32'	150'	70W HPS
36' - 40'	140'	70W HPS

LOCATION:

24" FROM BACK OF CURB, WHERE SIDEWALK IS NOT CONTIGUOUS WITH CURB AND GUTTER

18" FROM BACK OF SIDEWALK, WHERE SIDEWALK IS CONTIGUOUS WITH CURB AND GUTTER



REVISION	BY	DATE	APP. BY	COUNCIL
ORIGINAL		3/12/99		

FOUNDATION

CITY OF CHICO

STANDARD PLAN

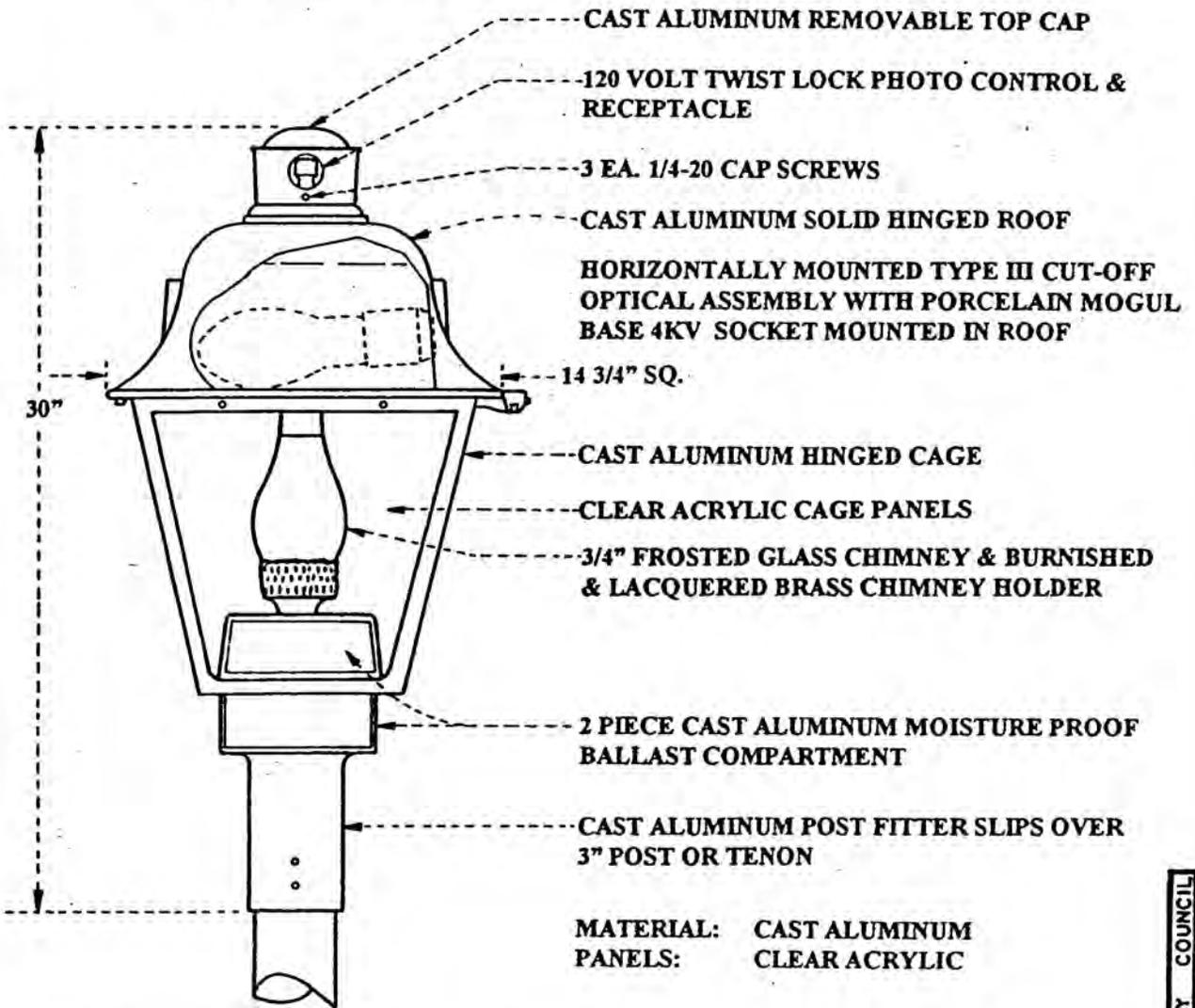
DRAWN BY JG DATE OCT., 1998  
CHECKED RB SCALE NTS  
APPROVED ECR  
DIRECTOR OF PUBLIC WORKS

RESIDENTIAL STREET LIGHTING  
ARCHED INVERTED LANTERN TYPE  
FOUNDATION AND BASE DETAIL

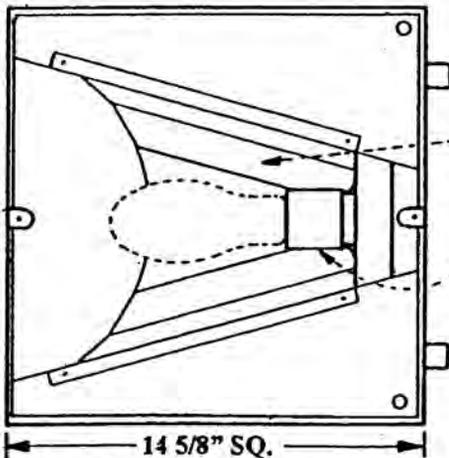
SL - 1

SHEET 8 OF 11

# HANOVER GRANDE JEFFERSON MODEL NO. 8432R3



MATERIAL: CAST ALUMINUM  
 PANELS: CLEAR ACRYLIC



**BOTTOM VIEW OF TYPE III CUT-OFF REFLECTOR SYSTEM**

TYPE III FABRICATED ALZAK REFLECTOR FOR HORIZONTAL LAMP MOUNTING

PORCELAIN MOGUL BASE HORIZONTALLY MOUNTED SOCKET

REVISION	BY	DATE	APP.	BY	COUNCIL
ORIGINAL		3/12/99			

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY JG DATE OCT. 1998  
 CHECKED RB SCALE NTS  
 APPROVED CC Ross  
 DIRECTOR OF PUBLIC WORKS

RESIDENTIAL STREET LIGHTING  
 POST TOP LANTERN TYPE  
 LUMINAIRE

**SL - 1**

SHEET 9 OF 11

# HANOVER POLE MODEL NO. 329 - 18'

RESIDENTIAL STREET WIDTH	SPACING	WATTAGE
20' - 32'	150'	70W HPS
36' - 40'	140'	70W HPS

COLOR:	BRONZE
SHAFT MATERIAL:	TAPERED ALUMINUM
THICKNESS:	0.125"
DIAMETER:	3" O.D. TOP - 4" O.D. BOTTOM
BASE HEIGHT:	28 1/4"
BASE WIDTH:	13"
BASE DETAIL:	P-10L

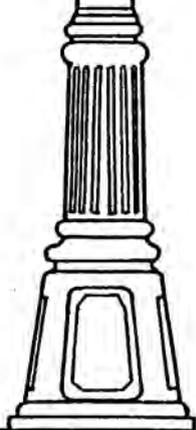
### LOCATION:

24" FROM BACK OF CURB, WHERE SIDEWALK IS NOT CONTIGUOUS WITH CURB AND GUTTER

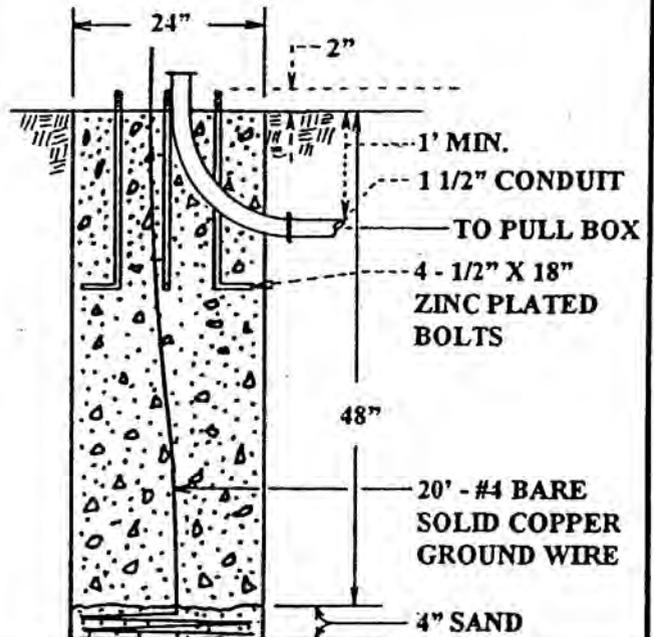
18" FROM BACK OF SIDEWALK, WHERE SIDEWALK IS CONTIGUOUS WITH CURB AND GUTTER

ORIGINAL	REVISION	BY	DATE	APP.	BY
		E.C.H.	3/12/99		COUNCIL

18'



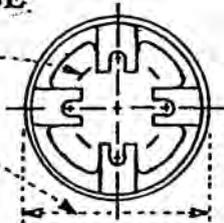
### FOUNDATION



### BOTTOM VIEW OF BASE

7" BOLT CIRCLE

13" OUTSIDE DIA.



CITY OF CHICO

STANDARD PLAN

DRAWN BY JG DATE OCT., 1998  
 CHECKED RB SCALE NTS

APPROVED EC Ross  
 DIRECTOR OF PUBLIC WORKS

RESIDENTIAL STREET LIGHTING  
 POST TOP LANTERN TYPE  
 POLE AND FOUNDATION

SL-1

SHEET 10 OF 11

**GENERAL NOTES:**

1. All conduit to be used shall be rigid metal, or schedule 40 polyvinyl chloride, unless otherwise shown on the plans or stated in the Specifications. The minimum depth of cover for conduit shall be as follows:
  - A. Within sidewalk or landscape areas: 1'0" min.  
Between power supply and pull box: 18" min.
  - B. Within roadway areas: 24" min.
2. The underground conduit and all metal parts shall be continuously bonded and grounded.
3. Minimum radius of bends shall be 18" inches. All bends and/or offsets shall be made with factory fabricated sections. There shall be no more than three bends per run.
4. Unless otherwise approved by the Director of Public Works, a No. 5 pull box (Caltrans Std. ES-8) shall be used at all street light standards. Covers shall be inscribed "Street Lighting" and secured with solid brass hold-down bolts.
5. Long conduit runs are to be avoided. Direct power service from P.G. & E. Secondaries to the pull box shall be provided when possible. Junction boxes to be a maximum of 250 feet apart on long runs.
6. All splices shall be waterproof, made with approved solderless connectors of the proper size, and shall conform to Caltrans Std. Plan ES-13.
7. All empty conduits shall be capped and a 1/4" inch nylon pull rope shall be installed inside with each end secured in such a way as to assure that they will remain exposed.
8. When a private party is to develop a system and then dedicate the system to the City, the following shall apply: The private party shall be responsible for arrangements with P.G. & E., and all connection and service fees charged by the utility.
9. Each street light shall have a fuse-disconnect in the adjacent pull box.
10. All conductors shall be copper.
11. Lights to be placed on alternating sides of the street. Variations permitted with the approval of the Director of Public Works.

REVISION	BY	DATE	APP.	BY COUNCIL
	ORIGINAL	E.C.R.	3/12/99	

**CITY OF CHICO**

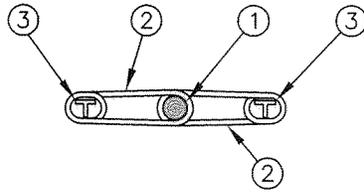
**STANDARD PLAN**

DRAWN BY JG DATE OCT., 1998  
 CHECKED RB SCALE \_\_\_\_\_  
 APPROVED EC Ross  
 DIRECTOR OF PUBLIC WORKS

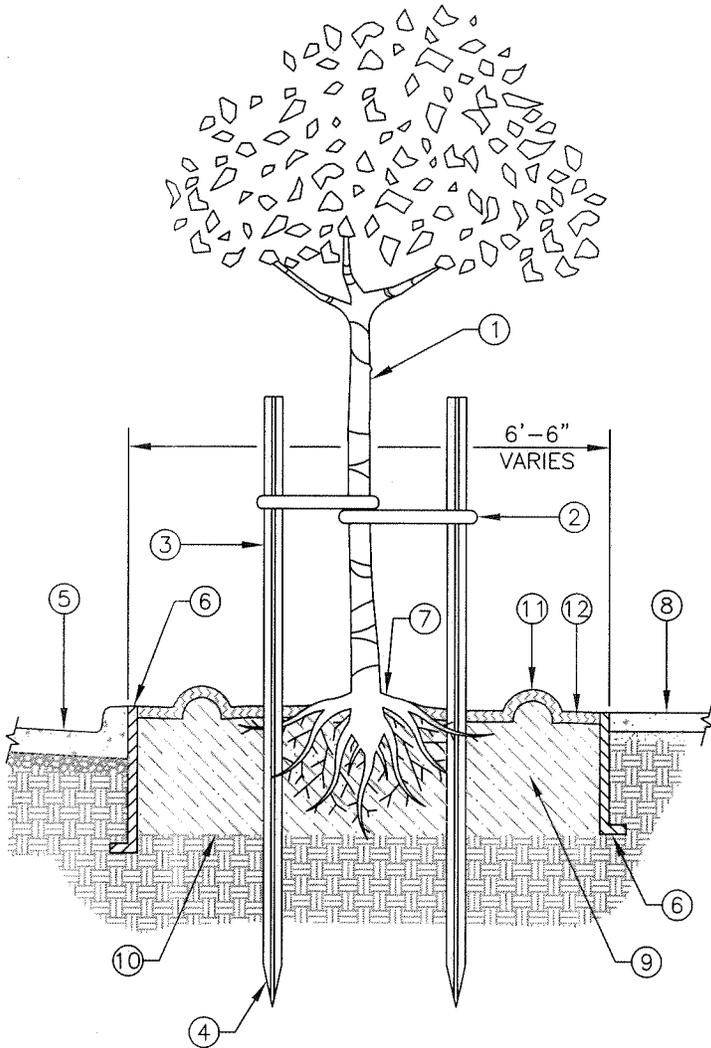
**STREET LIGHTS  
GENERAL NOTES**

**SL - 1**

SHEET 11 OF 11



PLAN VIEW



SECTION VIEW

NOTES:

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY STEEL GREEN T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN. INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 12" DEPTH (LB 12-2) NEXT TO SIDEWALKS AND 18" DEPTH (LB 18-2) NEXT TO CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑪ WATER RETENTION BERMS SHOULD BE SET 3' FROM THE TRUNK.
- ⑫ MULCH.

NOTE:

IN TURF AREAS PROVIDE ARBOR GUARD BRAND TRUNK PROTECTANT AND PROVIDE A BENDER BOARD AT THE OUTSIDE EDGE OF THE BERM.

REVISION	BY	DATE	APP. BY COUNCIL

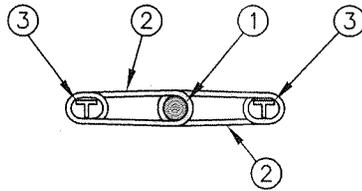
CITY OF CHICO

STANDARD PLAN

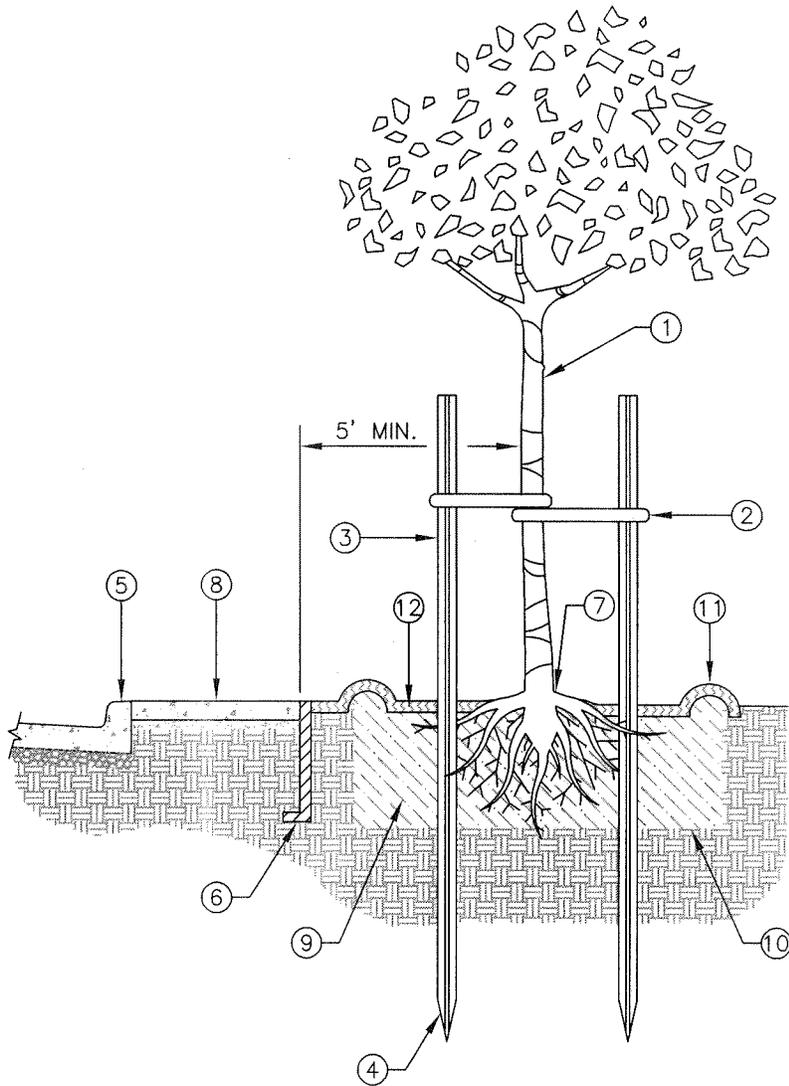
DRAWN BY: GL DATE: 9/09  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: *m*  
 CPSD DIRECTOR

FIFTEEN GALLON  
 TREE PLANTING DETAIL  
 AT PARKWAY STRIP

NO.  
**LS-1**  
 SHEET 1 OF 3



PLAN VIEW



SECTION VIEW

**NOTES:**

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY GREEN STEEL T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 12" DEPTH (LB 12-2) ALONG SIDEWALKS.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND 2" DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF SOIL MAY BE REQUIRED.
- ⑪ WATER RETENTION BERMS IN SHRUB AREAS.
- ⑫ MULCH.

NOTE:  
IN TURF AREAS PROVIDE  
ARBOR GUARD BRAND TRUNK  
PROTECTANT.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

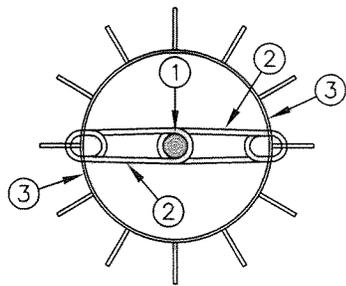
**STANDARD PLAN**

DRAWN BY: GL DATE: 9/09  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

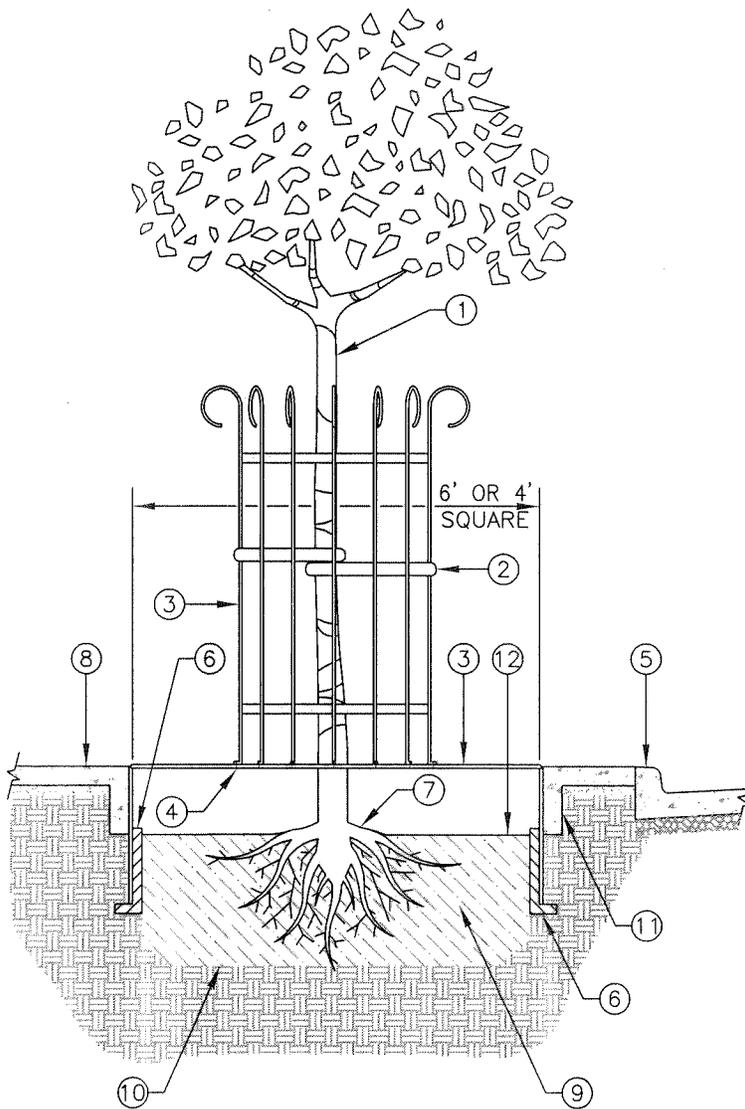
**FIFTEEN GALLON  
 TREE PLANTING DETAIL  
 AT BACK OF WALK**

NO.  
**LS-1**

SHEET 2 OF 3



PLAN VIEW



SECTION VIEW

NOTES:

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE, TWO PLACES.
- ③ NEENAH R-8713, 180° SQUARE, 60" OR 48" TREE GRATE WITH TREE GUARD, SEE CONSTRUCTION PLAN FOR DETAILS.
- ④ STEEL FLANGE 2"X3" PRE-DRILLED TO ACCEPT 2"X1/2"Ø THROUGH BOLT.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. 12" DEPTH (LB 12-2) NEXT TO SIDEWALKS AND 18" DEPTH (LB 18-2) NEXT TO CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT.
- ⑩ PLANTING HOLE SHALL BE THE WIDTH OF THE TREE WELL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑪ CONCRETE EDGE TO RETAIN SUBGRADE, 4" THICK MIN.
- ⑫ FINISH PLANTER GRADE - 7" BELOW TOP OF TREE GRATE.

REVISION			
BY	DATE	APP. BY	COUNCIL

**CITY OF CHICO**

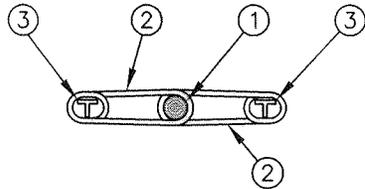
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 APPROVED: [Signature]  
 CPSD DIRECTOR

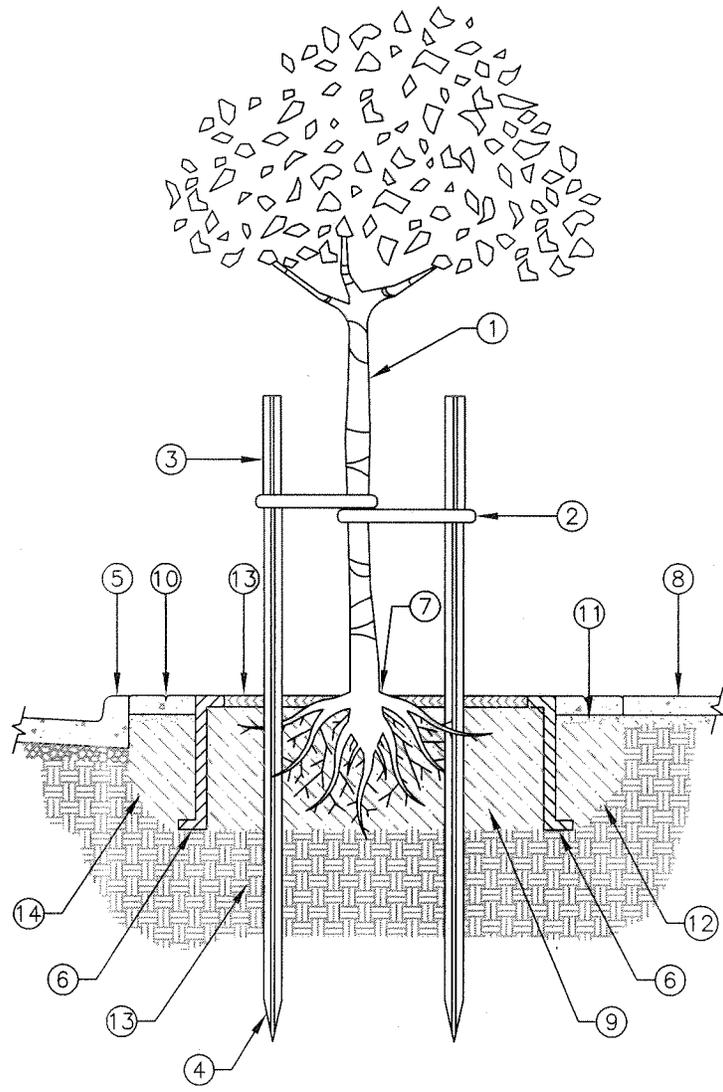
**FIFTEEN GALLON  
 TREE PLANTING DETAIL  
 WITH TREE GUARD**

NO.  
**LS-1**

SHEET 3 OF 3



**PLAN VIEW**



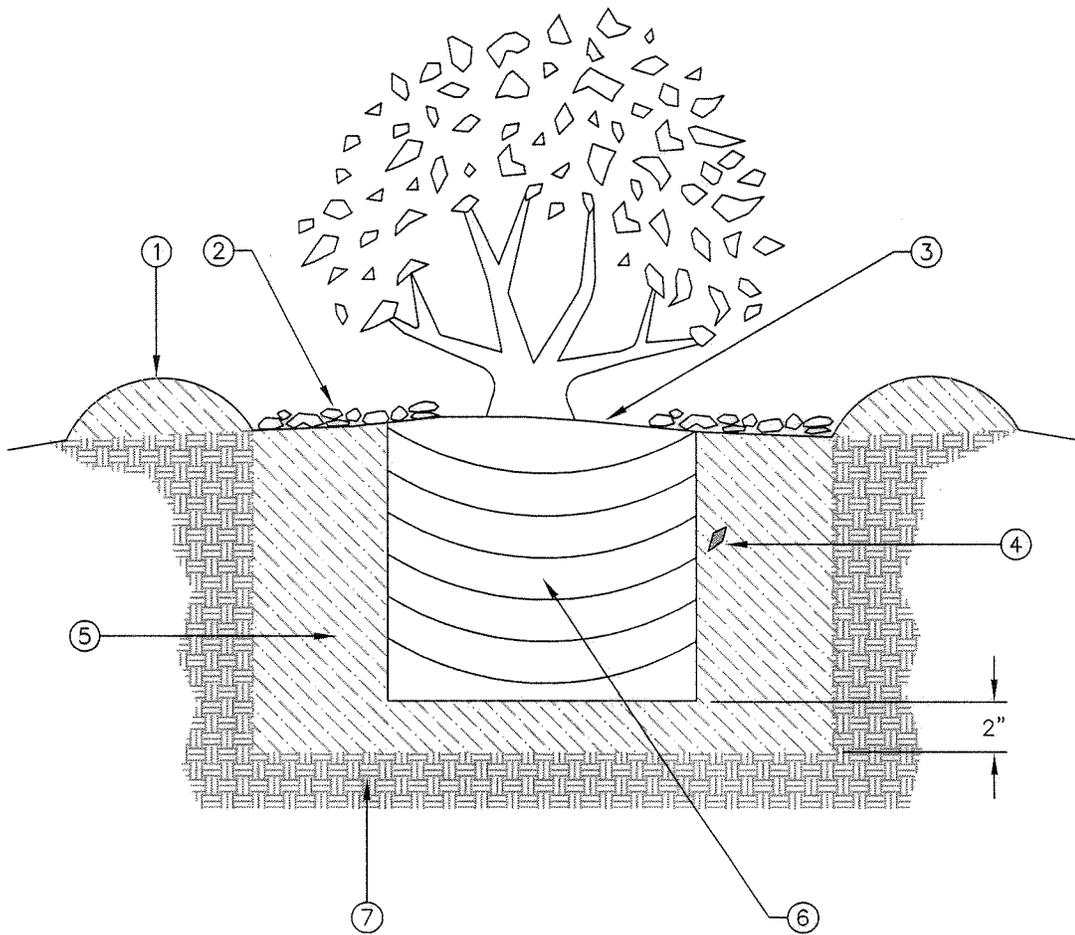
**SECTION VIEW**

**NOTES:**

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY STEEL T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 18" DEPTH (LB 18-2) ALONG CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ STAMPED CONCRETE, PER SPEC'S.
- ⑪ 2" SAND BASE.
- ⑫ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑬ MULCH.

REVISION	BY	DATE	APP. BY COUNCIL

<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>9/09</u>	<b>FIFTEEN GALLON TREE PLANTING DETAIL WITH STAMPED CONCRETE</b>	NO. <b>LS-2</b>
CHECKED BY: <u>DB</u>	SCALE: <u>NONE</u>		
APPROVED: <u><i>[Signature]</i></u>	CPSD DIRECTOR		
		SHEET 1 OF 1	



SECTION VIEW

NOTES:

- ① TEMPORARY WATERING BASIN; 4" HIGH BERM, TWICE THE DIAMETER OF THE ROOTBALL.
- ② TOP DRESSING: MULCH PER SPECIFICATIONS.
- ③ SET CROWN OF PLANT 1" ABOVE FINISH GRADE SOIL TO ALLOW FOR SETTLEMENT.
- ④ FERTILIZER TABLET(S) PER SPECIFICATIONS.
- ⑤ BACKFILL MIXTURE PER SPECIFICATIONS.
- ⑥ WELL DEVELOPED SHRUB ROOTBALL.
- ⑦ PLANTING HOLE SHALL BE TWICE DIAMETER OF ROOTBALL & 2" DEEPER THAN THE SHRUB ROOTBALL; SCARIFY SIDES AND BOTTOM OF HOLE FOR ALL LINERS, ONE, FIVE AND FIFTEEN GALLON SHRUBS.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

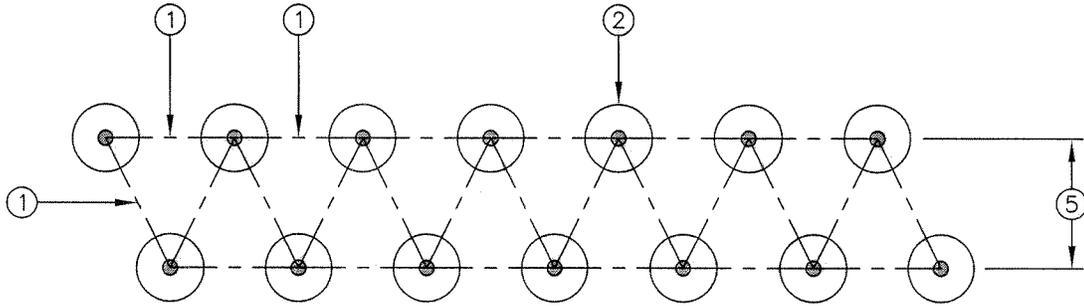
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

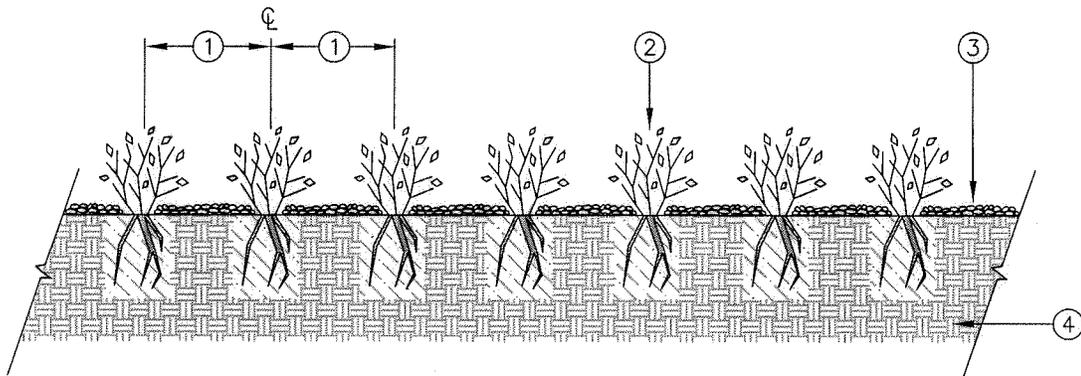
**CONTAINERIZED SHRUB  
PLANTING DETAIL**

NO.  
**LS-3**

SHEET 1 OF 1



PLAN VIEW



SECTION VIEW

NOTES:

- ① USE TRIANGULAR EQUIDISTANT SPACING BETWEEN PLANTINGS. SEE PLANS FOR SPACING DETAIL.
- ② GROUND COVER PLANTING LOCATION.
- ③ FINISH SURFACE WITH 1" OF TOP DRESSING OF MULCH. SEE SPECIFICATIONS.
- ④ AMENDED SOIL, SEE PLANS FOR SOIL PREPARATION.
- ⑤ PLANTING SPACING x 0.86.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

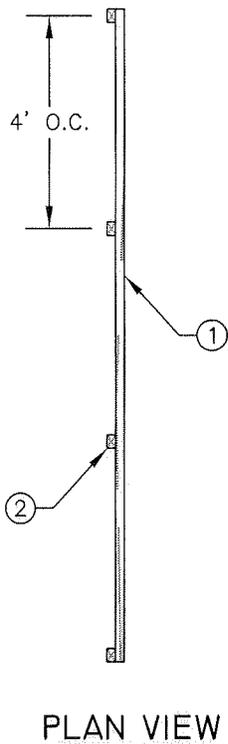
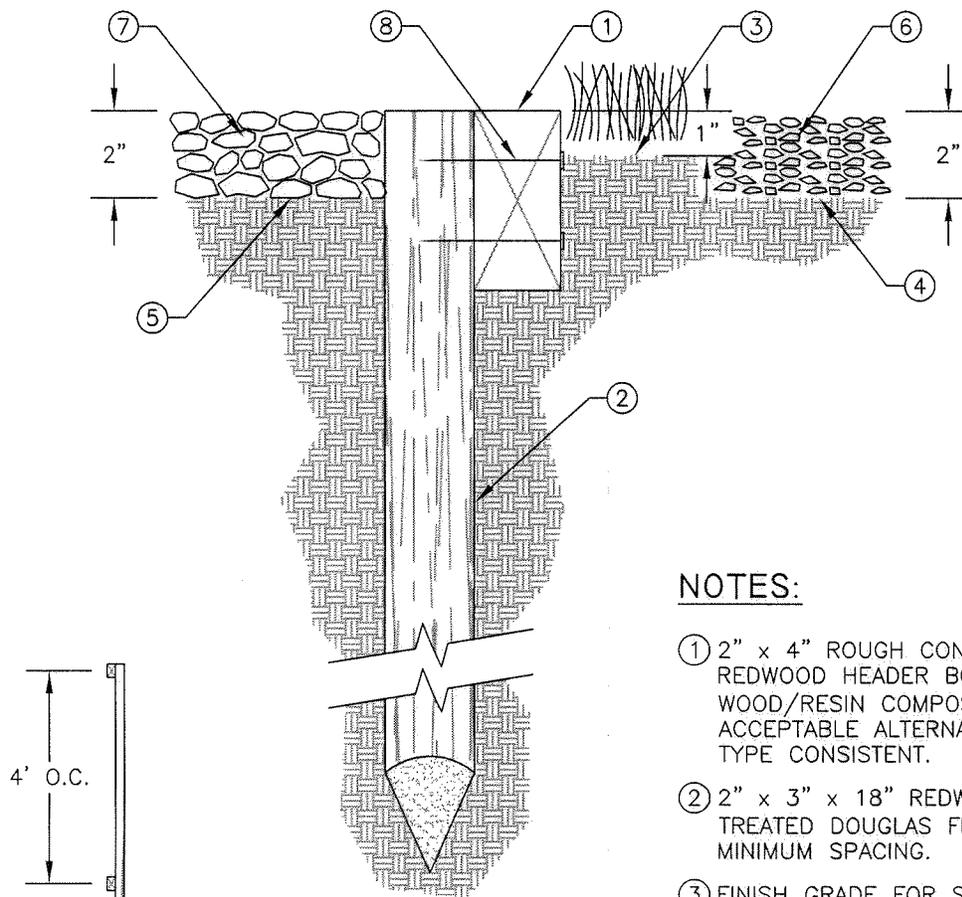
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**GROUND COVER  
PLANTING DETAIL**

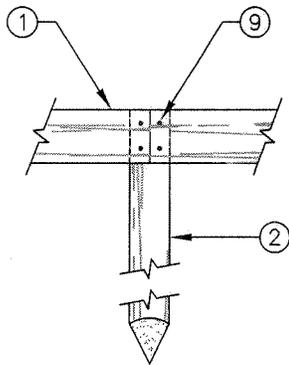
NO.  
**LS-4**

SHEET 1 OF 1



**SECTION VIEW**

**PLAN VIEW**



**SPlice PROFILE VIEW**

**NOTES:**

- ① 2" x 4" ROUGH CONSTRUCTION HEART REDWOOD HEADER BOARD. STEEL OR WOOD/RESIN COMPOSITE MATERIALS ARE ACCEPTABLE ALTERNATIVES. KEEP MATERIAL TYPE CONSISTENT.
- ② 2" x 3" x 18" REDWOOD OR PRESSURE TREATED DOUGLAS FIR STAKE @ 4' O.C. MINIMUM SPACING.
- ③ FINISH GRADE FOR SOIL IN TURF AREA -1".
- ④ FINISH GRADE FOR SOIL IN HARDSCAPE AREA -2".
- ⑤ FINISH GRADE FOR SOIL IN SHRUB OR GROUNDCOVER AREA -2".
- ⑥ DECOMPOSED GRANITE, ROCK DUST OR PAVING IN HARDSCAPE AREA.
- ⑦ REDWOOD BARK IN SHRUB AREA.
- ⑧ NAILS AT STAKES SHALL BE 16d GALVANIZED COMMON, 2 PER STAKE MINIMUM.
- ⑨ NAILS AT SPLICES SHALL BE 8d GALVANIZED COMMON, 4 PER SPLICE MINIMUM.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

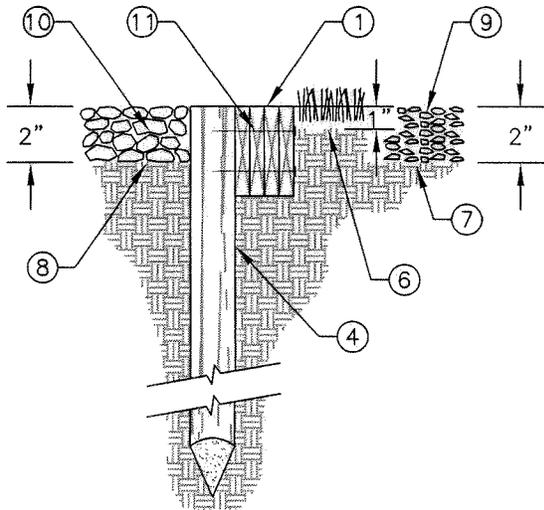
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**HEADER DETAIL**

NO.  
**LS-5**

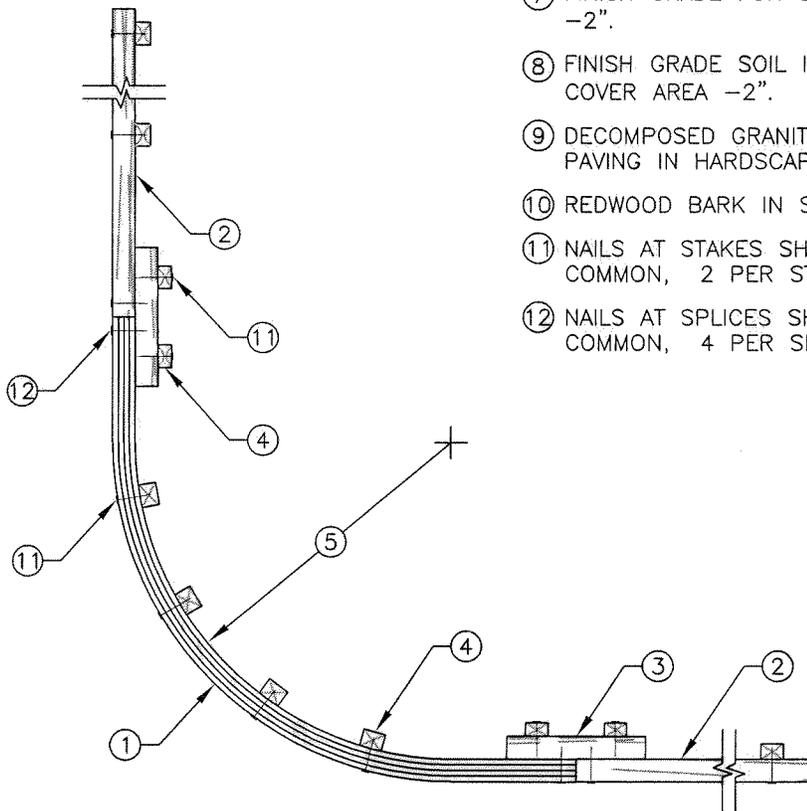
SHEET 1 OF 2



SECTION VIEW

NOTES:

- ① TWO (2) 1" x 4" OR FOUR (4) 1/2" x 4" LAMINATED ROUGH CONSTRUCTION HEART REDWOOD BENDER BOARDS AS REQUIRED TO MAKE SMOOTH CURVES. STEEL OR WOOD/RESIN COMPOSITE MATERIALS ARE ACCEPTABLE ALTERNATIVES. KEEP MATERIAL TYPE CONSISTENT.
- ② 2" x 4" ROUGH CONSTRUCTION HEART REDWOOD HEADER BOARD.
- ③ 2" x 4" x 24" ROUGH CONSTRUCTION HEART REDWOOD BACKING BLOCK AT SPLICES.
- ④ 2" x 3" x 18" MINIMUM, REDWOOD OR PRESSURE TREATED DOUGLAS FIR STAKE @ 4' O.C. MINIMUM SPACING.
- ⑤ RADIUS AS PER PLANS.
- ⑥ FINISH GRADE FOR SOIL IN TURF AREA -1".
- ⑦ FINISH GRADE FOR SOIL IN HARDSCAPE AREA -2".
- ⑧ FINISH GRADE SOIL IN SHRUB OR GROUND COVER AREA -2".
- ⑨ DECOMPOSED GRANITE, ROCK DUST OR PAVING IN HARDSCAPE AREA.
- ⑩ REDWOOD BARK IN SHRUB AREA.
- ⑪ NAILS AT STAKES SHALL BE 16d GALVANIZED COMMON, 2 PER STAKE MINIMUM.
- ⑫ NAILS AT SPLICES SHALL BE 8d GALVANIZED COMMON, 4 PER SPLICE MINIMUM.



PLAN VIEW

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

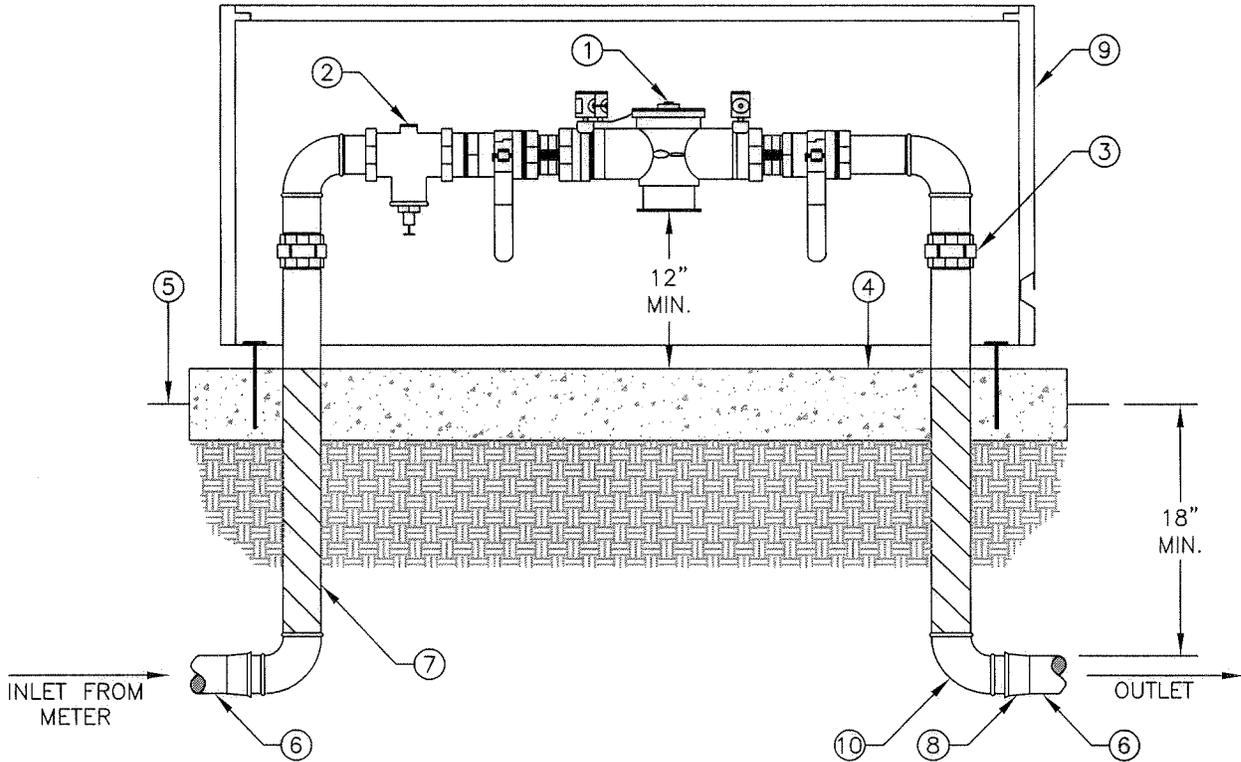
**STANDARD PLAN**

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 CHECKED BY: DB      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**LAMINATED HEADER DETAIL**

NO.  
**LS-5**

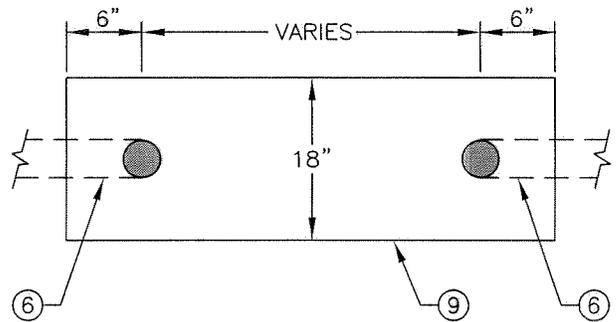
SHEET 2 OF 2



**SECTION VIEW**

**NOTES:**

- ① WILKINS 975RP REDUCED BACKFLOW PREVENTER OR APPROVED EQUAL. SEE PLANS FOR SIZE.
- ② WILKINS 70 PRESSURE REGULATOR OR APPROVED EQUAL, IF REQUIRED, SEE PLANS.
- ③ UNION (TYP).
- ④ 4" CONCRETE PAD SET 2" ABOVE FINISH GRADE IN GROUNDCOVER OR DECOMPOSED GRANITE, 1" ABOVE FINISH GRADE IN TURF.
- ⑤ FINISH GRADE.
- ⑥ SCHEDULE 40 OR 315 PVC MAINLINE. SEE PLANS FOR SIZE AND TYPE.
- ⑦ WRAP ALL BURIED GALVANIZED PIPE PER SPECS.
- ⑧ PVC SCHEDULE 40 ADAPTER/BUSHING (MFT x SLIP)
- ⑨ STAINLESS STEEL OR ALUMINUM ENCLOSURE, STRONG BOX SBBC AL SERIES OR APPROVED EQUAL. SEE PLANS FOR SIZE.
- ⑩ SCH. 40 GALVANIZED PIPE AND FITTINGS.



**PLAN VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

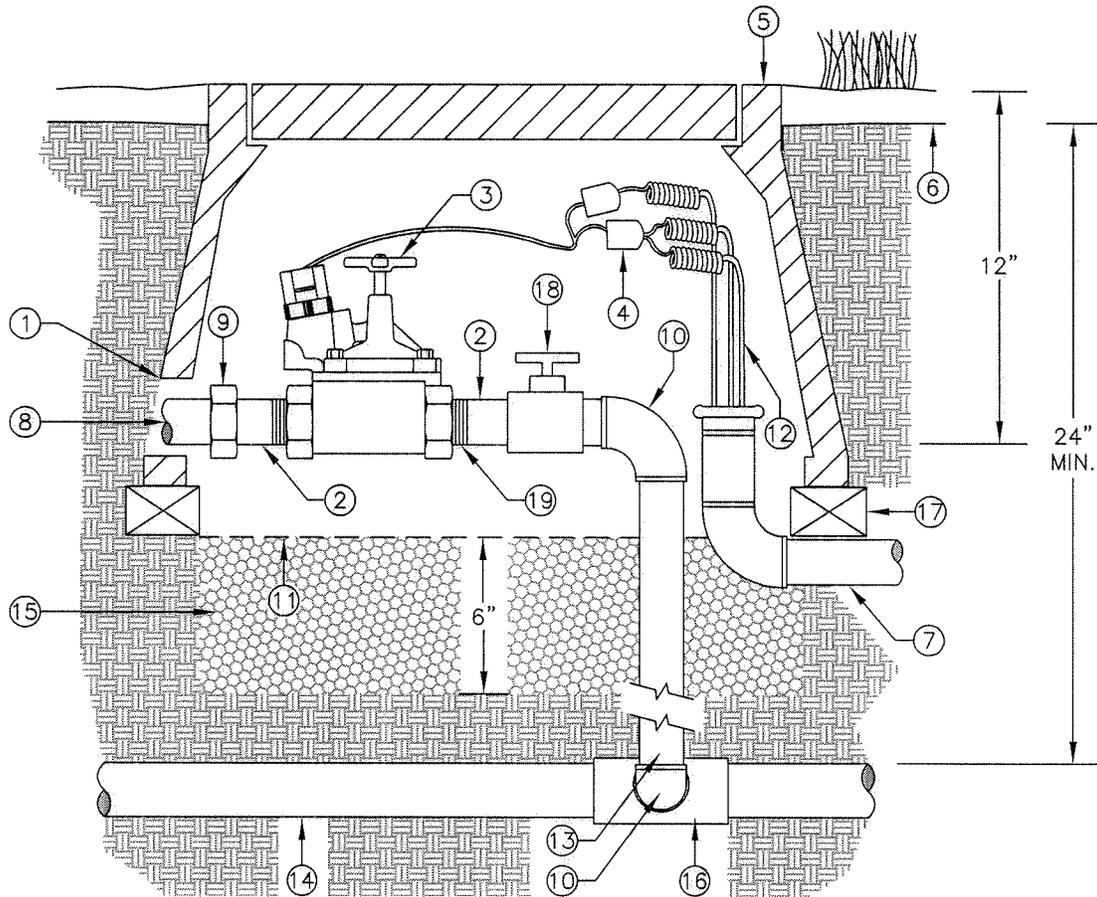
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**REDUCED PRESSURE  
BACKFLOW PREVENTER**

NO.  
**LS-7**

SHEET 1 OF 1



**SECTION VIEW**

**NOTES:**

- ① TRIM VALVE BOX TO PROVIDE 1" CLEARANCE OVER PIPE.
- ② MACHINED SCHEDULE 40 PVC SHORT NIPPLE, T.O.E.
- ③ REMOTE CONTROL VALVE HARDIE 700 SERIES OR RAINBIRD P.E.B. SERIES, ONE PER BOX.
- ④ DBY. PENTITE OR OTHER CITY APPROVED SPLICE.
- ⑤ PLASTIC VALVE BOX, CARSON 1419B 14" x 19" OR EQUAL AS SPECIFIED WITH LID LABELED "IRRIGATION". SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ⑥ FINISH GRADE.
- ⑦ SCHED. 40 ELECTRICAL CONDUIT AND SWEEP, SEE PLANS FOR SIZE.
- ⑧ PVC SCHD. 40 LATERAL LINE; PROVIDE 18" LENGTH PRIOR TO FIRST FITTING.
- ⑨ SCHEDULE 80 PVC UNION, SxS.
- ⑩ SCHEDULE 40 PVC ELBOW SxS.
- ⑪ 1/4" GALVANIZED WIRE CLOTH PLACED ABOVE GRAVEL.
- ⑫ CONTROL AND COMMON WIRES, SIZE AS REQ.. PROVIDE MINIMUM 18" COILED EXTRA.
- ⑬ SCHEDULE 40 PVC NIPPLE, LENGTH AS REQUIRED.
- ⑭ SOLVENT WELD SCH. 40 OR CLASS 315 MAINLINE. 24" MINIMUM COVER.
- ⑮ PEA GRAVEL; 6" DEPTH.
- ⑯ SCHEDULE 80 PVC TEE (SxSxS).
- ⑰ (4) COMMON BRICKS FOR VALVE BOX SUPPORT.
- ⑱ LINE SIZE BALL VALVE.
- ⑲ USE MIN. 3 WRAPS OF TEFLON TAPE AT EACH THREADED CONNECTION.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

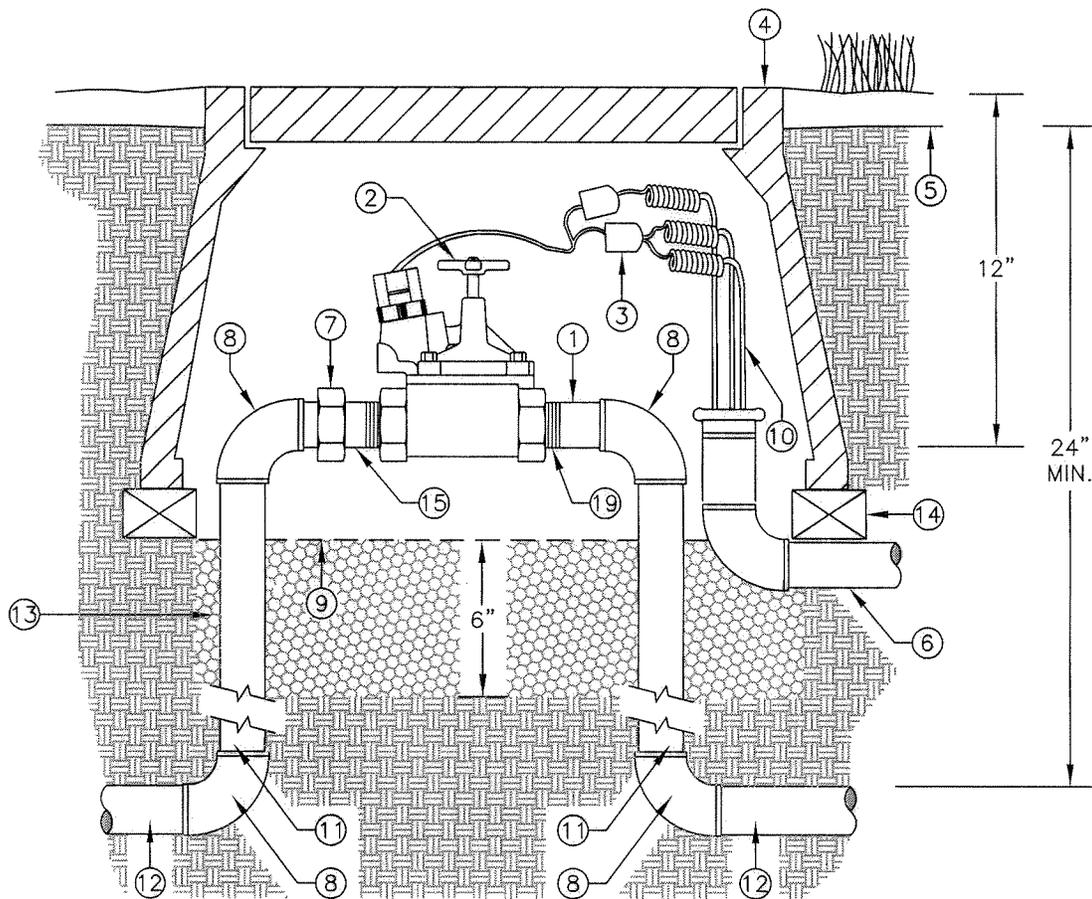
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**REMOTE CONTROL VALVE**

NO. **LS-8**

SHEET 1 OF 2



**SECTION VIEW**

**NOTES:**

- ① MACHINED SCHEDULE 40 PVC SHORT NIPPLE, T.O.E.
- ② REMOTE CONTROL VALVE HARDIE 100 SERIES (CENTURY), NORMALLY OPEN OR EQUAL, ONE PER BOX.
- ③ DBY. PENTITE OR OTHER CITY APPROVED SPLICE.
- ④ PLASTIC VALVE BOX, CARSON 1419B 14" x 19" OR EQUAL AS SPECIFIED WITH LID LABELED "IRRIGATION". SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ⑤ FINISH GRADE.
- ⑥ SCHED. 40 ELECTRICAL CONDUIT AND SWEEP, SEE PLANS FOR SIZE.
- ⑦ SCHEDULE 80 PVC UNION, SxS.
- ⑧ SCHEDULE 40 PVC ELBOW SxS.
- ⑨ 1/4" GALVANIZED WIRE CLOTH PLACED ABOVE GRAVEL.
- ⑩ CONTROL AND COMMON WIRES, SIZE AS REQ.. PROVIDE MINIMUM 18" COILED EXTRA.
- ⑪ SCHEDULE 40 PVC NIPPLE, LENGTH AS REQUIRED.
- ⑫ SOLVENT WELD SCH. 40 OR CLASS 315 MAINLINE. 24" MINIMUM COVER.
- ⑬ PEA GRAVEL; 6" DEPTH.
- ⑭ (4) COMMON BRICKS FOR VALVE BOX SUPPORT.
- ⑮ SCHEDULE 40 MALE ADAPTER (SxMPT).
- ⑯ USE MIN. 3 WRAPS OF TEFLON TAPE AT EACH THREADED CONNECTION.

REVISION			
BY	DATE	APP. BY	COUNCIL

**CITY OF CHICO**

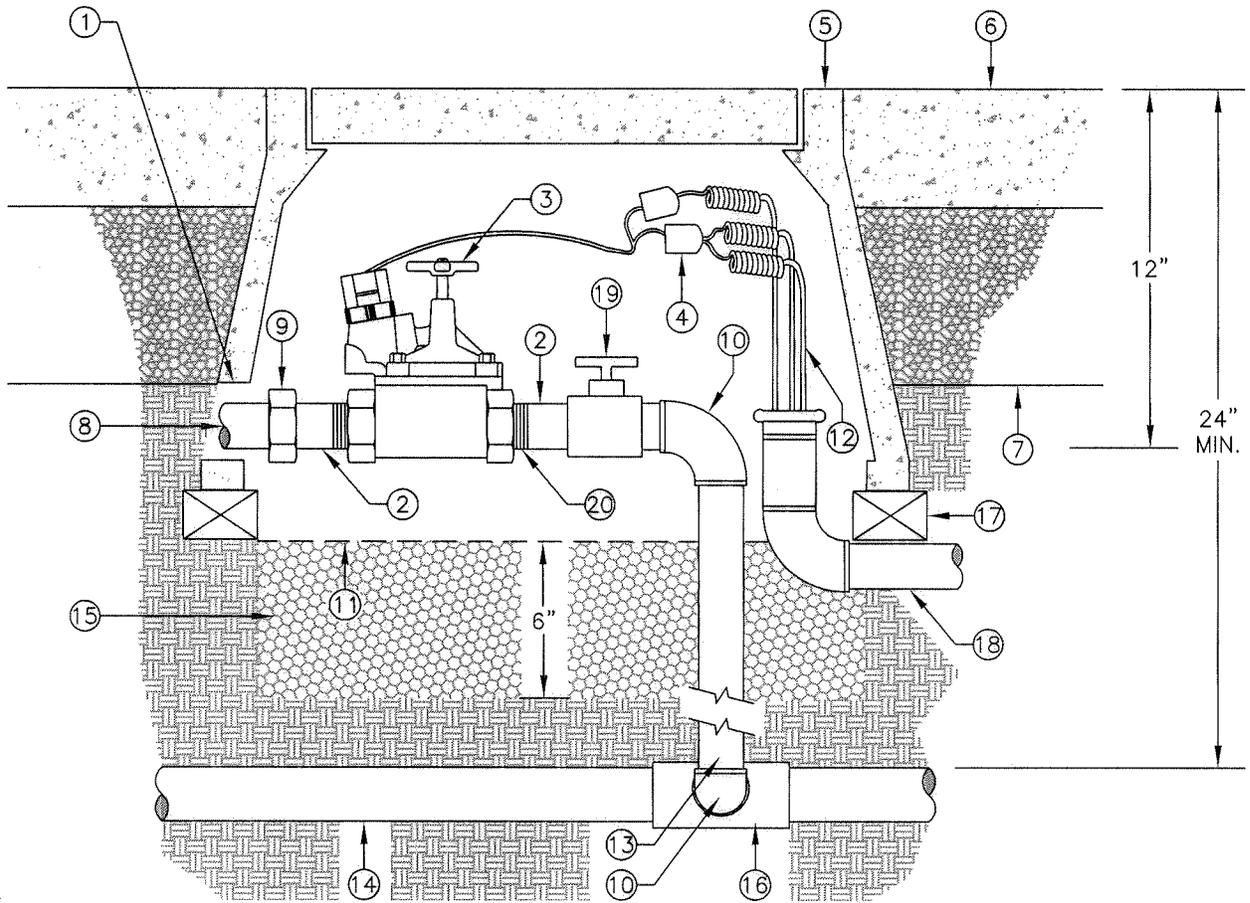
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**MASTER REMOTE CONTROL VALVE**

NO. **LS-8**

SHEET 2 OF 2



**SECTION VIEW**

**NOTES:**

- ① TRIM VALVE BOX TO PROVIDE 1" CLEARANCE OVER PIPE.
- ② MACHINED SCHEDULE 40 PVC SHORT NIPPLE, T.O.E.
- ③ REMOTE CONTROL VALVE HARDIE 700 SERIES OR RAINBIRD P.E.B. SERIES, ONE PER BOX.
- ④ DBY. PENTITE OR OTHER CITY APPROVED SPLICE.
- ⑤ CONCRETE VALVE BOX, CHRISTY B-9 UTILITY BOX OR APPROVED EQUAL WITH LID LABELED "IRRIGATION".
- ⑥ CONCRETE PAVING.
- ⑦ COMPACTED BASE, DEPTH PER PLANS.
- ⑧ PVC SCHD. 40 LATERAL LINE; PROVIDE 18" LENGTH PRIOR TO FIRST FITTING.
- ⑨ SCHEDULE 80 PVC UNION, SxS.
- ⑩ SCHEDULE 40 PVC ELBOW SxS.
- ⑪ 1/4" GALVANIZED WIRE CLOTH PLACED ABOVE GRAVEL.
- ⑫ CONTROL AND COMMON WIRES, SIZE AS REQ.. PROVIDE MINIMUM 18" COILED EXTRA.
- ⑬ SCHEDULE 40 PVC NIPPLE, LENGTH AS REQUIRED.
- ⑭ SOLVENT WELD SCH. 40 OR CLASS 315 MAINLINE. 24" MINIMUM COVER.
- ⑮ PEA GRAVEL; 6" DEPTH.
- ⑯ SCHEDULE 80 PVC TEE (SxSxS).
- ⑰ (4) COMMON BRICKS FOR VALVE BOX SUPPORT.
- ⑱ SCHEDULE 40 ELECTRICAL CONDUIT AND SWEEP ELL.
- ⑲ LINE SIZE BALL VALVE.
- ⑳ USE MIN. 3 WRAPS OF TEFLON TAPE AT EACH THREADED CONNECTION.

REVISION	BY	DATE	APP. BY COUNCIL

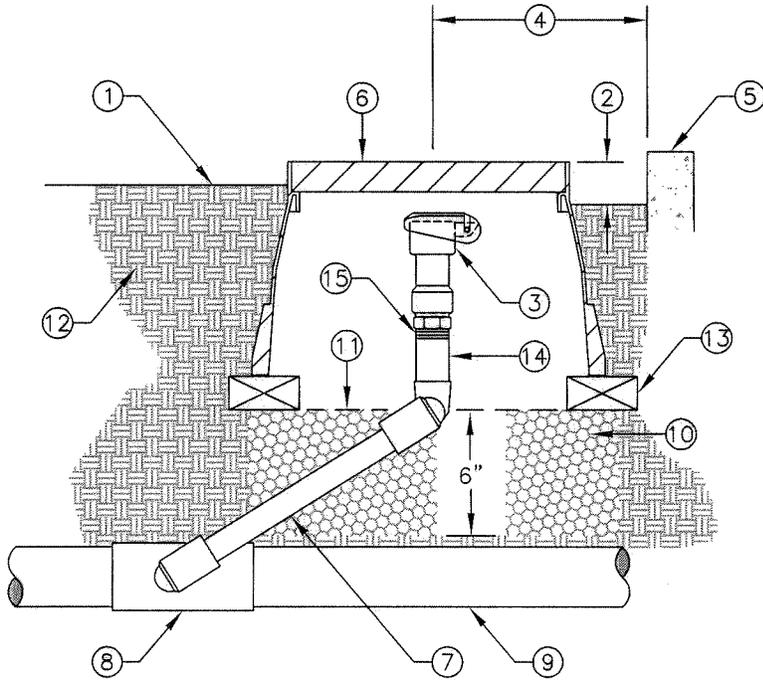
**CITY OF CHICO**

**STANDARD PLAN**

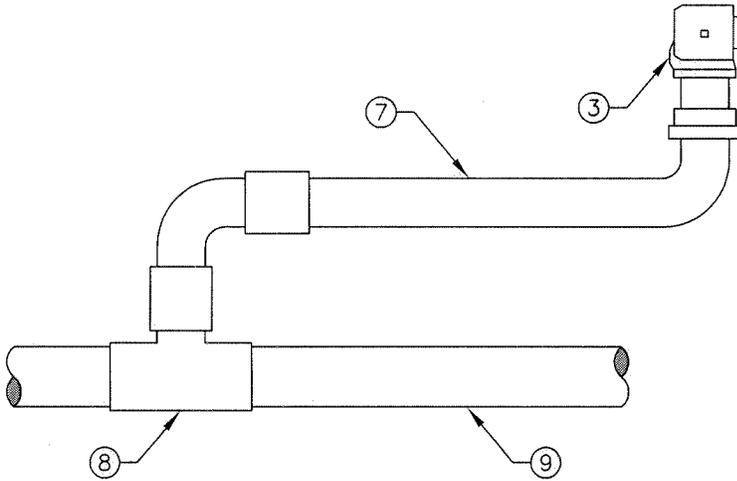
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 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**REMOTE CONTROL VALVE IN PAVING (NON VEHICULAR)**

NO. **LS-9**  
 SHEET 1 OF 1



SECTION VIEW



PLAN VIEW

**NOTES:**

- ① FINISH GRADE.
- ② SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ③ QUICK COUPLING VALVE WITH LOCKING RUBBER COVER, RAINBIRD 44-LRC OR APPROVED EQUAL.
- ④ SET QUICK COUPLER 12" FROM EDGE OF PLANTING AREA.
- ⑤ CURB, HEADER OR PAVING.
- ⑥ PLASTIC VALVE BOX WITH QUICK COUPLER VALVE, CARSON 910 OR APPROVED EQUAL.
- ⑦ MANUFACTURED TRIPLE SWING JOINT, KBI SPIGOT X SOCKET, OR EQUAL.
- ⑧ SCHEDULE 40 PVC TEE (SXSXS).
- ⑨ SCHEDULE 40 OR CLASS 315 PVC MAINLINE; 24" MINIMUM COVER.
- ⑩ PEA GRAVEL, 6" DEPTH.
- ⑪ 1/4" GALVANIZED WIRE CLOTH PLACED ABOVE GRAVEL.
- ⑫ PREPARED SUBGRADE.
- ⑬ (3) COMMON BRICKS FOR SUPPORT.
- ⑭ NIPPLE, T.O.E.
- ⑮ USE MINIMUM 3 WRAPS OF TEFLON TAPE AT EACH THREADED CONNECTION.

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**CITY OF CHICO**

**STANDARD PLAN**

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 DIRECTOR OF ENGINEERING

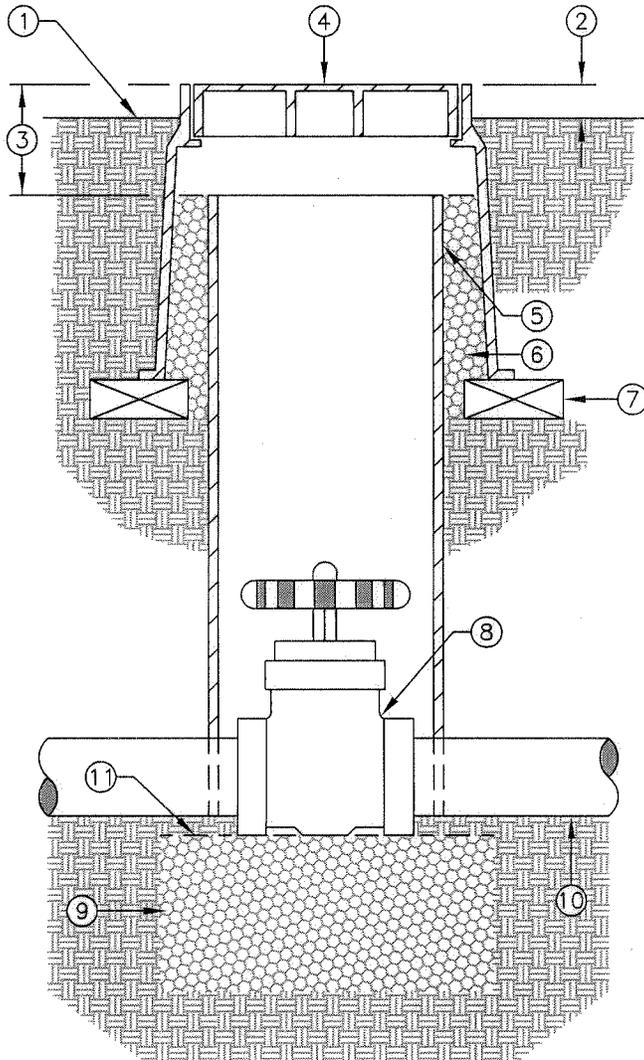
**QUICK COUPLING VALVE**

NO.  
**LS-10**

SHEET 1 OF 1

**NOTES:**

- ① FINISH GRADE.
- ② SET TOP OF BOX ABOVE FINISH GRADE:  
1" IN SOD, 2" IN PLANTER OR  
DECOMPOSED GRANITE.
- ③ ALLOW 3" BETWEEN TOP OF VALVE  
BOX AND PVC PIPE.
- ④ CARSON 910 OR EQUAL 10" DIAMETER  
GREEN PLASTIC VALVE BOX WITH  
LOCKING LID.
- ⑤ 6" DIAMETER SCHEDULE 40 PVC PIPE.  
LENGTH AS REQUIRED.
- ⑥ PEA GRAVEL - 1 CU. FT.
- ⑦ (3) COMMON BRICKS FOR SUPPORT.
- ⑧ LINE SIZE BALL VALVE, SEE PROJECT  
SPECS. FOR MANUFACTURER.
- ⑨ 6" MINIMUM DEPTH PEA GRAVEL.
- ⑩ SCHEDULE 40 OR CLASS 315 PVC  
PRESSURE LINE, 24" MINIMUM COVER.
- ⑪ 1/4" GALVANIZED WIRE CLOTH.



**SECTION VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

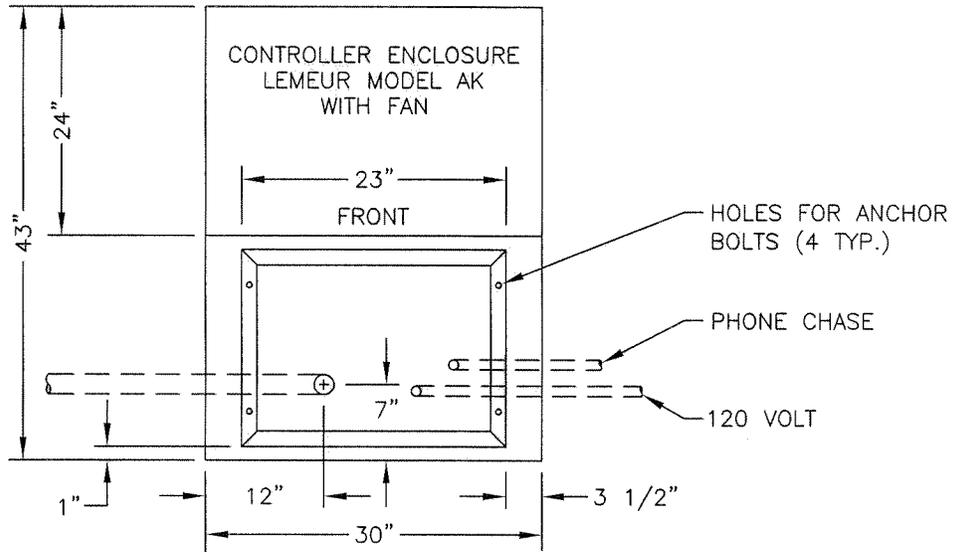
**STANDARD PLAN**

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 DIRECTOR OF ENGINEERING

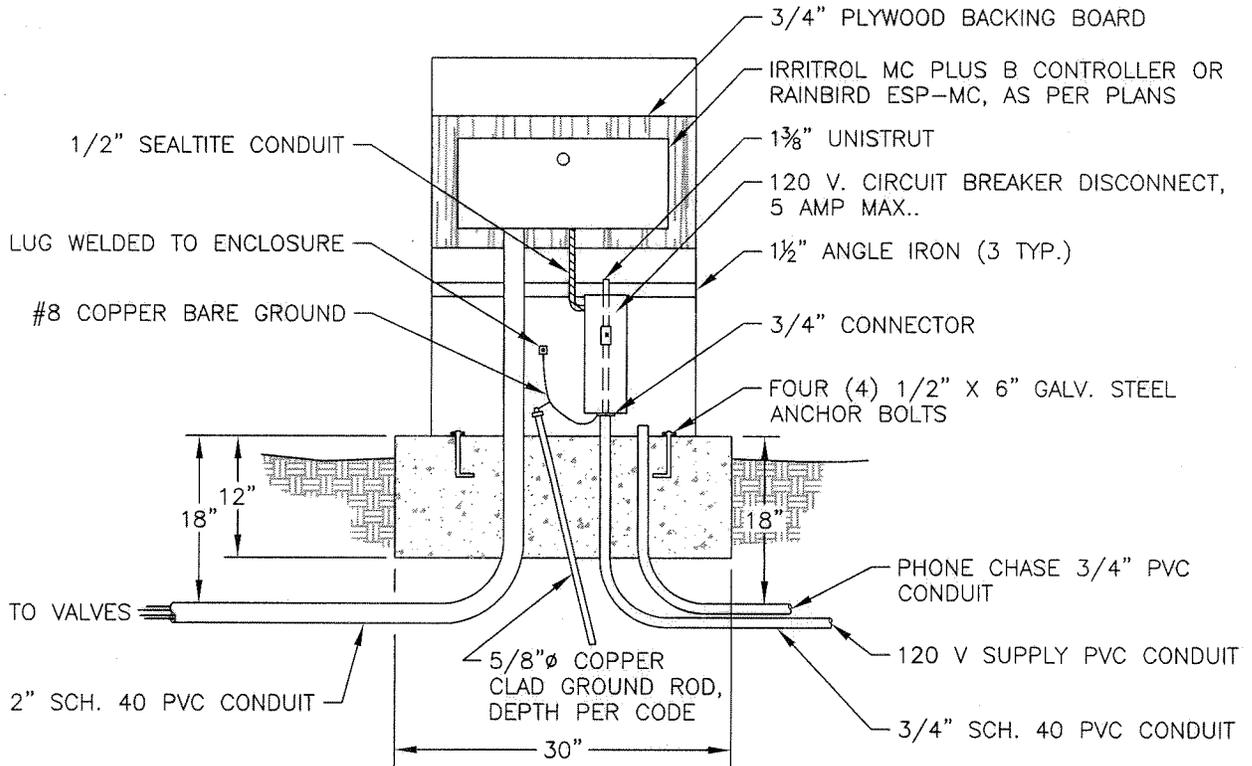
**TRU-UNION BALL VALVE**

NO.  
**LS-II**

SHEET 1 OF 1



PLAN VIEW



SECTION VIEW

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

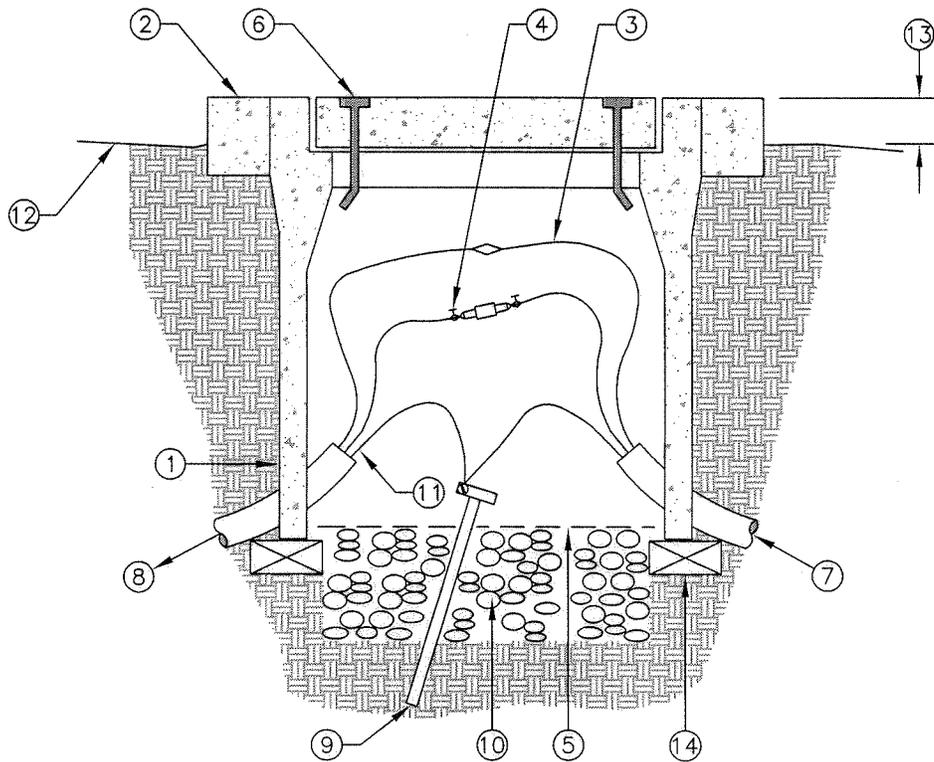
**STANDARD PLAN**

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 APPROVED: [Signature]  
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**CONTROLLER ENCLOSURE  
WITH FAN**

NO.  
**LS-12**

SHEET 1 OF 1



SECTION VIEW

NOTES:

- |   |  |
|---|--|
| <p>① NO. 5½ BOX, LID LABELED "IRRIGATION", CONCRETE FORNI OR EQUAL.</p> <p>② INSTALL NEW 6" x 6" P.C.C. COLLAR.</p> <p>③ PROVIDE 6' OF CONDUCTOR SLACK - INSIDE OF HANDHOLE, NEATLY COILED. CONDUCTOR SIZE PER SPEC'S.</p> <p>④ WATERPROOF 1 POLE FUSED SPLICE. CONNECT WITH 5 AMP FUSE, PER SPEC'S.</p> <p>⑤ 1/4" GALVANIZED WIRE MESH.</p> <p>⑥ HOLD DOWN BOLT.</p> <p>⑦ FROM PG&amp;E OR POWER SOURCE.</p> | <p>⑧ TO LOAD.</p> <p>⑨ 5/8" COPPER CLAD GROUND ROD, LENGTH AS REQUIRED.</p> <p>⑩ 3/4" DRAIN ROCK 6" DEPTH.</p> <p>⑪ SEAL CONDUIT WITH ELECTRICIANS PUTTY.</p> <p>⑫ FINISH GRADE.</p> <p>⑬ SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.</p> <p>⑭ (3) COMMON BRICKS FOR SUPPORT.</p> |
|---|--|

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**CITY OF CHICO**

**STANDARD PLAN**

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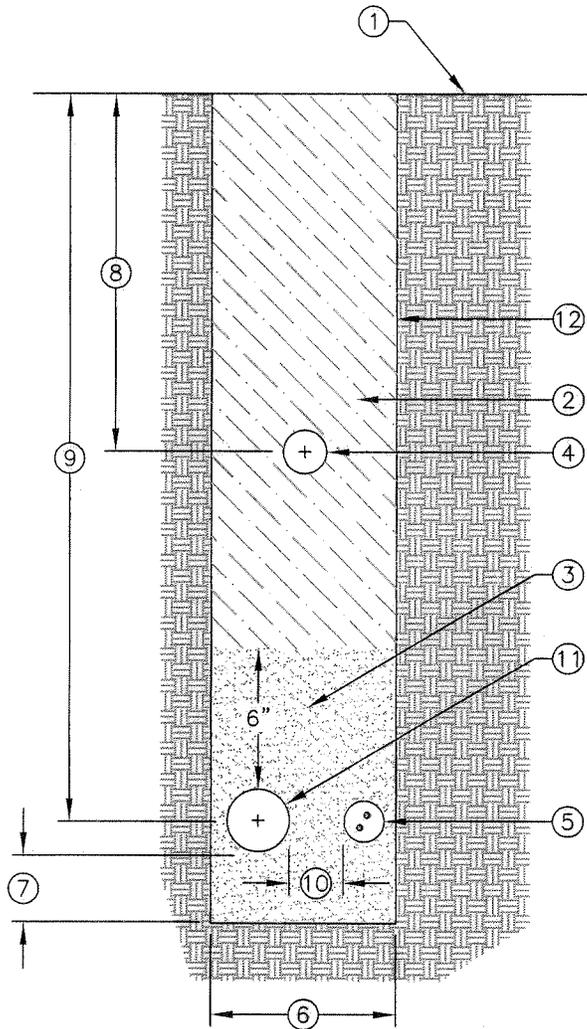
**CONTROLLER SERVICE  
PULL BOX**

NO.  
**LS-13**

SHEET 1 OF 1

**NOTES:**

- ① FINISH GRADE.
- ② TOPSOIL BACKFILL, NO PARTICLES GREATER THAN 1". COMPACT PER SPECIFICATIONS.
- ③ SIX INCHES SAND FILL COVER, ABOVE MAINLINE.
- ④ PVC PIPE LATERAL.
- ⑤ ELECTRIC WIRES IN 2" SCHEDULE 40 ELECTRICAL CONDUIT FROM CONTROLLER TO VALVE.
- ⑥ 6" UNLESS OTHERWISE NOTED.
- ⑦ 2" FROM BOTTOM OF TRENCH.
- ⑧ LATERAL - 12" MIN. COVER.
- ⑨ MAINLINE - 24" MIN. COVER.
- ⑩ 2" MINIMUM SEPARATION.
- ⑪ PVC PIPE MAINLINE.
- ⑫ SIDES OF TRENCH WILL BE DUG SQUARE AND BE CLEAN OF ALL SHARP MATERIAL.



**SECTION VIEW**

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**CITY OF CHICO**

**STANDARD PLAN**

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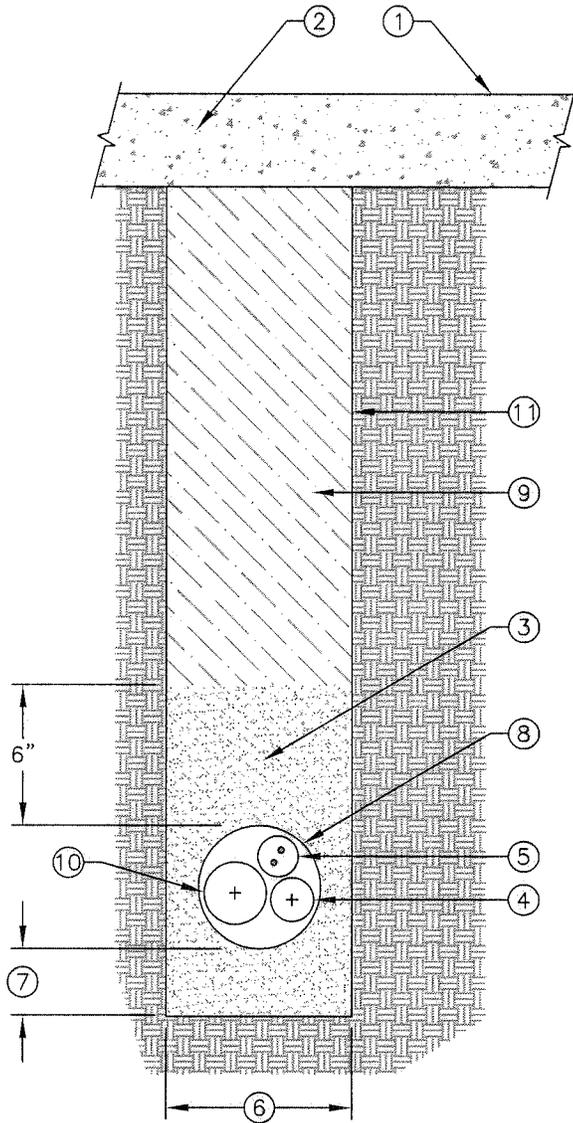
**TRENCHING DETAIL**

NO.  
**LS-14**

SHEET 1 OF 3

**NOTES:**

- ① FINISH GRADE.
- ② PAVING.
- ③ SIX INCHES SAND FILL COVER, ABOVE TOP PIPE.
- ④ PVC PIPE LATERAL.
- ⑤ ELECTRIC WIRES IN 2" SCHEDULE 40 ELECTRICAL CONDUIT FROM CONTROLLER TO VALVE.
- ⑥ 6" UNLESS OTHERWISE NOTED.
- ⑦ 2" FROM BOTTOM OF TRENCH.
- ⑧ SLEEVING - 26" BENEATH PAVING, MINIMUM SIZE: 4" OR AS REQUIRED.
- ⑨ NATIVE SOIL COMPACTED TO 95%.
- ⑩ PVC PIPE MAINLINE.
- ⑪ SIDES OF TRENCH WILL BE DUG SQUARE AND BE CLEAN OF ALL SHARP MATERIAL.



**SECTION VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

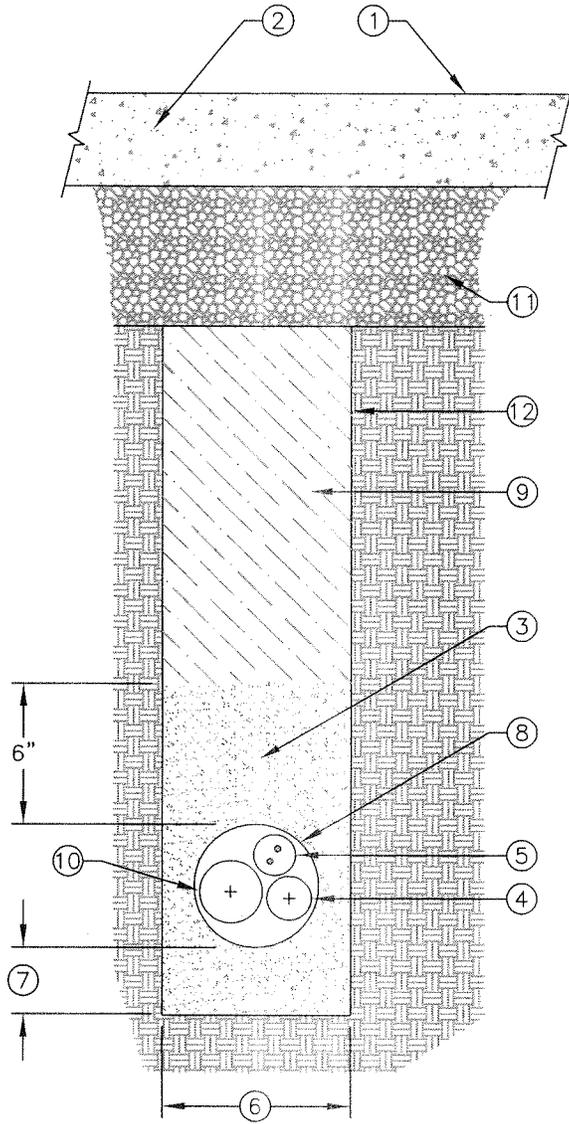
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**TRENCHING DETAIL  
 BENEATH PAVING  
 (NON-VEHICULAR)**

NO.  
**LS-14**  
 SHEET 2 OF 3

**NOTES:**

- ① FINISH GRADE.
- ② PAVING.
- ③ SIX INCHES SAND FILL COVER, ABOVE TOP PIPE.
- ④ PVC PIPE LATERAL.
- ⑤ ELECTRIC WIRES IN 2" SCHEDULE 40 ELECTRICAL CONDUIT FROM CONTROLLER TO VALVE.
- ⑥ 6" UNLESS OTHERWISE NOTED.
- ⑦ 2" FROM BOTTOM OF TRENCH.
- ⑧ SLEEVING - 26" BENEATH PAVING, MINIMUM SIZE: 4" OR AS REQUIRED.
- ⑨ NATIVE SOIL COMPACTED TO 95%.
- ⑩ PVC PIPE MAINLINE.
- ⑪ PAVEMENT SUBGRADE AS PER CITY OF CHICO SPECIFICATIONS.
- ⑫ SIDES OF TRENCH WILL BE DUG SQUARE AND BE CLEAN OF ALL SHARP MATERIAL.



SECTION VIEW

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

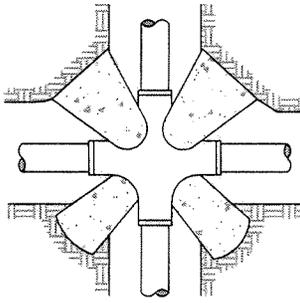
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 DIRECTOR OF ENGINEERING

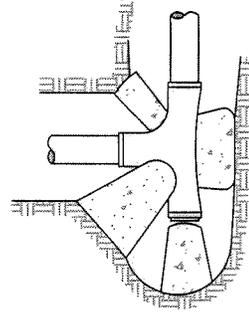
**TRENCHING DETAIL  
 BENEATH PAVING  
 (VEHICULAR)**

NO.  
**LS-14**

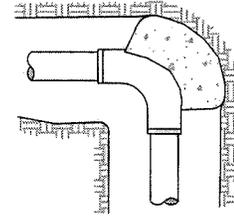
SHEET 3 OF 3



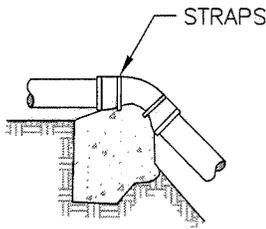
PLAN



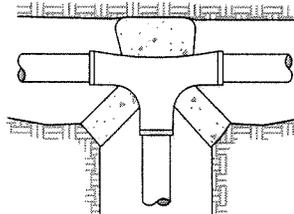
PLAN



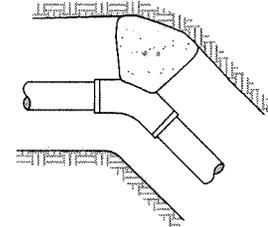
PLAN



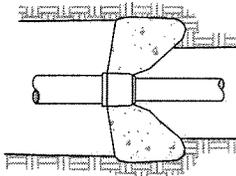
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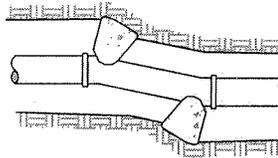
PLAN



PLAN



PLAN



PLAN

NOTES:

1. ALL MAINLINE TO BE INSTALLED AND TESTED ACCORDING TO PIPE MANUFACTURER'S SPECS, WHICH SHALL BE A PART OF THE INSTALLATION SPECS.
2. ALL TRENCH DEPTHS AND WIDTHS SHALL BE AS SHOWN ON THE IRRIGATION PLANS.
3. FINAL LOCATION OF THRUST BLOCKS SHALL BE DETERMINED BY THE PROJECT DESIGNER.
4. SIZE OF BEARING SURFACE PER SPECIFICATIONS.
5. BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL.
6. INSTALL THRUST BLOCK AS SHOWN ABOVE ON ALL RING-TITE PIPE AND SOLVENT WELD PIPE 3" OR LARGER.
7. INSTALL THRUST BLOCKS ON SOLVENT WELD PIPE 2½" OR SMALLER MAINLINES ONLY WHEN MAINLINE PRESSURE IS GREATER THEN 75 PSI.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

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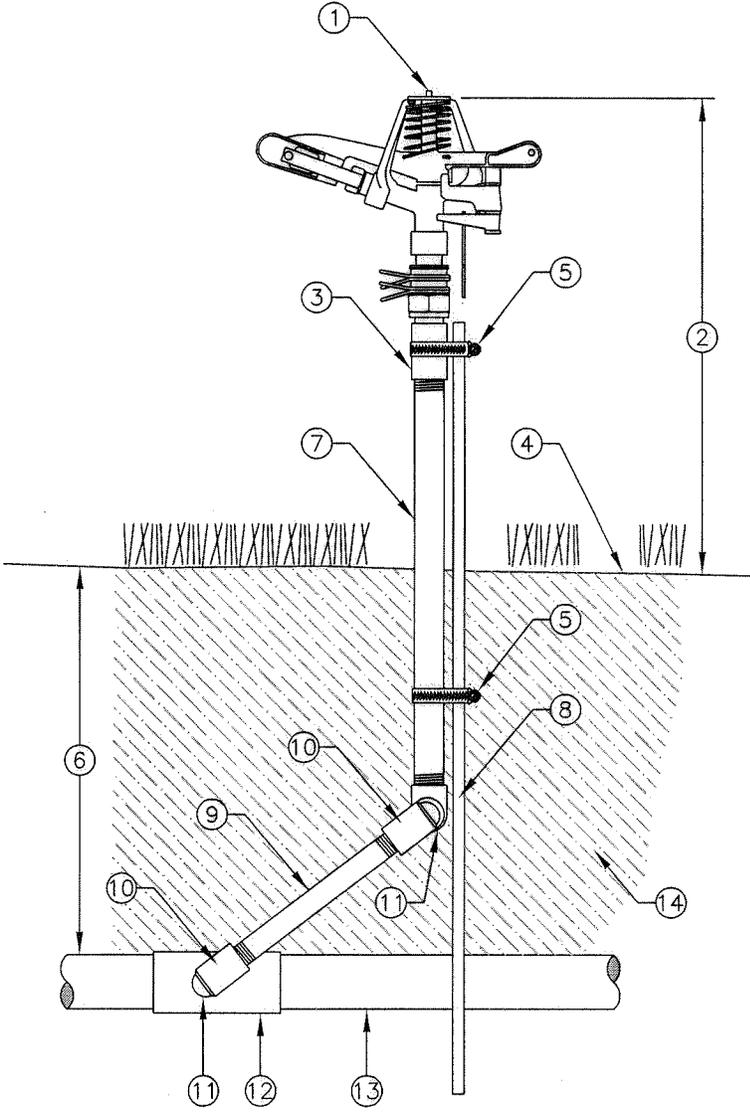
**TYPICAL THRUST BLOCK  
 DETAILS FOR RING-TITE  
 AND SOLVENT WELD PIPE**

No.  
**LS-15**

SHEET 1 OF 1

**NOTES:**

- ① IMPACT SPRINKLER HEAD.
- ② SET HEIGHT OF SPRINKLER HEAD PER PLAN, 10" MIN. ABOVE FINISH GRADE.
- ③ SCHEDULE 40 GALVANIZED STEEL COUPLING.
- ④ FINISH GRADE.
- ⑤ TWO STAINLESS STEEL HOSE CLAMPS, SIZE AS REQUIRED.
- ⑥ 12" MIN. COVER.
- ⑦ SCHEDULE 40 GALVANIZED STEEL NIPPLE, LENGTH AS REQUIRED. CONNECT TO SCHEDULE 80 PVC ELBOW (NOT SHOWN).
- ⑧ #6 REBAR STAKE; 36" MIN. LENGTH, 30" INTO GROUND.
- ⑨ SCHEDULE 80 PVC NIPPLE 12" MIN. LENGTH.
- ⑩ SCHEDULE 40 PVC STREET ELBOW, CONNECT TO SCHEDULE 80 SHORT NIPPLE.
- ⑪ SCHEDULE 80 PVC ELBOW (TxT).
- ⑫ SCHEDULE 40 PVC TEE (SxSxT).
- ⑬ SCHEDULE 40 PVC LATERAL LINE.
- ⑭ NATIVE SOIL BACKFILL FREE OF ROCKS LARGER THAN 1".



**SECTION VIEW**

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**CITY OF CHICO STANDARD PLAN**

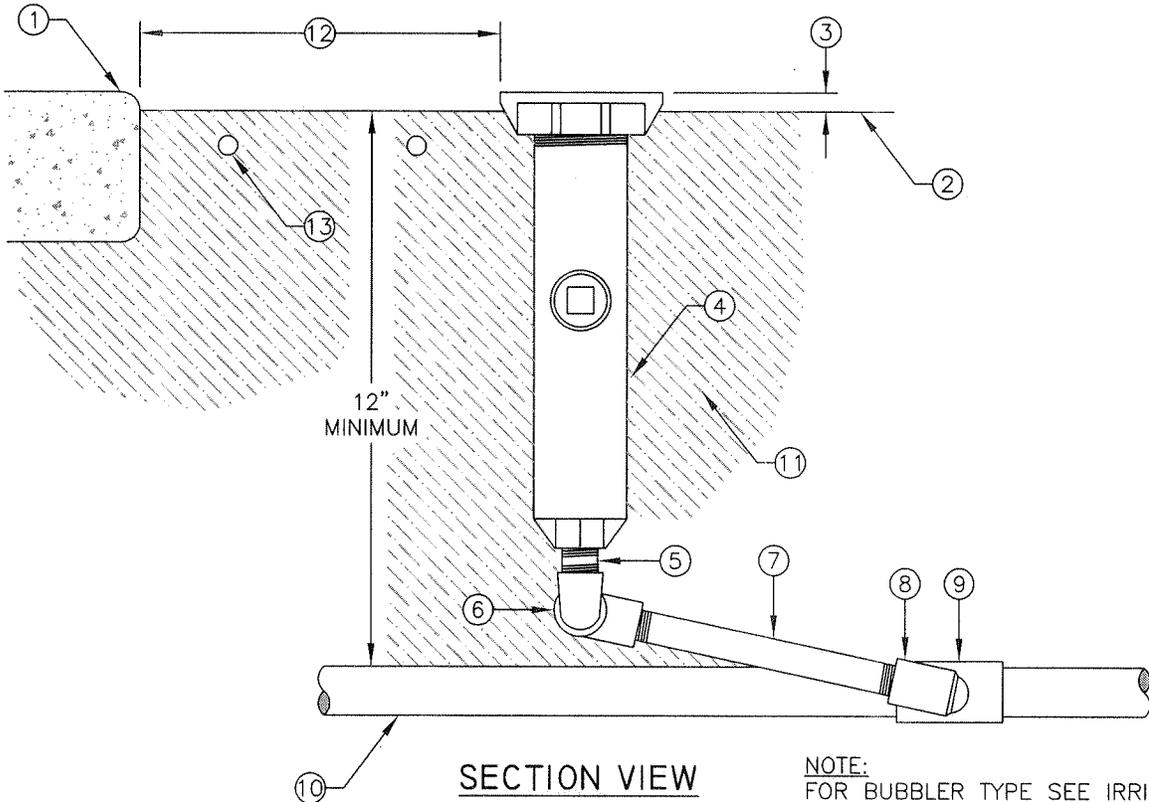
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 CHECKED BY: DB SCALE: NONE  
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**IMPACT RISER WITH SWING JOINT**

NO. **LS-16**  
 SHEET 1 OF 1

**NOTES:**

- ① EDGE OF PAVING OR FACE OF WALL. NARROW OR IRREGULAR SHAPED AREAS, INCLUDING TURF, LESS THAN 8 FEET IN WIDTH IN ANY DIRECTION SHALL BE IRRIGATED WITH SUBSURFACE OR LOW VOLUME IRRIGATION SYSTEM.
- ② FINISH GRADE.
- ③ SET TOP OF SPRINKLER AT FINISH GRADE OF CONCRETE AND ABOVE SOIL GRADE; ½" TO ¾" IN SOD, 2" IN PLANTER, DECOMPOSED GRANITE OR MULCH. TOP OF SPRINKLER SHALL BE LEVEL WITH TOP OF PAVING. IF A BUBBLER IS USED, TOP OF BUBBLER SHALL BE LEVEL WITH TOP OF PAVING.
- ④ POP-UP SPRAY HEAD.
- ⑤ SCHEDULE 80 RISER, LENGTH AS REQUIRED.
- ⑥ DOUBLE SWING JOINT; SCHEDULE 40 PVC STREET ELBOW, SCHEDULE 40 PVC ELBOW T x T.
- ⑦ SCHEDULE 80 NIPPLE LENGTH AS REQUIRED.
- ⑧ SCHEDULE 40 PVC STREET ELBOW.
- ⑨ TEE OR ELBOW SCHEDULE 40.
- ⑩ LATERAL LINE SCHEDULE 40.
- ⑪ NATIVE SOIL BACKFILL, FREE OF ROCKS LARGER THAN 1".
- ⑫ OVERHEAD IRRIGATION SHALL NOT BE PERMITTED WITHIN 24 INCHES OF A NON PERMEABLE SURFACE.
- ⑬ IF AREA TO BE PLANTED. PROVIDE 2 DRIPLINES.



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**CITY OF CHICO**

**STANDARD PLAN**

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 CSD DIRECTOR

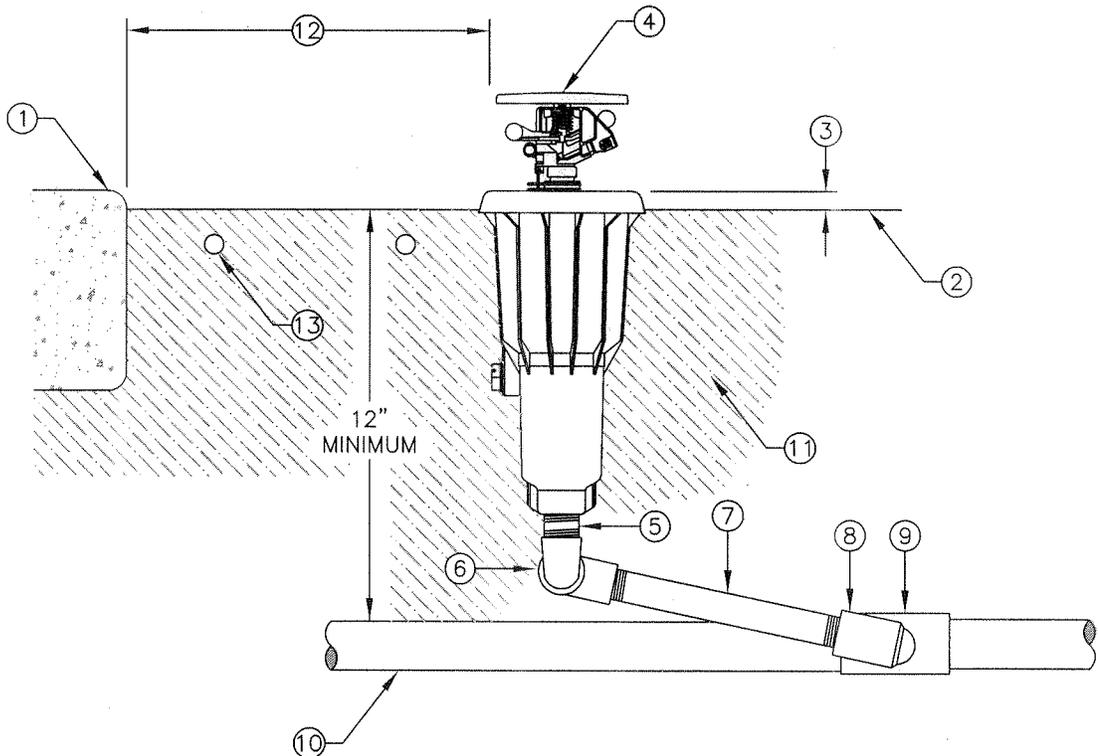
**SPRINKLER/BUBBLER POP-UP**

NO. **LS-17**

SHEET 1 OF 1

**NOTES:**

- ① EDGE OF PAVING OR FACE OF WALL. NARROW OR IRREGULAR SHAPED AREAS, INCLUDING TURF, LESS THAN 8 FEET IN WIDTH IN ANY DIRECTION SHALL BE IRRIGATED WITH SUBSURFACE OR LOW VOLUME IRRIGATION SYSTEM.
- ② FINISH GRADE.
- ③ SET TOP OF ROTOR AT FINISH GRADE OF CONCRETE AND ABOVE SOIL GRADE; ½" TO ¾" IN SOD, 2" IN PLANTER, DECOMPOSED GRANITE OR MULCH. TOP OF ROTOR SHALL BE LEVEL WITH TOP OF PAVING.
- ④ TURF POP-UP IMPACT ROTOR.
- ⑤ SCHEDULE 80 RISER, LENGTH AS REQUIRED.
- ⑥ DOUBLE SWING JOINT; SCHEDULE 40 PVC STREET ELBOW, SCHEDULE 40 PVC ELBOW T x T.
- ⑦ SCHEDULE 80 NIPPLE.
- ⑧ SCHEDULE 40 PVC STREET ELBOW.
- ⑨ LATERAL LINE WITH PVC TEE OR ELBOW.
- ⑩ PVC SCHEDULE 40 LATERAL LINE.
- ⑪ NATIVE SOIL BACKFILL, FREE OF ROCKS LARGER THAN 1".
- ⑫ OVERHEAD IRRIGATION SHALL NOT BE PERMITTED WITHIN 24 INCHES OF A NON PERMEABLE SURFACE.
- ⑬ IF AREA TO BE PLANTED. PROVIDE 2 DRIPLINES.



**SECTION VIEW**

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**CITY OF CHICO**

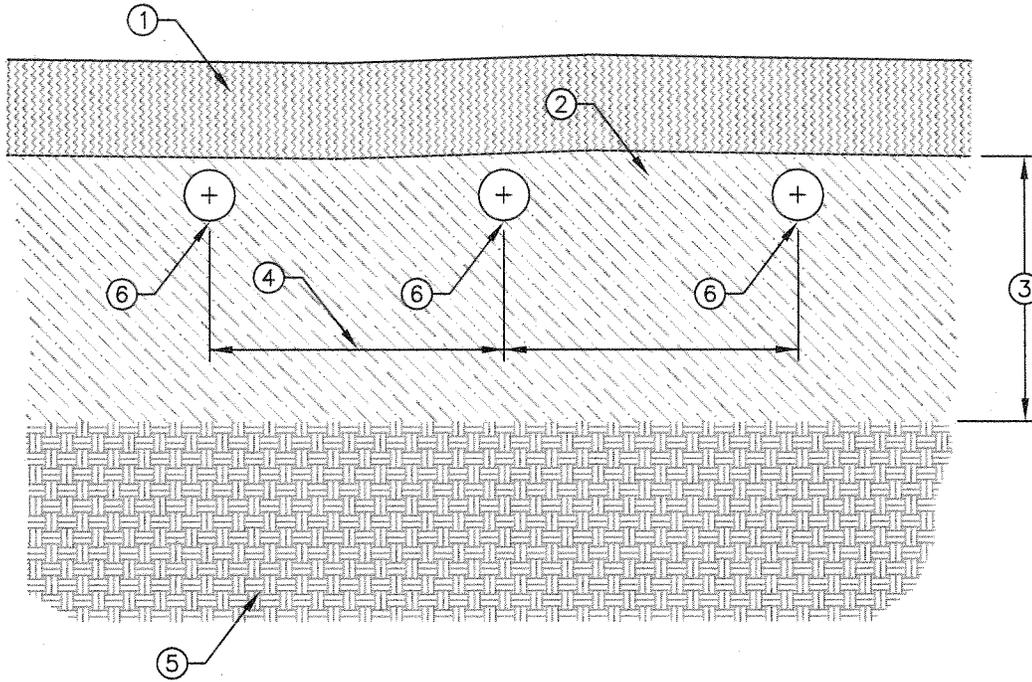
**STANDARD PLAN**

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 CPD DIRECTOR

**TURF IMPACT ROTOR  
 WITH SWING JOINT**

NO.  
**LS-18**

SHEET 1 OF 1



SECTION VIEW

NOTES:

- ① 2" TO 4" LAYER OF MULCH.
- ② AMENDED TOPSOIL.
- ③ MINIMUM 8 INCHES DEPTH AMENDED SOIL, WILL VARY ACCORDING TO SOIL CONDITIONS, AS CALLED FOR ON PLANS.
- ④ 12" - 24" SPACING. SPACING WILL VARY ACCORDING TO SOIL CONDITIONS AND TYPE OF LANDSCAPING, AS CALLED FOR ON PLANS.
- ⑤ PREPARED SUB-GRADE PER PROJECT PLANS AND SPECIFICATIONS.
- ⑥ SUBTERRANEAN DRIP TUBING, SET IN SOIL SURFACE, NO DEEPER THAN 2".

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**CITY OF CHICO**

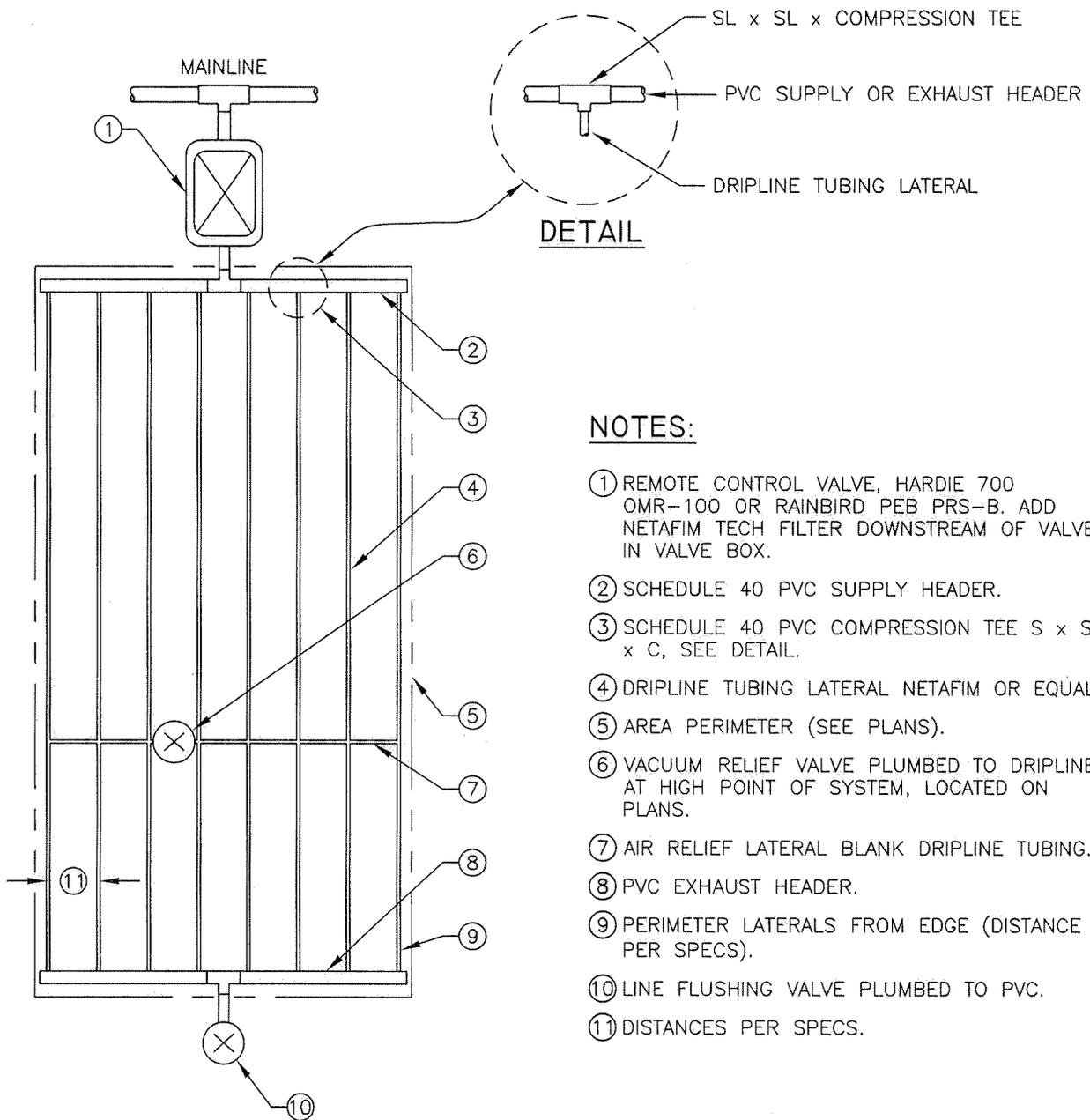
**STANDARD PLAN**

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 OPSD DIRECTOR

**SUBTERRANEAN DRIP  
SPACING**

NO.  
**LS-19**

SHEET 1 OF 1



**NOTES:**

- ① REMOTE CONTROL VALVE, HARDIE 700 OMR-100 OR RAINBIRD PEB PRS-B. ADD NETAFIM TECH FILTER DOWNSTREAM OF VALVE IN VALVE BOX.
- ② SCHEDULE 40 PVC SUPPLY HEADER.
- ③ SCHEDULE 40 PVC COMPRESSION TEE S x S x C, SEE DETAIL.
- ④ DRIPLINE TUBING LATERAL NETAFIM OR EQUAL.
- ⑤ AREA PERIMETER (SEE PLANS).
- ⑥ VACUUM RELIEF VALVE PLUMBED TO DRIPLINE AT HIGH POINT OF SYSTEM, LOCATED ON PLANS.
- ⑦ AIR RELIEF LATERAL BLANK DRIPLINE TUBING.
- ⑧ PVC EXHAUST HEADER.
- ⑨ PERIMETER LATERALS FROM EDGE (DISTANCE PER SPECS).
- ⑩ LINE FLUSHING VALVE PLUMBED TO PVC.
- ⑪ DISTANCES PER SPECS.

PLAN VIEW

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**CITY OF CHICO**

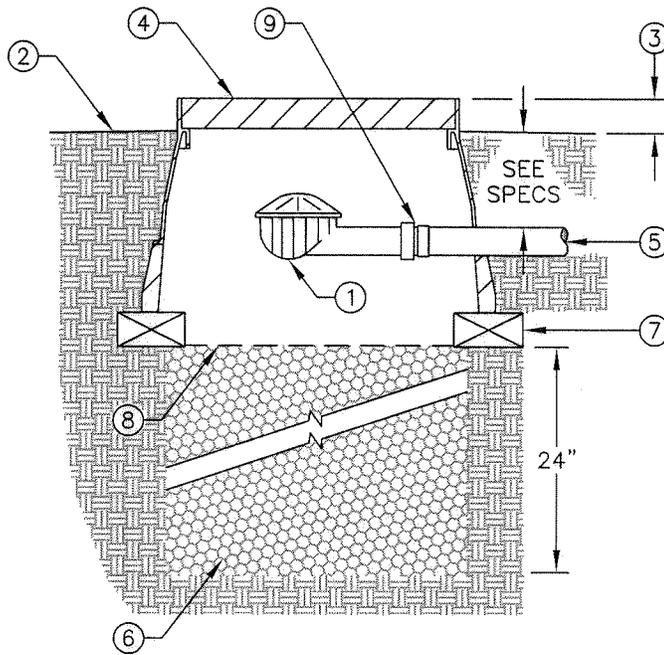
**STANDARD PLAN**

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**SUBTERRANEAN  
DRIPLINE LAYOUT**

NO.  
**LS-20**

SHEET 1 OF 1



SECTION VIEW

NOTES:

- ① DRIPLINE FLUSHING VALVE GEOFLOW FLUSH VALVE OR EQUAL.
- ② FINISH GRADE.
- ③ SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ④ 10" ROUND VALVE BOX CARSON #910 OR EQUAL.
- ⑤ PVC FROM EXHAUST HEADER.
- ⑥ PEA GRAVEL SUMP (6" - 8" DIAMETER).
- ⑦ (3) COMMON BRICKS FOR SUPPORT.
- ⑧ 1/4" GALVANIZED WIRE MESH.
- ⑨ PVC FEMALE ADAPTER.

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**CITY OF CHICO**

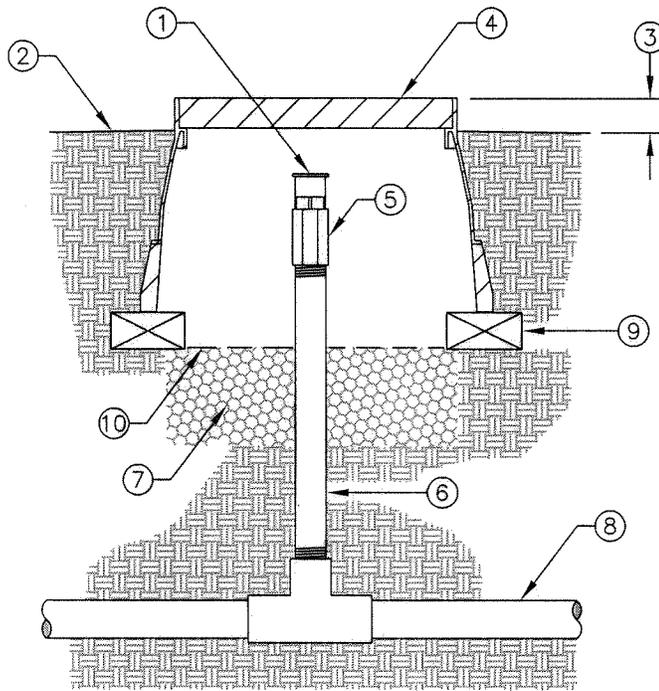
**STANDARD PLAN**

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 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**DRIPLINE FLUSHING VALVE**

NO. **LS-21**

SHEET 1 OF 1



SECTION VIEW

NOTES:

- ① AIR/VACUUM RELIEF VALVE GEOFLOW OR EQUAL.
- ② FINISH GRADE.
- ③ SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ④ 10" ROUND VALVE BOX CARSON #910 OR EQUAL.
- ⑤ 1/2" PVC COUPLING (TxT).
- ⑥ 1/2" SCHEDULE 80 NIPPLE (LENGTH AS REQUIRED).
- ⑦ PEA GRAVEL, 6" DEPTH.
- ⑧ POLY TUBING, CONNECT TO NIPPLE WITH COMPRESSION TEE S x S x C.
- ⑨ (3) COMMON BRICKS FOR SUPPORT.
- ⑩ 1/4" GALVANIZED WIRE MESH.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

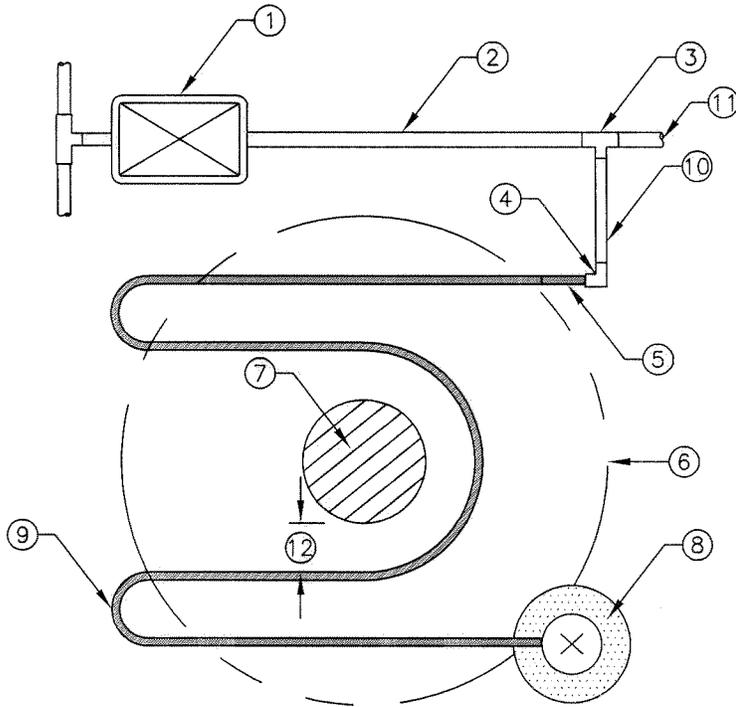
**STANDARD PLAN**

DRAWN BY: GL      DATE: 11/06  
 CHECKED BY: DB      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**AIR/VACUUM RELIEF VALVE**

NO.  
**LS-22**

SHEET 1 OF 1



PLAN VIEW

**NOTES:**

- ① REMOTE CONTROL VALVE, HARDIE 700 OMR-100 OR RAINBIRD PEB PRS-B. ADD NETAFIM TECH FILTER DOWNSTREAM OF VALVE IN VALVE BOX.
- ② PVC SUPPLY HEADER, CONTINUOUS TO NEXT TREE.
- ③ 3/4" SCHEDULE 40 TEE (S x S x S).
- ④ COMPRESSION REDUCER SCHEDULE 40 S x C ELBOW.
- ⑤ START OF DRIP LINE, SIZE AND TYPE PER PROJECT SPECS.
- ⑥ ESTIMATED DRIPLINE OF MATURE TREE IN 5 YEARS.
- ⑦ TREE ROOTBALL.
- ⑧ LINE FLUSHING VALVE.
- ⑨ DRIPLINE.
- ⑩ SCHEDULE 40 PVC SUPPLY LINE.
- ⑪ PVC SUPPLY TO NEXT TREE.
- ⑫ SPACE DRIPLINE 6" FROM EDGE OF ROOTBALL.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL      DATE: 11/06  
 CHECKED BY: DB      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

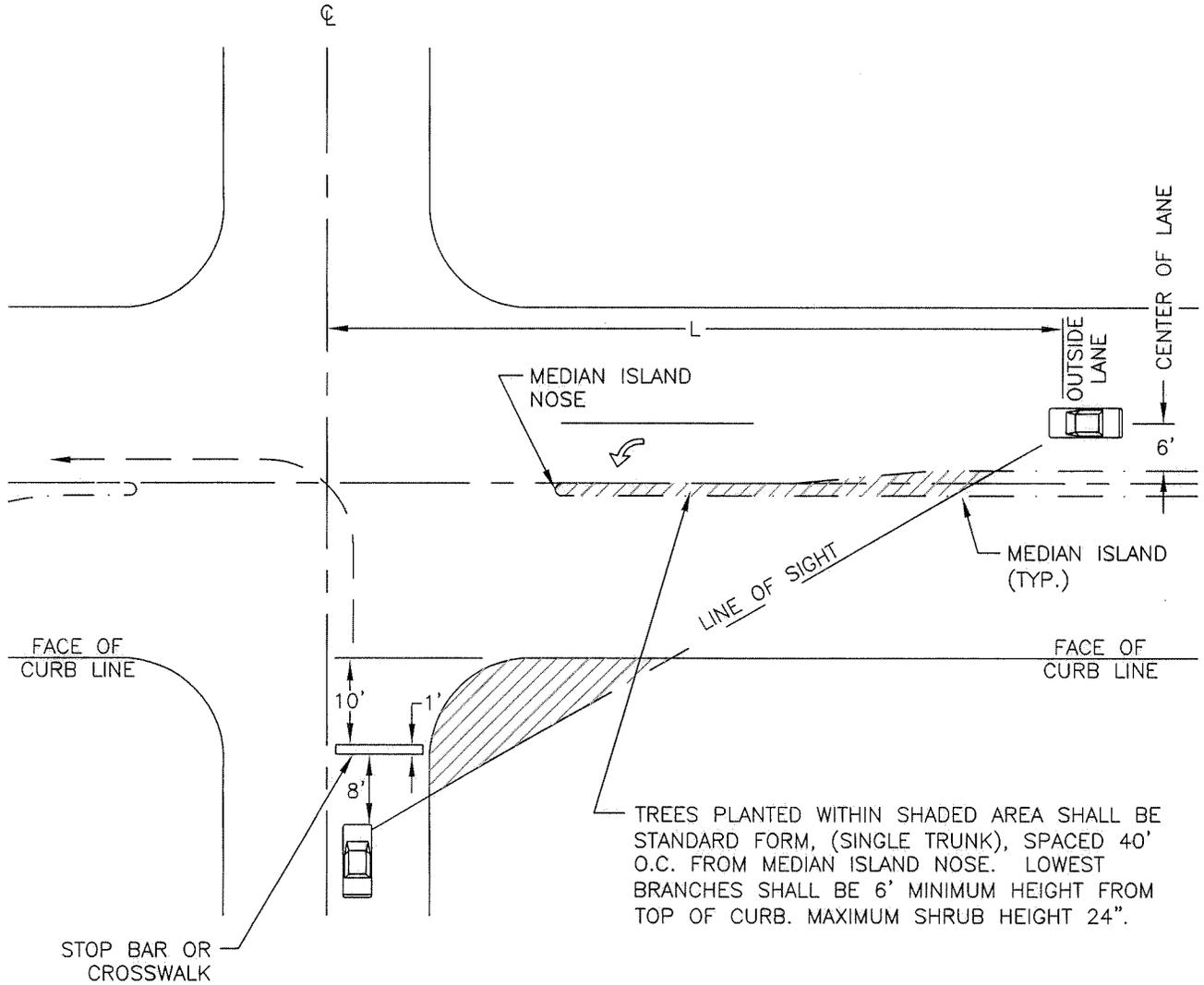
**DRIPLINE LAYOUT  
FOR TREES**

NO.  
**LS-23**

SHEET 1 OF 1

**NOTE:**

DETAIL TYPICAL FOR BOTH DIRECTIONS AT 4-WAY  
UNSIGNALIZED INTERSECTIONS.  $L = \text{SPEED LIMIT} \times 11$   
EXAMPLE: 35 MPH  $\times$  11 = 385'

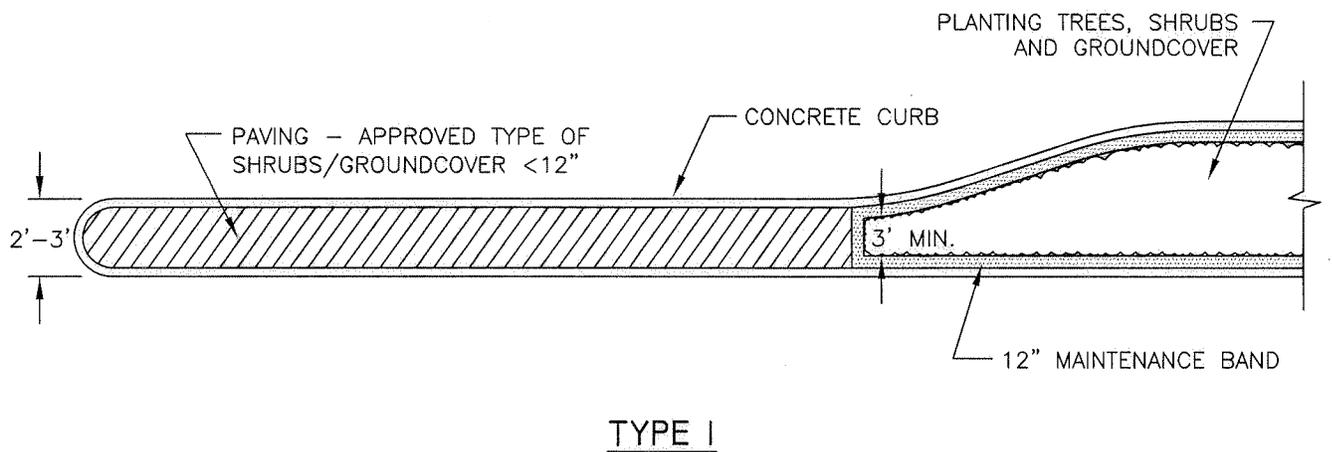
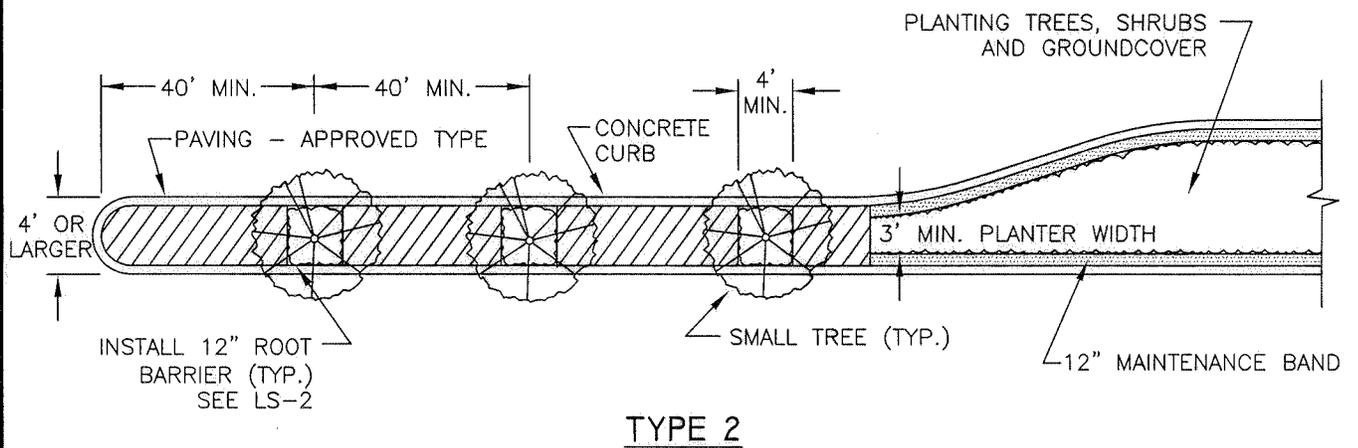
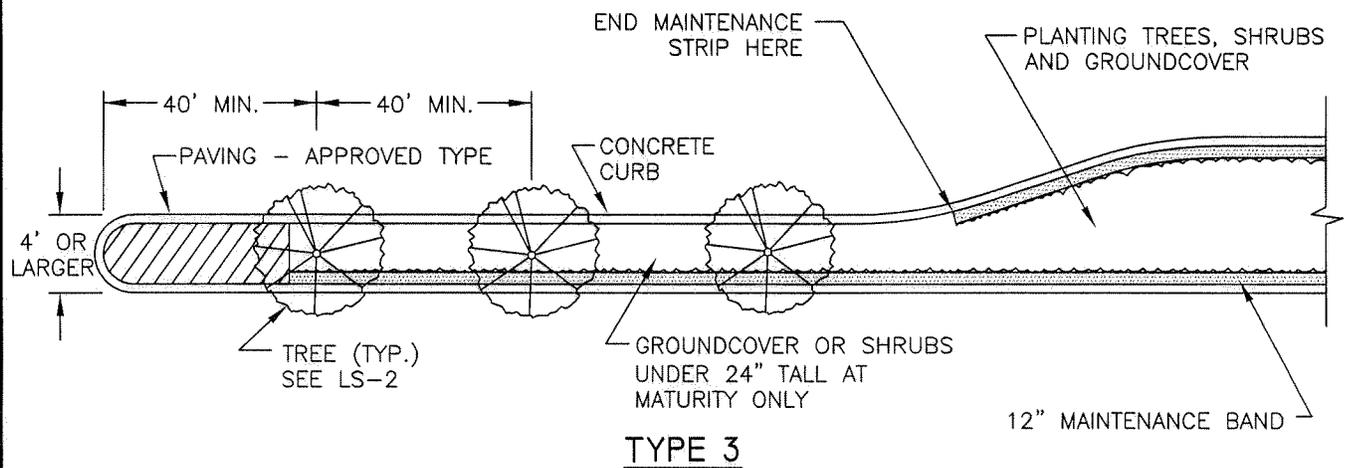


TREES PLANTED WITHIN SHADED AREA SHALL BE STANDARD FORM, (SINGLE TRUNK), SPACED 40' O.C. FROM MEDIAN ISLAND NOSE. LOWEST BRANCHES SHALL BE 6' MINIMUM HEIGHT FROM TOP OF CURB. MAXIMUM SHRUB HEIGHT 24\".

**PLAN VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>11/06</u>	<b>SIGHT DISTANCE CLEARANCE AT NON-SIGNALIZED INTERSECTIONS</b>	NO.
CHECKED BY: <u>DB</u>	SCALE: <u>NONE</u>		<b>LS-24</b>
APPROVED: <u><i>Tom B. King</i></u>	DIRECTOR OF ENGINEERING		SHEET 1 OF 1



**PLAN VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

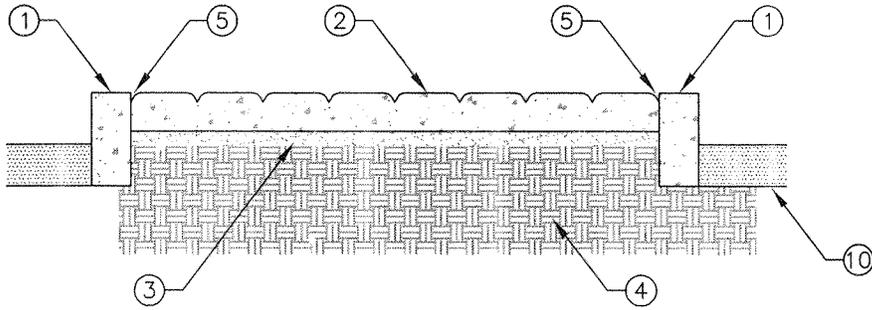
**STANDARD PLAN**

DRAWN BY: GL DATE: 11/06  
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 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

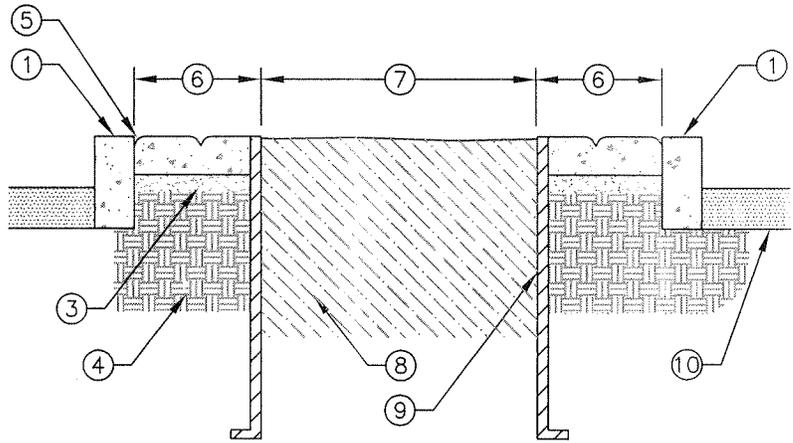
**TREE AND PAVEMENT  
 LAYOUT IN MEDIAN ISLAND**

NO.  
**LS-25**

SHEET 1 OF 1



**SECTION VIEW**  
AT CONCRETE



**SECTION VIEW**  
AT TREE

**NOTES:**

- ① CONCRETE CURB.
- ② STAMPED CONCRETE - 4" THICK. PATTERN: CANYON STONE. COLOR HARDENER: DESERT TAN, B-12. RELEASE AGENT: SONORAN TAN, B-10.
- ③ 2" SAND BASE.
- ④ COMPACTED SUBGRADE PER SPECIFICATIONS.
- ⑤ TOOLED EDGE.
- ⑥ 1' CONCRETE MOW BAND.
- ⑦ PLANTING AREA, VARIES WITH LOCATION.
- ⑧ PREPARED PLANTING SOIL PER SPECIFICATIONS.
- ⑨ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL 10' LONG CENTERED ON TREE, 18" DEPTH (LB 18-2) ALONG CURB.
- ⑩ AC ROADWAY.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

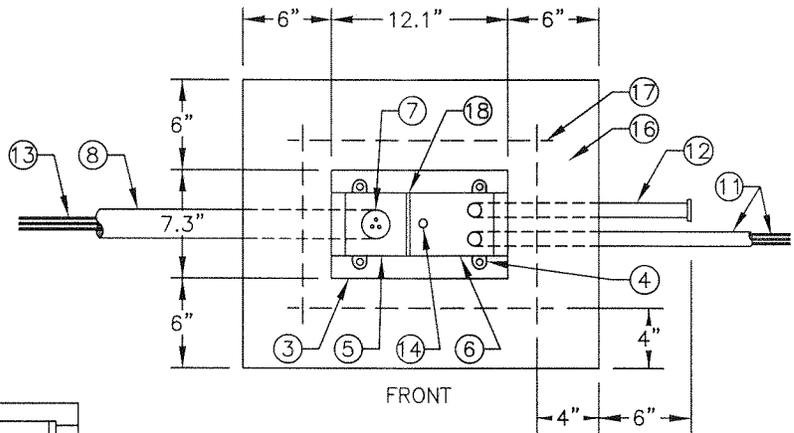
**STANDARD PLAN**

DRAWN BY: GL DATE: 9/09  
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 APPROVED: [Signature]  
 CPSD DIRECTOR

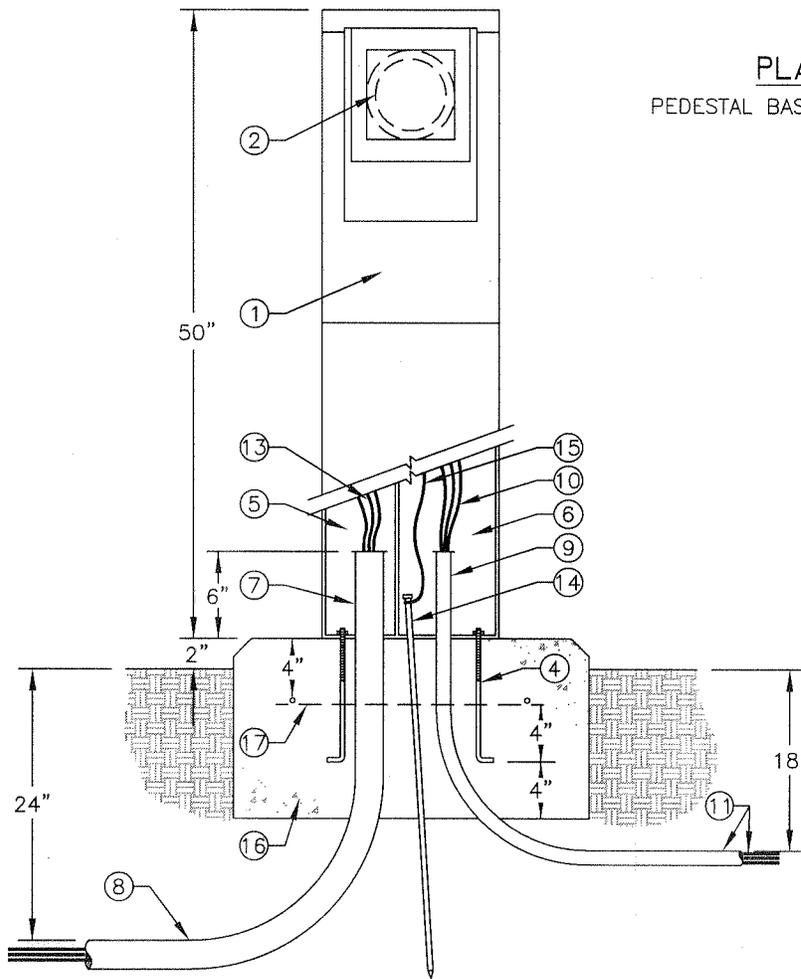
**STAMPED CONCRETE  
BULLNOSE AND MOW BAND**

NO.  
**LS-26**

SHEET 1 OF 1



PLAN VIEW  
PEDESTAL BASE & CONCRETE FTG.



FRONT ELEVATION/SECTION VIEW

NOTE:  
SEE SHEET 2 FOR KEYNOTES  
& GENERAL NOTES

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

DRAWN BY: GL DATE: 9/09  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

METERED ELECTRICAL  
SERVICE ENCLOSURE

NO.  
LS-27

SHEET 1 OF 2

**KEYNOTES:**

- ① TESCO MODEL 26-000 TYPE III AF METERED ELECTRICAL SERVICE ENCLOSURE, OR APPROVED EQUAL.
- ② METER (BY PG&E)
- ③ METER PEDESTAL BASE.
- ④ 5/8"Ø x 8" GALV. J-BOLT ANCHORS W/ GALV. WASHERS, (TYP OF 4). REFER TO MANUFACTURER'S LAYOUT DIMENSIONS.
- ⑤ SERVICE SIDE OF PEDESTAL.
- ⑥ LOAD SIDE OF PEDESTAL.
- ⑦ 2"Ø SCH. 40 PVC ELECTRICAL CONDUIT STUB-UP (BY PROJECT CONTRACTOR).
- ⑧ 2"Ø SCH. 40 PVC ELECTRICAL CONDUIT W/ 5/16" PULL CORD TO PG&E SECONDARY SERVICE PULL BOX (P.O.C.). REFER TO PROJECT PLANS.
- ⑨ TWO 1"Ø SCH. 40 PVC ELECTRICAL CONDUIT STUB-UPS. REFER TO PEDESTAL BASE PLAN VIEW.
- ⑩ TWO #10 W/ GROUND FROM POWER DISTRIBUTION PANEL IRRIGATION CIRCUIT BREAKER - TO IRRIGATION CONTROLLER.
- ⑪ 1"Ø SCH. 40 PVC ELECTRICAL CONDUIT W/ TWO #10 W/ GROUND TO AUTO IRRIGATION CONTROLLER OR TO PULL BOX. REFER TO CITY OF CHICO STANDARD PLANS LS12 & LS13 RESPECTIVELY AND PROJECT PLANS.
- ⑫ 1"Ø SCH. 40 PVC ELECTRICAL CONDUIT FOR DISTRIBUTION PANEL SPARE 120V CIRCUIT BREAKER (FUTURE). STUB 6" BEYOND PEDESTAL CONCRETE PAD/FOOTING.
- ⑬ SERVICE CONDUCTORS, TO METER (BY PG&E).
- ⑭ 5/8"Ø COPPER CLAD GROUND ROD, LENGTH & INSTALLATION PER CODE.
- ⑮ #8 BARE COPPER GROUND. INSTALLATION PER CODE.
- ⑯ CONCRETE PAD/FOOTING, SLOPE EXPOSED CONCRETE 1/4" TO DRAIN W/ 1/2" CHAMFER ALL AROUND.
- ⑰ #4 REBAR
- ⑱ BARRIER

**GENERAL NOTES:**

- ① METERED SERVICE ENCLOSURE: 12 GA H.D. GALV. STEEL PAINTED STANDARD GREEN W/ 100 AMP METER SOCKET & SUPPORT HARDWARE, 100 AMP MAIN DISCONNECT, DISTRIBUTION PANEL OF ONE 20 AMP CIRCUIT BREAKER (IRRIGATION CONTROLLER), ONE 20 AMP CIRCUIT BREAKER (SPARE). CABINET TO BE PREWIRED AND ALL COMPONENTS TO HAVE FASTENED ENGRAVED NAMEPLATES.
- ② REFER TO PROJECT PLANS FOR LOCATION OF PG&E SECONDARY POWER P.O.C., LOCATION OF 120V ELECTRICAL PULL BOXES, CONDUIT SIZES AND AUTO IRRIGATION CONTROLLER LOCATION.
- ③ ALL ELECTRICAL WORK TO BE PERFORMED BY A LICENSED ELECTRICIAN IN FULL ACCORDANCE W/ NEC & LOCAL CODES.
- ④ ALL METER PEDESTAL PADLOCKS TO BE FURNISHED BY THE CITY OF CHICO.

REVISION	BY	DATE	APP. BY	COUNCIL

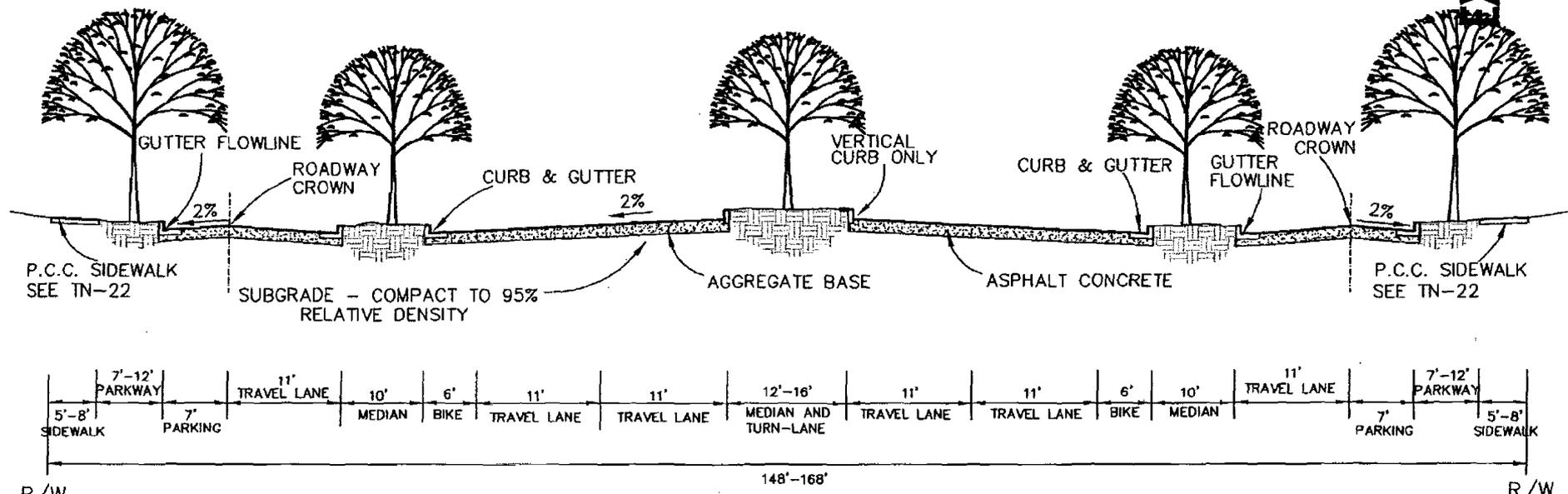
**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 9/09  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

**METERED ELECTRICAL  
 SERVICE ENCLOSURE  
 KEYNOTES & GENERAL NOTES**

NO.  
**LS-27**  
 SHEET 2 OF 2



**NOTES:**

- VERTICAL CURBS TYPICAL
- PARKING ALLOWED ON SIDE DRIVE
- LIMITED CENTERLINE ACCESS
- REQUIRES ALLEY FOR ACCESS TO OFF-STREET PARKING

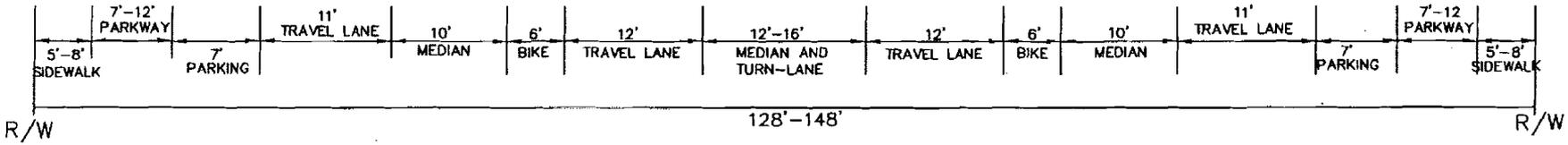
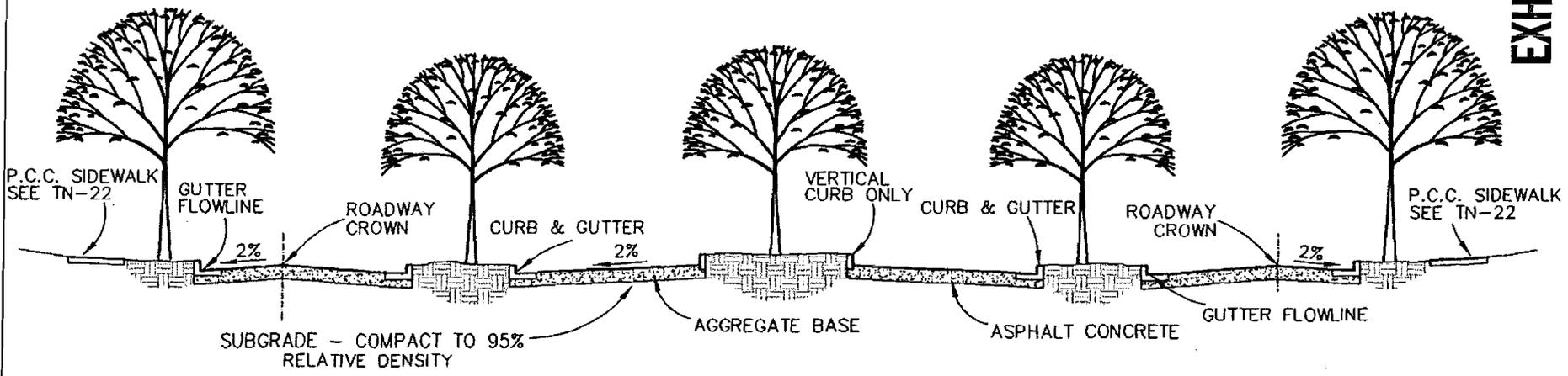
- ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

DRAWN BY	RMS/VKS	DATE	MARCH 2007
CHECKED		SCALE	NONE
APPROVED			
	ASST. DIRECTOR OF ENGINEERING		

HIGH-CAPACITY BOULEVARD WITH FRONTAGE LANES

TN-1



**NOTES:**

- VERTICAL CURBS TYPICAL
- PARKING ALLOWED ON SIDE DRIVE
- LIMITED CENTERLINE ACCESS
- REQUIRES ALLEY FOR ACCESS TO OFF-STREET PARKING

- ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM MEASURED FROM FRONT OF WALK TO FACE OF CURB

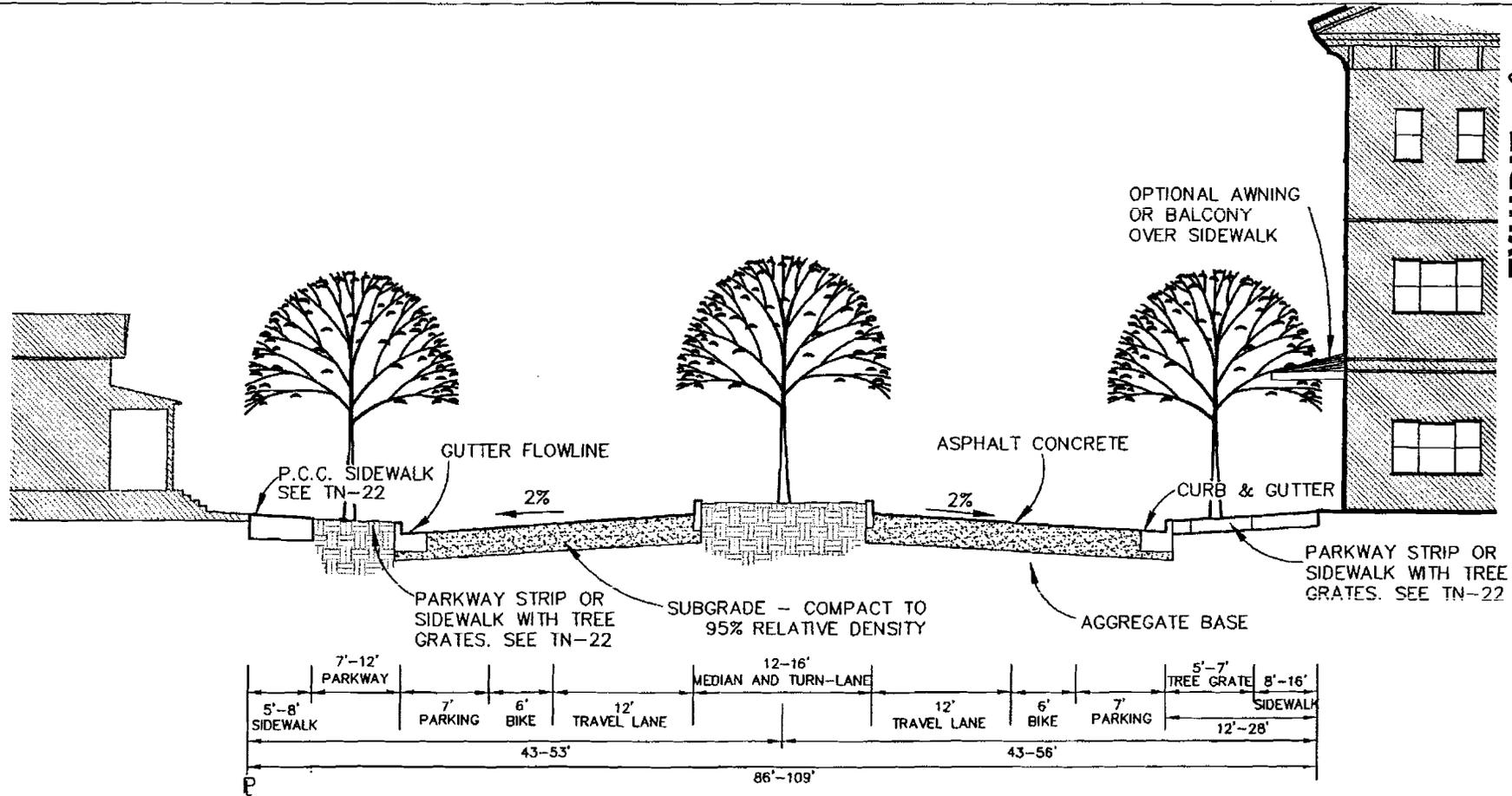
CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED [Signature]  
 ASST. DIRECTOR OF ENGINEERING

BOULEVARD WITH FRONTAGE LANES

TN-2

EXHIBIT C



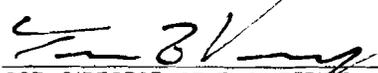
NOTES:

VERTICAL CURBS TYPICAL  
 PARKING AND BIKE LANES PROVIDED  
 ASPHALT CONCRETE AND AGGREGATE  
 BASE THICKNESS TO BE DETERMINED BY  
 "R" VALUES AND TRAFFIC INDEX CALCULATIONS

SIDEWALK WIDTH - 5' MINIMUM, 16' MAXIMUM  
 PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
 MEASURED FROM FRONT OF WALK TO FACE OF CURB

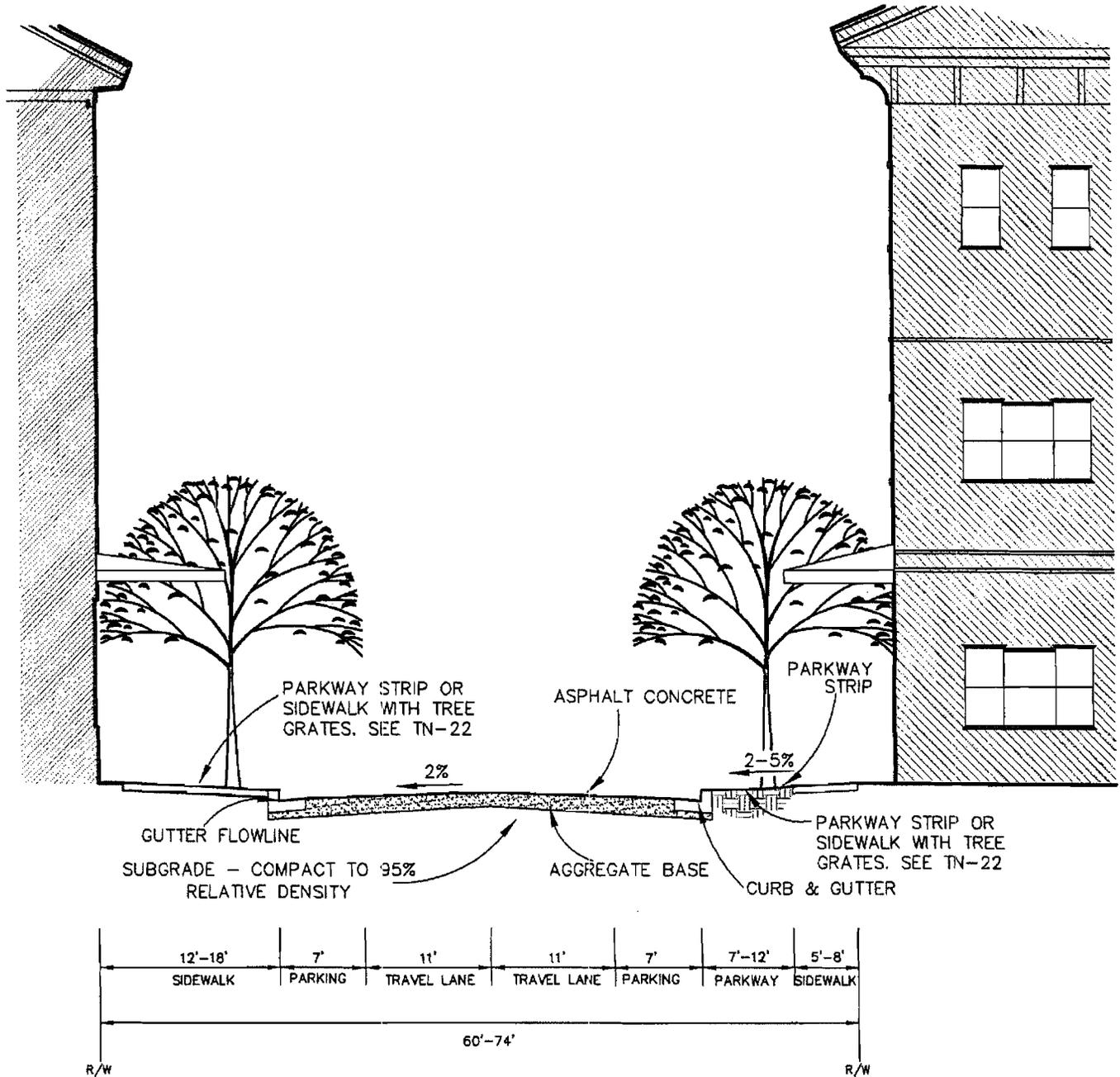
CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE

APPROVED   
 ASST. DIRECTOR OF ENGINEERING

BOULEVARD

TN-3



**NOTES:**

VERTICAL CURBS TYPICAL  
 REQUIRES REAR ALLEY FOR ACCESS  
 TO OFF-STREET PARKING

ASPHALT CONCRETE AND AGGREGATE BASE  
 THICKNESS TO BE DETERMINED BY "R" VALUES  
 AND TRAFFIC INDEX CALCULATIONS

SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM  
 PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
 MEASURED FROM FRONT OF WALK  
 TO FACE OF CURB

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

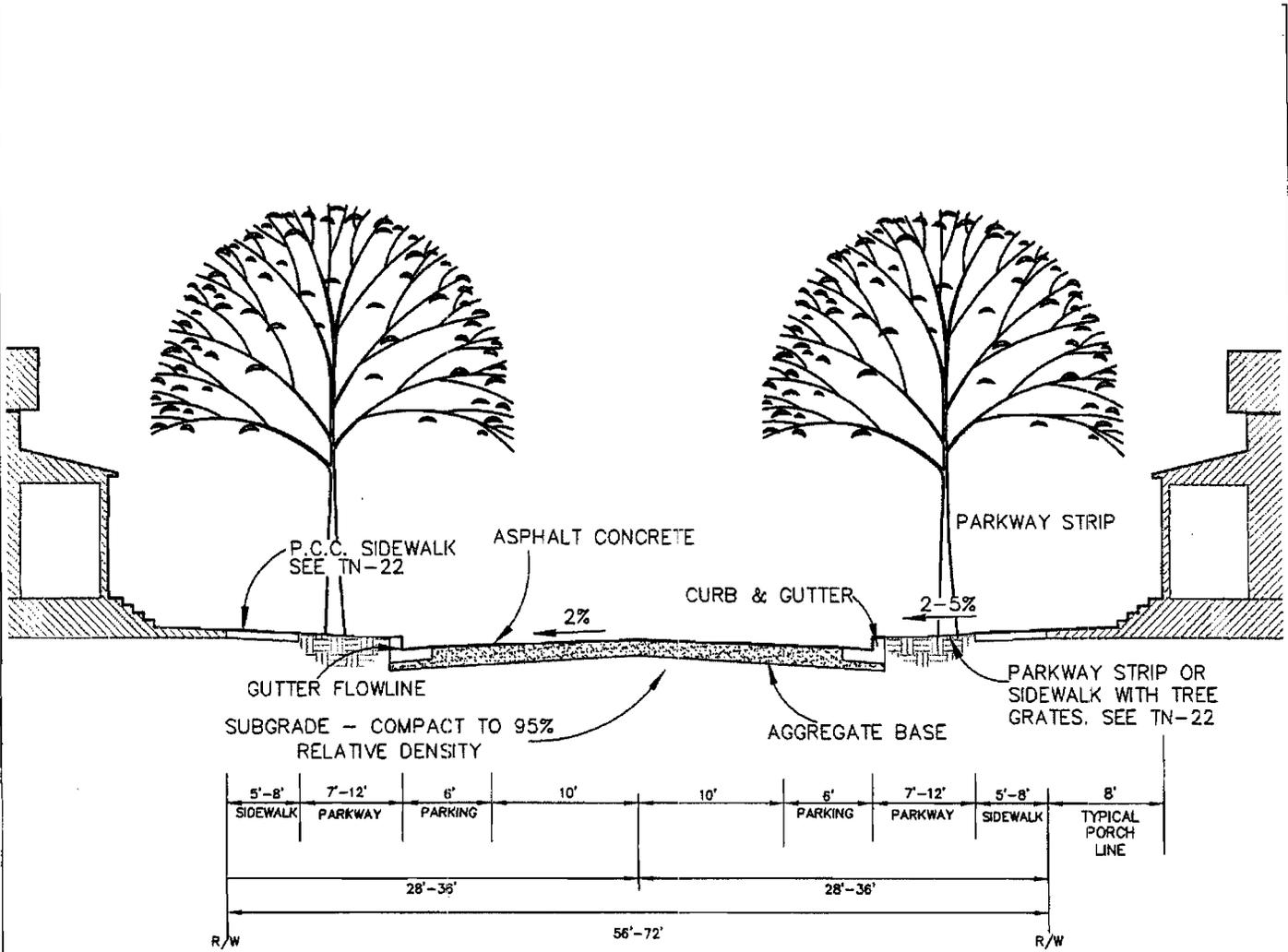
CHECKED \_\_\_\_\_ SCALE NONE

APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

36' AVENUE

TN-4

**EXHIBIT** (6/19/07)



**NOTES:**

- RESIDENTIAL STREET SECTION
- VERTICAL CURBS TYPICAL
- PARKING ALLOWED ON BOTH SIDES
- ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

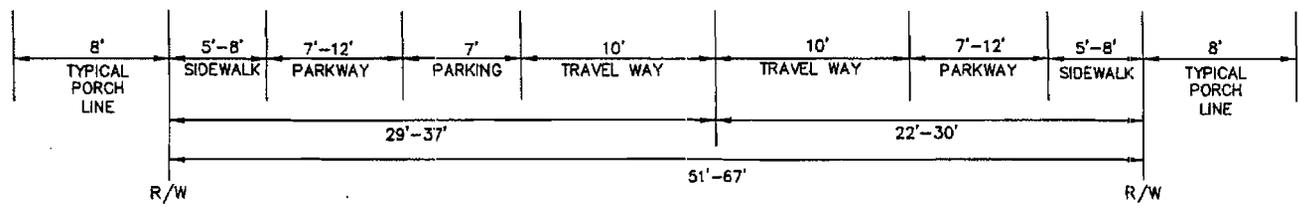
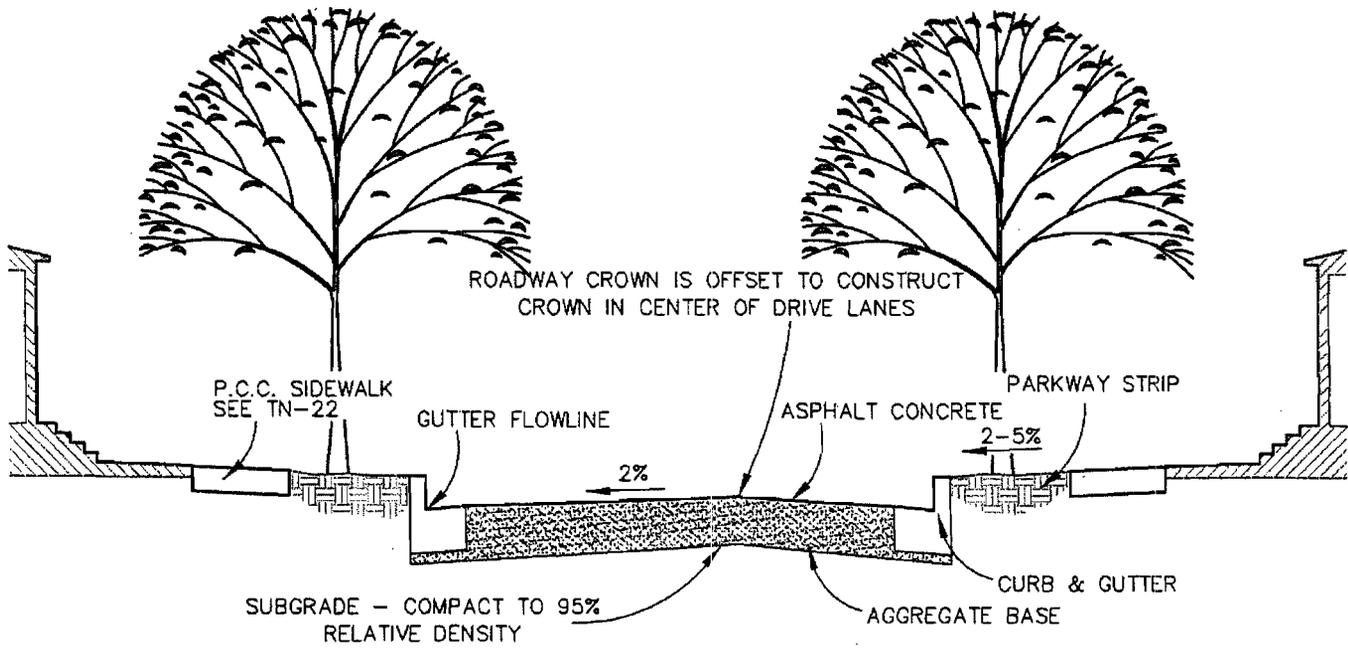
DRAWN BY RMS/VKS    DATE MARCH 2007  
 CHECKED \_\_\_\_\_    SCALE NONE  
 APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

32' INTERIOR STREET

**EXHIBIT E**

TN-5

(6/19/07)



**NOTES:**

- VERTICAL CURBS TYPICAL
- RESIDENTIAL STREET SECTION
- PARKING ALLOWED ON ONE SIDE ONLY
- ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM MEASURED FROM FRONT OF WALK TO FACE OF CURB
- REQUIRES ALLEY FOR ACCESS TO OFF-STREET PARKING

CITY OF CHICO

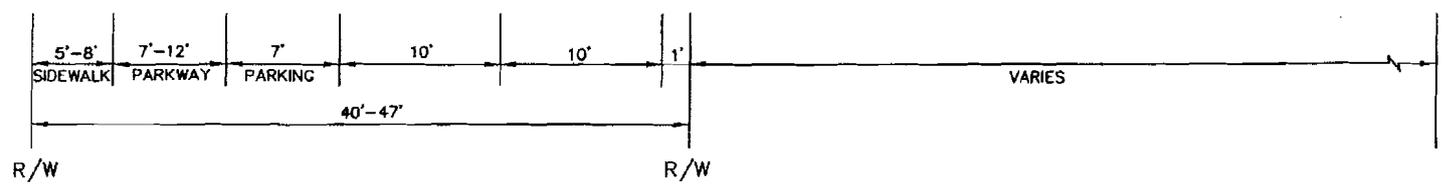
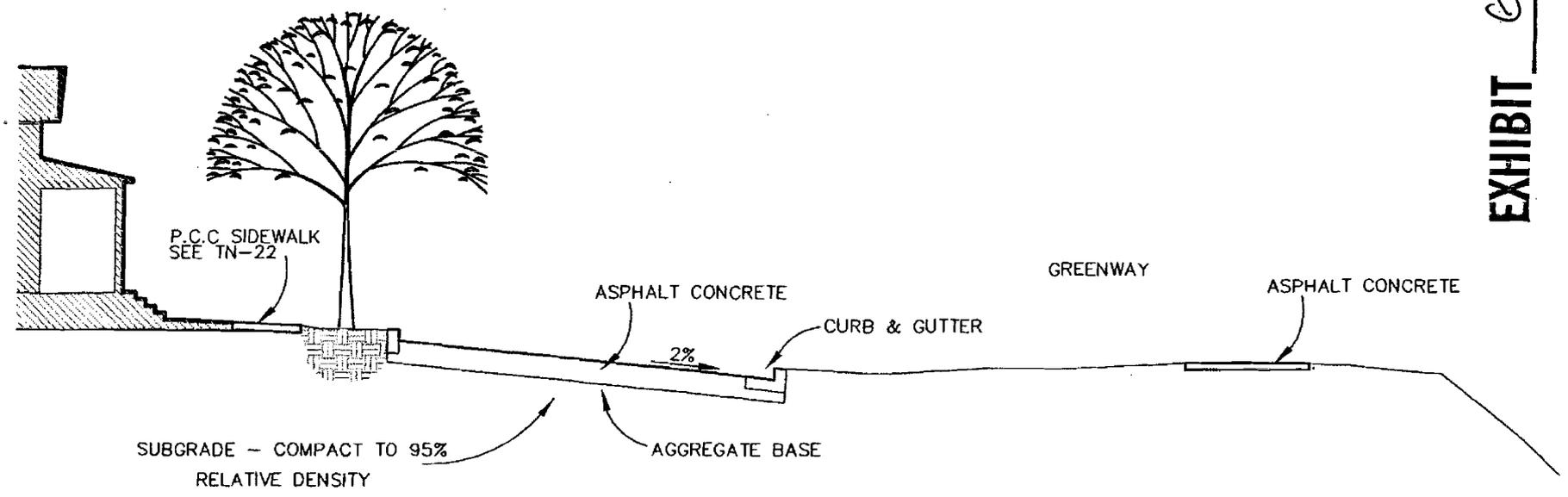
DRAWN BY	RMS/VKS	DATE	MARCH 2007
CHECKED		SCALE	NONE
APPROVED			
ASST. DIRECTOR OF ENGINEERING			

27' INTERIOR STREET

TN-6

**EXHIBIT F**

(6/19/07)



**NOTES:**  
 VERTICAL CURBS TYPICAL  
 OCCURS ALONG ANY GREENWAY  
 REQUIRES ALLEY FOR ACCESS  
 TO OFF-STREET PARKING

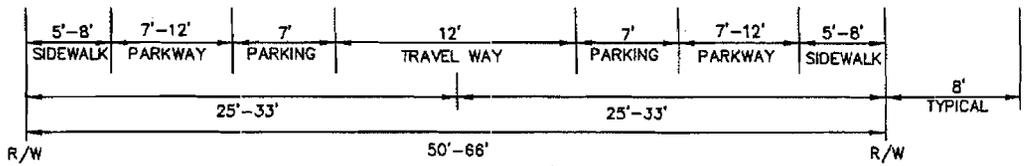
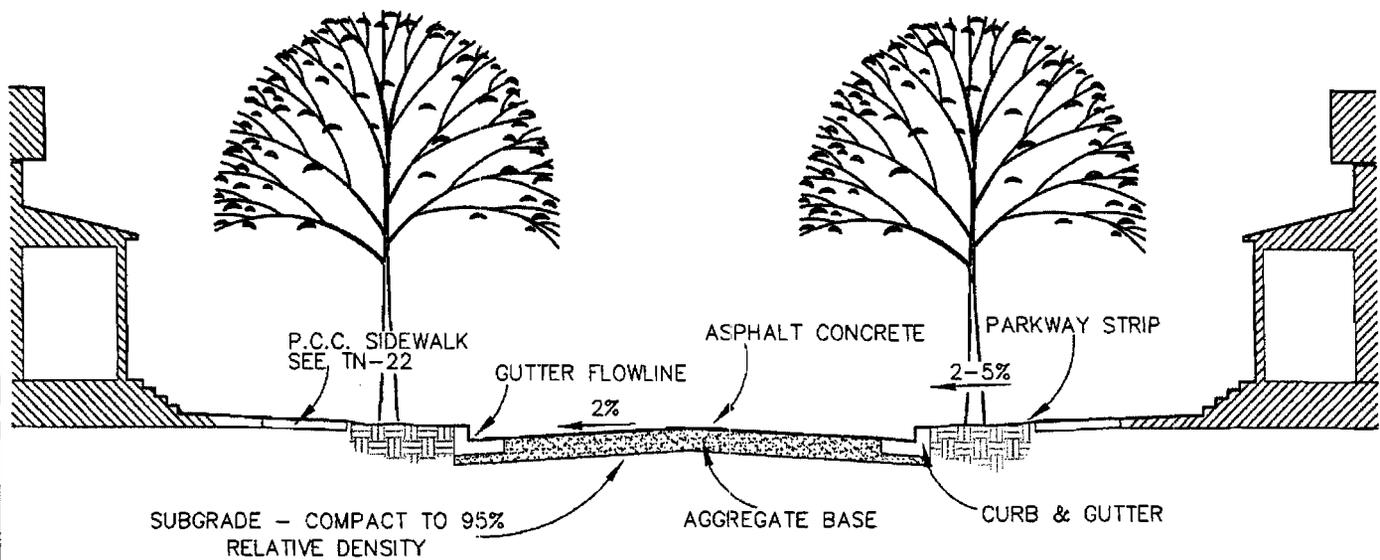
ASPHALT CONCRETE AND AGGREGATE  
 BASE THICKNESS TO BE DETERMINED BY  
 "R" VALUES AND TRAFFIC INDEX CALCULATIONS  
 SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM  
 PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
 MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

27' DRIVE AT GREENWAY

TN-7

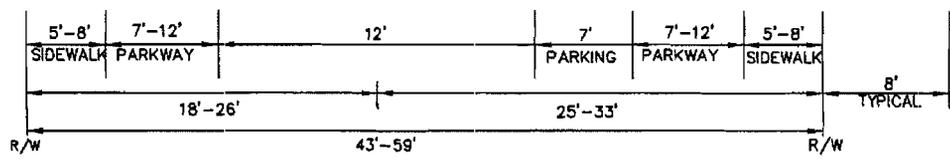
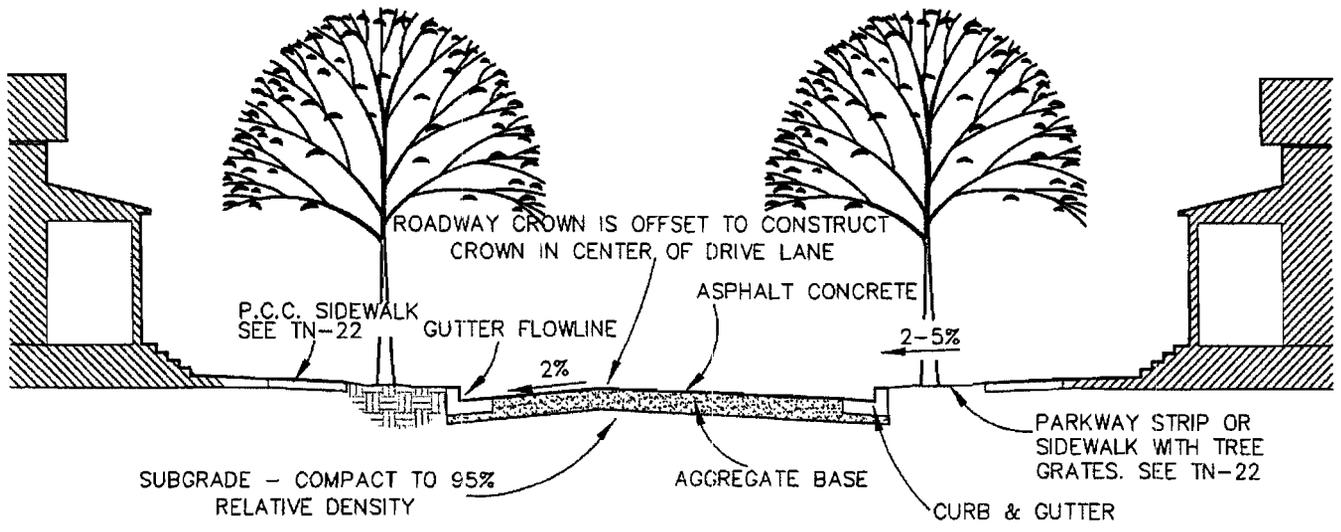


**NOTES:**

- RESIDENTIAL STREET SECTION
- VERTICAL CURBS TYPICAL
- PARKING ALLOWED ON BOTH SIDES
- ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

DRAWN BY <u>RMS/VKS</u> DATE <u>MARCH 2007</u> CHECKED _____ SCALE <u>NONE</u>	<b>26' INTERIOR STREET (ONE WAY)</b>  <b>EXHIBIT <u>11</u></b>	TN-8
APPROVED <u><i>[Signature]</i></u> ASST. DIRECTOR OF ENGINEERING		(6/19/07)



**NOTES:**

- RESIDENTIAL STREET SECTION
- PARKING ALLOWED ON ONE SIDE ONLY
- VERTICAL CURBS TYPICAL
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM
- MEASURED FROM FRONT OF WALK TO FACE OF CURB

ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS

CITY OF CHICO

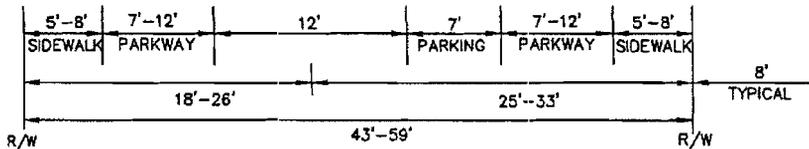
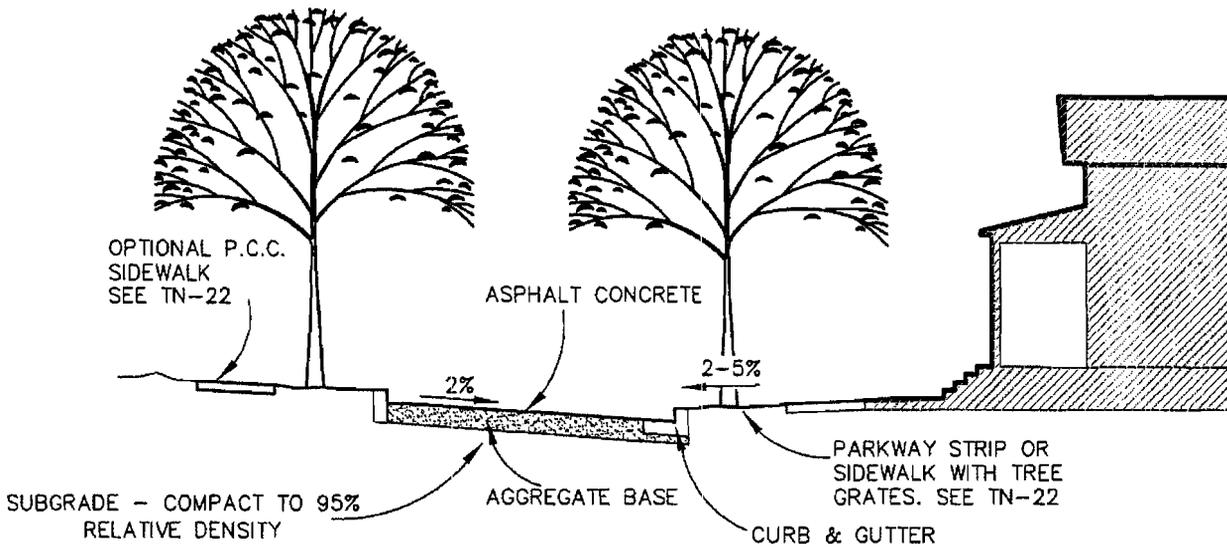
DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

19' INTERIOR STREET  
 (ONE WAY)

**EXHIBIT I**

TN-9

(6/19/07)



**NOTES:**

**RESIDENTIAL STREET SECTION**

TO BE UTILIZED ADJACENT TO NEIGHBORHOOD GREEN

VERTICAL CURBS TYPICAL

PARKING ALLOWED ON HOUSE SIDE ONLY

ASPHALT CONCRETE AND AGGREGATE  
BASE THICKNESS TO BE DETERMINED BY  
"R" VALUES AND TRAFFIC INDEX CALCULATIONS

SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM

PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
MEASURED FROM FRONT OF WALK TO FACE OF CURB

SIDEWALK MAY BE OMITTED ON GREEN SIDE

CITY OF CHICO

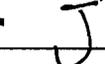
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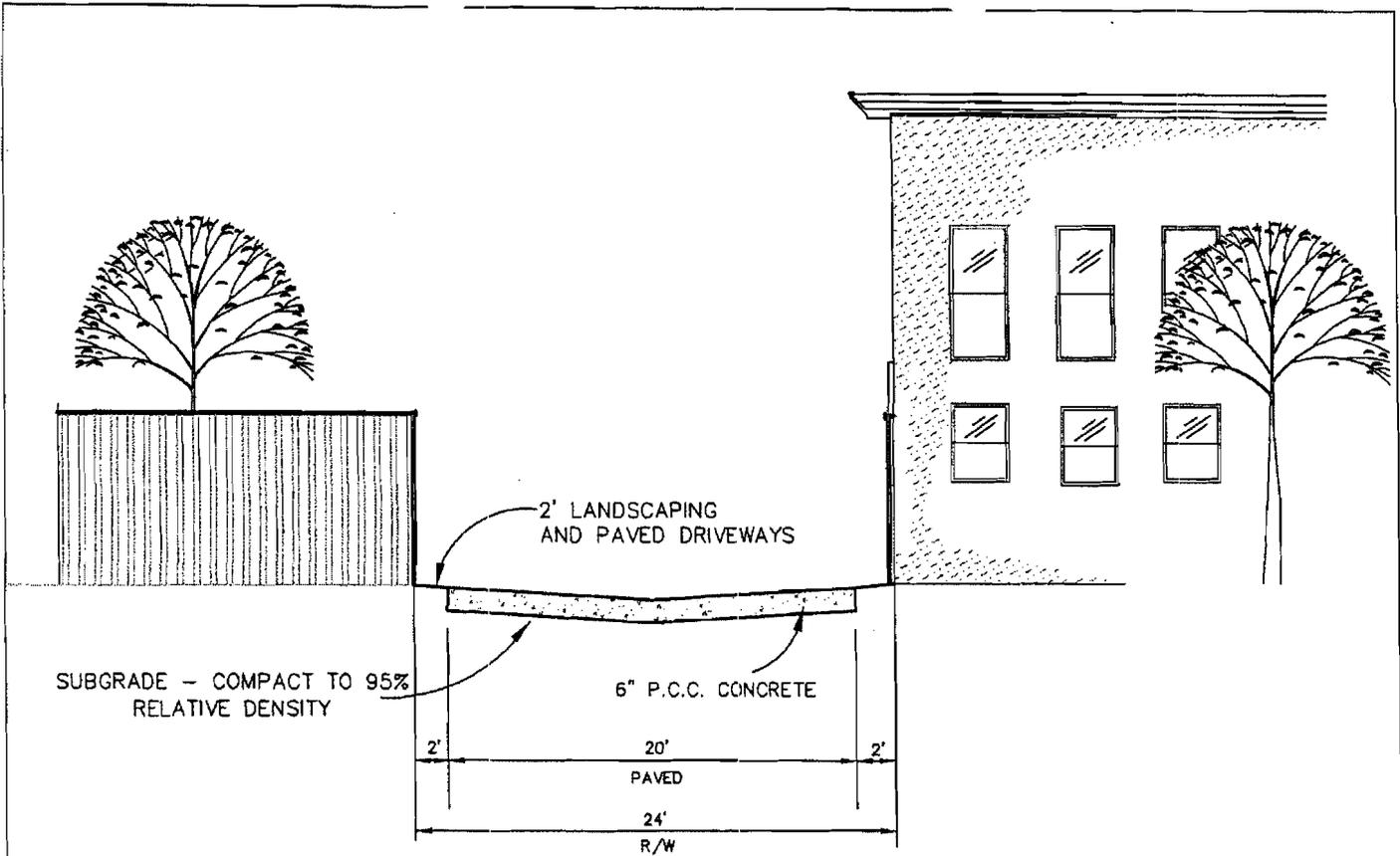
APPROVED   
ASST. DIRECTOR OF ENGINEERING

19' INTERIOR STREET  
(ONE WAY ON NEIGHBORHOOD GREEN)

TN-10

**EXHIBIT** 

(6/19/07)



**NOTES:**

NO PARKING IN R.O.W.  
 PROVIDES SERVICE ACCESS

DRY UTILITIES TO BE INSTALLED IN SHOULDERS

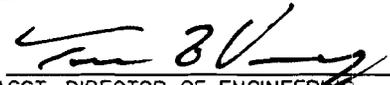
UTILITY PEDESTALS, LANDSCAPING OR OTHER  
 OBSTRUCTIONS SHALL NOT INTERFERE WITH  
 GARAGE ACCESS

SEE CHICO STD PLAN S-9 FOR IMPROVEMENT NOTES

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

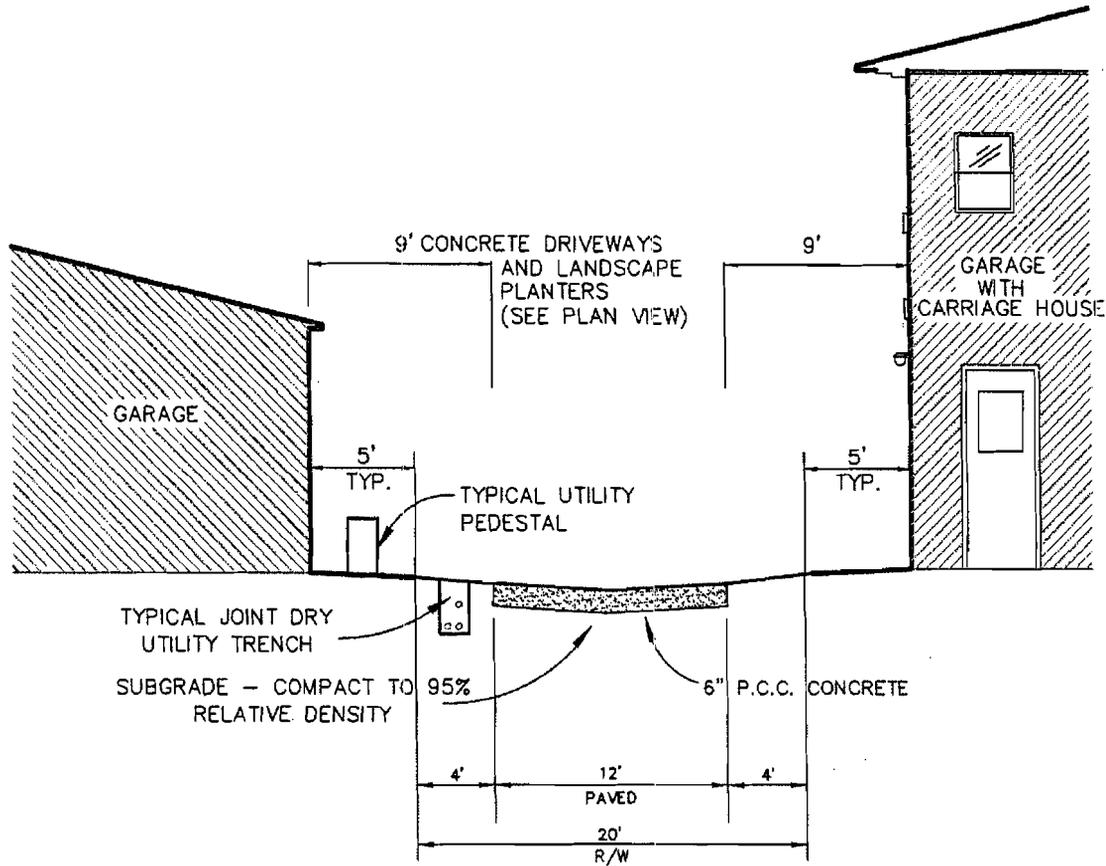
APPROVED   
 ASST. DIRECTOR OF ENGINEERING

ALLEY COMMERCIAL

TN-11

**EXHIBIT** K

(6/19/07)



**NOTES:**

NO PARKING IN R.O.W.

PROVIDES GARAGE ACCESS

DRY UTILITIES TO BE INSTALLED IN SHOULDERS

UTILITY PEDESTALS, LANDSCAPING OR OTHER OBSTRUCTIONS SHALL NOT INTERFERE WITH GARAGE ACCESS

SEE CHICO STD PLAN S-9 FOR IMPROVEMENT NOTES

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

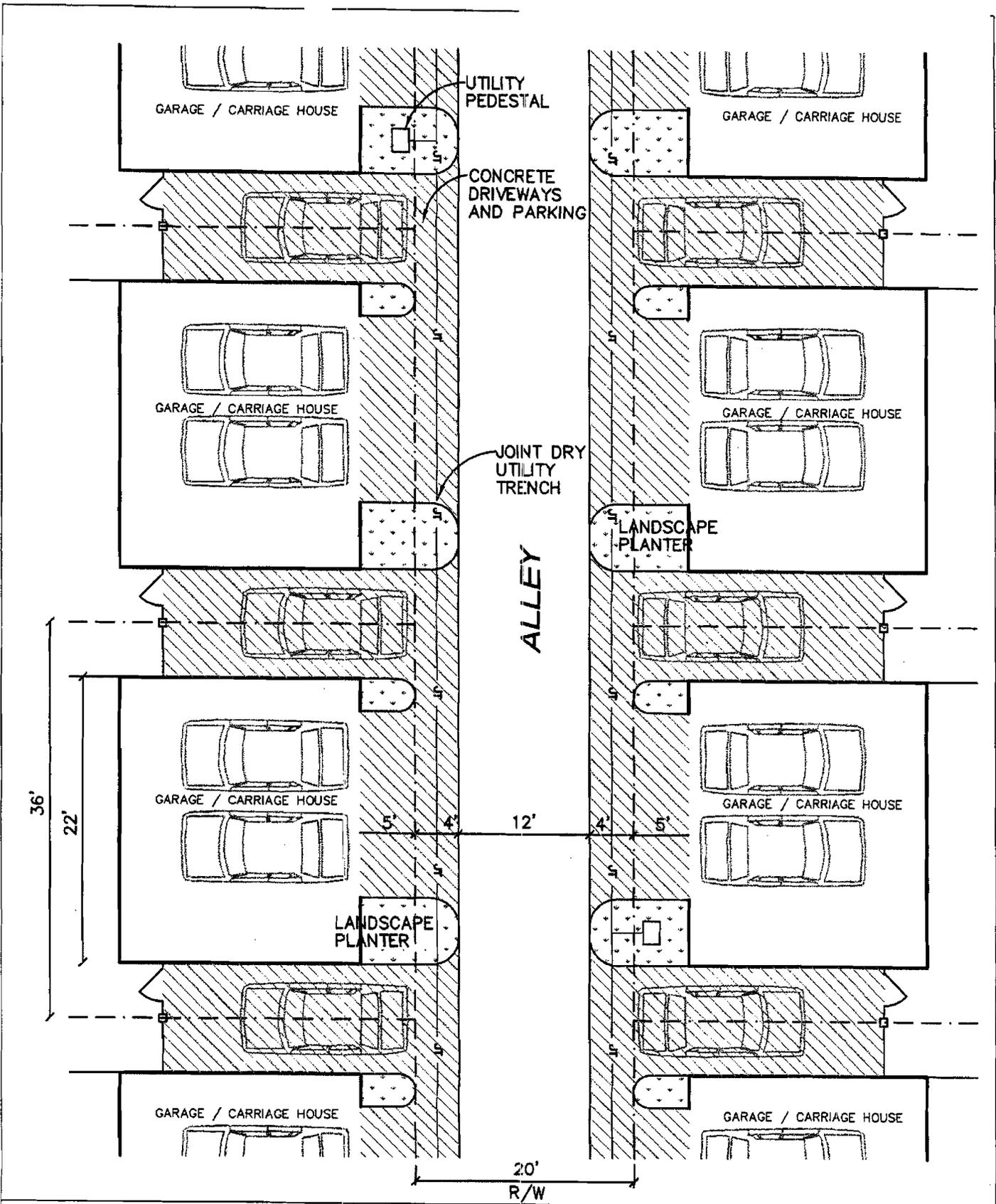
APPROVED *[Signature]*  
ASST. DIRECTOR OF ENGINEERING

ALLEY

TN-12

**EXHIBIT** L

(6/19/07)



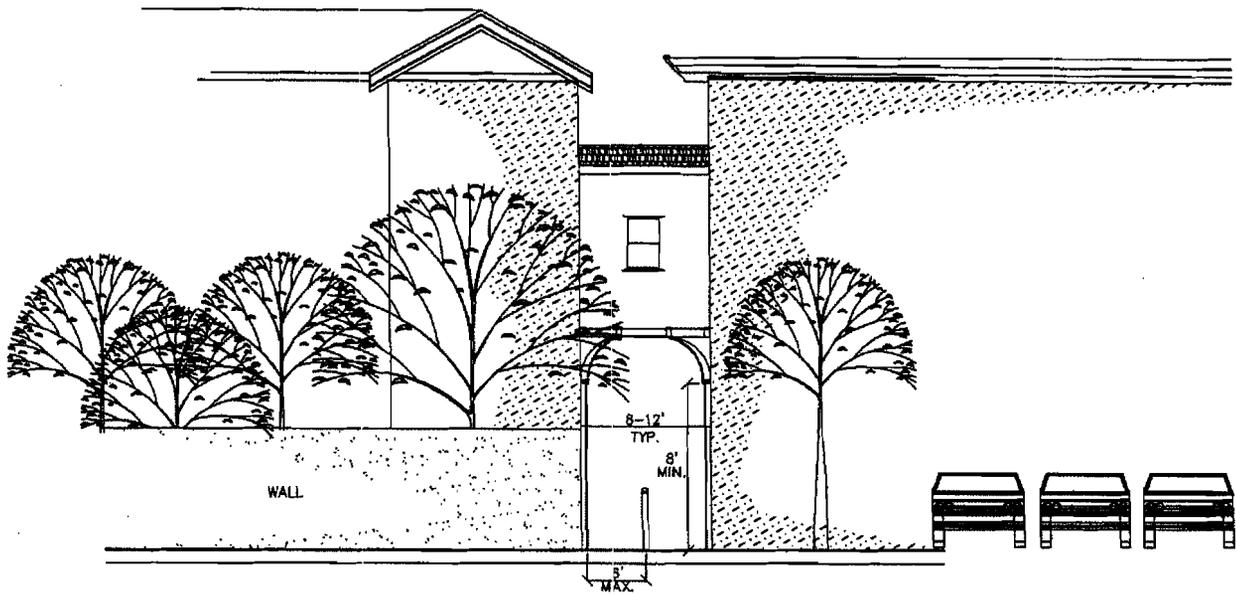
CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED [Signature]  
 ASST. DIRECTOR OF ENGINEERING

TYPICAL PLAN VIEW  
 NEIGHBORHOOD GENERAL ALLEY

**EXHIBIT**

TN-13  
 (6/19/07)



**NOTES:**

PEDESTRIAN / BICYCLE ACCESS ONLY

CURBS AND/OR BOLLARDS SHALL BE USED TO RESTRICT VEHICULAR ACCESS

PRIVATELY OWNED WITH GRANT OF PUBLIC ACCESS EASEMENT

PROVIDES ACCESS TO COURTYARD OR PARKING

IF ARCHED OPENING IS USED, 8 FOOT MINIMUM HEIGHT MEASURES AT THE LOWEST POINT OF THE ARCH.

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

APPROVED

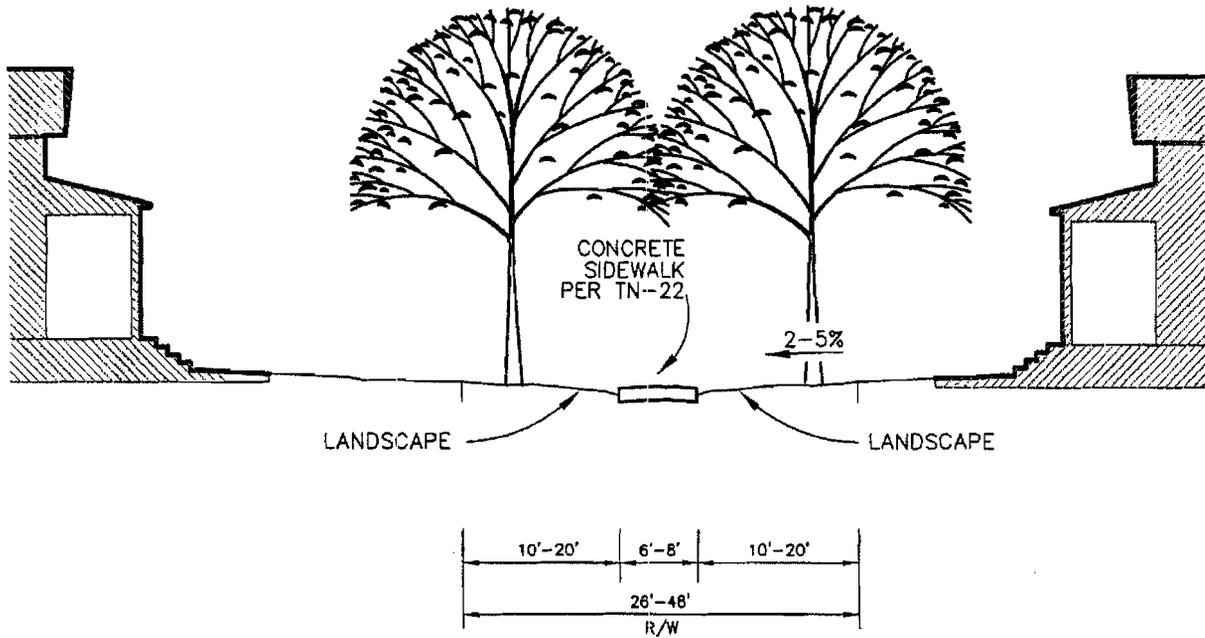
*Tom & Vicky*  
ASST. DIRECTOR OF ENGINEERING

PEDESTRIAN PASSAGE

**EXHIBIT N**

TN-14

(6/19/07)



**NOTES:**

- PEDESTRIAN / BICYCLE ACCESS ONLY
- BIKE/PED WIDTH - 6' MINIMUM, 8' MAXIMUM
- LANDSCAPE WIDTH - 10' MINIMUM, 20' MAXIMUM

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE

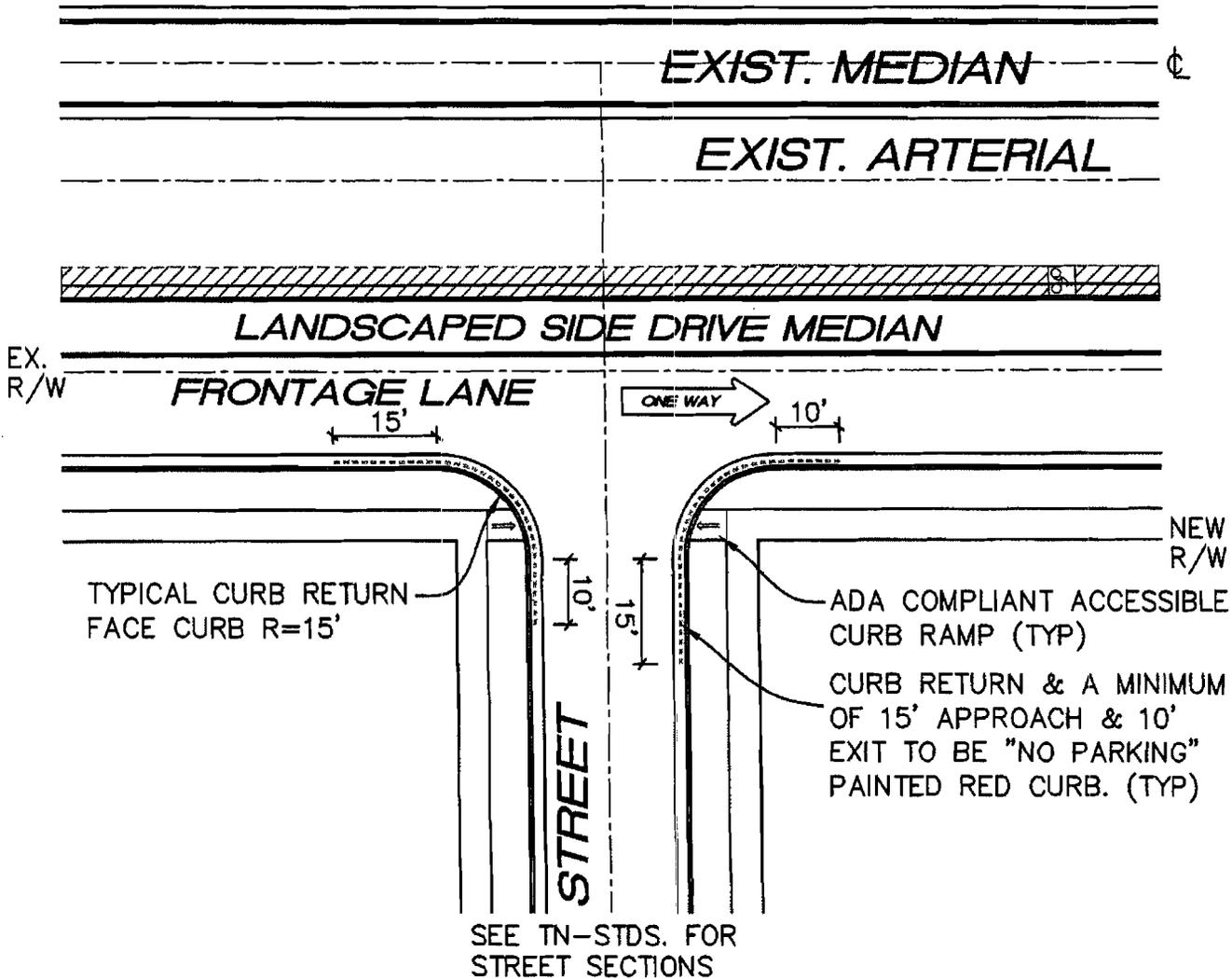
APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

MID-BLOCK PASSAGE

**EXHIBIT** 0

TN-15

(6/19/07)



CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE

APPROVED

*[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

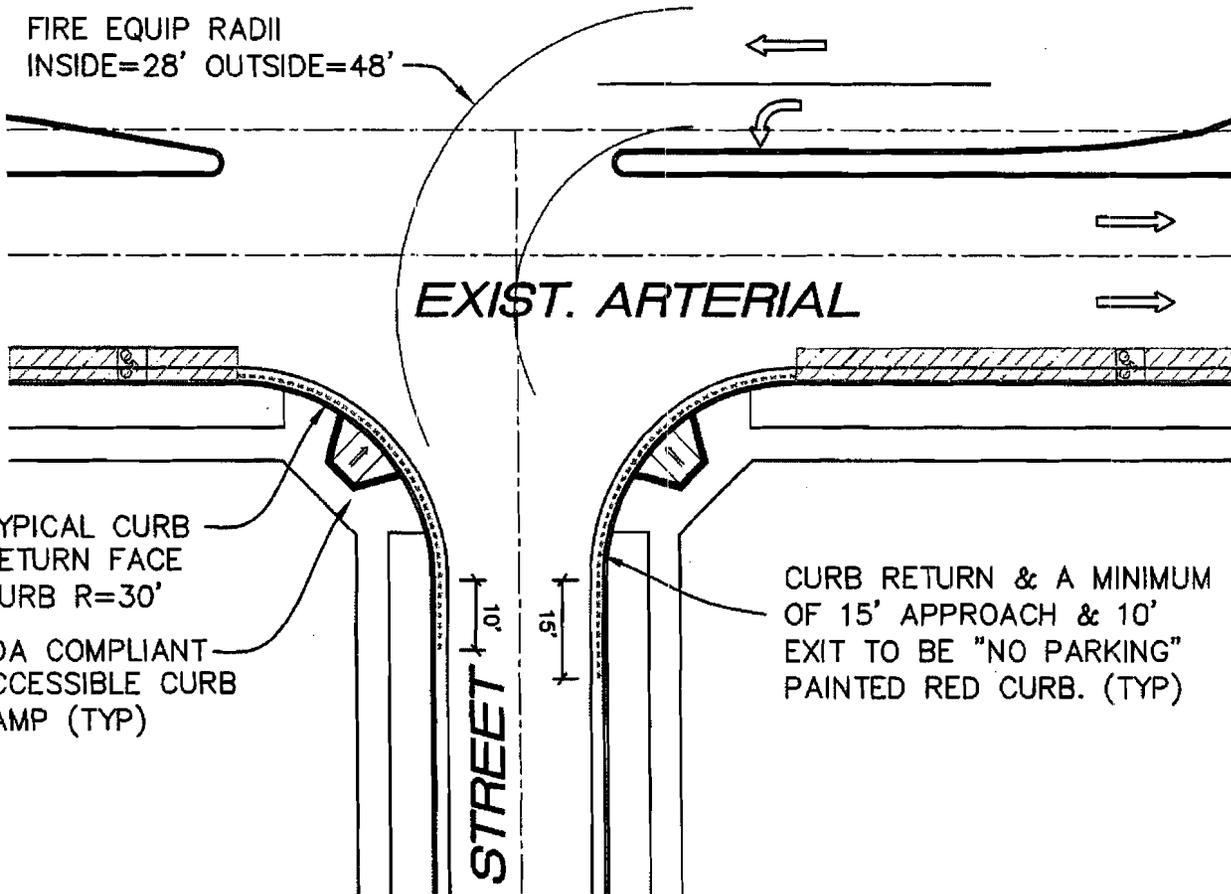
STREET - EXISTING MODIFIED  
 ARTERIAL INTERSECTION  
 ON NETWORK

TN-16

EXHIBIT P

(6/19/07)

FIRE EQUIP RADII  
INSIDE=28' OUTSIDE=48'



EXIST. ARTERIAL

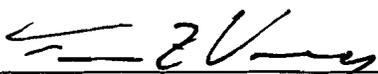
TYPICAL CURB  
RETURN FACE  
CURB R=30'  
ADA COMPLIANT  
ACCESSIBLE CURB  
RAMP (TYP)

CURB RETURN & A MINIMUM  
OF 15' APPROACH & 10'  
EXIT TO BE "NO PARKING"  
PAINTED RED CURB. (TYP)

SEE TN-STDS. FOR  
STREET SECTIONS

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
CHECKED \_\_\_\_\_ SCALE NONE

APPROVED   
ASST. DIRECTOR OF ENGINEERING

STREET - EXISTING ARTERIAL  
INTERSECTION  
ON NETWORK

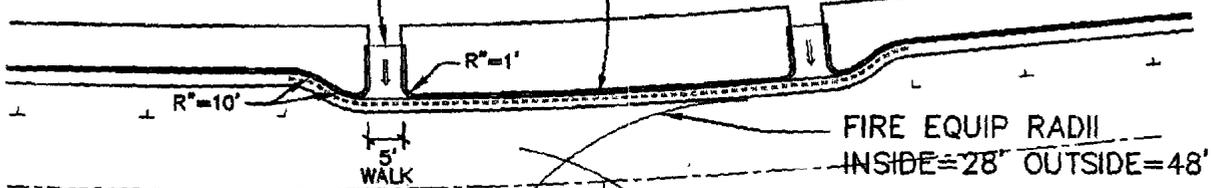
TN-17

EXHIBIT 

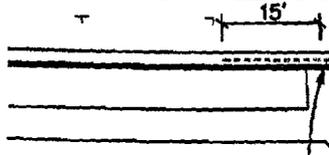
(6/19/07)

ADA COMPLIANT  
ACCESSIBLE CURB  
RAMP (TYP)

CONTINUOUS  
GUTTER PAN



AVENUE



CURB RETURN & A  
MINIMUM OF 15'  
APPROACH & 10' EXIT TO  
BE "NO PARKING"  
PAINTED RED CURB. (TYP)

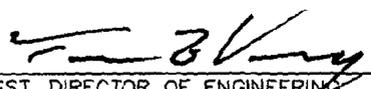
TYPICAL CURB RETURN  
FACE CURB R=15'

BOULEVARD

SEE TN-STDS. FOR  
STREET SECTIONS

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
CHECKED \_\_\_\_\_ SCALE NONE

APPROVED   
ASST. DIRECTOR OF ENGINEERING

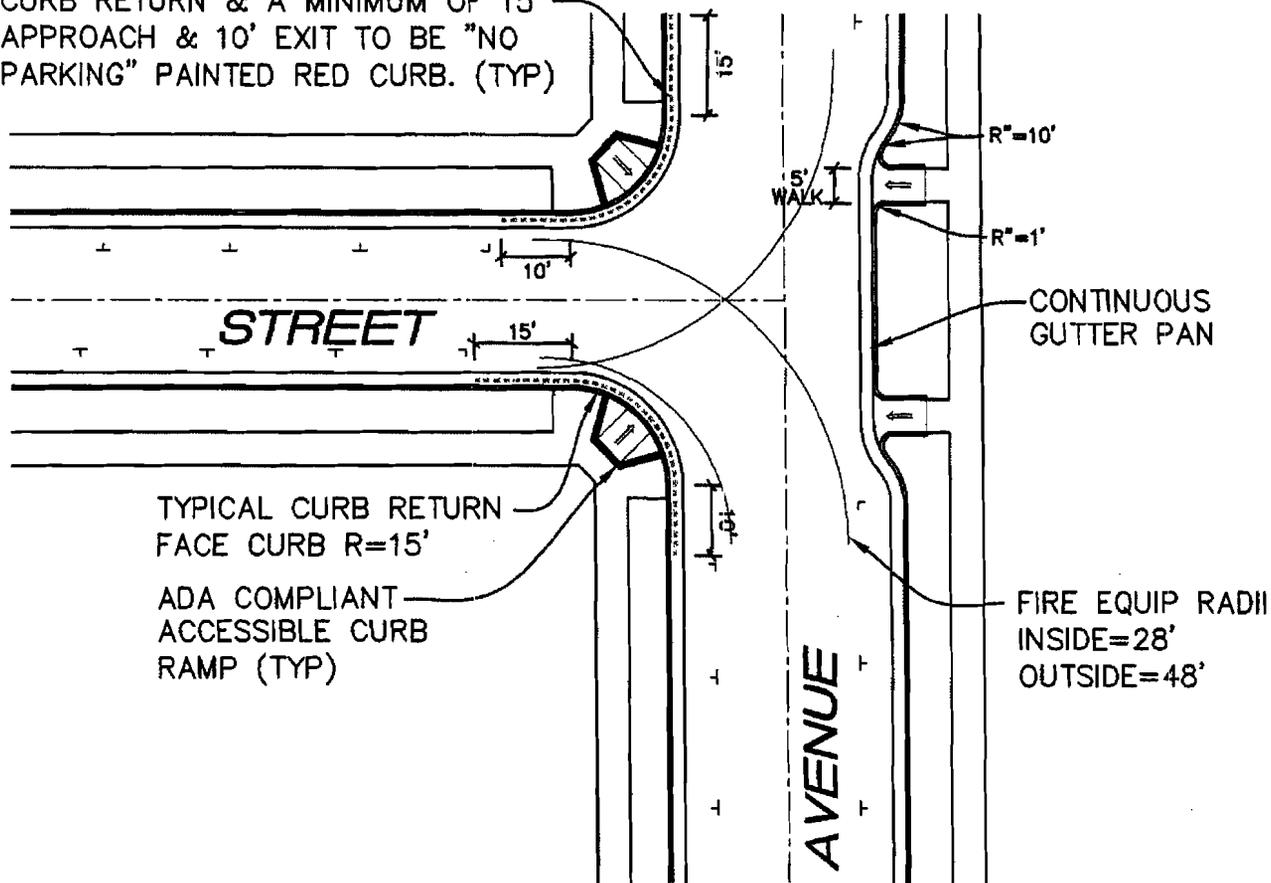
BOULEVARD - AVENUE  
INTERSECTION  
ON NETWORK

TN-18

EXHIBIT R

(6/19/07)

CURB RETURN & A MINIMUM OF 15' APPROACH & 10' EXIT TO BE "NO PARKING" PAINTED RED CURB. (TYP)



SEE TN-STDS. FOR STREET SECTIONS

CITY OF CHICO

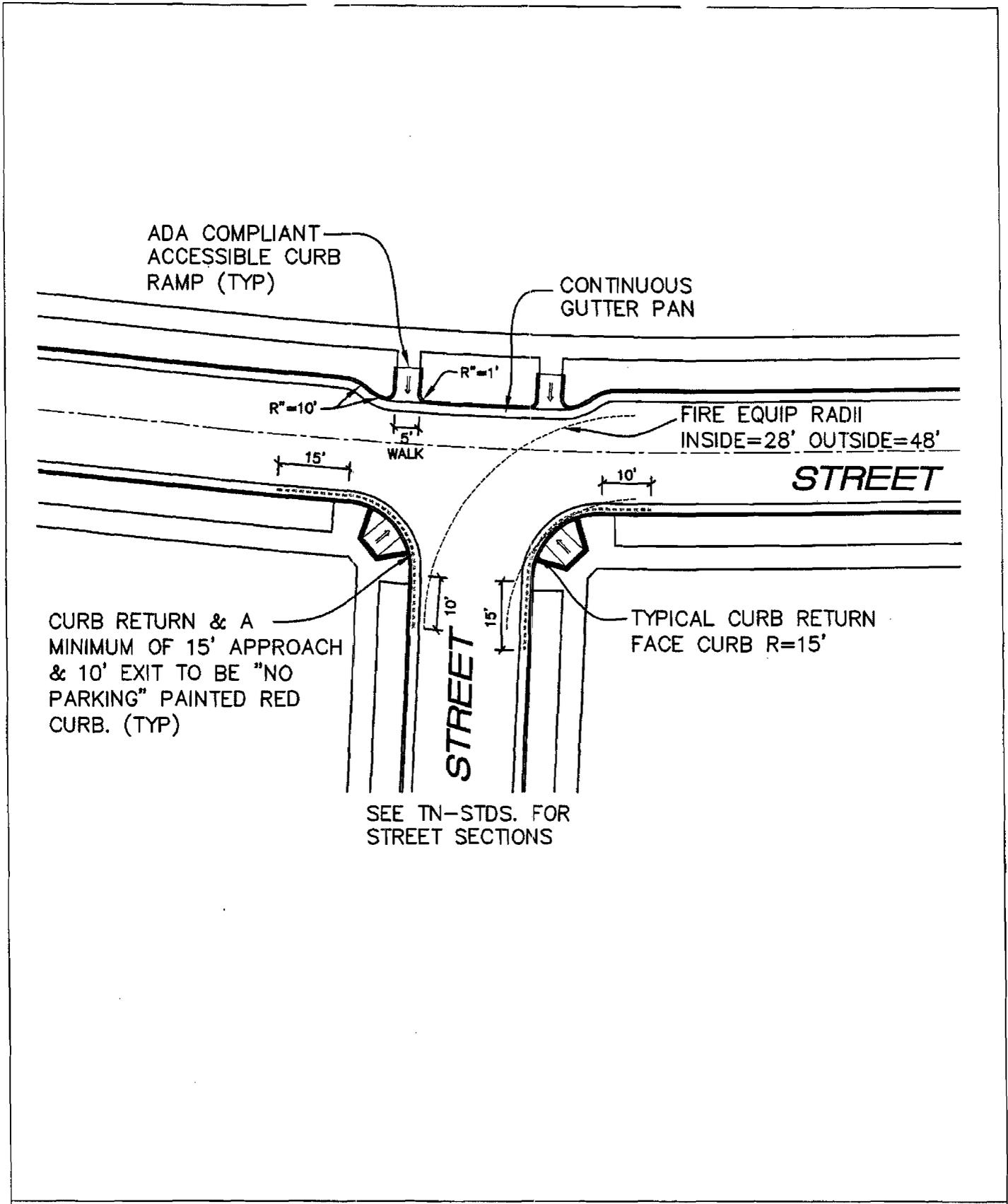
DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED [Signature]  
 ASST. DIRECTOR OF ENGINEERING

AVENUE -- STREET INTERSECTION  
 ON NETWORK

TN-19

EXHIBIT S

(6/19/07)



CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE

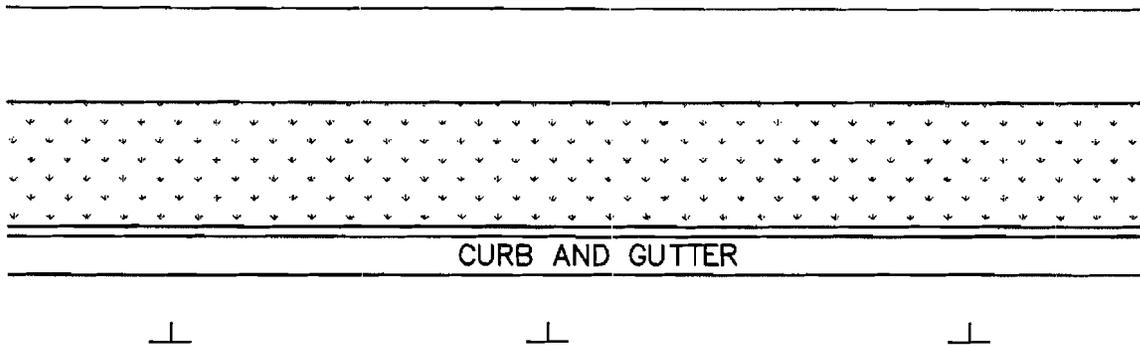
APPROVED *Tom Blay*  
 ASST. DIRECTOR OF ENGINEERING

STREET - "T" INTERSECTION  
 OFF NETWORK

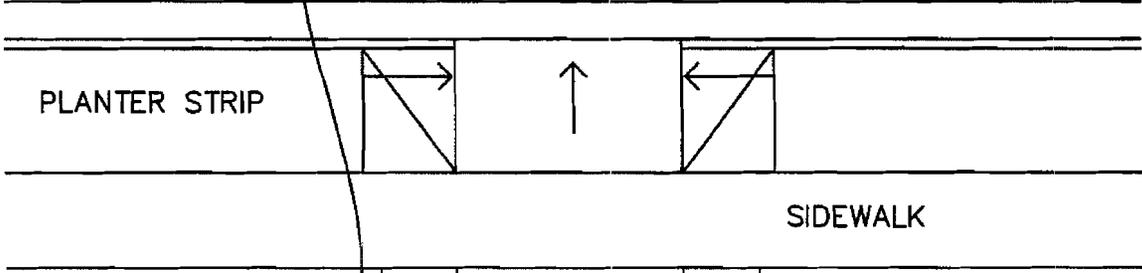
TN-20

**EXHIBIT** T

(6/19/07)



**STREET**



A MINIMUM OF 15' ON EACH SIDE OF AN ALLEY CUT TO BE "NO PARKING" PAINTED RED CURB. (TYP)

**ALLEY**

SEE TN-STDS. FOR STREET SECTIONS

CITY OF CHICO

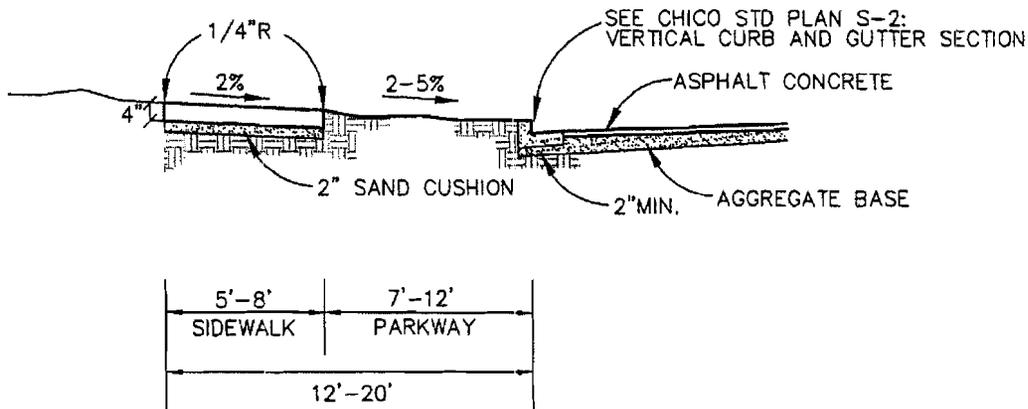
DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED [Signature]  
 ASST. DIRECTOR OF ENGINEERING

STREET - ALLEY INTERSECTION  
 OFF NETWORK

**EXHIBIT U**

TN-21

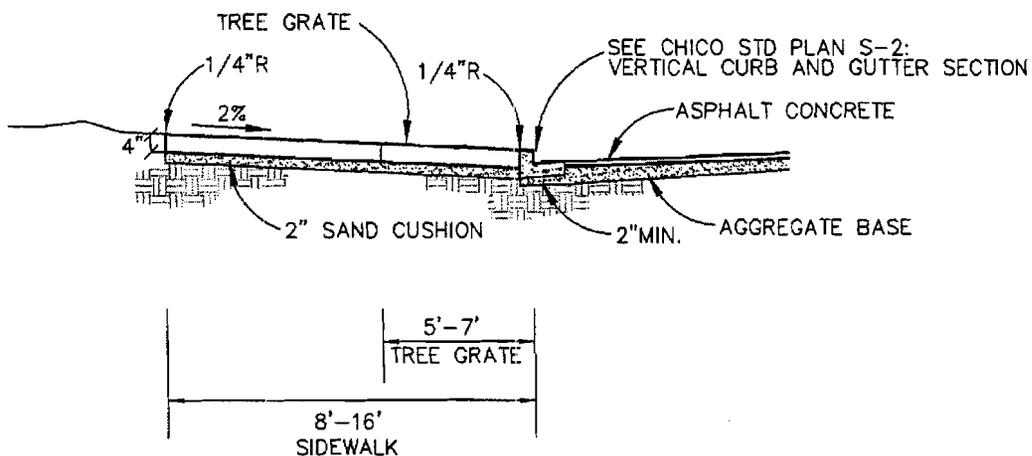
(6/19/07)



**NOTES:**

THIS SIDEWALK CONFIGURATION SHALL BE USED IN CONJUNCTION WITH ALL TND STREET SECTIONS, TN-1 THROUGH TN-21.

SEE CHICO STD PLAN S-1 FOR TYPICAL SIDEWALK SCORE LINES.



**NOTES:**

THIS OPTIONAL SIDEWALK CONFIGURATION AVAILABLE FOR USE IN TND SUBZONES NC AND CORE.

SEE CHICO STD PLAN S-1 FOR TYPICAL SIDEWALK SCORE LINES.

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

APPROVED [Signature]  
ASST. DIRECTOR OF ENGINEERING

SIDEWALK DETAILS:  
PLANTER AND TREE GRATE OPTIONS

TN-22

**EXHIBIT** ✓

(6/19/07)

**Chapter 18R.36**

**SUBDIVISION IMPROVEMENT REQUIREMENTS**

**Section:**

**18R.36.010 Schedule of unit costs to be utilized in developing estimates of cost for improvement guarantees.**

**18R.36.010 Schedule of unit costs to be utilized in developing estimates of cost for improvement guarantees.**

The unit costs to be utilized by the building and development services director in determining the estimate of cost for required improvements to be guaranteed by the improvement security shall be as set forth in Section 14R.14.010 of this code.

(Res. No. 58 79-80 (part), Res. No. 113-07)

**TITLE 18R FOOTNOTES**

1. For statutory provisions on local regulations of land divisions, see Government Code §66410 et seq. For additional provisions regarding divisions of land, see Title 18 of this code.
2. For code provisions authorizing subdivision design criteria to be promulgated by the director of public works and the city planner and approved by resolution of the council, see §18.35.020.
3. For code provisions authorizing subdivision improvement standards to be promulgated by the director of public works and the city planner and approved by the council by resolution, see §18.35.020.

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Please click on the icon below.



## **Title 18R**

### **DESIGN CRITERIA AND IMPROVEMENT STANDARDS<sup>1</sup>**

#### **Chapter:**

- 18R.04 Application and Definitions**
- 18R.08 Design Criteria**
- 18R.12 Improvement Standards**
- 18R.36 Subdivision Improvement Requirements**

#### **Table: (Tables follow Chapter 18R.08)**

- 1 Horizontal Alignment Criteria**
- 2 Vertical Curve Criteria**
- 3 Runoff Coefficients**
- 4 Rainfall Intensity/Duration/Frequency  
Design Chart**
- 5 Design Criteria for Sanitary Sewers**
- 6 Sanitary Sewer Peak Flow Factors**

#### **Figure: (Figures follow Tables)**

- 1 Lot Configurations and Definitions**
- 2 Cross-Slope in Intersections**

#### **Standard Plans: (Standard Plans follow Chapter 18R.12)**

**Standard Plans S-1 through TN-22**

NOTE: Footnotes are numbered throughout the text and are located at the end of this title.

**Chapter 18R.04****APPLICATION AND DEFINITIONS****Section:****18R.04.010 Application of title.****18R.04.020 Definitions.****18R.04.010 Application of title.**

- A. The design criteria set forth herein are provided for the purpose of insuring that subdivision and nonsubdivision public right-of-way and private street improvements constructed within the city are designed in such a manner that each meets or exceeds uniform levels of sound engineering practice and that the individual elements contained therein have a uniform level of development with no single element overdesigned to the detriment of another.
- B. The improvement standards set forth herein are to insure that subdivision improvements and nonsubdivision public right-of-way and private street improvements are constructed in such a manner that they meet or exceed a uniform level of quality workmanship and construction.
- C. The design criteria and improvement standards set forth herein may be modified by the advisory agency incident to approval of a subdivision or any other entitlement or authorization provided for in Title 18 of this code upon making any of the findings provided for in Section 18.44.020 of Title 18 of this code. In addition, the design criteria and improvement standards set forth herein may be modified by the building and development services department incident to approval of a building permit, encroachment permit or any other permit or authorization requiring their approval upon making any of the findings provided for in Section 14.14.075 of Title 14 of this code.

(Res. No. 9 77-78 (part), Res. No. 110 86-87 §1, Ord. 1935 §8, Res. No. 133 95-96 §8, Res. No. 150 96-97, Res. No. 113-07)

**18R.04.020 Definitions.**

For the purpose of this title, the following words and phrases shall have the meanings defined in this section unless from the context a different meaning is intended; provided, however, that whenever any word or phrase used in this title is not defined, but is defined in Title 1, Title 14 or Title 18 of this code, such definitions are incorporated herein and shall be deemed to apply to such words and phrases when used in this title:

- A. "Accessway" means a parcel of land not dedicated as a public street but intersecting or connecting with a public or private street for which a private easement for road purposes has been granted to the owners of the property contiguous or adjacent thereto.
- B. "Backup lot" means a lot which has a rear yard which abuts an arterial street. See also Figure 1.
- C. "Block" means a parcel of land, containing one or more lots, surrounded on all sides by a street.

- D. “Construction specifications” means the construction specifications of the city.
- E. “Contractor” means the person responsible for the actual construction of a subdivision or public right-of-way improvement.
- F. “Curb return” means that portion of a curb which provides a curved transition in alignment between two curbs on intersecting streets.
- G. “Culvert” means any storm drainage conduit (other than an open channel) including a storm drainage pipe and box culvert structure which conveys surface water runoff beneath a street, easement or right-of-way.
- H. “Dead-end street” means a street which is closed to through traffic.
- I. “Density” means the residential density established by the Chico General Plan Land Use Element expressed as a number or range of dwelling units per gross acre. The number or fraction of gross acres contained in a site shall include the entire lot area measured in a horizontal plane together with the area between the property line and centerline of all abutting streets.
- J. “Design speed” means the vehicular speed which serves as the basis for the horizontal and vertical alignment criteria of a street.
- K. “Double frontage lot” means a lot which has access to more than one street. See also Figure 1.
- L. “Easement” means an interest in, on or over land owned by another that entitles the holder to a specific limited use.
- M. “Engineer” means the building and development services director of the city or an authorized representative.
- N. “Flag lot” means a lot so shaped and designed that the main building site area is set back from the street on which it fronts and includes an accessway not less than fifteen feet in width at any point connecting such main building site area to the frontage street. See also Figure 1.
- O. “Freeboard” means the distance between the design high water line and either the bottom surface of a bridge or a box culvert deck, the inside crown elevation of a storm drainage pipe or the top elevation of the bank of a storm drainage ditch containing the flow.
- P. “Functional street classification” means the classification of a street according to its function in the circulation pattern established by the general plan of the city.
- Q. “Grade” means the reference line by which the elevation for the pavement and other appurtenant features are established.
- R. “Highway Design Manual” means the Highway Design Manual of the State of California Department of Transportation.
- S. “Lateral” means the initial storm drain or sewer conduit connecting the source of the flow to the main line of the storm drain or sewer system.
- T. “Planning services department” means the planning services department of the city represented by the planning services director or an authorized representative.
- U. “Private street” means a privately owned and maintained street which is not a part of the street system of the city.
- V. “Profile” shall be used interchangeably with “grade.”
- W. “Reserve strip” means a narrow strip of land extending along the exterior boundary of a subdivision or at the dead end or side of a dedicated street.
- X. “R value” means a coefficient representing the resistance to a deformation of a

saturated soil at a given density which is determined by State of California Department of Transportation Test Method No. 301-F.

- Y. "Side-on lot" means a lot which has a side yard which abuts an arterial street. See also Figure I.
- Z. "Soils report" means a soil investigation and geological reconnaissance report prepared by a registered civil engineer, engineering geologist or geologist specializing and recognized in soil mechanics and foundation engineering.
- AA. "Standard plans" means the standard plans of the city of Chico.
- BB. "Standard specifications" means the standard specifications of the State of California Department of Transportation.
- CC. "State standard plans" means the standard plans of the State of California, Department of Transportation.
- DD. "Street" means any public street, avenue, road, parkway, boulevard, thoroughfare, highway, square, crossing, intersection, lane, alley, court or any other public place or way of whatever nature, located within a right-of-way, publicly maintained and open for use by the public for the primary purposes of vehicular and/or pedestrian travel. "Street" includes street surfacing, concrete curb, gutters and sidewalks, and all other improvements constructed within such right-of-way which are commonly considered a part of the public street system of the city.
- EE. "Superelevation" means the cross-slope of a traveled street which counteracts the effect of centrifugal force on a vehicle.
- FF. "Traffic index" means a coefficient used in the design of a street structural section and which represents predicted truck traffic volumes.

(Res. No. 9 77-78 (part), Res. No. 57 82-83 §§1, 2, Res. No. 59 90-91 §1, Res. No. 02 03-04, Res. No. 113-07)

## Chapter 18R.08

### DESIGN CRITERIA<sup>2</sup>

**Section:**

<b>18R.08.010</b>	<b>Subdivision layout.</b>
<b>18R.08.020</b>	<b>Public streets.</b>
<b>18R.08.030</b>	<b>Other public ways</b>
<b>18R.08.035</b>	<b>Private streets.</b>
<b>18R.08.040</b>	<b>Major structures.</b>
<b>18R.08.050</b>	<b>Storm drainage.</b>
<b>18R.08.060</b>	<b>Sanitary sewers.</b>
<b>18R.08.070</b>	<b>Water supply.</b>
<b>18R.08.075</b>	<b>Fire hydrants.</b>
<b>18R.08.080</b>	<b>Utility services.</b>
<b>18R.08.090</b>	<b>Street trees and landscaping.</b>
<b>18R.08.100</b>	<b>Traffic signals.</b>
<b>18R.08.110</b>	<b>Monuments.</b>
<b>18R.08.120</b>	<b>Railroad crossings.</b>
<b>18R.08.130</b>	<b>Public right-of-way improvements - Nonsubdivision.</b>
<b>18R.08.140</b>	<b>Certificates - Final subdivision maps.</b>

**18R.08.010 Subdivision layout.**

- A. Subdivision Density. The maximum number of dwelling units permitted within a proposed subdivision shall not exceed the density established by the general plan for the area or the maximum number of dwelling units permitted by the applicable zoning districts, whichever is less, and may be further restricted by considerations of safety, traffic access or circulation, the slope of the natural terrain, the physical suitability of the site, the nature or extent of existing development, the availability of public facilities, utilities, or open spaces or any other provision set forth herein.
- B. Blocks.
1. Size. Blocks shall be designed to allow for adequate building sites for the type of use proposed, to allow for convenient pedestrian and vehicular circulation, access, traffic control and safety, and with regard to limitations created by topography.
 

Block lengths shall be dependent upon intersection spacing as set forth in subsection G of Section 18R.08.020 of these criteria.

Block widths shall be sufficient to allow for two tiers of lots with rear easements as required.
  2. Corners. At intersections, all block corners shall be rounded at the property line on a 20-foot radius curve. Greater radii may be required where necessary for traffic safety.
- C. Lots Generally.
1. Width and Area. The minimum width the area of all lots shall conform to the requirements of the zoning districts in which the subdivision is located.
  2. Depth. The depth of a residential lot, exclusive of flag lots, shall not be greater

than three times the width of the lot. Minimum residential lot depth shall be 80 feet.

3. Lot Frontage. All lots within a proposed subdivision shall have frontage on a public or private street.
4. Lot Lines. The side lot lines wherever practical shall be at right angles or radial to street lines, except where the building and development services director determines an alternative design is acceptable.
5. Lots Adjoining City Limits. No lot shall be divided by a city boundary line.
6. Lot Grading. All lots shall be adequately drained. Surface water from each lot shall be conducted directly to the adjacent street or alley, or to underground storm drainage facilities or drainage channels.

D. Lot Configuration.

1. Flag Lots. Flag lots shall be approved only where required by topographic conditions or where there is no practical alternative design for the development of the interior portions of excessively deep parcels. Flag lots shall conform to all of the following requirements:
  - a. Flag lots shall conform to all of the requirements contained in these criteria except those provisions relating to lot line and lot frontages set forth in subsection C above, and shall have a minimum area of 6,000 square feet. The accessway serving the flag lot(s) shall not be included when calculating the required lot area of any lot.
  - b. The accessway to the rear lot(s) shall conform to the following design standards:
    - (1) An accessway serving one unit on a single lot shall be at least fifteen (15) feet wide, with twelve (12) feet thereof being paved. An accessway serving two or three lots, or a single lot with more than one unit, shall be at least twenty-five (25) feet wide with twenty (20) feet thereof paved the entire length of the accessway with an adequate turnaround provided at the end. The number of flag lots served by one accessway shall not exceed three, except that no more than two infill residential flag lots, as defined by section 19.76.180, shall be served by one accessway.
    - (2) Curbs and gutters may be required depending on drainage requirements, however, sidewalks shall not be required.
    - (3) The maximum length of a roadway serving one flag lot shall be 200 feet. The maximum length of a roadway serving two or three flag lots shall be 300 feet.
  - c. Each dwelling unit situated on a flag lot shall provide two (2) off-street parking spaces in addition to those spaces required by Title 19 of the Chico Municipal Code.
  - d. Prior to the time a flag lot is developed, the site plan therefor shall be reviewed and approved by the city fire chief for fire access and service requirements.
2. Double Frontage Lots. Double frontage lots will be approved only on collector and/or local streets and only if they meet at least one of the following requirements:
  - a. They are corner lots;
  - b. Their depth is greater than 200 feet;
  - c. Such lots are required by reason of unusual topographic or other physical

conditions.

For lots which do not meet these requirements, the subdivider shall eliminate the double frontage condition by providing the city with an access waiver which waives all vehicular and pedestrian access rights to street along one of the two frontages. In addition, the subdivider shall provide an approved fence, landscaping, and sprinkler system along such non-access frontage. Maintenance of said landscaping shall be the responsibility of the subdivider and/or future subdivision lot owners.

Lots with triple frontages will not be authorized.

3. Backup or Side-on Lots. Backup (reverse frontage) or side-on lots may be approved in lieu of a frontage road adjacent to an arterial street. Where such lots are approved, access waivers of vehicular and pedestrian access rights to the arterial street over rear or side lot lines shall be required. The subdivider shall provide two (2) feet of additional right-of-way, landscaping, and a suitable fence or other approved barrier along such non-access frontage.

Rear lot lines are those lines adjacent to the arterial street.

4. Property Remnants and Reserve Strips. Remnants of property which do not conform to lot requirements or are not required for a public or private utility or other public use or approved access purpose shall not be created by a subdivision.

Reserve strips designed to provide private control of access to streets, alleys, easements, or other public ways shall not be permitted.

The advisory agency may require an access waiver to provide public control of access and to protect and facilitate the future development and extension of public rights-of-way.

#### E. Easements.

1. Public Utility and Cable Television Easements. Where alleys are not provided, the advisory agency, public utility agencies or cable television grantee may require public utility and/or cable television easements on each side of rear lot lines and/or side lot lines. Rear lot easements shall, as nearly as practicable, follow a direct course through the entire subdivision.
2. Storm Drain and Sanitary Sewer Easements. Storm drain and/or sanitary sewer easements, as described in the improvement standards, shall be dedicated as requested by the director. Easements of greater width may be required along natural water courses, conforming substantially to the lines of such channels.

Acquisition and maintenance of temporary construction easements outside of the limits of the subdivision shall be the subdivider's responsibility.

(Res. No. 9 77-78 (part), Res. No. 57 82-83 §3, Res. No. 103 82-83 §§1, 2, Res. No. 127 86-87 §3, Res. No. 82 87-88 §2, Res. No. 105-07 §1, Res. No. 113-07)

### **18R.08.020 Public streets.**

#### A. Public Streets Generally.

1. The subdivider shall provide a comprehensive trafficway system, designed and constructed in accordance with these criteria, applicable standards and ordinances, and the city of Chico general plan. Design of streets shall provide for safe vehicular operation at a specified design speed.
2. Public streets shall be required when the street is shown as an arterial or collector street on a master street and highway plan, the general plan, or any other specific or precise plan; or when the street will be used by the general public as a through

access route; or when a public street is necessary for special needs including, but not limited to, bus routes, public service access, bike routes and pedestrian access.

#### B. Street Layout.

1. Existing Streets and Unsubdivided Land. Streets shall be laid out to complement the alignment of existing streets in adjoining subdivisions and to provide a logical continuation of existing streets where the adjoining land is not subdivided.

The advisory agency may require the realignment of streets in contemplation of the development or use of adjoining property and may require the provision of streets or dead-end street extensions to facilitate the subdivision of adjoining property.

Permanently dead-ended streets without cul-de-sacs shall not be approved. When a temporarily dead-ended street is extended to the boundary of the subdivision, a one-foot fee simple strip the width of the street right-of-way shall be dedicated to the city at the end of the street. A barricade, or temporary turning area, or temporary connection to another street shall be required for any such street.

2. Provision for Resubdivision. Where property is subdivided into lots substantially larger than the minimum size required by the zoning districts in which the subdivision is located, the advisory agency may require that streets and lots be laid out so as to permit future resubdivision in accordance with the provisions of these regulations.
3. Future Streets. Where determined necessary for the protection of the public welfare or substantial property rights, the advisory agency may require or approve the reservation of streets within a proposed subdivision for future public use; provided, that all land so reserved shall be dedicated in fee simple to the city.
4. Streets Parallel to Rights-of-Way. Where a subdivision borders on or contains a railroad right-of-way, canal, or limited access highway right-of-way, the advisory agency may require a street approximately parallel to such right-of-way at a distance suitable for the appropriate use of the intervening land. Such distance shall be determined with due regard for the requirements of approach grades and future grade separations.
5. Local Streets. Local streets shall be designed so that their use by through traffic will be discouraged. Excessively long, straight residential streets, conducive to high-speed traffic, shall not be approved.

- C. Street Names. Proposed street names shall not be similar to present street names, except that streets that are a prolongation or approximate prolongation of existing streets shall be given the same names as the existing streets. No street shall be designated by the same name as any other street even though differentiated by a suffix (avenue, boulevard, way, place or other term), except that a frontage road shall be given the same name as the street on which it borders. Generally no street should change direction by more than 90 degrees without a change in street name.

All proposed street names must be approved by the city fire chief and the Butte County street coordinator.

#### D. Horizontal Alignment.

1. Specific Requirements. The criteria for the following design elements for each functional street classification shall be as set forth in Table 1:
  - a. Minimum design speed;
  - b. Minimum curve radius at centerline;

- c. Minimum length of tangent between reversing curves; reversing curves without an intervening tangent shall not be permitted;
    - d. Minimum stopping sight distance at the given design speed.
  2. Superelevation. Superelevations other than those set forth in the standard plans will be acceptable only in extraordinary circumstances and will be designed on an individual basis.
- E. Profile.
  1. Profile Generally. The grade line should coincide with the centerline of the street. To improve appearances and to reduce the number of sight distance restrictions, vertical curves should, when possible, be superimposed on horizontal curves. For safety reasons, the horizontal curve should lead the vertical curve. Sharp horizontal curves shall not be introduced at or near a pronounced grade sag or summit.
  2. Minimum Grade. Minimum grades for all streets with paved gutters shall be 0.25%. Streets with unpaved gutters shall have a minimum grade along centerline of 0.50%.
  3. Maximum Grades. Maximum grades shall be 6% for arterial and collector streets and 8% for local streets. A maximum grade of 4% is desirable whenever possible, especially at intersections.
  4. Vertical Curves. Parabolic vertical curves shall be used when the algebraic difference in grade is greater than 1.0%. The criteria for the following design elements for each functional street classification and its corresponding minimum design speed shall be as set forth in Table 2:
    - a. Minimum length of vertical curve;
    - b. Minimum stopping sight distance;
    - c. Minimum passing sight distance;
    - d. Maximum rate of change of grade in percent per 100 feet at the minimum stopping sight distance. This criteria may dictate a vertical curve longer than the minimum stated in this section.
- F. Cross Section.
  1. Geometric Cross Section. Standard widths for street geometric cross sections shall be as set forth in the improvement standards.

Subdividers of subdivisions with five (5) or more lots shall be required to install full improvements on existing streets adjacent to the subdivision in accordance with the limits of construction required by the improvement standards. In the event that the subdivision will generate sufficient vehicular traffic to require additional traffic lanes or street extensions, the subdivider may be required to provide and improve these facilities.

Subdividers of subdivisions having fewer than five (5) lots shall be required to install full improvements on existing streets adjacent to the subdivisions from the subdivision property line to the existing edge of street pavement, or beyond as may be needed to maintain a maximum five percent (5%) shoulder cross slope, in accordance with the improvement standards.
  2. Structural Section. The subdivider's engineer shall prepare a soils report and determine the R value of the proposed subgrade material. Minimum structural section thicknesses shall be as set forth in the improvement standards. These minimums are based upon a subgrade material having an R value of 25 or more. If the R value is less than 25, the structural section shall be increase accordingly.

The director will determine the traffic index and, if needed, will require an increase in the structural section. Pavement structural section design shall be in accordance with the methods shown in the Highway Design Manual.

3. Curb and Gutter. Curb and gutter shall be installed adjacent to streets in all subdivisions and shall be constructed in accordance with the improvement standards.
4. Sidewalks. Sidewalks shall be installed within all streets in all subdivisions and shall be constructed in accordance with the improvement standards. Sidewalks shall be separated from the adjacent curb and gutter by a parkway unless a contiguous sidewalk is specifically approved to save trees or to conform to an existing contiguous sidewalk configuration. All sidewalks shall be installed within the public right-of-way.

The advisory agency may require the installation of sidewalks outside of the subdivision to maintain continuity of pedestrian access from the subdivision to other areas in the immediate vicinity.

5. Half-streets. Half-streets shall not be approved.

#### G. Intersections.

1. Intersections Generally. The criteria for intersections set forth in this subsection shall be minimum requirements. Based upon traffic analysis, the director may require additional features such as speed change lanes, tapers, separate turning lanes, refuse areas and traffic-control devices. Intersections with more than four approaches shall not be approved.
2. Intersection Spacing. Intersection spacing shall be determined in accordance with these criteria and those set forth in subsection B above, entitled "Street Layout."
  - Maximum spacing between intersections shall be 1320 feet.
  - Minimum spacing of intersections shall be as follows:
    - a. Local streets, 250 feet;
    - b. Collector streets, 300 feet;
    - c. Arterial streets, 500 feet.

3. Geometrics.

- a. Alignment. A secondary street shall intersect a primary street at right angles (radial when the primary street is curved). The secondary street alignment shall be perpendicular to the primary street from the centerline of the primary street to the end of the curb return on the secondary street.
- b. Cross-Slope in Intersections. The criteria for treatment of cross-slope in intersection areas shall be as set forth in Figure 2.
- c. Curb Returns. The standard curb return radius shall be 30 feet, measured to the face of curb.
- d. Handicapped Ramp. The standard handicapped ramp shown in the improvement standards shall be installed at all curb returns.

#### H. Cul-de-Sacs. Cul-de-sac streets shall not exceed 500 feet in length.

The advisory agency may require reduced length, or may require the elimination of a proposed cul-de-sac in order to provide for the efficient circulation of traffic, the future development of the neighborhood street system, or the deployment of emergency services.

Cul-de-sacs shall be constructed in conformance with the improvement standards.

#### I. Access.

1. General. Street access control may be required by permitting ingress and egress

only at specific locations determined by the advisory agency.

Access to arterial streets shall, in general, be permitted at intersections only. The advisory agency may require installation of backup (reverse frontage) lots, or side-on lots adjacent to arterial streets.

Access to other than arterial streets shall, in general, be limited to one opening per lot.

Access to the subdivision from adjacent streets shall be designed to utilize the most efficient circulation pattern within the subdivision.

2. Driveways. Driveways shall be constructed in accordance with the improvement standards.
- J. Traffic Control and Safety Devices and Street Name Signs. Traffic control and safety devices shall be installed on all streets as required by the improvement standards and the building and development services director in order to promote traffic control and safety. Traffic control and safety devices shall include but not be limited to regulatory signs, warning signs, guide markers, construction signs, pavement markings, lane delineations and traffic signals. Street name signs shall be installed at all public, private and public/private intersections in accordance with the improvement standards.
- K. Street Lights. City-owned street lights shall be installed on all public streets in accordance with the improvement standards. Street light spacing shall be as required by the building and development services director.
- L. House Numbers. House and unit numbers shall be assigned by the building official and shall be placed and maintained in a manner which is clearly visible from the street.

(Res. No. 9 77-78 (part), Res. No. 57 82-83 §4, Res. No. 110 86-87 §§3-4, Res. No. 59 90-91 §§2-6, Res. No. 167 92-93 §1, Res. No. 113-07)

### **18R.08.030 Other public ways.**

- A. Alleys. Alleys may be required as part of a subdivision circulation system.
  - Alleys shall be constructed in accordance with the improvement standards.
  - Intersections of two alleys will be discouraged but may be acceptable in special instances.
- B. Bicycle Paths, Pedestrian Ways and Equestrian Ways.
  1. Generally. Bicycle paths, pedestrian ways, and equestrian ways may be required in conformance with an established city-wide plan or as required by the advisory agency. Design of said ways and paths shall be consistent with the principle of keeping separation between motorized vehicular traffic and other modes of traffic.
  2. Bicycle Paths. Bicycle paths shall be constructed in accordance with the improvement standards. Recommended geometric criteria shall be as follows:
    - a. Design speed, 20 mph;
    - b. Sight distance, 120 feet;
    - c. Minimum curve radius, 65 feet;
    - d. Overhead clearance, 8 feet;
    - e. Maximum grade, 5%.

Adequate access points and bicycle parking facilities shall be provided as necessary.

Bicycle stands conforming with the improvement standards shall be provided at parking facilities.
  3. Pedestrian Ways. In addition to sidewalk required adjacent to public roadways,

pedestrian ways may be required where needed for traffic safety; and access to schools, playgrounds, shopping facilities, or other community facilities. The required width and location shall be as determined by the advisory agency.

4. Equestrian Ways. The minimum required typical section shall be as shown in the improvement standards. Minimum vertical clearance shall be 10 feet.

(Res. No. 9 77-78)

**18R.08.035 Private streets.**

- A. Private Streets Generally. Private streets may be permitted subject to compliance with the following design criteria and improvement standards of this chapter, Title 18 of this code, and Standard Plan No. S-18F.
- B. Private Street Length.
  1. Cul-de-sacs. Private street cul-de-sacs shall not exceed 500 feet in length.
  2. Loop Streets. Private loop streets improved to the standards set forth in this section shall not exceed 1,000 feet in length.
  3. Standards for private streets exceeding 1,000 feet in length shall be determined on a case-by-case basis.
- C. Horizontal Alignment. Private streets shall conform to the following minimum standards:
  1. Minimum curve radius at centerline shall be 50 feet.
  2. Minimum cul-de-sac or turnaround radius to face of curb shall be 46 feet.
- D. Profile. The maximum grade for a private street shall not exceed 8%. The minimum grade shall correspond to the standards for a public street.
- E. Cross Section.
  1. Geometric cross section.
    - a. Private streets servicing less than 26 lots shall have a minimum street width of 24 feet without on-street parking and 36 feet with on-street parking.
    - b. Private streets serving 26 lots or more shall have a minimum street width of 30 feet without on-street parking and 40 feet with on-street parking.
    - c. Private streets may be either crowned streets or valley gutter streets. Valley gutters shall not be used on streets serving 26 lots or more.
  2. Curb and Gutter.
    - a. Crowned Streets. Curb and gutter shall be constructed in accordance with city of Chico public street improvement standards.
    - b. Valley Gutter Streets. Curb and gutter may be constructed in accordance with the public street improvement standards, or curbing with a minimum width of 6 inches above the surfaced section of the private street at the curb line may be constructed. A 4-foot wide longitudinal P.C.C. valley gutter shall be constructed along the street centerline when the slope is less than 1%.
  3. Structural Section. The subdivider's engineer shall prepare a soils report and determine the "R" value. If the "R" value is 25 or more, the minimum structural section shall consist of four inches of compacted aggregate base with a one and one-half inch asphalt concrete overlay, or an equivalent full depth asphalt section as approved by the building and development services director. If the "R" value is less than 25, the structural section shall be as determined by the building and development services director.
- F. Intersection with Public Street.
  1. A private street shall intersect a public street at right angles.

2. Private streets shall have standard driveway approaches installed at intersections with public streets, unless curb returns are authorized by the building and development services director.
- G. Sidewalks. Pedestrian access shall be provided either by constructing sidewalks in accordance with the design criteria, or pedestrian access may be provided by a comprehensive on-site pedestrian access system approved as part of a subdivision, zoning or permit approval.
- H. Street Lights. Street lights shall be installed as required by the building and development services director.
- I. Street Names. Proposed street names shall not be similar to present street names, except that streets that are a prolongation or approximate prolongation of existing streets shall be given the same names as the existing streets. No street shall be designated by the same name as any other street even though differentiated by a suffix (Terrace, Court, Lane, Place, or other term). Generally, no street should change direction by more than 90 degrees without a change in street name. Private street names shall be suffixed "Terrace," "Court," "Lane," or "Place."
- J. Signs. Street signs shall be installed at all street intersections in accordance with city of Chico public street improvement standards. The street sign shall clearly indicate that the street is a private street. Stop signs shall be installed on all private streets that intersect a public street.
- J. House Numbers. House and unit numbers shall be assigned by the building official and shall be placed and maintained in a manner which is clearly visible from the street.
- L. Parking.
  1. All private streets approved for no on-street parking shall be signed for "NO PARKING" and all curbs within 15 feet of any fire hydrant shall be painted red.
  2. All private streets providing emergency vehicle access shall provide additional signage and markings as directed by the fire chief and chief of police.
  3. All development utilizing private streets without on-street parking shall provide off-street parking in the amount specified in Title 19 of this code plus two (2) additional spaces for each residential unit.
  4. At the time the private street is created, a statement shall be included in the conditions, covenants and restrictions or other recorded document approved by the city attorney that sets forth the following:
    - a. On-street parking is prohibited on private streets (if appropriate).
    - b. The California Vehicle Code does not apply to routine traffic matters on private streets.
    - c. The city of Chico police department does not enforce or respond to routine traffic matters on private streets.
- M. Setbacks. On any lot abutting a private street, any setback required by this code shall be measured from the edge of the private street easement.
- N. Private Street Maintenance. Whenever private streets are approved for a residential subdivision, the developer or subdivider through recorded conditions, covenants and restrictions, or other instrument approved by the city attorney shall provide for the following:
  1. Maintenance of the private street and related private facilities, including but not limited to the following:
    - a. Street;

- b. Street lights;
  - c. Traffic-control devices, if any;
  - d. Sanitary sewer facilities;
  - e. Storm drainage facilities.
2. If the private street and related private facilities are not adequately maintained, the city, after prior notice to the organization responsible for maintenance and property owners, shall have the right to:
    - a. Enter upon and maintain and repair the facilities, and to recover the prorata costs of such maintenance or repairs from each owner of a lot having access to a private street or utilizing private facilities, which costs shall constitute a lien upon the lot until paid; and/or
    - b. Form a maintenance district or benefit assessment district to provide for the maintenance of such private streets or facilities.
  3. A private homeowners' association shall be formed to maintain all private streets and other related private facilities whenever conditions, covenants and restrictions are prepared for a residential subdivision containing five or more lots.

(Res. No. 110 86-87 §5, Res. No. 22 88-89, Res. No. 59 90-91 §§6-7, Res. No. 67 90-91, Res. No. 167 92-93 §2, Res. No. 113-07)

#### **18R.08.040 Major structures.**

The subdivider may be required to provide major structures such as retaining walls, bridges or dams. Each structure shall be designed and approved on an individual basis. The subdivider shall provide the city with all engineering calculations used in the design of a major structure.

(Res. No. 9 77-78 (part))

#### **18R.08.050 Storm drainage.**

- A. General Requirements. The subdivider shall provide storm drainage facilities that will convey stormwater runoff, whether originating within the subdivision or in adjacent areas, to an existing drainage channel or drainage system. Adequate access for maintenance of the system shall be provided. The capacity of an existing drainage system must be large enough to accommodate the additional runoff generated by the subdivision. Drainage patterns existing prior to construction of the subdivision shall be maintained, and full consideration must be given to the rights of adjacent property owners with regard to surface water drainage.

The city will determine the capacity of an existing storm drain system.

The subdivider's engineer shall prepare an analysis and design of the proposed storm drainage system. When stage construction is proposed, the analysis shall provide for the design of the entire storm drainage system.

The analysis shall consider all existing and future contributory drainage area, regardless of whether or not said area is in the subdivision.

The preliminary analysis shall accompany the tentative map.

- B. Hydrology.

1. Storm Runoff. Runoff shall be computed by the rational method.

( $Q = CIA$ ) where:

Q = rate of runoff in cfs

C = coefficient of runoff

I = intensity of rainfall in inches/hr during the time of concentration  $t_c$  (min.) – the elapsed time between the beginning of the storm and peak flow at the

drainage structure

A = drainage area, acres

Computations should be clear and complete with all assumptions clearly stated. In making such computations, the following information shall be used:

- a. Coefficient of Runoff. Typical values for runoff coefficients are set forth in Table 3.
- b. Intensity of Rainfall. A rainfall intensity versus duration design chart for the Chico area is shown on Table 4. A minimum time of concentration of 10 minutes should be used whenever computations indicate a shorter time. For urban area drainage, the maximum initial time of concentration to the first drainage facility shall be 20 minutes. For unimproved areas, drainage time of concentration shall be determined by the method shown for small basins in the Highway Design Manual. The method of computation of time of concentration should be clearly indicated.
- c. Design Storm Frequency. The design storm frequency shall be as follows:
  - (1) Bridges, 200 years;
  - (2) Open channels, 10 years;
  - (3) Culverts, 10 years;
  - (4) Major outfall lines, 10 years;
  - (5) Collector lines, 5 years;
  - (6) Local lines, 2 years.

A minimum freeboard of three feet shall be provided for bridges and box culverts, two feet for open channels, and one foot for storm drainage pipe inlets and outlets.

#### C. Roadway Drainage.

1. Grade. The minimum grade for side ditches and gutters will be 0.25% if paved, 0.50% if earth.
2. Limits of Flooding. Street drainage facilities shall be designed to keep flooding within six (6) feet of the face of curb for a design storm frequency of two (2) years for local streets and ten (10) years for all other streets. The depth of flow at gutter flow line shall not exceed 0.25 feet.

Concentrated flow across the traveled way is prohibited.

#### D. Conduit Design.

1. Type. For storm drain systems, circular pipes of reinforced concrete or cast-in-place concrete may be used. Class II pipe shall be the minimum for nonroadway areas. The minimum required strength for all pipe in the roadway area shall be Class III as designated by ASTM Specification C-76.  
Culverts may be of any of the above materials in any standard manufactured shape. Reinforced concrete box culverts, if used shall be constructed in accordance with state standard plans.
2. Size. Pipes shall have a minimum diameter of 10 inches. For flows exceeding the capacity of 54-inch diameter pipe, open channels meeting the requirements of subsection H below may be acceptable.
3. Slope. Slope will be controlled by physical conditions and velocity criteria. Abrupt changes in slope are undesirable and are to be avoided wherever possible.
4. Velocity. Minimum velocity at full flow shall be two (2) feet per second (fps). The maximum velocity for storm drains shall be critical velocity at full flow. Culverts may have velocities greater than critical provided full consideration is

given to the effects of abrasion.

5. Head and Head Losses. To facilitate the passage of debris and detritus, storm drains shall, unless otherwise approved, be designed to pass the design flow with a free water surface. Culverts shall be designed to provide a minimum freeboard of one foot from top of culvert to top of ditch bank at the entrance and exit points.
  6. Roughness Coefficient. Suggested values for Manning's roughness coefficient (n) are:
    - Reinforced concrete pipe . . . . .0.012
    - Cast-in-place concrete pipe . . . . 0.013
  7. Alignment. Alignment should be as straight as possible without undue bends and angle points. Where dictated by physical conditions, curved alignment is permissible as long as there is no reduction in the quality and soundness of joints. The minimum radius of curvature shall be 500 feet.
  8. Cover. Except for culverts, outside the hinge point, the minimum cover shall be two (2) feet, measured from the top of the pipe to the roadway or ground surface. Cast-in-place concrete pipes shall have a minimum cover of two and one-half (2.5) feet except under roadways where three (3) feet is required. Where less than minimum cover is necessary the concrete cradle shown in the improvement standards shall be used.
  9. Pipe Strength. The class of conduit recommended should be adequate for most conditions. Unusual situations may dictate selection of a higher strength conduit.
  10. Location. The location of storm drains relative to roadway centerline shall be in accordance with the improvement standards. Care should be taken that storm drains and other underground facilities do not conflict with each other. Location and elevation of existing and proposed sanitary sewer laterals shall be a primary consideration in the design of the storm drainage facility.
- E. Drop Inlets.
1. Types. The standard S-7 drop inlet as set forth in the improvement standards shall be used with pipes up to 30 inches in diameter. A modified S-7 drop inlet or a manhole will be used for pipe larger than 30 inches. Special situation drop inlets are shown in Standards S-7A and S-26.
  2. Laterals. Laterals shall have a minimum slope 1%.
  3. Location. Drop inlets shall be installed at all gutter low points and at locations such that the flooding limitations of subsection C above are met. They should not be spaced further than 500 feet apart.
- F. Manholes.
1. Type. The type of manhole to be utilized shall be as set forth in the improvement standards.
  2. Location. Manholes shall be placed:
    - a. Where two or more storm drain pipes join;
    - b. Where the conduit changes in size;
    - c. At angle points;
    - d. At points where a change of slope in the conduit occurs;
    - e. At changes in type of pipe.
  3. Spacing. The maximum manhole spacing shall be 1,200 feet for pipe diameters of 48 inches or more. Spacing may vary from 350 to 700 feet for diameters less than 48 inches to 33 inches. Maximum spacing shall be 350 feet for conduit 30 inches or smaller.

4. Access Shaft. The access shaft shall be centered over the axis of the drain for conduits less than 42 inches in diameter. The shaft shall be offset and made tangent to one side of the pipe when the drain diameter exceeds 42 inches.
  5. Special Structures. Special structures may be required for larger diameter pipes and shall be designed on an individual basis.
  6. Grade. The crowns of all conduits intersecting at a manhole shall generally match. A minimum fall of 0.10 foot across the manhole shall be provided except in cases where the conduit is continuous through the manhole.
- G. End Structures.
1. General. Headwalls and other end structures shall be installed to increase hydraulic efficiency, prevent erosion adjacent to the conduit and provide a counterweight to prevent flotation.
  2. Entrances. When a drop inlet is not installed, flared end sections should be used. Headwalls may be used where dictated by physical conditions. Both installations shall conform to the state standard plans.
  3. Exits. Where exists are installed, headwalls or flared end sections should be used for culverts. Where drainage systems discharge into a channel, standard headwalls shall be installed in accordance with the improvement standards.  
An approved energy dissipater shall be installed at outlets where velocities are erosive.
- H. Open Channels. The director may approve the use of open channels on an individual basis.  
The finished channel shall have maintenance free bottom and sides. Minimum bottom width shall be three feet. Side slopes shall be no steeper than 1-1/2:1.  
All open channels shall be located in dedicated easements. An access road 12 feet wide shall be provided adjacent to the channel.
- I. Bank Protection. Bank protection such as slope paving, sacked riprap, and facing rock may be required to protect drainage facilities, property or structures. The need and nature of bank protection will be determined by the director on an individual basis.
- J. Temporary Leach Field Type Storm Drainage System. In accordance with the provisions of the "Nitrate Action Plan - Greater Chico Urban Area - Butte County," adopted by city council Resolution No. 141 84-85 on March 19, 1985 as subsequently amended, temporary leach field type storm drainage systems may be installed for temporary use in cases where the building and development services director determines that storm water cannot be conveyed to the city's storm drainage system or drainage channel because facilities are not available. The following criteria shall apply to design of such systems:
1. Percolation tests shall be conducted in accordance with environmental health department procedures. Tests shall be taken at the proposed depth of the drainage trench(es) at such locations as required by the building and development services director to verify the drainage capacity of the soil. Percolation rate shall be converted from minutes/inch to cubic feet per second/square foot.
  2. The trench(es) shall be designed to contain a one-in-ten year frequency storm.
  3. The bottom of the trench(es) shall be at least ten feet above the high water table and there shall be at least ten feet of soil capable of percolation below the bottom of the trench(es).
  4. The rational formula,  $Q=CIA$ , shall be used to determine inflow into trench(es).

5. One-third of the trench(es) volume as void area shall be used in computing amount of storm water storage available in trench(es). Rock size in trench(es) shall be from one-half inch to four inches in size.
  6. Fifty percent of the trench(es) bottom area and one-half of the depth of the trench(es) side walls and end walls shall be used in determining the area available for percolation out of the trench(es).
  7. Where more than one trench is utilized, there shall be a minimum separation of four (4) feet between trench walls.
  8. Limitation on Use of Infiltration Best Management Practices (BMPs). Three factors significantly influence the potential for storm water to contaminate ground water. They are: (i) pollutant mobility, (ii) pollutant abundance in storm water, and (iii) soluble fraction of pollutant. In addition, the distance of the groundwater table from the infiltration BMP may also be a factor determining the risk of contamination. A water table distance separation of ten feet in depth in California presumptively poses negligible risk for storm water not associated with industrial activity or high vehicular traffic. Site specific conditions must be evaluated when determining the most appropriate BMP. Additionally, monitoring and maintenance must be provided to ensure groundwater is protected and that the infiltration BMP is not rendered ineffective by overload. This is especially important for infiltration BMPs in areas of industrial activity or areas subject to high vehicular traffic (25,000 or greater average daily traffic (ADT) on a main roadway or 15,000 or more ADT on any intersecting roadway). In some cases pretreatment may be necessary.
- K. Post-Construction Structural or Treatment Control Best Management Practices. Post-construction treatment control Best Management Practices (BMPs) shall incorporate, at a minimum, either a volumetric or flow based treatment control design standard, or both, as identified below to mitigate (infiltrate, filter or treat) storm water runoff:
1. Volumetric Treatment Control BMPs
    - a. The 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or
    - b. The volume of annual runoff based on unit basin storage water quality volume to achieve 80 percent or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook –Industrial/Commercial, (2003); or
    - c. The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for “treatment” that achieves approximately the same reduction in pollutant loads achieved by the 85<sup>th</sup> percentile 24-hour runoff event.
  2. Flow Based Treatment Control BMPs
    - a. The flow of runoff produced from a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the area; or
    - b. The flow of runoff produced from a rain event that will result in treatment of the same portion of runoff as treated using volumetric standards above.
- (Res. No. 9 77-78 (part), Res. No. 57 82-83 §5, Res. No. 201 84-85 §1, Res. No. 59 90-91 §§8-10, Res. No. 11 95-96 §1, Res. No. 113-07, Res 65-08)

### **18R.08.060 Sanitary sewers.**

- A. Generally. The subdivider shall provide a sanitary sewer system in accordance with the following criteria:
1. The system shall be of a size not less than that which is specified by the sanitary sewer master plan on file with the building and development services director.
  2. The system shall have adequate capacity to serve the subdivision and the full service area tributary thereto in accordance with the city design standards. The tributary area shall be determined by the building and development services director.
  3. When required, the subdivider shall provide a pumping plant to convey the effluent to an existing system.  
The director will determine the point of connection to the existing sewer system. The subdivider's engineer shall prepare a design analysis of the proposed sanitary sewer system in accordance with the sanitary sewer master plan on file with the Building and Development Services Director. When staged construction is proposed, the analysis shall thoroughly cover the design of the entire system.
- B. Design Flow. Recommended design criteria for the determination of the sanitary sewer design flow for residential and commercial development are given in Table 5.  
The director will determine on all individual basis if industrial waste will be accepted into the city system or if other provision for its on-site disposal will be made.
- C. Conduit Design.
1. Type. Sewer conduits shall be extra-strength vitrified clay pipe conforming to ASTM Designation C 200, with plastisol, or equal, compression joints, or polyvinyl chloride (PVC) sewer pipe with a maximum DR of 35, conforming to ASTM Designations D 2784 and D 3034, with flexible elastomeric seals conforming to ASTM Designation D 3212.  
In new sewer line construction, wyes to tees for house service connections shall be complete fittings. Saddle type connections will not be permitted.
  2. Size. The minimum sanitary sewer size shall be eight (8) inches in diameter except that six (6) inch pipe may be used in the last run in residential areas on cul-de-sacs and in locations where no future extensions of the main are intended.  
No sewer pipe shall have a diameter less than that of the pipe immediately upstream from it.
  3. Slope. Slope will be controlled by physical conditions and velocity criteria. Abrupt changes in slope are undesirable and should be avoided wherever possible.
  4. Velocity. The minimum velocity shall be 1.8 fps when the pipe is flowing full and/or half-full.
  5. Head and Head Losses. Sanitary sewers shall be designed to pass the design flow with a free water surface. Proper consideration shall be given to minor head losses.
  6. Alignment. Alignment will be straight between manholes with no bends except that curved alignment with a minimum radius of 500 feet may be used in special cases.
  7. Location. The location of sanitary sewers relative to roadway centerline shall be in accordance with the improvement standards. Care should be taken that sanitary sewers and other underground facilities do not conflict with each other.
  8. Depth. Minimum sewer depth shall be four and one-half (4.5) feet from flowline

to finish grade. For unimproved streets where street grades have not been set, the minimum depth shall be five (5) feet from the flowline to existing grade.

D. Manholes.

1. Type. The type of manholes to be utilized shall be as set forth in the improvement standards.
2. Location. Manholes shall be placed:
  - a. Where two or more sewer mains join;
  - b. Where the conduit changes in size;
  - c. At angle points;
  - d. At points where a change of slope in the conduit occurs.
3. Spacing. Manholes shall be spaced no farther than 350 feet apart.
4. Grade. The crowns of all conduits intersecting at a manhole shall match.

E. Flushing Holes. Flushing holes shall be of the type shown in the improvement standards and shall be placed in accordance with the improvement standards. They shall not be used except in cul-de-sacs or at temporary ends of lines if the end of line does not occur at a manhole. Flushing holes shall be placed no more than 150 feet from a manhole.

F. Laterals.

1. Size. Minimum lateral size for single-family dwellings shall be four (4) inches in diameter. All others will require special design, and design calculations shall be submitted for approval.
2. Slope. Laterals shall have a minimum slope of two (2) percent.
3. Location. Laterals shall be provided for every lot and shall generally be centered on each lot. They shall be at right angles or radial to the sanitary sewer main.

Laterals shall be installed to a point at least five (5) feet into the property prior to other utility installation, pressure testing and subsequent connection to the effluent source.
4. Depth. Laterals shall have a three (3) foot minimum cover at the back of the sidewalk. Where the sewer main is ten (10) feet or greater in depth, deep sewer risers shall be installed.

G. Temporary Pumping Plants. The subdivider's engineer shall design any needed pumping plants subject to the approval of the director. Each design will be considered on an individual basis.

(Res. No. 9 77-78 (part), Res. No. 87 86-87 §1, Res. No. 86 87-88, Res. No. 113-07)

**18R.08.070 Water supply.**

- A. Size and Type. The size and type of water main pipe shall be determined by California Water Service Company. The sizing shall be based upon the company's distribution needs and fire flow requirements determined by the city fire department. The type of pipe will be determined by the California Water Service Company.
- B. Installation. Installation of water main and services shall be the responsibility of the subdivider. Trench backfill and surfacing shall be in accordance with the city of Chico improvement standards.
- C. Certification. Prior to filing the final map, the subdivider shall provide the city with the certification from California Water Service Company. This certification shall state that the company will provide water service to the subdivision and that the subdivider has met all of the company's conditions necessary to provide water service.

(Res. No. 9 77-78 (part))

**18R.08.075 Fire hydrants.**

- A. Installation; Location; Number. Installation of fire hydrants shall be the responsibility of the subdivider.

The number and location of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on the public right-of-way and/or on the site to be protected as determined by the fire chief. Standard hydrant spacing shall be at 300-foot intervals in all areas except areas containing only single-story single-family or duplex dwellings, in which case standard hydrant spacing shall be at 500-foot intervals.

When the fire chief determines that it would not be adverse to the city's fire protection capabilities, the fire chief shall have the authority to make minor modifications to the hydrant placement distances set forth above. In no case shall fire hydrants be spaced closer than 300-foot intervals.

- B. Hydrant Type. Approved fire hydrant models are the Long Beach Iron Works Model 614 and 615 or Clow Model 950 or 960. Other hydrant models may be utilized upon approval of the fire chief.
- C. Method of Installation. The subdivider shall make all arrangements for the installation and inspection of all fire hydrants with the California Water Service Company.

(Res. No. 9 77-78 (part), Res. No. 149 78-79 §1, Res. No. 196 80-81 §1, Res. No. 59 90-91 §11, Res. No. 02 03-04)

**18R.08.080 Utility services.**

- A. Location and Capacity. All utilities (gas, water, electric, telephone and cable TV) shall be installed and placed underground. Their location shall be subject to the requirements of the improvement standards, the recommendation of the utility company and the approval of the director.
- B. Access. The location of all utilities shall allow satisfactory equipment and personnel access for maintenance and operation.
- C. Certification. Prior to filing the final map, the subdivider shall provide the city with a certification from each appropriate utility company. This certification shall state that the company will provide its service to the subdivision and that the subdivider has met all of the company's conditions necessary to provide the service.

(Res. No. 9 77-78 (part), Res. No. 89 87-88, Res. No. 59 90-91 §12)

**18R.08.090 Street trees and landscaping.**

- A. Street Tree Requirements. Street trees shall be planted as directed by the park director. In lieu of planting the trees, the subdivider shall deposit with the city a street tree fee. Such fee shall provide the tree purchasing and planting by the city and shall relieve the subdivider of any further street tree obligation.
- B. Landscape Requirements. Landscaping may be required by the advisory agency. All such landscaping shall be installed and maintained by the subdivider until the city accepts the subdivision. In addition, the subdivider may be required to provide irrigation facilities for the landscaping.
- C. Planting and Installation Guidelines. All street trees and landscaping required within a public right-of-way or public service easement or on other city property shall be planted and installed in compliance with the following guidelines:

1. All trees, shrubs, ground covers, vines and turf shall be of a type approved by the park director and, to the greatest extent practicable, shall be of a drought-resistant and drought-tolerant type of variety.
2. Irrigation controllers shall be equipped with independent station control, multiple start time and multiple program capabilities.
3. All irrigation systems shall include independent station or “zone” moisture sensors. Plant materials with similar watering requirements shall be irrigated using common controller circuits.
4. Irrigation systems shall be designed to match precipitation rate to evapo-transpiration potential of selected plant materials given soil percolation rates.
5. Whenever possible, irrigation systems shall include drip irrigation, individual adjustable bubblers, weep-tubing, matched precipitation sprinkler heads and other low volume systems.
6. Wind direction and wind speed shall be considered as a design element for the purpose of minimizing overspray and to provide even precipitation distribution.
7. A water audit shall be performed before installing plant material, to ensure equal precipitation rate.
8. Wherever practical, landscape installations shall be performed with minimum soil compaction. All attempts shall be made by the landscape contractor to keep construction equipment and vehicles off the landscape site once final soil tilling and grading is complete.

(Res. No. 9 77-78 (part), Res. No. 102 92-93)

#### **18R.08.100 Traffic signals.**

If the anticipated traffic demand created by the subdivision warrants the installation of traffic signals, the subdivider shall install same.

Determination of the need for traffic signals, and their subsequent design, will be the responsibility of the director. The subdivider shall provide and install these facilities in accordance with requirements of the director.

(Res. No. 9 77-78 (part))

#### **18R.08.110 Monuments.**

The installation and the type of monuments shall be in accordance with the pertinent provisions of the Subdivision Map Act, Title 18 of the Chico Municipal Code, and the improvement standards.

(Res. No. 9 77-78 (part))

#### **18R.08.120 Railroad crossings.**

The design of crossing protection facilities shall be the subdivider’s responsibility subject to the requirements of the State of California Public Utilities Commission. The facilities shall be installed by the affected railroad company subject to any necessary permits and agreements.

(Res. No. 9 77-78 (part))

#### **18R.08.130 Public right-of-way improvements - Nonsubdivision.**

Public right-of-way improvements, as required by Title 14 of this code and which are not part of a subdivision, shall be constructed in accordance with these design criteria and improvement standards except as follows:

- A. Street improvements (including but not limited to curb, gutter, sidewalk, storm

drainage facilities, and street lighting) shall be required from lot or parcel property line to the edge of existing street pavement, or beyond as may be needed to maintain a maximum five percent (5%) shoulder cross slope on said existing street.

B. In lieu of constructing alley improvements, an alley improvement fee shall be paid as established by resolution of the city council, except that alley improvements shall be constructed in the following cases:

- 1. All non-residential development;
- 2. All property uses permitted subject to a use permit in an R-3 high density residence district, and all residential development of four (4) or more dwelling units on a parcel, which utilize the adjacent alley for access.

When improvement of an alley is required, it shall be constructed between the property and the nearest street as well as along the full width of the property abutting the alley. The building and development services director may determine that an alley improvement fee be paid where alley construction would otherwise be required in the event it is determined that grade constraints or extensive storm drainage requirements make construction impractical.

C. Where adjacent existing improvements do not meet current criteria, the director may elect to alter the criteria so that proposed improvements match existing improvements in the most practical, yet satisfactory manner.

(Res. No. 9 77-78 (part), Res. No. 57 82-83 §6, Res. No. 88 84-85 §1, Res. No. 113-07)

**18R.08.140 Certificates - Final subdivision maps.**

The following certificates shall be included upon all final subdivision maps filed with the city, as applicable:

A. City Clerk’s Certificate When Dedication of Real Property Not Made. When offer of dedication of real property to the city for street and/or public easement purposes is not made as part of the final map, the certificate shall read as follows:

“I hereby certify that on the ..... day of ....., 20..., the City Council of the City of Chico officially approved this map, subject to the installation and completion of all required subdivision improvements (if applicable).

.....”  
Date City Clerk

B. City Clerk’s Certificate When Dedication of Real Property is Made. When an offer for the dedication of real property to the city for street and/or public utility easement purposes is made as part of the final map, the certificate shall read as follows:

“I hereby certify that on the .... day of ....., 20., the City Council of the City of Chico officially approved this map, subject to the installation and completion of all required subdivision improvements (if applicable), and accepted (describe area(s) of dedication) for dedication to the City of Chico on behalf of the public.

.....”  
Date City Clerk

C. City Manager’s Certificate When Dedication of Real Property is Made as Part of a Non-City Subdivision. When a final map is filed for a subdivision not within the city but which is adjacent to a city roadway, and an offer for the dedication of real property to the city for street and/or public utility easement purposes is made, the certificate shall read as follows:

“I hereby certify that (describe area(s) of dedication), as shown hereon and herein offered for dedication to the City of Chico, is accepted by the undersigned officer

on behalf of the City Council of the City of Chico pursuant to the authority conferred by Resolution No. 79 61-62 of the City Council of the City of Chico, adopted March 6, 1962, and that the grantee consents to the recordation thereof by its duly authorized officer.

.....  
Date

.....”  
City Manager

(Res. No. 9 77-78 (part))

**Table 1  
HORIZONTAL ALIGNMENT CRITERIA**

	Arterial	Type of Street Collector	Local
Minimum Design Speed (mph)	40	35	25
Minimum Curve Radius at Centerline	600'	450'	200'
Minimum Tangent between Reversing Curves	200'	150'	100'
Minimum Stopping Sight Distance	275'	240'	165'

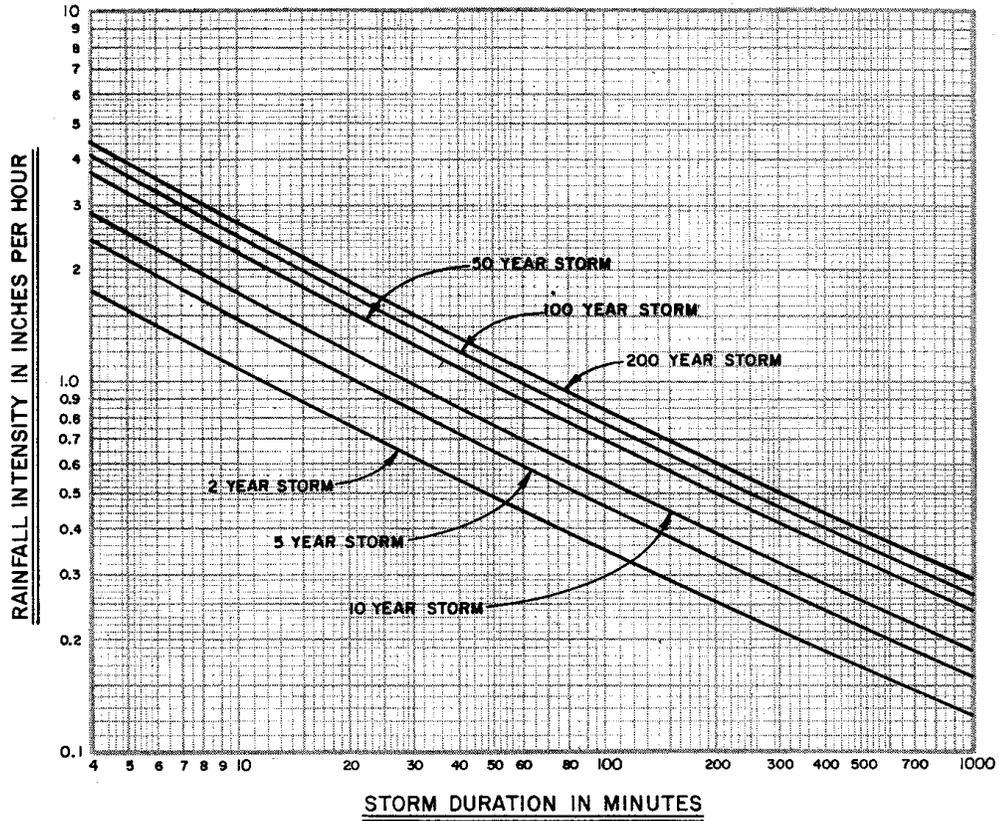
**Table 2  
VERTICAL CURVE CRITERIA**

Type of Street	Design Speed (mph)	Min. Length Vertical Curve	Min. Stopping Sight Distance	At Min. Stopping Crest V.C.- Max. Rate of Change- %/100'	Sight Distance Sag. V.C.- Max. Rate of Change- %/100'	Passing Sight Distance*
Arterial	40	200'	275'	1.80	1.80	1500'
Collector	35	150'	240'	2.50	2.20	1300'
Local	25	100'	165'	5.25	3.70	900'

\*Passing sight distance criteria do not apply to sag vertical curves. For design of crest vertical curves that meet passing sight distance criteria, refer to "Caltrans Highway Design Manual of Instructions" or "AASHTO Policy on Geometric Design of Rural Highways."

**Table 3  
RUNOFF COEFFICIENTS**

Land Use	C
Landscaped area	0.25
Residential	
Rural (up to 2 units/acre)	0.35
Low-density (2+ to 6 units/acre)	0.50
Medium-density (6+ to 14 units/acre)	0.60
High-density (14+ and up)	0.75
Public	0.40 - 0.70
Schools, Hospitals	0.35 - 0.70
Commercial	0.70 - 0.90
Industrial	0.70 - 0.90
Highway	0.80 - 0.90



**NOTES**

1. DURATION OF STORM EQUALS TIME OF CONCENTRATION ( $T_c$ ).
2. MINIMUM  $T_c$  = 10 MINUTES. MAXIMUM  $T_c$ , INITIAL INLET OF STORM DRAIN SYSTEM, = 20 MIN.
3. THIS CHART IS BASED ON DATA FROM BULLETIN 195 RAINFALL ANALYSIS FOR DRAINAGE DESIGN, STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES, 1976

REV.	DATE	BY

<b>CITY OF CHICO</b>		<b>DEPARTMENT OF PUBLIC WORKS</b>	
TABLE 4 CHICO AREA RAINFALL INTENSITY- DURATION-FREQUENCY DESIGN CHART		DRAWN BY: R. F.	CHECKED BY: M. H.
		DATE: APRIL 1988	SCALE: NONE
		APPROVED BY: <i>[Signature]</i>	DIRECTOR OF PUBLIC WORKS
			R.C.E. NO.

SHEET 1 OF 1 SHEETS

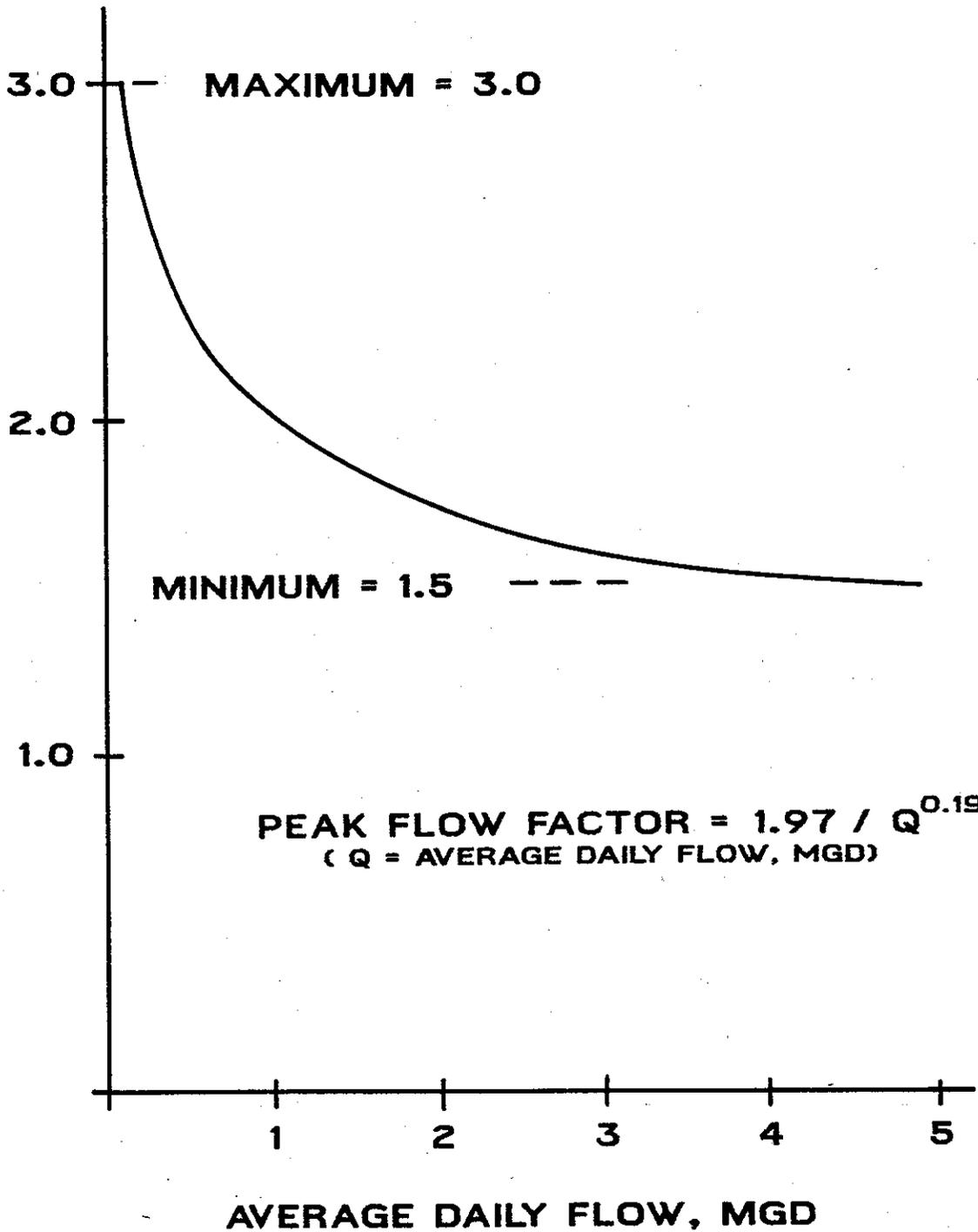
Table 5

## DESIGN CRITERIA FOR SANITARY SEWERS

ZONING	DESIGN CRITERIA
<b>RESIDENTIAL</b>	
Domestic flow	80 gpcd (average)
Infiltration	650 gad
Peak flow factor	1.5 - 3.0 (see Table 6)
<b>1. Rural Density</b>	
Units/acre	2
People/unit	3.6
Peak design flow	$[(80)(3)(2)(3.6)] + 650 = 2,378$ Use 2,400 gad
<b>2. Low Density (R-1)</b>	
Units/acre	5
People/unit	3.6
Peak design flow	$[(80)(3)(5)(3.6)] + 650 = 4,970$ Use 5,000 gad
<b>3. Medium Density (R-2)</b>	
Units/acre	13
People/unit	2.3
Peak design flow	$[(80)(3)(13)(2.3)] + 650 = 7,826$ Use 7,800 gad
<b>4. High Density (R-3)</b>	
Units/acre	24
People/unit	2.0
Peak design flow	$[(80)(3)(24)(2.0)] + 650 = 12,170$ Use 12,200 gad
<b>COMMERCIAL/INDUSTRIAL</b>	
Average flow	1,500 gad
Peak flow	3,000 gad

gpcd = gallons per capita per day  
gad = gallons per acre per day

PEAK FLOW FACTOR



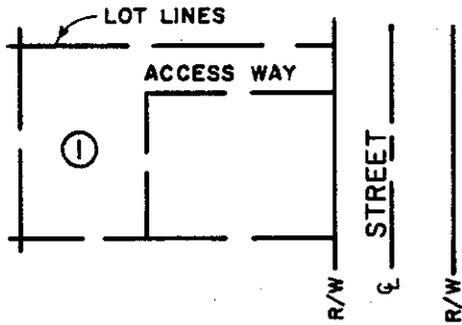
REVISION	BY	DATE

CITY OF CHICO

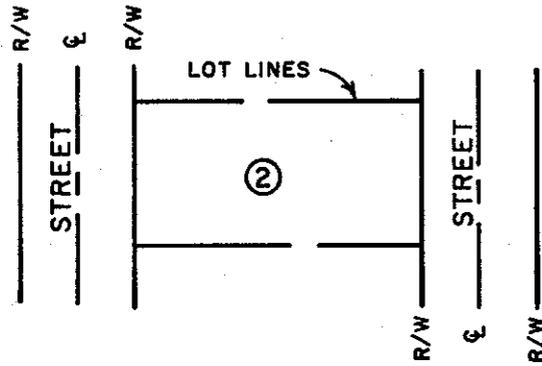
DEPARTMENT OF PUBLIC WORKS

DRAWN BY JK DATE 4/23/91  
CHECKED MH SCALE N/A  
APPROVED E. C. Rose  
ASST. DIRECTOR OF PUBLIC WORKS

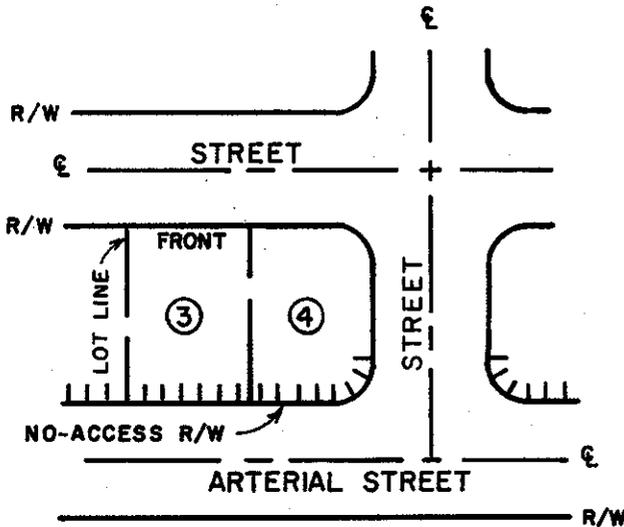
**TABLE 6**  
SANITARY SEWER PEAK  
FLOW FACTOR



① FLAG LOT - AN INTERIOR LOT OF A SUBDIVIDED PARCEL WITH ACCESS TO THE STREET VIA A NARROW STRIP.



② DOUBLE FRONTAGE LOT - A LOT HAVING ACCESS TO TWO STREETS.



③ BACK-UP LOT - A LOT WHOSE REAR LOT LINE COINCIDES WITH THE NO-ACCESS R/W OF AN ARTERIAL STREET.

④ SIDE-ON LOT - A BACK-UP LOT WHICH IS ALSO A CORNER LOT.

REV.	DA	BY

CITY OF CHICO

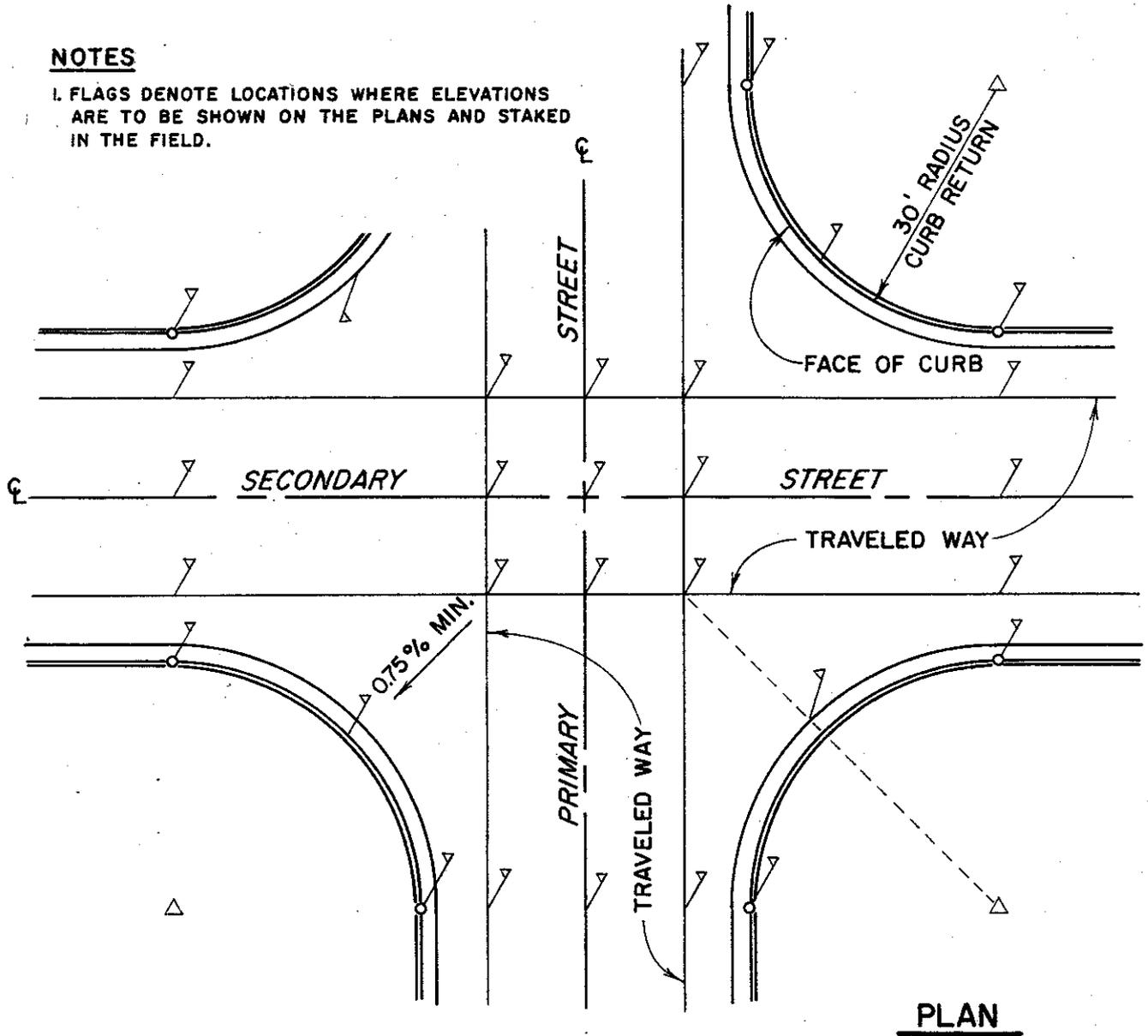
DEPARTMENT OF PUBLIC WORKS

FIGURE 1  
LOT CONFIGURATIONS AND  
DEFINITIONS

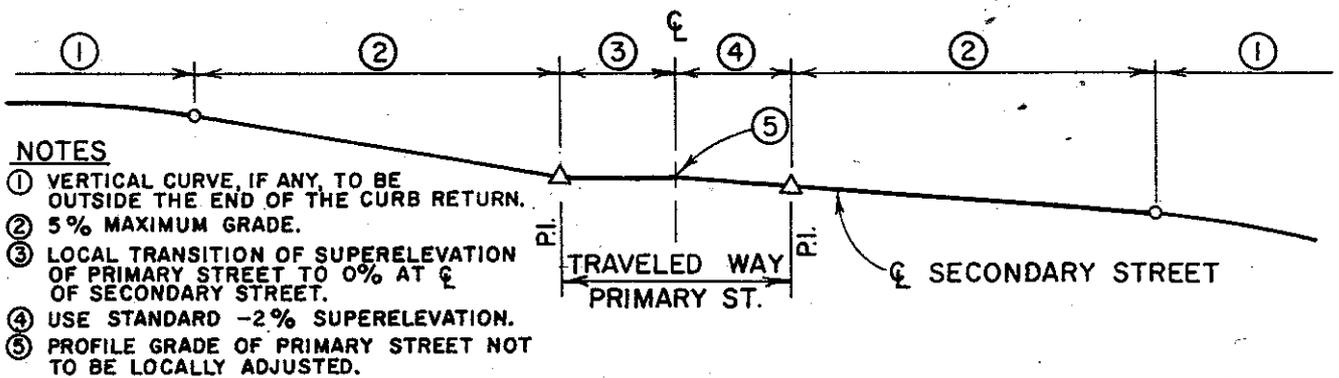
DRAWN BY M.H. CHECKED BY [Signature]  
 DATE 1-5-77 SCALE [Signature]  
 APPROVED BY [Signature] 11838  
 DIRECTOR OF PUBLIC WORKS R.C.E.NO.

**NOTES**

1. FLAGS DENOTE LOCATIONS WHERE ELEVATIONS ARE TO BE SHOWN ON THE PLANS AND STAKED IN THE FIELD.



**PLAN**



**NOTES**

- ① VERTICAL CURVE, IF ANY, TO BE OUTSIDE THE END OF THE CURB RETURN.
- ② 5% MAXIMUM GRADE.
- ③ LOCAL TRANSITION OF SUPERELEVATION OF PRIMARY STREET TO 0% AT  $\epsilon$  OF SECONDARY STREET.
- ④ USE STANDARD -2% SUPERELEVATION.
- ⑤ PROFILE GRADE OF PRIMARY STREET NOT TO BE LOCALLY ADJUSTED.

**PROFILE**

REV.	DA	BY

**CITY OF CHICO**

**DEPARTMENT OF PUBLIC WORKS**

**FIGURE 2**

**CROSS-SLOPE IN INTERSECTIONS**

DRAWN BY M.H. CHECKED BY \_\_\_\_\_  
 DATE 1/20/77 SCALE NONE  
 APPROVED BY \_\_\_\_\_ DIRECTOR OF PUBLIC WORKS R.C.E.NO. 11838

## Chapter 18R.12

### IMPROVEMENT STANDARDS<sup>3</sup>

**Section:**

- 18R.12.010 Construction specifications.**  
**18R.12.020 Standard plans.**  
**18R.12.030 Standard plans - TND zoning district.**

**18R.12.010 Construction specifications.**

**A. Roadway Grading.**

1. Roadway Grading. Roadway grading shall consist of performing all operations necessary to excavate earth, rock and all other materials upon which the imported borrow, selected fill, aggregate base, cement treated base or other material is to be constructed; to build embankment in the location and to the elevation and form required; to backfill ditches and depressions caused by the removal of obstructions; to furnish all equipment necessary for these operations, and the performance of all incidental work of whatsoever nature may be required to build the grade and maintain it in the form specified.
2. Roadway Earthwork. All roadway earthwork shall be constructed and maintained as specified in Section 19 of the standard specifications.
3. Surplus Excavation. Surplus material from excavation shall be disposed of by the contractor, unless special instructions for such disposal are shown on the plans or in the special provisions.

**B. Aggregate Base - Class No. 2.** Aggregate Base - Class No. 2, shall be constructed as provided in Section 26 of the standard specifications. The thickness shall be of the dimensions indicated on the plans and shall conform to the grading specifications set forth in the standard specifications. The size of aggregate shall be three-quarter (3/4) inch (maximum) as set forth in Section 26, or as specified by the engineer.

**C. Asphalt Concrete.**

1. Asphalt Concrete. Asphalt concrete shall be constructed according to the shape and thickness between curbs and gutters as shown on the plans and as herein specified, and otherwise shall conform to the requirements of Section 39 of the standard specifications. Asphalt concrete shall be Type "B." Paving asphalt shall be of the penetration range specified by the engineer.
2. Prime Coat and Paint Binder. A prime coat of liquid asphalt or a paint binder of asphaltic emulsion shall be applied to the areas to be surfaced in accordance with Section 39-4 of the standard specifications. Prime coat will be required on all base rock.
3. Leveling Course. Leveling course shall consist of surface course material and shall be placed as specified in Section 39-6 of the standard specifications.
4. Base Course. The base course shall be of the thickness as shown on the plans and shall conform to the requirements of the standard specifications.
5. Surface Course. The surface course shall be of the thickness as shown on the plans and shall conform to the requirements of the standard specifications. The aggregate for the surface course shall conform to the grading specified for 1/2-inch maximum (medium) grading.

- D. Seal Coat. Seal coat shall consist of the material and shall be placed as specified in Section 37 of the standard specifications. The bituminous binder shall be 200-300 grade paving asphalt or emulsion spread at the rate as set forth in the standard specifications and as specified by the engineer. The preparation of surface prior to seal coating shall be as specified in Section 37 of the standard specifications.
- E. Pavement Replacement. Pavement replacement shall consist of Type "A" Alternate 1, Type "A" Alternate 2, Type "B," Type "C" or Type "D" as shown on the city of Chico Standard Plan No. S-17. The specific type of pavement replacement shall be as shown on the plans.

All work necessary to complete the pavement replacement, as shown on said Standard Plan, shall be done in accordance with the applicable sections of the standard specifications.

- F. Tapering Into Adjacent Streets. The contractor shall construct smooth tapers into all adjacent streets. The exact length of taper and the grade of the taper shall be under the direction of the engineer. The contractor shall butt all pavement tapers as directed by the engineer. The tapers shall consist of a minimum of six (6) inches aggregate base and two (2) inches asphalt concrete.
- G. Portland Cement Concrete Curbs, Gutters, Sidewalks, Driveways, Accessible Ramps, and Alleys.
1. General. Portland cement concrete curbs, gutters, sidewalks, driveways, handicapped ramps, and alleys shall be constructed at the location shown on the plans, or as directed by the engineer, and shall conform to the details and dimensions as shown on the following city of Chico, standard plans:
    - a. Standard Plan No. S-1, "P.C.C. Sidewalk Details";
    - b. Standard Plan No. S-2, "P.C.C. Curb and Gutter";
    - c. Standard Plan No. S-2A, "Curb, Gutter & Sidewalk Installation at Trees";
    - d. Standard Plan No. S-3, "Existing Curb and/or Gutter - Replacement Details";
    - e. Standard Plan No. S-5, "Residential Driveway Approach";
    - f. Standard Plan No. S-5A, "Commercial Driveway Approach";
    - g. Standard Plan No. S-5B, "Curb, Gutter, & Driveway Details";
    - h. Standard Plan No. S-5C, "Curbed Driveway Entrance";
    - i. Standard Plan No. S-9, "Alley Pavement";
    - j. Standard Plan No. S-27, "P.C.C. Accessible Ramp";
    - k. Standard Plan No. S-27-A, "P.C.C. Accessible Ramp."
  2. Materials.
    - a. Concrete. Construction of all curbs, gutters, sidewalks, driveways, accessible ramps, and alleys shall be of class "A" Portland cement concrete as specified in Section 90, "Portland Cement Concrete" of the standard specifications, and shall conform to the provisions of Section 90-10, "Minor Concrete" of the standard specifications.
    - b. Adhesives. Adhesives or bonding agents used to join new concrete to existing concrete shall be approved by the engineer prior to use in the work.
    - c. Lampblack. Lampblack of approved quality shall be mixed with all of one pound per cubic yard of concrete.
    - d. Joint Filler. Premolded expansion joint filler shall conform to the provisions of Section 51-1.12C of the standard specifications.
    - e. Dowels. Steel dowels, where specified, shall conform to the provisions of Section 51-1.13 and 52-1.02A of the standard specifications.

- f. Curing. The curing method for Portland cement concrete shall conform to Section 90-7.01B of the standard specifications. The curing compound shall consist of the compound specified in Section 90-7.01B(4) of the standard specifications.
3. Construction.
  - a. Construction of all curbs, gutters, sidewalks, driveways, and accessible ramps shall conform to the provisions of Section 73, "Concrete Curbs and Sidewalks" of the standard specifications.
  - b. Construction of all alleys shall conform to the provisions of Section 90-10, "Minor Concrete" of the standard specifications.
  - c. Subgrade preparation shall conform to the provisions of Section 73-1.02 of the standard specifications. Where subgrade occurs in a fill section, the base material shall be compacted to a relative density of 95 percent in conformance with California Test Method No. 216.
  - d. No concrete shall be placed until the subgrade and forms have been reviewed for satisfactory compaction, alignment, and grade and approved by the engineer.
  - e. Premolded expansion joints, 1/4 inch wide, shall be installed in all curbs, gutters, driveways and sidewalks as follows:
    - (1) As shown on city of Chico Standard Plans S-1, S-2, S-2A, S-3, S-5, S-5A, S-5C, S-7, S-27 and S-27A;
    - (2) At maximum 48-foot intervals in all new curb and gutter constructions;
    - (3) At locations of expansion joints in existing sidewalks, curbs or gutters.
  - f. Control joints, 1/8-inch wide, scored at least 1/10 the depth of concrete being placed, shall be constructed at maximum 12-foot intervals in all new curbs, gutters and sidewalks.
  - g. Extruded curb construction shall not be used without a prior test demonstration of proposed equipment and procedures, off the side of work, and shall not be used without prior approval by the engineer.
- H. Standard Fence. Standard fence shall conform to the requirements of Section 80-2 of the standard specifications except as provided herein.

New fence shall be 32-inch wire mesh fabric, as specified in Section 80-2.01E, with 3-strand barbed wire on top, with steel posts at 12 feet center to center, set a minimum of 2.5 feet into the ground.

All fencing removed shall become the property of the contractor and shall be removed from the premises.
- I. Bore and Jack Pipe. Bore and jack pipe shall consist of boring and jacking casing and installing pipe inside the casing at locations shown on the plans. Casing and pipe shall be of the types and sizes shown on the plans.

The casing designated in the contract item will be determined for vertical load only. Additional reinforcement or strength of casing required to withstand jacking pressure shall be determined and furnished at the contractor's expense.

Variations from theoretical grade at the time of completion of placing shall not exceed 0.1 foot for each 30 feet of casing placed.

The excavated hole shall not be more than 0.1 feet greater than the outside limits of the casing. Sluicing and jetting with water will not be permitted. When material tends to cave in from outside these limits, a metal shield shall be used ahead of the first section of casing.

Areas resulting from caving or excavation outside the above limits and the area between the casing and the pipe shall be backfed with sand or grout by a method which will fill the voids.

- J. Cast Iron Pipe. Cast iron pipe shall be heavy duty cast iron soil pipe. Pipe joints shall be in accordance with applicable provisions of the Uniform Plumbing Code. The pipe shall be installed in strict accordance with the manufacturer's instructions.
- K. Reinforced Concrete Pipe. Reinforced concrete pipe shall conform to the requirements for materials and methods of installation as set forth in Section 65 of the standard specifications. Reinforced concrete pipe shall be of the class shown on the plans. Backfill shall be in accordance with subsection L below.
- L. Trench Backfill. Trench backfill for storm drainage, sanitary sewers, or any other underground utility installation shall conform to, and be constructed in conformance with the requirements as set forth below:
  - 1. New Street Constructions.
    - a. 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:
      - (1) Backfill material, from the bottom of the trench to a plane two (2) feet below subgrade 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.
      - (2) Backfill material from two (2) feet below subgrade to subgrade shall conform to the requirements of Section 19-3.06 of the standard specifications.
    - b. For remaining portions of a new street right-of-way, the following materials and installation procedures shall be used: Backfill material, from the bottom of the trench to finished grade, and installation, shall conform to the requirements of paragraph 1a(1) of this subsection.
  - 2. Existing Street, Alley, Easement Construction.
    - a. For any portion of a public right-of-way which has any existing improvements for vehicular traffic, the following materials and installation procedures shall be used:
      - (1) Backfill material, from the bottom of the trench to bottom of the section depicted in Standard S-17, Pavement Replacement, as noted on the plans, shall conform to the requirements of paragraph 1a(1) of this subsection.
      - (2) Compaction of backfill material by ponding or jetting will not be allowed unless specifically authorized by the engineer.
  - 3. State Highways.
    - a. For any existing state highways, any future state highways or freeways, the following materials and installation procedures shall be used: Backfill material shall conform to and be placed in accordance with the requirements of Section 19-3.06 of the standard specifications.
- M. Standard Precast Concrete Manholes.
  - 1. Manholes.
    - a. The contractor shall furnish all materials for the construction, complete, of all standard and other manholes shown on the plans and specifications and all

manholes shall be constructed either of precast concrete sections or reinforced concrete. The contractor shall furnish all materials, labor, tools, equipment, and do all the work involved and necessary to complete the manholes as shown on city of Chico Plans S-10 and S-11.

- b. Frames and Covers. All manhole frames and covers shall be of the dimensions and weights shown on city of Chico Standard Plans S-14 and S-14A. Each frame and cover shall have its weight indicated on the bottom outside rim of the cover. The seat of the frame shall in each case be machined sufficiently so that the cover will sit evenly and firmly in place without rocking.
2. Portland Cement Concrete Precast.

- a. Manholes shall be constructed along the sewer line at such places as shown on the plans.

Manholes shall consist of precast concrete sections set on a concrete base, with cast iron cover as shown on the Standard Plans.

“Kent Seal,” “Ram Neck” or an approved equal, shall be installed at all manhole joints.

Manufacture of these sections shall be governed by specifications for reinforced concrete sewer pipe, ASTM Designation C-76.

- b. Portland Cement. Portland cement shall be of standard accepted brand and shall fully meet the requirements of the ASTM specifications for Portland cement, Designation C-150.
- c. Coarse Aggregate. Coarse aggregate shall consist of clean, hard, durable screened and washed gravel, or crushed rock, free from organic matter. Aggregate shall be properly graded in conformity with the class of concrete specified, and to secure concrete of not less than twenty-five hundred (2500) pounds per square inch at twenty-eight (28) days.
- d. Fine Aggregate. Fine aggregate shall consist of well-graded, hard, durable, clean, natural sand free from all deleterious matter. Use of bank sand, fine river sand, or any other uniformly fine sand, shall not be permitted.
- e. Mixing. All concrete mixing shall be done in machine batch mixers of approved type, having a capacity of not less than a full one-sack batch. Each batch shall be run long enough for the conglomerate to become a homogenous mixture, continuing a minimum time of one and one-half (1½) minutes after the last aggregate has been placed in the mixer.

Placing of concrete shall be done immediately after mixing. No concrete shall be placed or used after it has begun to set and no retempering will be allowed.

The ratio of water to cement shall not exceed seven and one-half (7½) gallons of water per sack of cement used, including the water in the aggregates, in order to obtain a concrete having an ultimate strength not less than 2500 pounds per square inch at twenty-eight (28) days.

- N. Tree Removal. Tree removal shall consist of removing all trees as shown on the plans and as designated by the engineer. Tree removal shall be performed as herein specified.

All roots of trees to be removed shall be cleared to a point not less than two (2) feet below the surface of the parkway between the back of existing curb and existing sidewalk. Root void shall be backfilled to surface of parkway with native material and shall be jetted into place.

All portions of trees shall be removed from the public right-of-way. The sidewalk, parkway and street areas shall be left in a condition equal to or better than prior to start of work.

- O. Portland Cement Concrete Drop Inlets. Portland cement concrete drop inlets shall be of Class "A" Portland cement concrete as per Section 90 and shall be mixed and placed as specified in Section 51 of the standard specifications.

Portland cement concrete drop inlets shall be of the dimensions as shown on the city of Chico, building and development services department, Standard Plans S-7, S-7A and S-26.

- P. Materials for Sewer Lines and Sewer Line Construction.

1. Work to be Done. The work to be done under this section comprises the furnishings of all materials, labor, tools, implements and equipment necessary for construction of the sewer lines, complete and ready for operation. All work shall be in accordance with the details shown on the plans and the provisions of these improvement standards and in conformity with the highest standards of workmanship of this type of construction.

The work shall include the following items and related construction:

- a. The construction of all portions of the intercepting and main sewer lines under this contract;
  - b. Cutting of pavement over trenches;
  - c. Excavating and dewatering of all trenches;
  - d. Bracing and shoring of trenches;
  - e. Bedding, laying and jointing of pipe;
  - f. Backfill and compaction of backfill;
  - g. Disposal of excess materials.
2. Excavation for Sewers. 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.
- a. 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 wider on each side, or a total of twelve (12) inches 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. Sheeting 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 two (2) feet above the top of 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 fitted 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.
- b. 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. Gravel, as herein specified, shall be placed, spread and compacted to provide a firm uniform bed for supporting the pipe.
  - c. 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.
  - d. Preparation of Subgrade. Rough excavation in trenches shall not be carried lower than a distance equal to one-tenth (1/10) of the internal diameter of the pipe above the specified grade elevation, and the remainder of the excavation shall be done as the pipe subgrade is prepared and immediately prior to installing the pipe. As an alternate method, the trench may be excavated to depth four (4) inches below the elevation of the outside of the pipe barrel, and embedment material placed and compacted the full width of the trench to the elevation of the outside of the pipe barrel. 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 seating of the pipe joints. Bell holes of below the elevations of the pipe subgrade shall not be larger than one-fourth (1/4) of the distance between pipe joints.
3. Overcut. Excavations shall be carried to the exact depth indicated on the plans or as specified. Should the contractor, through the contractor's negligence or other fault, excavate below the designated lines, the contractor shall replace such excavation with approved materials at the contractor's own expense.
  4. Protection of Excavation. The contractor shall, where necessary, protect excavations from caving by installing suitable shoring. Any damage resulting from failure to provide shoring shall be repaired at the contractor's own expense. All shoring shall be removed unless otherwise specifically authorized.
  5. 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.
  6. Vitrified Clay Pipe. All vitrified clay pipe for sanitary sewers shall comply with ASTM Specification 200-69 requirements for absorption, straightness and permissible cracks, chips, fractures and blisters and will also comply with the chemical resistance tests.

All vitrified clay pipe shall be extra strength unglazed vitrified clay pipe meeting the requirements of extra strength pipe for crushing strength, barrel thickness, and other measurements as set forth in the "Clay Pipe Engineering Manual," issued by the National Clay Pipe Institute.
  7. Polyvinyl Chloride (PVC) Pipe. All polyvinyl chloride sewer pipe, sizes 4-inch through 15-inch, shall be DR 35 maximum and shall conform to the requirements of ASTM D 3034.

All joints shall be made with flexible elastomeric seals meeting the requirements of ASTM D 3212, and shall be capable of passing all tests specified

in said standards and in these specifications. A factory applied reference mark shall be provided on the spigot end of each pipe to insure proper positioning in the receiving bell.

8. Quality Control Tests and Certification. Written certification by the manufacturer shall be submitted for all sewer pipe stating that the pipe conforms to all specifications referenced herein.

The director may select pipe specimens at random at the point of delivery or at the job site for testing. Tests on these specimens shall be made at a testing facility approved by the director. Tests shall be in accordance with applicable ASTM designations. The cost of all failing tests shall be borne by the contractor.

9. Handling and Storage. Care shall be taken during transporting of the pipe to insure that the binding and tiedown methods do not cut or crack the pipe. Pipe bowed, deformed, cracked or otherwise damaged during shipping or storage shall be rejected. Polyvinyl chloride pipe which shows any change in color or surface finish due to exposure to ultraviolet light shall not be used without the approval of the director.
10. Inspection of Sewer Pipe. Wherever possible, the contractor shall avoid distribution of pipe to the job site too far in advance of laying operations. The contractor shall also supply experienced help for the unloading of the pipe so as to avoid damage caused by unloading operations. Immediately preceding placing and laying of the sewer pipe, it shall be checked for defects in accordance with these improvement standards.
11. Laying Sewer Pipe. Each sewer pipe shall be laid uphill in perfect conformity with the lines and grades as given by the engineer from stakes which the engineer has previously set for the purpose.

The grade line of the pipe shall be obtained by use of batter boards and a "top"

line stretched tight and supported every 25 feet, and the contractor will be required at all times to maintain the top lines for a distance covering at least three grade stakes. The contractor shall at all times have available one competent person, whose duty it shall be to set and maintain the top line and to give the line and grade for the pipe.

With the approval of the director, the grade line may be set by use of a construction laser, installed in the trench.

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

- a. 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.
- b. Bell holes shall be excavated in subgrade and made as small as possible still permitting un-obstructed placing of the jointing material and joint runner and not allowing foreign material to enter the joint. The length of the bell hole shall not exceed one-fourth (1/4) the length of the pipe.
- c. The pipe shall be lowered into place in a manner that will insure that the pipe remains clean, care being exercised not to disturb the top line. The pipe shall

not be lowered by sliding it down the side of the trench.

- d. All pipe shall be fitted together and matched while being laid so that when joined, the inverted forms a true straight grade line. The ends of the pipe shall be brought in contact with each other.
- e. 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 compounds. 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.
- f. The pipe shall be checked for position in the trench by using a plumb bob below the “top” line for alignment and the grade shall be obtained by means of a “grade pole” held vertically with one side touching the “top” line and a right angle bracket at the bottom extending and resting on the invert of the pipe in its final position. The vertical distance from the "top" line to the pipe invert grade shall be a multiple of one (1) foot, at a distance above the invert as approved by the engineer.

If the use of a construction laser has been approved, line and grade shall be checked by means of the laser beam.

12. Sewer Pipe Jointing. Unless otherwise approved by the engineer in writing, the jointing material for all sewer pipe, under all conditions of laying, shall be as hereinafter described.
13. Plastisol Joints. Mechanical compression joints shall be an approved type of interlocking, self-centering, resilient, push-type mechanical compression joint, formed or fused on the pipe at the factory, made of plastisol (polyvinyl chloride) to specifications established by the National Clay Pipe Research Corporation.

The annular space shall be controlled either by precision grinding the bell and spigot, or by casting an approved material onto the outside of the spigot and on the inside of the bell, or by a combination of these methods.

The seal shall be obtained by compressing a rubber, plastisol (polyvinyl chloride) or other approved resilient element as the joint is assembled.

Vitrified clay pipe utilizing mechanical compression joints shall be “Wedge-Lock” as manufactured by Pacific Coast Clay Products, or “Speed-Seal Mainline” as manufactured by Gladding McBean Company. No other make of plastisol joint pipe will be permitted except as approved in writing by the engineer.

Pipe shall be installed in strict accordance with the manufacturer's instructions.
14. Elastomeric Joints. Elastomeric joints shall conform to ASTM D 3212 and shall utilize a single gasket for sealing. All joints shall be made in conformance with the manufacturer's recommendations and shall be closed to align the reference mark with the pipe bell.
15. Embedment Materials. Embedment material shall be one of the following types:
  - a. Clean washed sand, with a maximum particle size of 1/4 inch, and with a minimum of 70 percent passing a No. 20 screen.
  - b. 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 of the state standard specifications.

16. Embedment Procedure.
  - a. After excavating the trench to a grade at least 4 inches below the pipe barrel elevation, carefully place bedding material the full width of the trench to provide uniform support along the entire length of pipe to be installed.
  - b. 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.
  - c. Place and compact embedment material to the top of the pipe.
  - d. Place and compact embedment material to a minimum depth of 6 inches over the top of the pipe.
17. Alternate Embedment Procedure. With the approval of the engineer, the following alternate embedment procedure may be used, at the option of the contractor:
  - a. Excavate the trench and place bedding material as described in subsection P16a of this section;
  - b. After installing the pipe, place embedment material to a depth at least 8 inches above the top of the pipe;
  - c. Flood the embedment zone with water by either puddling or jetting. Adequate water must be applied to insure that the entire embedment zone is saturated;
  - d. Consolidate the embedment material with internal vibrators, applied at sufficiently close intervals that the visible effects of the vibration overlap. Care shall be exercised to avoid disturbance of the pipe during vibration, or contacting the pipe with the vibrator;
  - e. Allow sufficient drying time that the embedment material will support a man's weight before placing backfill.
18. Straightness. The full diameter of the pipe shall be visible when viewed between consecutive manholes, unless curved alignment is specified. Testing may be by photography or by lamping with lights or mirrors.
19. Manhole Connections. Sewer pipe shall be connected to manhole bases in a manner which will provide a watertight seal. With polyvinyl chloride sewers, special adaptors with resilient seals or waterstops shall be installed in manhole bases to provide a flexible, watertight connection.
20. Test for Leakage. On the completion of each section of the sewer between structures, where the soil is wet due to ground water, the end of the sewer at the upper manhole or structure shall be closed sufficiently to prevent the entrance of water, and the sewer treated for leakage, which if found to occur, shall be located, uncovered, and stopped. Where such leaks are discovered before the completion of the sewer, the sewer shall be immediately uncovered and the leaks stopped. Leakage shall be tested with an air pressure test. The pipeline to be tested shall be suitably plugged at all openings.

Test procedures and allowable pressure loss for vitrified clay sewers shall be as specified by the pamphlet entitled "Low Pressure Air Test for Sanitary Sewers," published by the National Clay Pipe Institute. Polyvinyl chloride sewers shall be pressurized to 4.0 PSI greater than the average pressure of any groundwater which may submerge the pipe. At least 2 minutes shall be allowed for pressure stabilization. The rate of air loss shall then be determined by measuring the time interval required for the internal pressure to decrease from 3.0 to 2.5 PSI above the average pressure of any groundwater submerging the pipe. The pipeline shall be considered acceptable when the pressure drop described

above occurs over a time period of at least (36.3 seconds) x (pipe diameter in inches).

If air pressure testing equipment is not available, water testing may be substituted. Permissible leakage for vitrified clay and polyvinyl chloride sewers will not exceed that allowed by the National Clay Pipe Institute's pamphlet listed above.

Final tests of sewers 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 by infiltration or exfiltration, or similar causes shall be basis of nonacceptance.

21. Backfilling. Backfilling shall be done in accordance with subsection L of this section. Compaction of backfill material by ponding or jetting will not be allowed unless specifically approved by the engineer.

Where the sewer crosses streets or highways, ponding or jetting will not be permitted.

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, who shall reimburse the city by cash payment.

22. Test for Deflection. Polyvinyl chloride (PVC) sewers shall be tested for deflection after final backfill and compaction has been completed, but before paving is placed. 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 reexcavated, bedded and backfilled to adequately support the pipe and reduce the deflection to 5% or less of the average inside diameter of the pipe. The pipeline shall then be retested for both leakage and deflection.

Should tests performed by the city, within one year of the original testing and acceptance, show deflection in excess of 7.5% of the average inside diameter of the pipe, the contractor shall reexcavate, bed and backfill the pipe to provide adequate support and reduce the deflection to 5% or less. The pipeline shall be retested for deflection. The contractor shall reimburse the city's cost of testing for all lines which require repair.

23. Disposal of Excess Material. Excess materials which have been excavated from trenches, and which cannot be utilized for backfill, or spread adjacent to the work, shall be removed by the contractor.
24. Protection of Work. 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 or trash, but under no circumstances made watertight.

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.

Upon completion of the sewers and prior to the final inspection and before acceptance, when ordered by the engineer, the contractor shall, at the contractor's own expense, flush and cleanse the sewers of all dirt clods, small rocks, sand or silt deposits and any other materials that may be detrimental to the proper flow and operation of the sewer. The outlet end of the lowest manhole in the system shall be tightly plugged and a pump suction line placed in the manhole ready for use.

A fire hose shall be connected to a fire hydrant nearest to the last structure in the upper end of the system and the fire hose inserted in the sewer pipe as a jet.

The volumes and velocity obtained from the water system should be sufficient to flush any materials in the pipe to the lowest manhole where the pumps will be put into operation to remove the wash water and suspended solids. Disposal of this wash water shall be into the nearest storm drain.

When, in the opinion of the engineer, the wash water is sufficiently clear to indicate that the sewer is clean, the water shall be shut off and the sewer line allowed to drain down. When the lower manhole has been pumped and/ or bailed dry, the remaining residue shall be removed and the manhole left clean.

**Q. Trench Sheeting, Shoring and Bracing.**

1. Trench sheeting, shoring and bracing shall be installed for any trench or boring and jacking pit five feet or more in depth. Shoring system shall conform to the latest edition of the State Division of Industrial Safety Construction Safety Orders, Sections 1539, 1540, 1541 and 1542 pursuant to State Assembly Bill No. 150 dated October 2, 1973.
2. Permits. The contractor is required to obtain a permit from the State Division of Industrial Safety prior to the excavation of any trench or boring and jacking pit five feet or more in depth.
3. Shoring and Bracing Plans. The contractor shall be required to submit to the building and development services department, prior to excavation, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from hazard of caving ground during the excavation of trench or trenches. If such plan varies from the shoring system standards of the State Division of Industrial Safety Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer.

**R. Maintenance of Trees.** Any excavation within the drip line of any trees shall conform to the following requirements:

1. No trees shall be removed unless specifically so designated on the plans or in the special provisions.
2. No roots over two (2) inches in diameter shall be cut.
3. Hand trenching and tunneling will be required when excavation exposes roots two (2) inches in diameter or larger.
4. Roots two (2) inches in diameter or larger which are exposed to the air shall be

kept moist.

5. Roots two (2) inches in diameter or larger which are accidentally damaged shall be treated with material approved by the city of Chico park superintendent.
6. If roots two (2) inches in diameter or larger are accidentally cut or broken, the tree shall be trimmed to compensate for the decreased root system. Such trimming shall be done to the satisfaction of the park superintendent.
7. Boring pits shall not be installed within twenty (20) feet of any tree trunk.
8. All work shall be done to the satisfaction of the engineer.

(Res. No. 9 77-78 (part), Res. No. 87 86-87 §2, Res. No. 92 89-90, Res. No. 59 90-91 §§13-17, Res. No. 11 95-96 §§2-3, Res. No. 48 97-98 §§5-6, Res. No. 02 03-04, Res. No. 113-07)

### **18R.12.020 Standard plans.**

The following plans, copies of which are incorporated into this section, are hereby adopted as the Standard Plans of the City of Chico:

<u>Plan No.</u>	<u>Title</u>
S-1	P.C.C. Sidewalk Details
S-2	P.C.C. Curb and Gutter
S-2A	Curb, Gutter & Sidewalk Installation at Trees
S-3	Existing Curb and/or Gutter Replacement Details
S-4	Deleted
S-5	Residential Driveway Approach
S-5A	Commercial Driveway Approach
S-5B	Curb, Gutter & Driveway Details
S-5C	Curbed Driveway Entrance
S-6	Storm Drain Headwall
S-7	36" Drop Inlet (two plans), Grate Detail, & Grate Frame
S-7A	Flat Grate Inlet (Caltrans "G-I")
S-8	Storm Drain Marker Detail
S-9	Deleted
S-10	Storm Drain and Sanitary Sewer Manhole
S-11	Drop Manhole
S-12	Approved Methods of Laying Pipe
S-12A	Pipe Crossing Cradle
S-12M	Modified Concrete Cradle
S-13	Typical Method for Setting Appurtenances
S-14	Manhole Frame & Cover Details
S-14A	Bolt Down Manhole Frame & Cover Details
S-15	Flushing Hole - Cast Iron Frame and Cover
S-16	Street Name Sign Details
S-17	Typical Details of Pavement Replacement
S-18A	Typical Cross-Section - Streets (2 plans)
S-18B	Typical Cul-De-Sac
S-18D	Improvement of Existing Street (2 plans)
S-18E	Typical Cross-Section - Other Public Ways
S-18F	Typical Cross-Section - Private Streets
S-19	Alley Pavement
S-20	City Monuments, Construction & Location

S-21	Street Barricades
S-26	Flat Grate Inlet
S-27	P.C.C. Handicapped Ramp
S-27A	P.C.C. Handicapped Ramp
S-28	Bus Turnout
S-35	Bicycle Barrier Post
SL-1	Street Lights (11 plans)
LS-1	Fifteen Gallon Tree Planting Detail (2 plans)
LS-2	Fifteen Gallon Tree Planting Detail with Stamped Concrete
LS-3	Containerized Shrub Planting Detail
LS-4	Ground Cover Planting Detail
LS-5	Header Detail (2 plans)
LS-6	Deleted
LS-7	Reduced Pressure Backflow Preventer
LS-8	Remote Control Valve (2 plans)
LS-9	Remote Control Valve in Paving (Non Vehicular)
LS-10	Quick Coupling Valve
LS-11	Tru-Union Ball Valve
LS-12	Controller Enclosure with Fan
LS-13	Controller Service Pull Box
LS-14	Trenching Detail (3 plans)
LS-15	Typical Thrust Block Details for Ring-Tite and Solvent Weld Pipe
LS-16	Impact Riser with Swing Joint
LS-17	Sprinkler/Bubbler Pop-Up
LS-18	Turf Impact Rotor with Swing Joint
LS-19	Subterranean Drip Spacing
LS-20	Subterranean Dripline Layout
LS-21	Dripline Flushing Valve
LS-22	Air/Vacuum Relief Valve
LS-23	Dripline Layout for Trees
LS-24	Sight Distance Clearance at Non-Signalized Intersections
LS-25	Tree and Pavement Layout in Median Island
LS-26	Stamped Concrete Bullnose and Mow Band
LS-27	Metered Electrical Service Enclosure (2 plans)

(Res. No. 59 90-91 §19, Res. No. 167 92-93 §3, Res. No. 60 95-96, Res. No. 26 97-98; Res. No. 42 99-00 §§1 & 2, Res. No. 118 00-01, Res. No. 120-06, Res. No. 39-07, Res. No. 107-07, Res. No. 55-09, Res. No. 69-09)

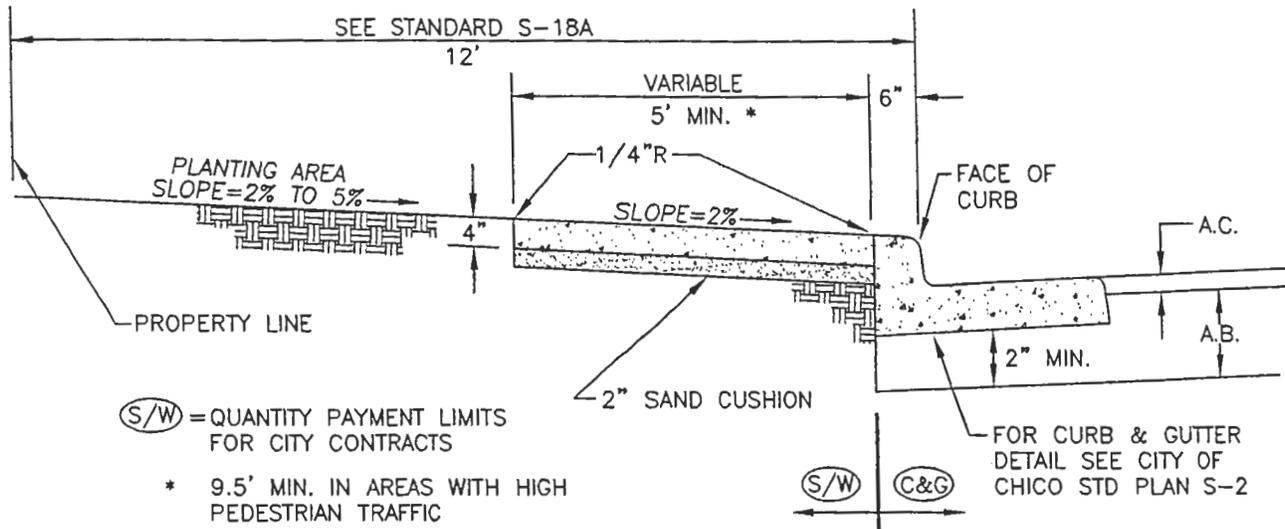
#### **18R.12.030 Standard plans - TND zoning district.**

The following plans, copies of which are incorporated into this section, are hereby adopted as the Standard Plans of the city of Chico for use in the TND zoning district. These plans shall not be used for any improvements constructed outside of the TND zoning district.

<u>Plan No.</u>	<u>Title</u>
TN-1	High Capacity Boulevard with Frontage Lanes
TN-2	Boulevard with Frontage Lanes
TN-3	Boulevard
TN-4	36' Avenue

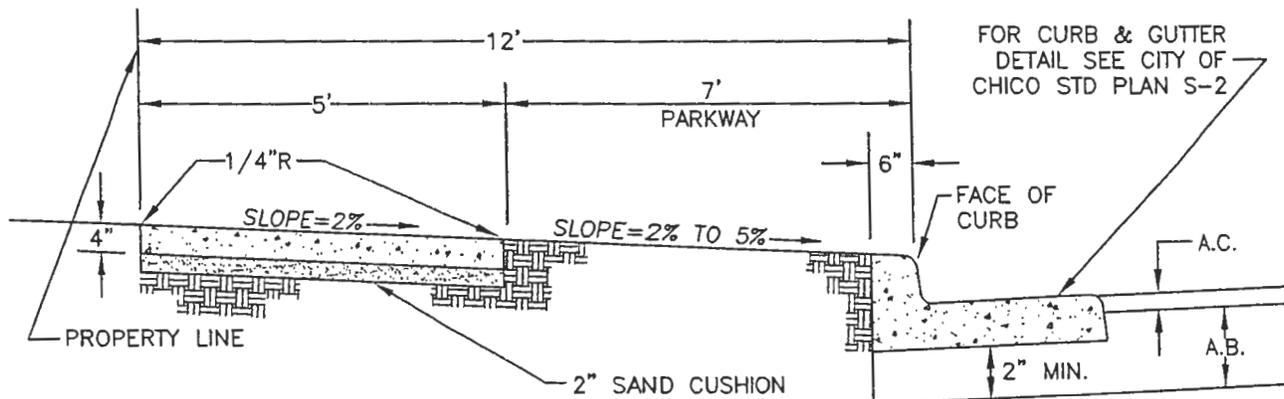
TN-5	32' Interior Street
TN-6	27' Interior Street
TN-7	27" Drive at Greenway
TN-8	26' Interior Street (One Way)
TN-9	19' Interior Street (One Way)
TN-10	19' Interior Street (One Way on Neighborhood Green)
TN-11	Alley Commercial
TN-12	Alley
TN-13	Typical Plan View Neighborhood General Alley
TN-14	Pedestrian Passage
TN-15	Mid-block Passage
TN-16	Street - Existing Modified Arterial Intersection on Network
TN-17	Street - Existing Arterial Intersection on Network
TN-18	Boulevard - Avenue Intersection on Network
TN-19	Avenue - Street Intersection on Network
TN-20	Street - "T" Intersection off Network
TN-21	Street - Alley Intersection off Network
TN-22	Sidewalk Details: Planter and Tree Grate Options

(Res. No. 85-07)



**CONTIGUOUS CURB,  
GUTTER & SIDEWALK**

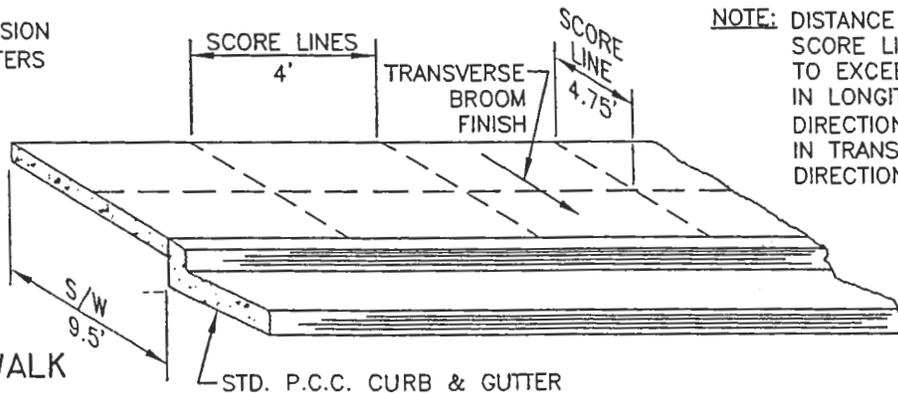
**NOTE:** IF AUTHORIZED, THIS SIDEWALK CONFIGURATION MAY  
BE USED IN EXISTING DEVELOPED AREAS TO MATCH  
AN ESTABLISHED SIDEWALK CONFIGURATION.



**SEPARATED CURB,  
GUTTER & SIDEWALK**

**NOTE:** THIS SIDEWALK CONFIGURATION SHALL BE USED IN  
CONJUNCTION WITH ALL NEW DEVELOPMENT AND/OR  
NEW CONSTRUCTION.

**NOTE:**  
INSTALL 1/4" EXPANSION  
JOINTS ON 48' CENTERS



**NOTE:** DISTANCE BETWEEN  
SCORE LINES NOT  
TO EXCEED 4 FEET  
IN LONGITUDINAL  
DIRECTION OR 4.75'  
IN TRANSVERSE  
DIRECTION

**TYPICAL SIDEWALK  
SCORE LINES**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
CHECKED BY: MJ SCALE: NONE  
APPROVED: [Signature]  
DIRECTOR OF ENGINEERING

**P.C.C. SIDEWALK DETAILS**

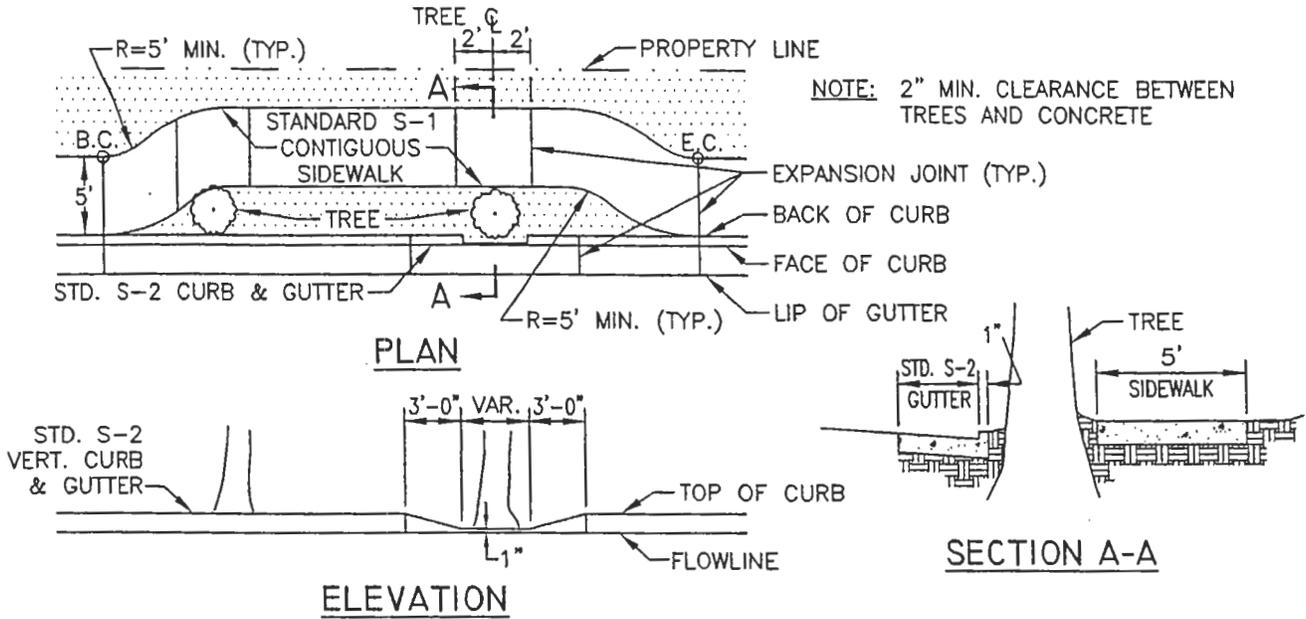
NO.  
**S-1**

SHEET 1 OF 1

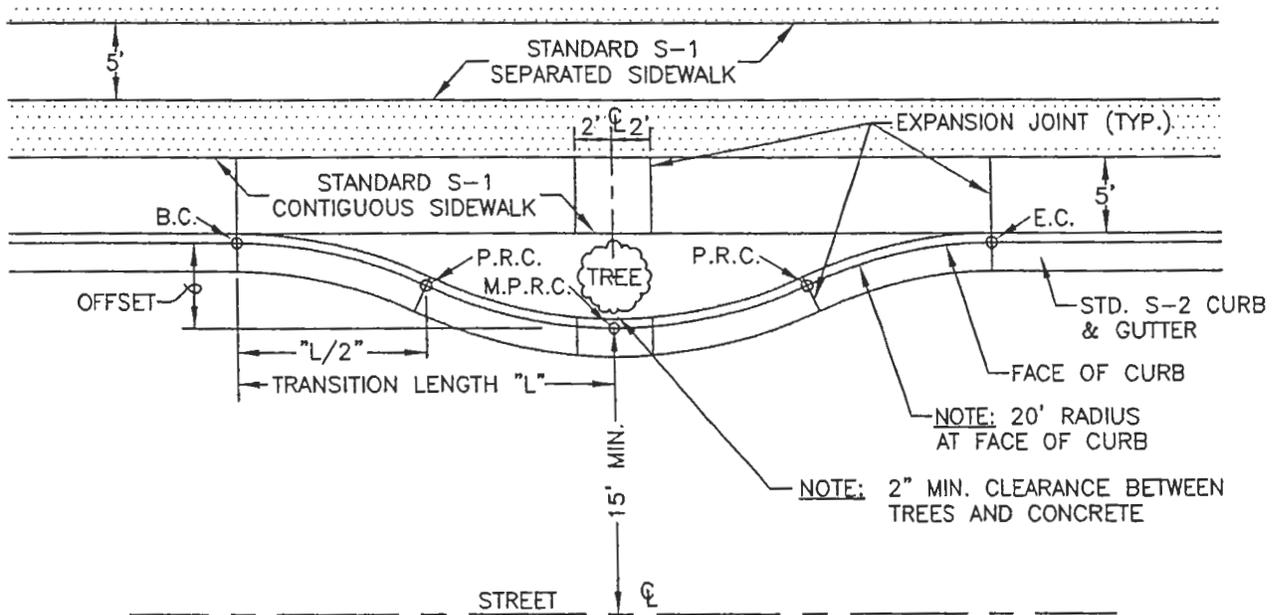
**EXHIBIT A**



# STRAIGHT CURB ALIGNMENT- CONTIGUOUS SIDEWALK



# OFFSET CURB ALIGNMENT- SEPARATED OR CONTIGUOUS SIDEWALK



OFFSET	RADIUS	TRANSITION LENGTH	L/2	OFFSET	RADIUS	TRANSITION LENGTH	L/2
1'	20'	8.9'	4.45'	6'	20'	21.1'	10.55'
2'	20'	12.5'	6.25'	7'	20'	22.6'	11.30'
3'	20'	15.2'	7.60'	8'	20'	24.0'	12.00'
4'	20'	17.4'	8.70'	9'	20'	25.3'	12.65'
5'	20'	19.4'	9.70'				

REVISION	BY	DATE	APP. BY

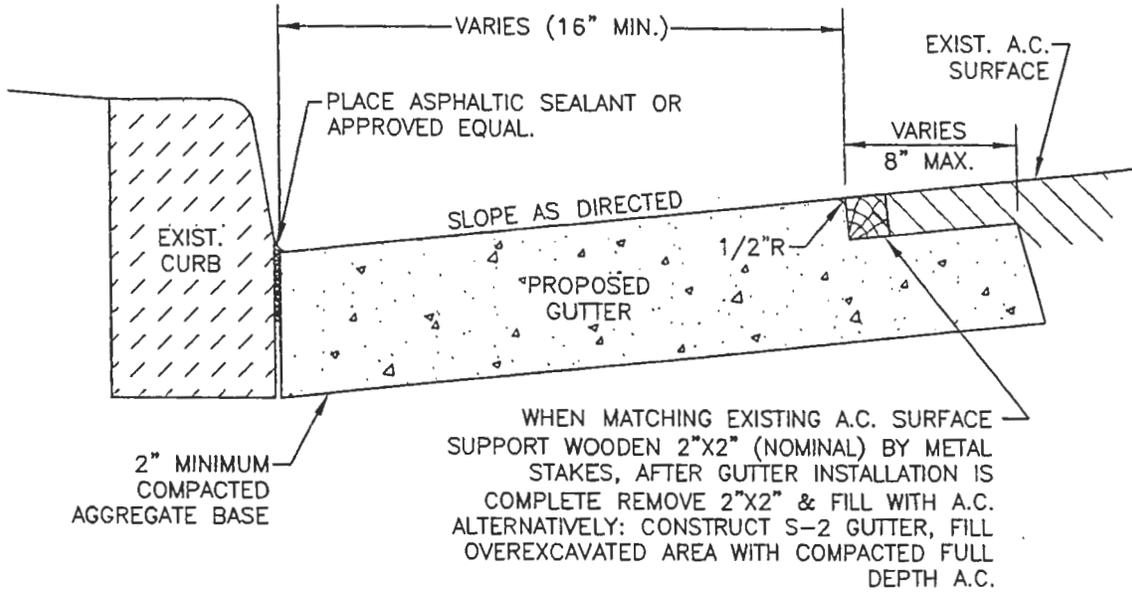
**CITY OF CHICO**

**STANDARD PLAN**

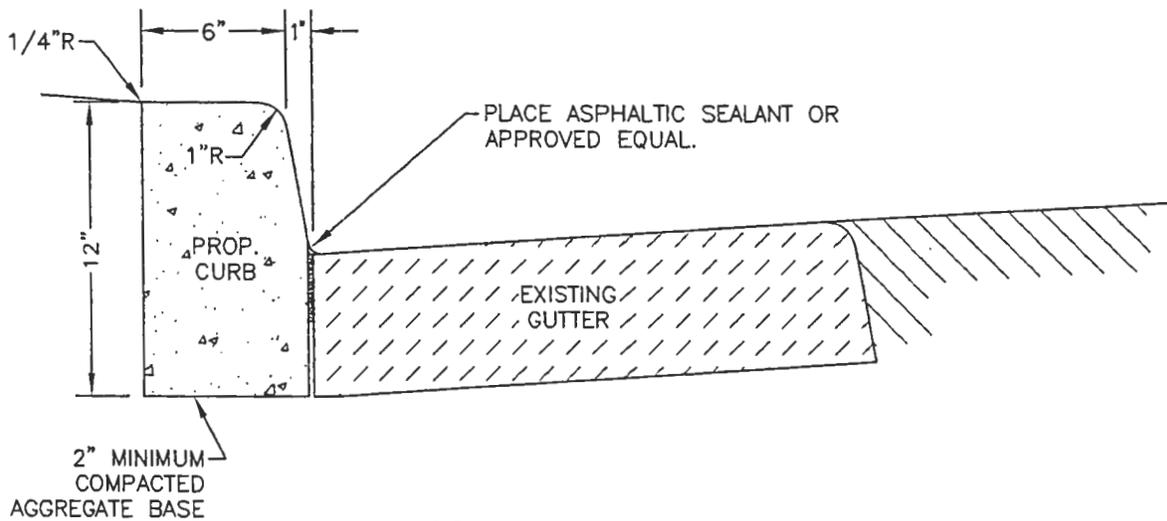
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**CURB, GUTTER & SIDEWALK  
 INSTALLATION AT TREES**

NO. **S-2A**  
 SHEET 1 OF 1



EXISTING CURB-PROPOSED GUTTER



PROPOSED CURB-EXISTING GUTTER

NOTES:

1. WHEN INSTALLING BOTH CURB & GUTTER, POUR MONOLITHIC SECTION.
2. WHEN REPLACING ROLLED CURB & GUTTER, USE STANDARD NO. S-2 IN COMBINATION WITH METHOD OF MATCHING EXISTING A.C. DETAIL (TOP).
3. INSTALL 1/4\"

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**EXISTING CURB AND/OR  
 GUTTER REPLACEMENT  
 DETAILS**

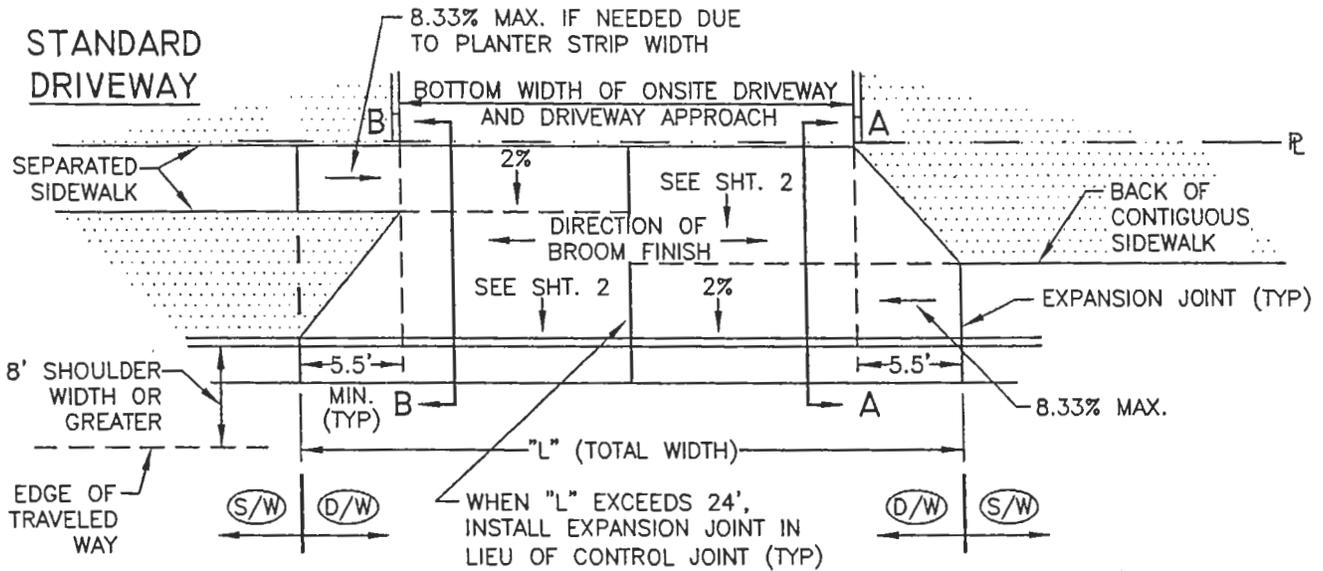
NO.  
**S-3**

SHEET 1 OF 1

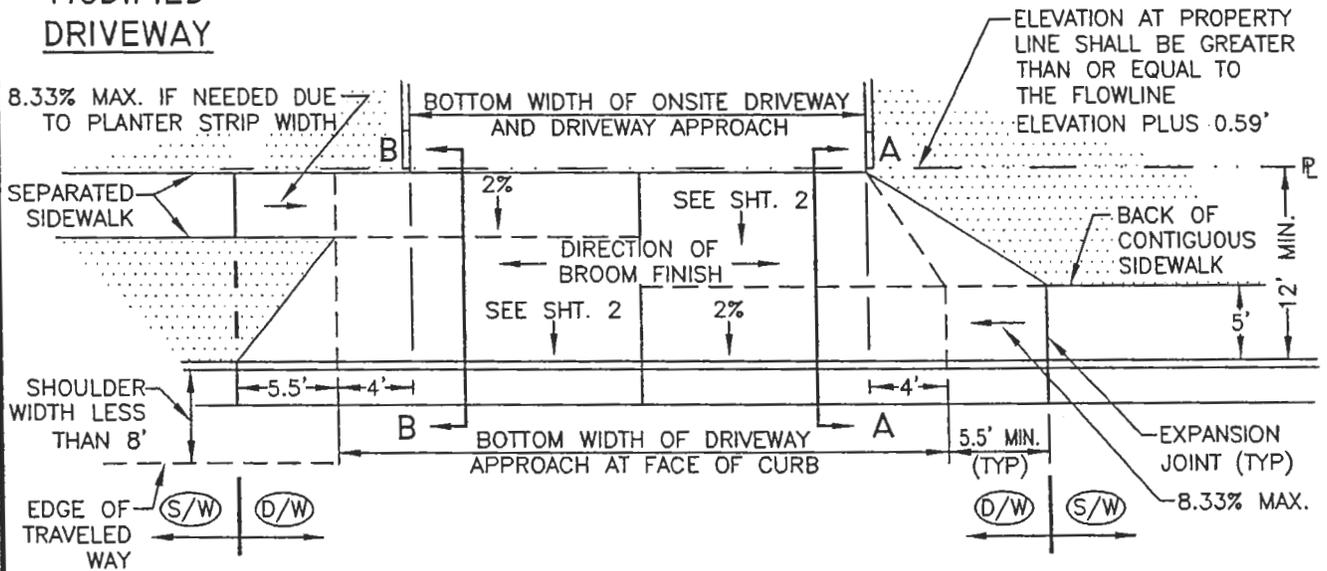


(S/W) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS

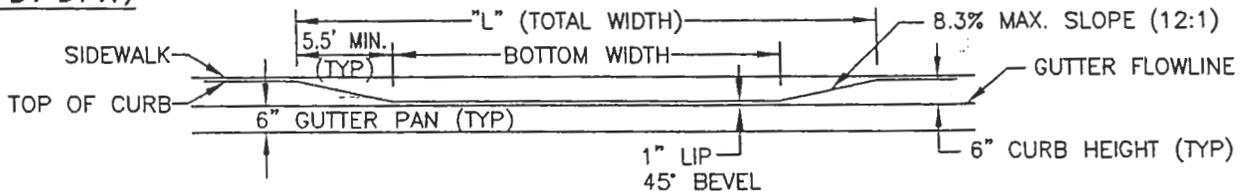
### STANDARD DRIVEWAY



### MODIFIED DRIVEWAY



### ELEVATION (STD. D/W)



REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

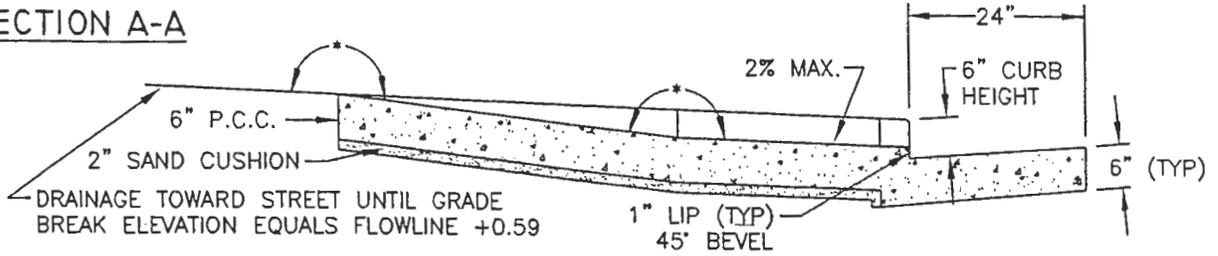
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

COMMERCIAL DRIVEWAY APPROACH

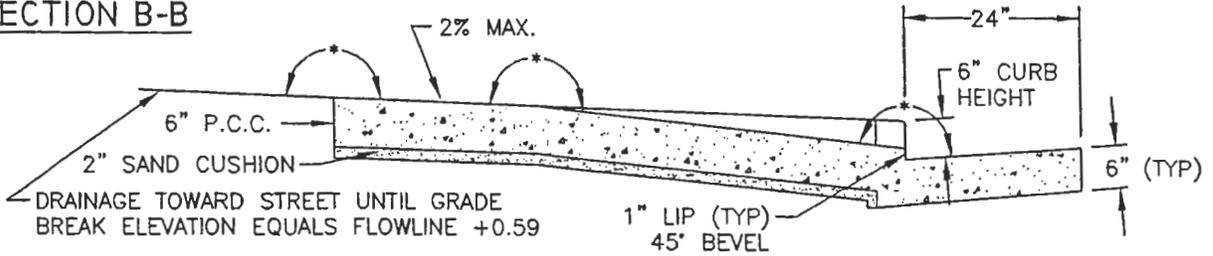
NO. S-5A

SHEET 1 OF 2

**SECTION A-A**



**SECTION B-B**



\* MAX. ALGEBRAIC DIFFERENCE OF 17.5%

**NOTES:**

1. STANDARD S-5A SHALL BE USED FOR COMMERCIAL AND INDUSTRIAL DEVELOPMENTS, RESIDENTIAL DEVELOPMENTS WITH GREATER THAN 8 ONSITE PARKING SPACES AND PRIVATE STREET SUBDIVISIONS.
2. MODIFIED DRIVEWAY SHALL BE USED WHERE ROADWAY SHOULDER IS LESS THAN 8'.
3. BOTTOM WIDTH OF STANDARD DRIVEWAY AT FACE OF CURB:
  - A) ONE WAY - 14' MINIMUM, 18' MAXIMUM
  - B) TWO WAY - 24' MINIMUM, 30' MAXIMUM
4. BOTTOM WIDTH OF MODIFIED DRIVEWAY AT FACE OF CURB:
  - A) ONE WAY - 22' MINIMUM, 26' MAXIMUM
  - B) TWO WAY - 32' MINIMUM, 38' MAXIMUM

REVISION			
BY			
DATE			
APP. BY COUNCIL			

**CITY OF CHICO**

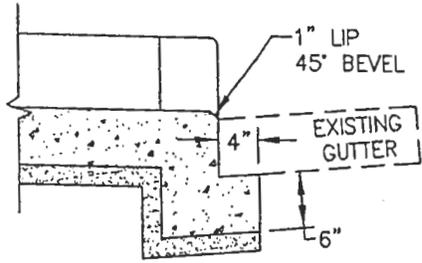
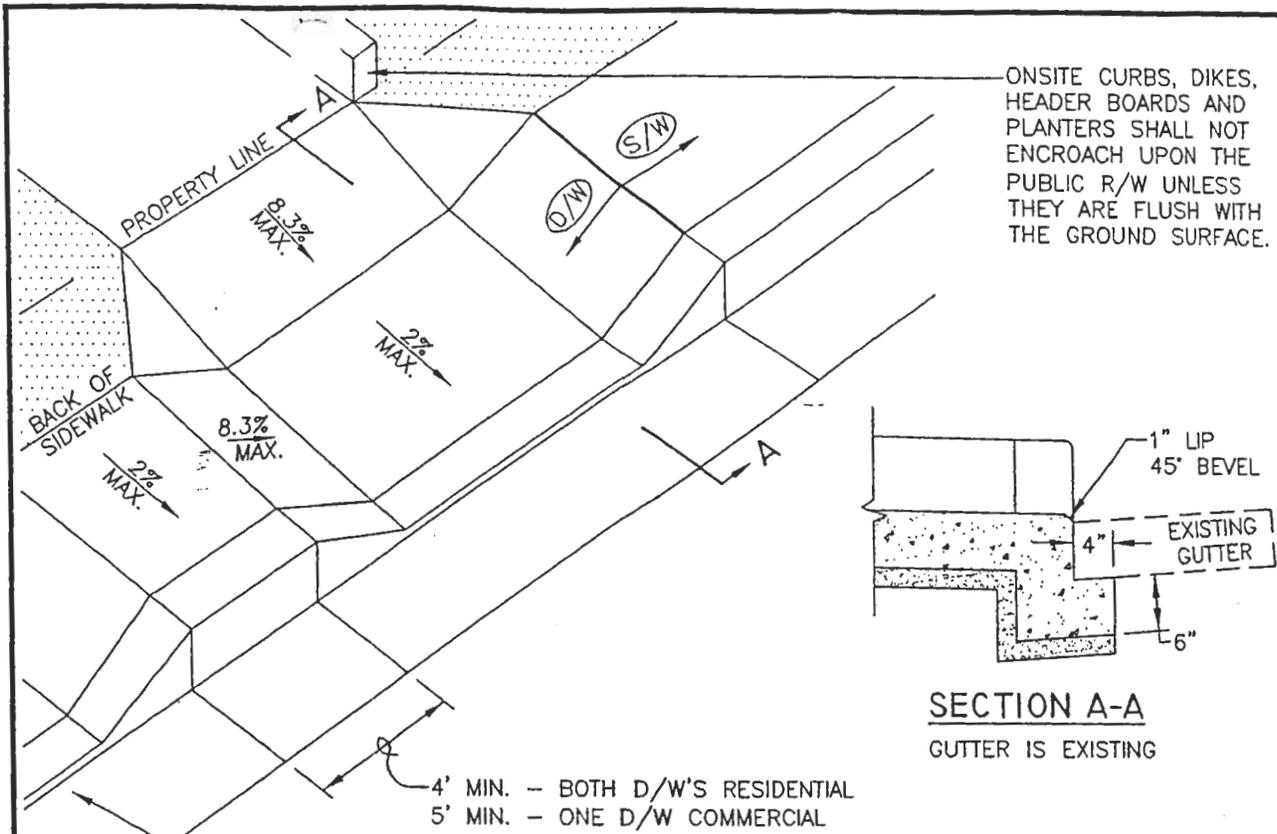
**STANDARD PLAN**

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**COMMERCIAL  
 DRIVEWAY APPROACH**

NO.  
**S-5A**

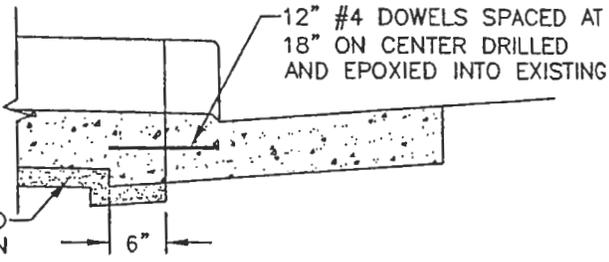
SHEET 2 OF 2



**SECTION A-A**  
GUTTER IS EXISTING

4' MIN. -- BOTH D/W'S RESIDENTIAL  
5' MIN. -- ONE D/W COMMERCIAL

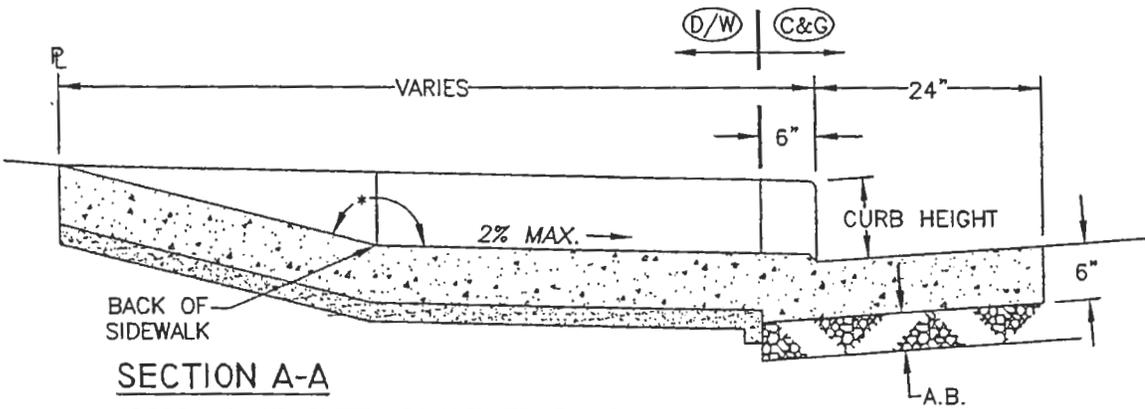
PEDESTRIAN RAMP,  
D/W OR ADJACENT  
PROPERTY



**SECTION A-A**  
CURB OR CURB & GUTTER IS  
EXISTING OR POURED SEPERATELY  
(COMMERCIAL DRIVEWAY ONLY)

(S/W) = QUANTITY PAYMENT LIMITS  
FOR CITY CONTRACTS

\* MAX. ALGEBRAIC  
DIFFERENCE OF 17.5%



**SECTION A-A**  
APPROACH AND GUTTER POURED TOGETHER

REVISION	BY	DATE	APP. BY COUNCIL

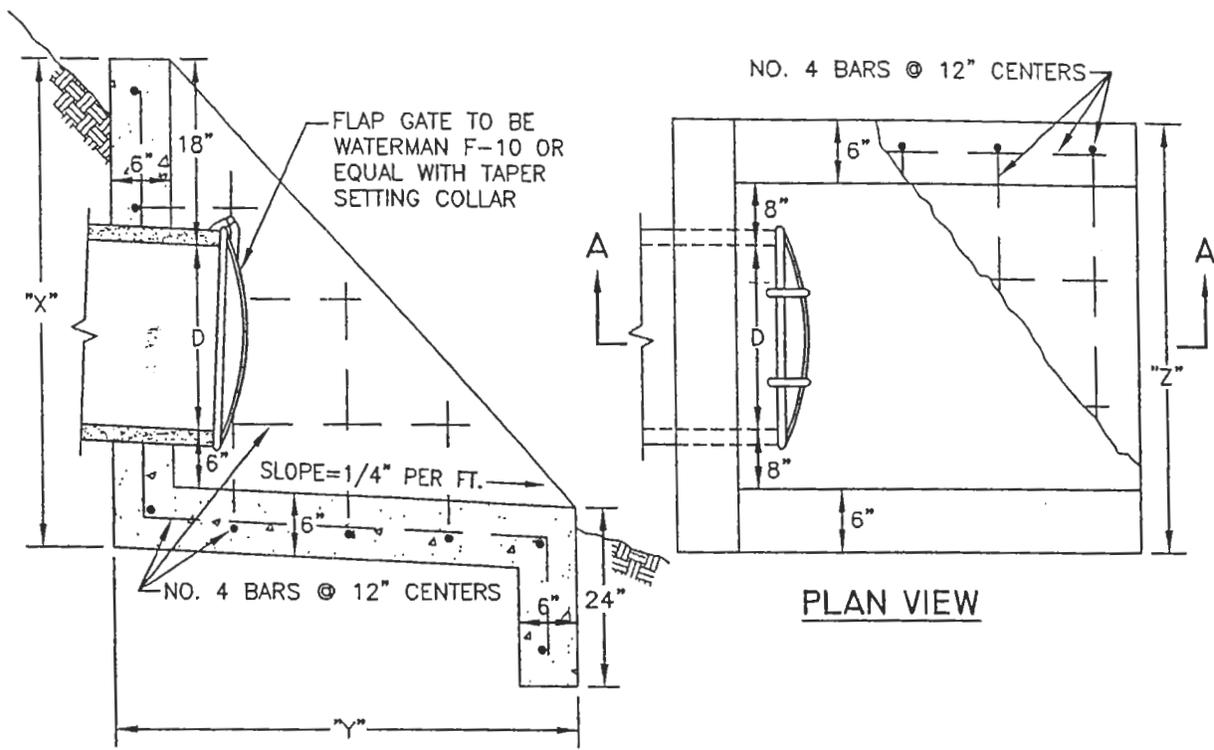
**CITY OF CHICO STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**CURB, GUTTER AND DRIVEWAY DETAILS**

NO. **S-5B**  
 SHEET 1 OF 1





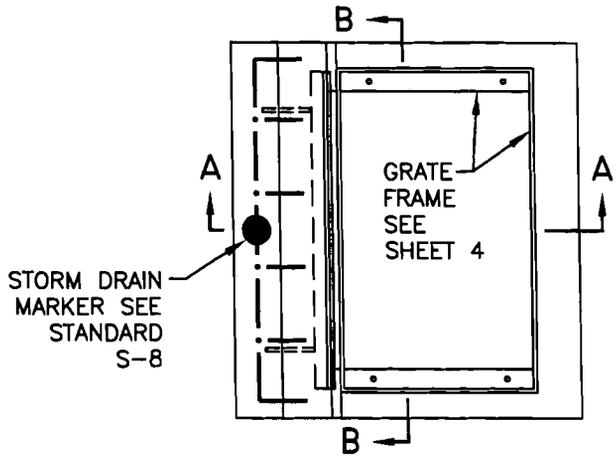
SECTION A-A

PLAN VIEW

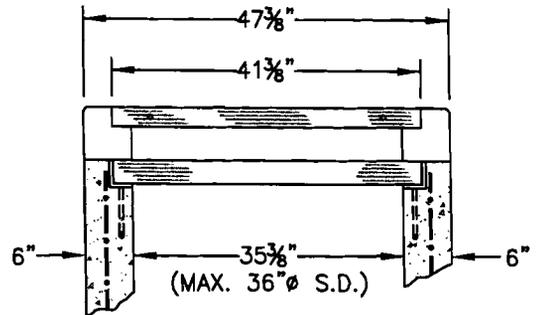
PIPE DIAMETER	HEADWALL WIDTH	VARIABLE DIMENSIONS					
		SLOPE = 1:1		SLOPE = 1.5:1		SLOPE = 2:1	
D	"Z"	"X"	"Y"	"X"	"Y"	"X"	"Y"
	D+2'-4"	D+2'-6"	D+2'-6"	D+2'-6"	1.5(D+2'-6")	D+2'-6"	2(D+2'-6")
8"	3'-0"	3'-2"	3'-2"	3'-2"	4'-9"	3'-2"	6'-4"
10"	3'-2"	3'-4"	3'-4"	3'-4"	5'-0"	3'-4"	6'-8"
12"	3'-4"	3'-6"	3'-6"	3'-6"	5'-3"	3'-6"	7'-0"
15"	3'-7"	3'-9"	3'-9"	3'-9"	5'-7½"	3'-9"	7'-6"
18"	3'-10"	4'-0"	4'-0"	4'-0"	6'-0"	4'-0"	8'-0"
21"	4'-1"	4'-3"	4'-3"	4'-3"	6'-4½"	4'-3"	8'-6"
24"	4'-4"	4'-6"	4'-6"	4'-6"	6'-9"	4'-6"	9'-0"
27"	4'-7"	4'-9"	4'-9"	4'-9"	7'-1½"	4'-9"	9'-6"
30"	4'-10"	5'-0"	5'-0"	5'-0"	7'-6"	5'-0"	10'-0"
36"	5'-4"	5'-6"	5'-6"	5'-6"	8'-3"	5'-6"	11'-0"
42"	5'-10"	6'-0"	6'-0"	6'-0"	9'-0"	6'-0"	12'-0"

REVISION	BY	DATE	APP. BY COUNCIL

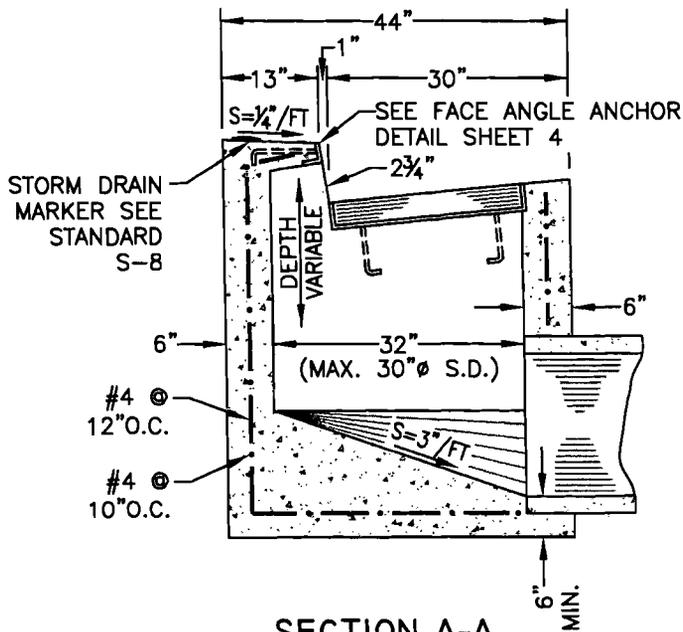
<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>10/05</u>	<b>STORM DRAIN HEADWALL</b>	NO. <b>S-6</b>
CHECKED BY: <u>MJ</u>	SCALE: <u>NONE</u>		SHEET 1 OF 1
APPROVED: <u>[Signature]</u>	DIRECTOR OF ENGINEERING		



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**

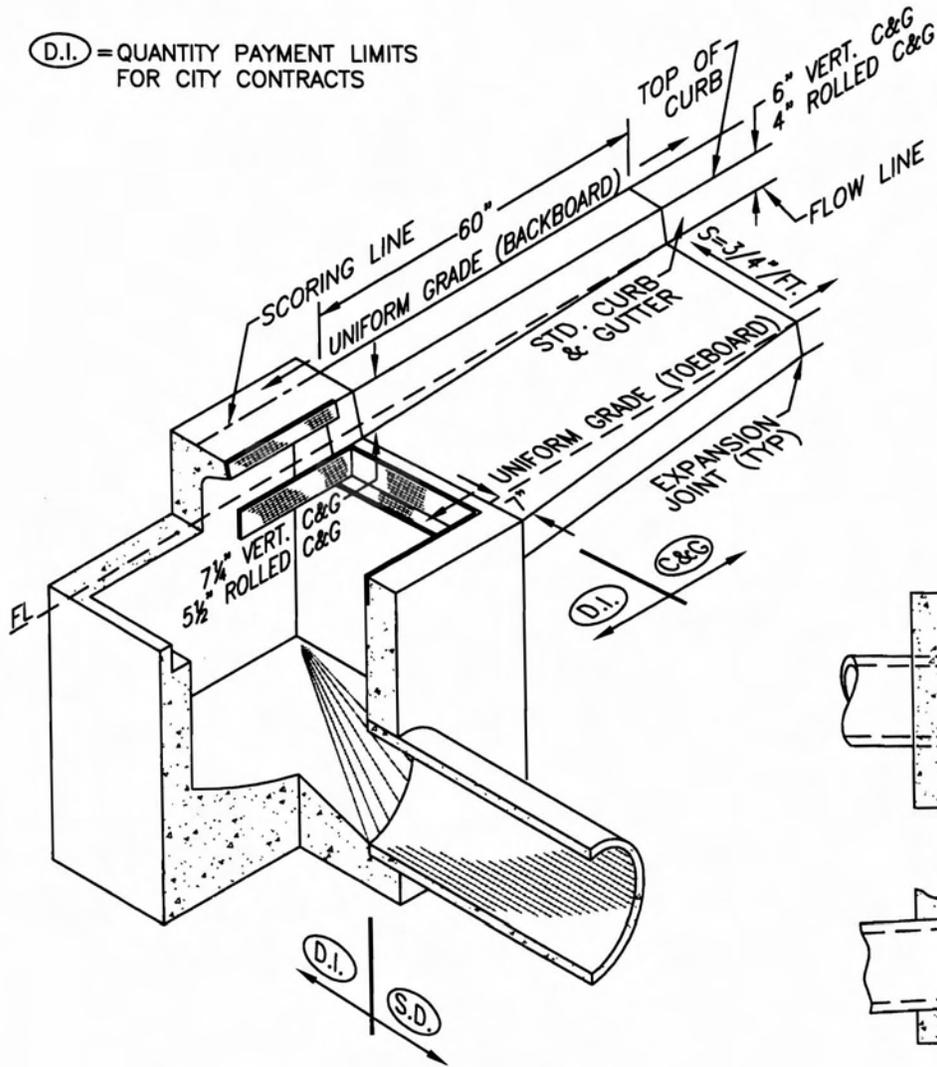
DRAWN BY: GL      DATE: 8/09  
 CHECKED BY: MT      SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

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

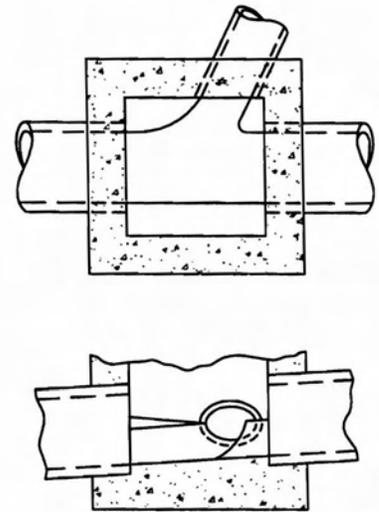
NO.  
**S-7**

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.
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**

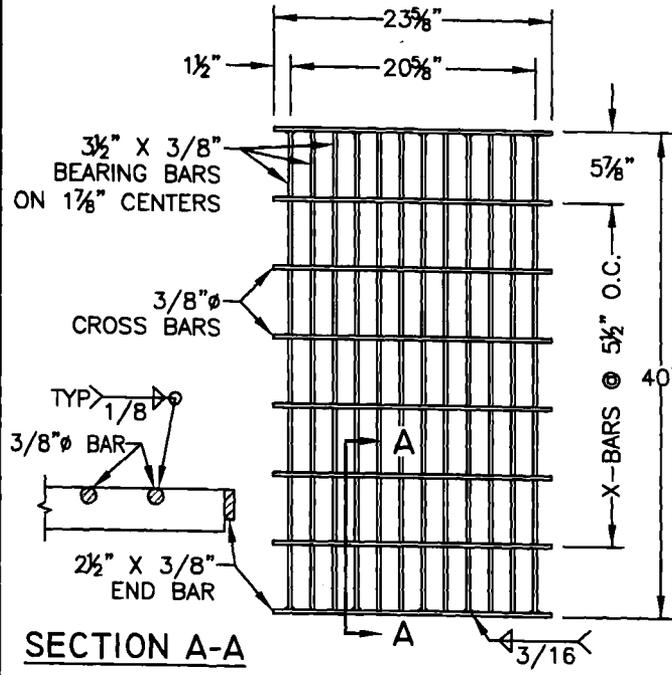
**STANDARD PLAN**

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

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

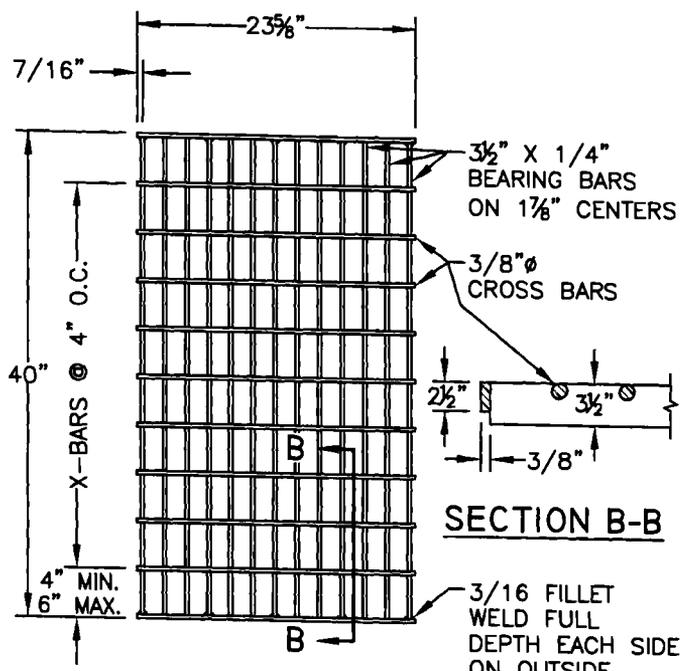
NO. **S-7**

SHEET 2 OF 4



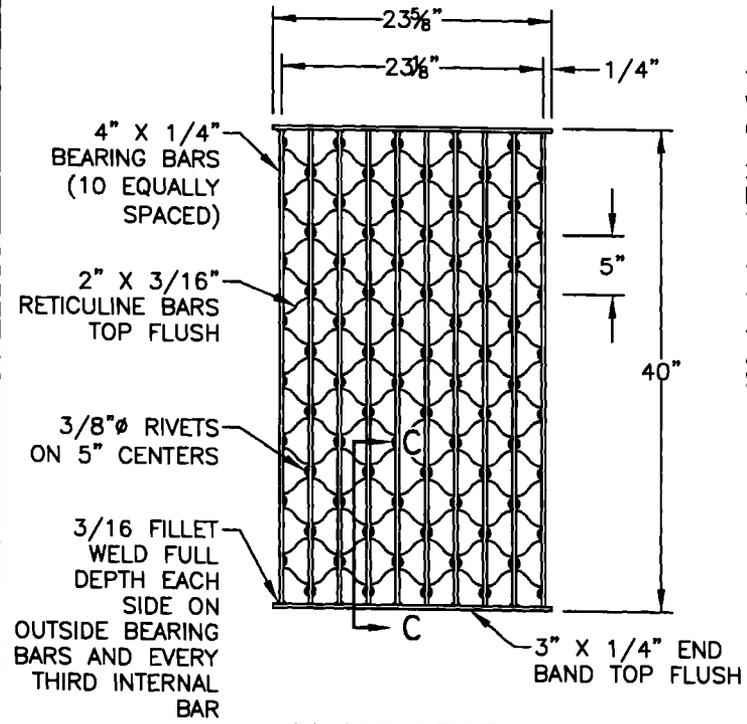
**SECTION A-A**

**24-12X GRATE**  
(WELDED STEEL)

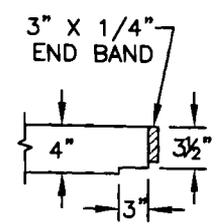


**SECTION B-B**

**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**

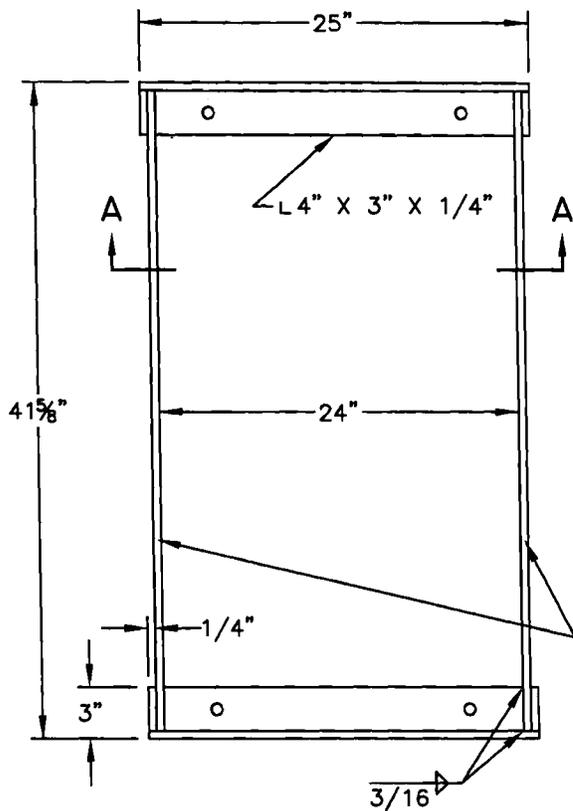
DRAWN BY: GL DATE: 8/09  
 CHECKED BY: MT SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

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

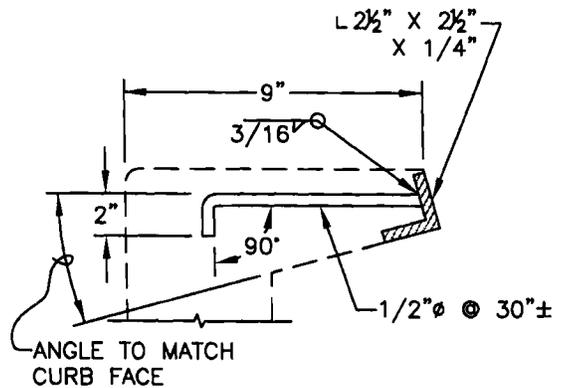
NO. **S-7**

SHEET 3 OF 4

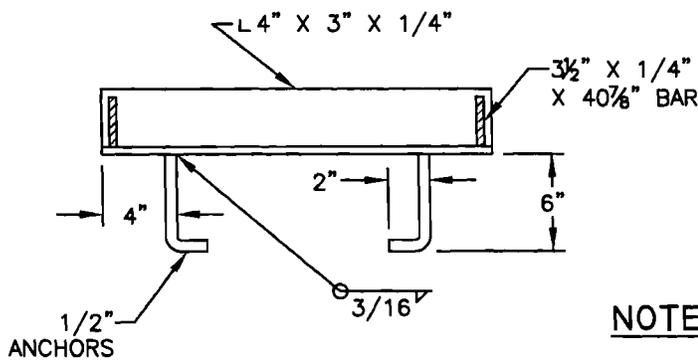
**EXHIBIT A**



**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

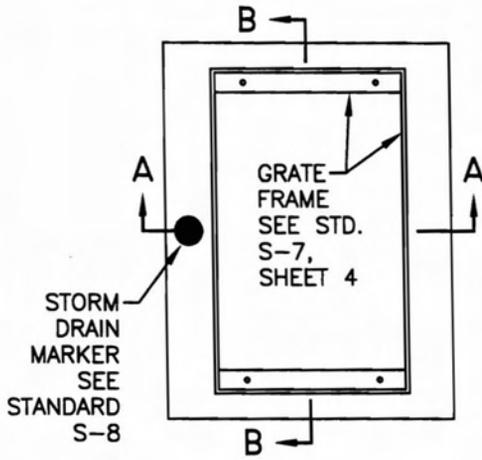
**CITY OF CHICO**

**STANDARD PLAN**

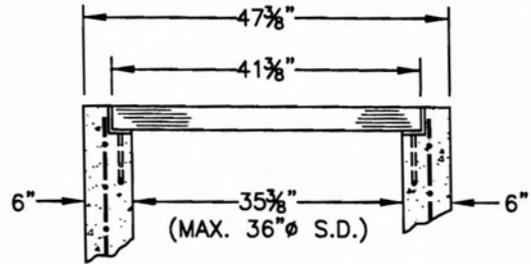
DRAWN BY: GL DATE: 8/09  
 CHECKED BY: MT SCALE: NONE  
 APPROVED: [Signature]  
 CPSD DIRECTOR

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

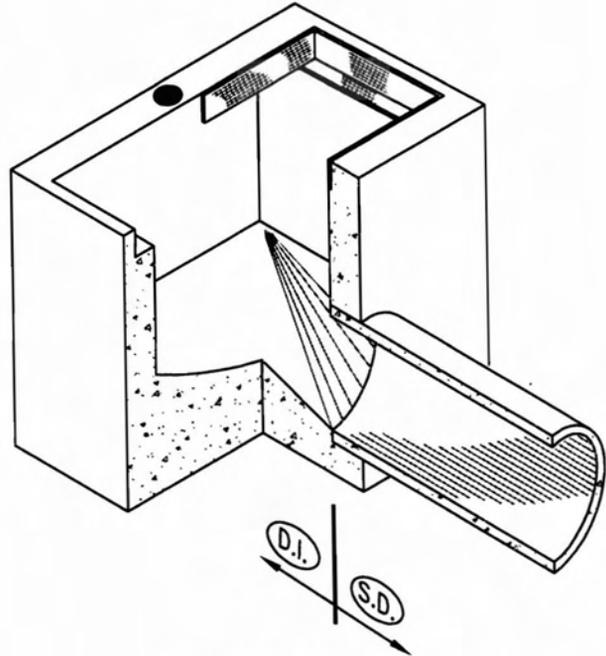
NO. **S-7**  
 SHEET 4 OF 4



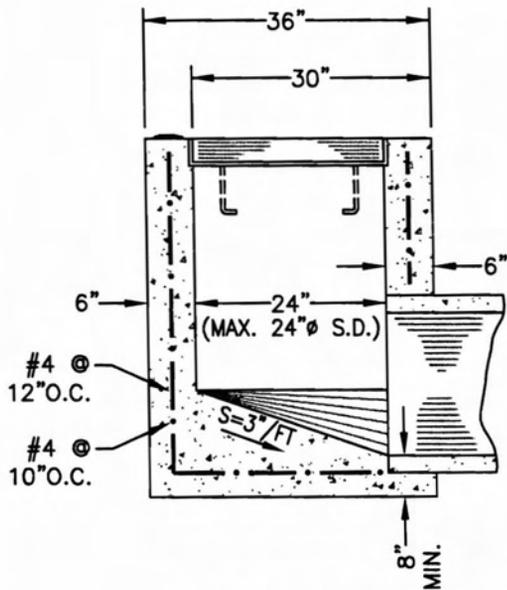
**PLAN**



**SECTION B-B**



**D.I. CUT AWAY VIEW**

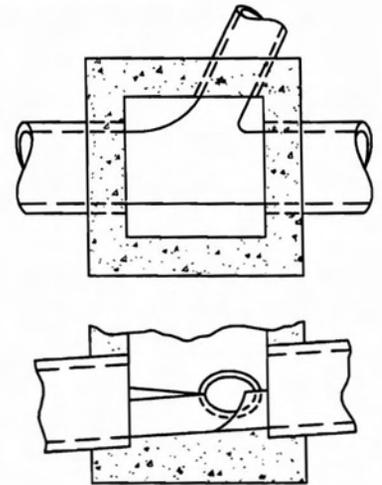


**SECTION A-A**

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

**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.



**SHAPING OF INVERT**

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

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

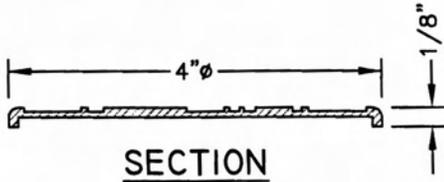
**STANDARD PLAN**

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

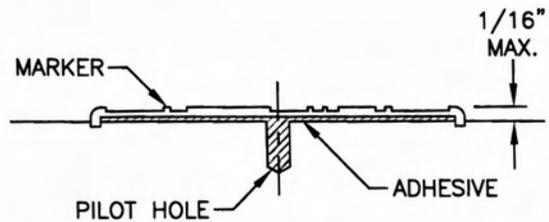
**FLAT GRATE INLET  
(CAL - TRANS "G-1")**

NO. **S-7A**

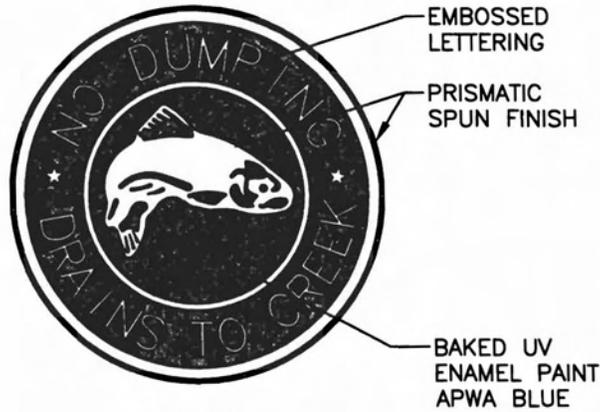
SHEET 1 OF 1



SECTION



INSTALLATION DETAIL



PLAN

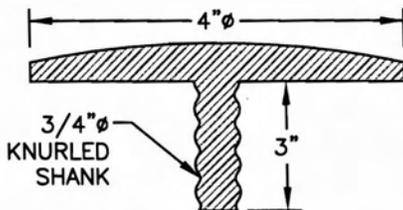
NOTES:

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

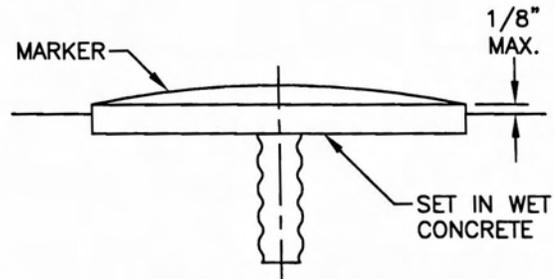
MANUFACTURED BY: ALMETEK INDUSTRIES  
PART NO. SDS4R0301BLNAX OR  
APPROVED EQUAL ([www.almetek.com](http://www.almetek.com))

TYPE "A" MARKER

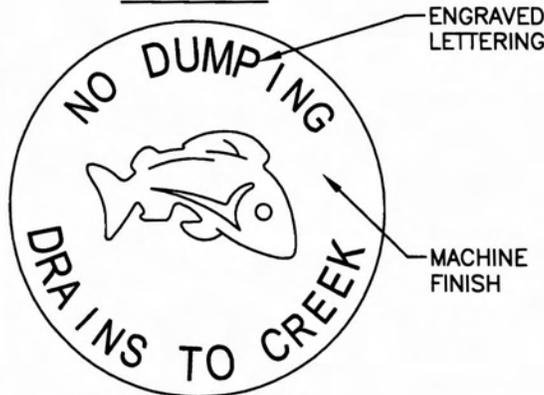
STAMPED STAINLESS STEEL



SECTION



INSTALLATION DETAIL



PLAN

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](http://www.surv-kap.com))

TYPE "B" MARKER

CAST ALUMINUM

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**CITY OF CHICO**

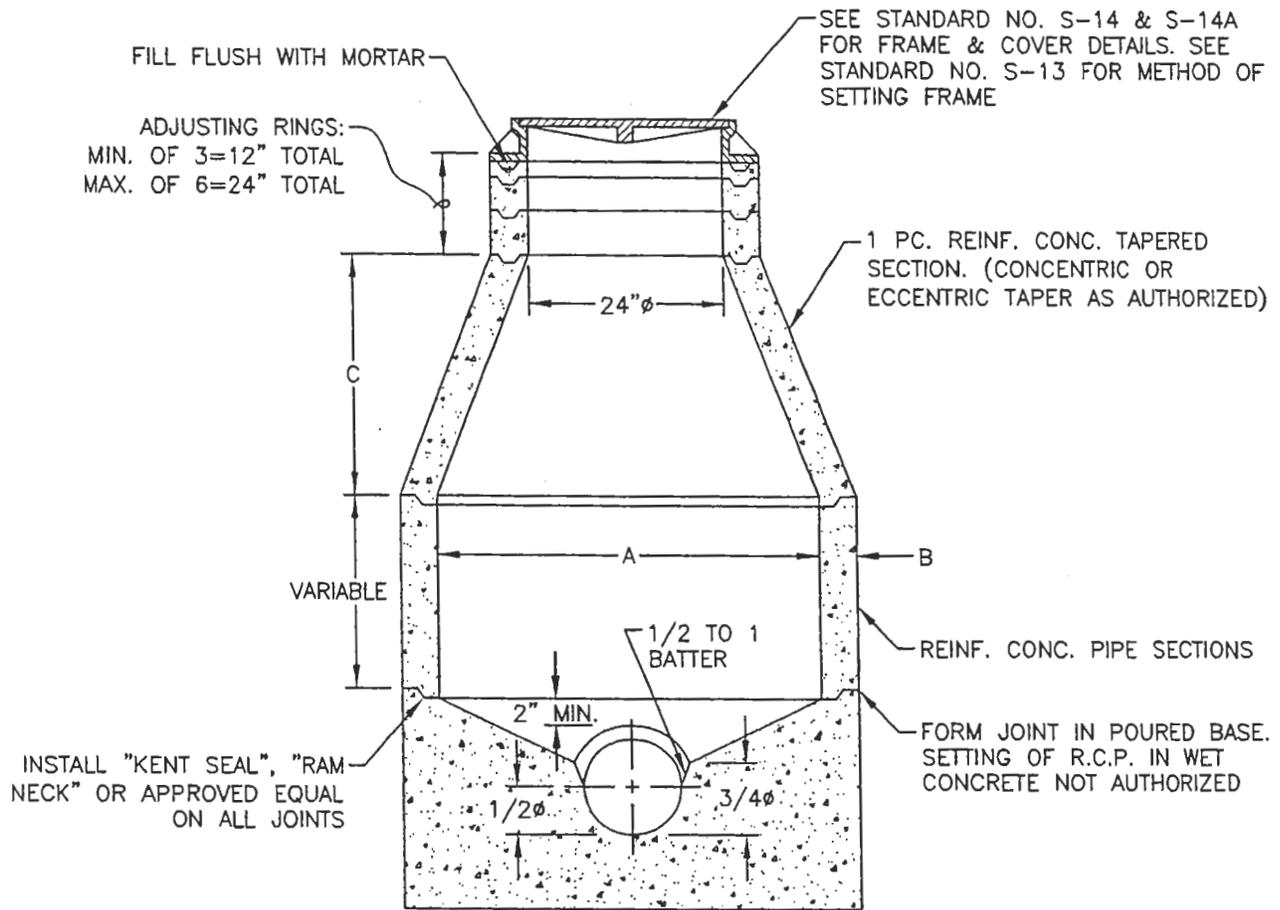
**STANDARD PLAN**

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



**THE MANHOLE 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.

A	B	C	NOTES
M.H. DIA. 36"	3½"	12"	MANHOLE FOR CONNECTION OF PRIVATE LINE TO PUBLIC MAIN WHEN SHOWN ON PLANS.
M.H. DIA. 48"	4"	30"	MANHOLE SHALL BE USED UNLESS OTHERWISE SPECIFIED.
M.H. DIA. 60"	-	-	DIMENSIONS IN ACCORDANCE WITH A.S.T.M. C-478-70 AS AMENDED.

**CITY OF CHICO**

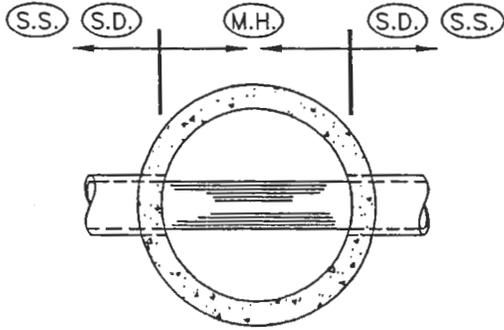
**STANDARD PLAN**

DRAWN BY: GL      DATE: 10/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

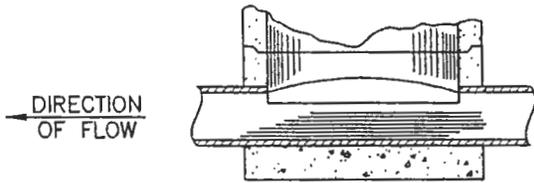
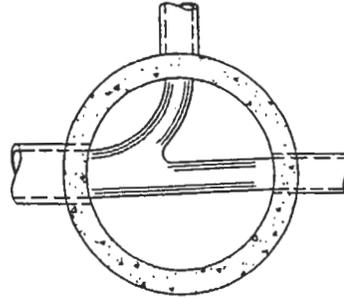
**STORM DRAIN AND  
 SANITARY SEWER MANHOLE**

NO.  
**S-10**

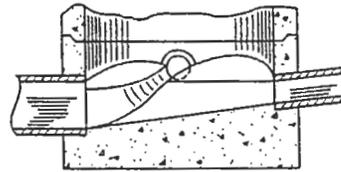
SHEET 1 OF 2



BREAK AWAY TOP  
1/2 OF PIPE



SECTION OF PIPE CONTINUOUS  
THROUGH MANHOLE



JUNCTION MANHOLE BETWEEN  
DIFFERENT PIPE SIZES

SHAPING BOTTOM OF MANHOLE

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

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

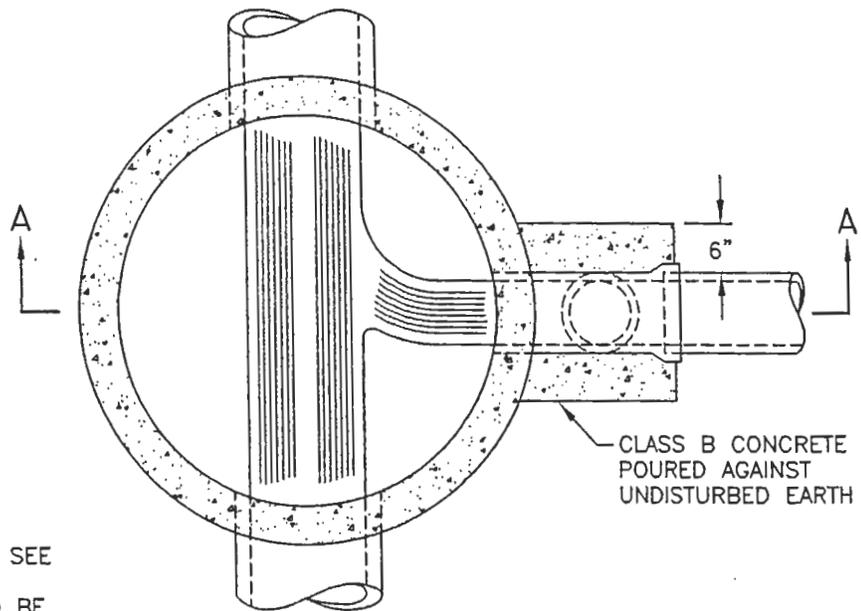
STANDARD PLAN

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

STORM DRAIN AND  
SANITARY SEWER MANHOLE

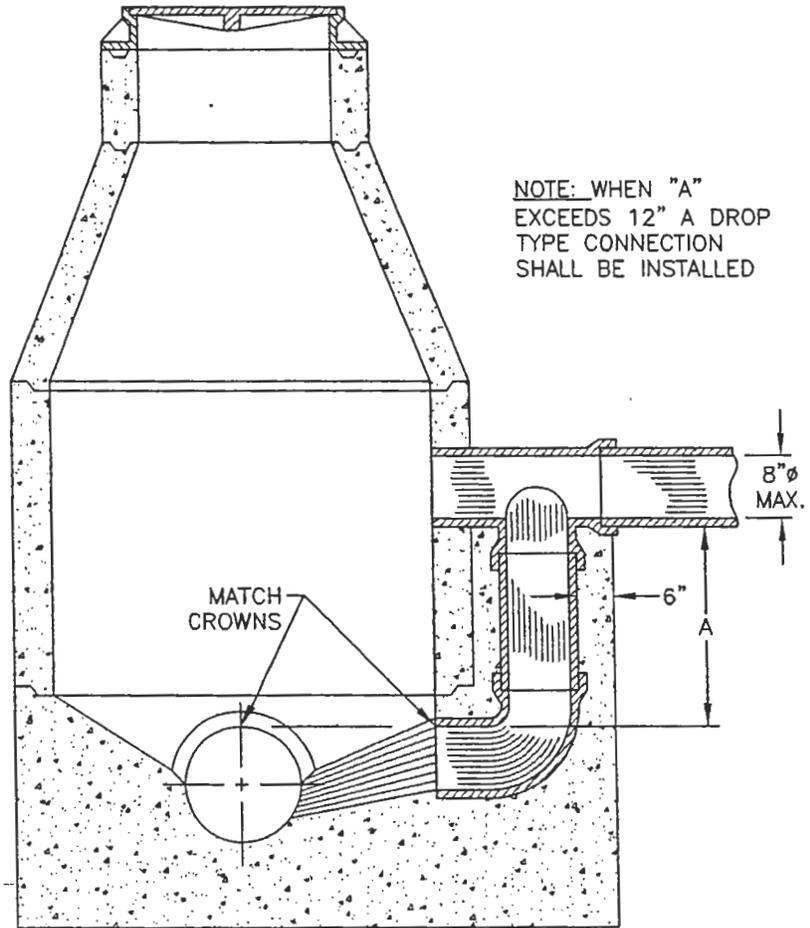
NO.  
S-10

SHEET 2 OF 2



CLASS B CONCRETE  
POURED AGAINST  
UNDISTURBED EARTH

NOTE: FOR STANDARD  
MANHOLE DIMENSIONS SEE  
STANDARD NO. S-10.  
DROP CONNECTION TO BE  
USED ONLY FOR LINES OF  
8"Ø OR LESS



NOTE: WHEN "A"  
EXCEEDS 12" A DROP  
TYPE CONNECTION  
SHALL BE INSTALLED

SECTION A-A

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

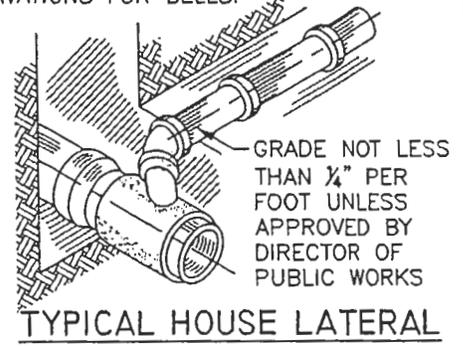
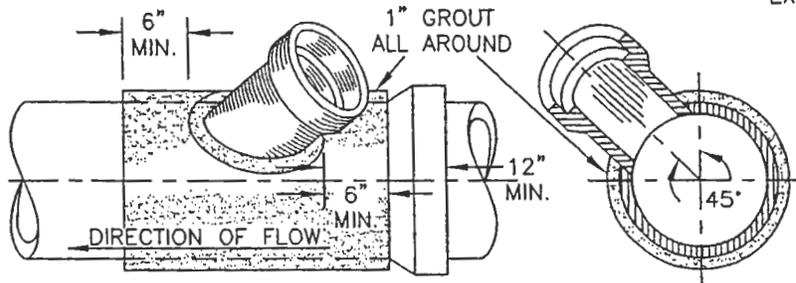
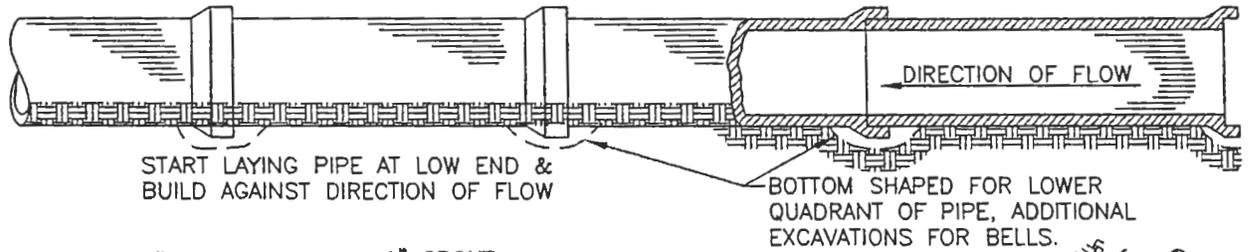
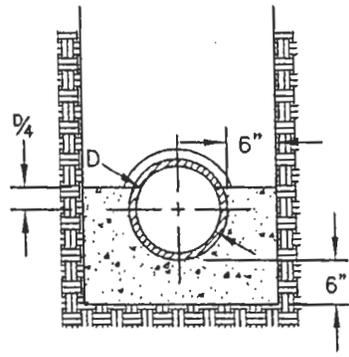
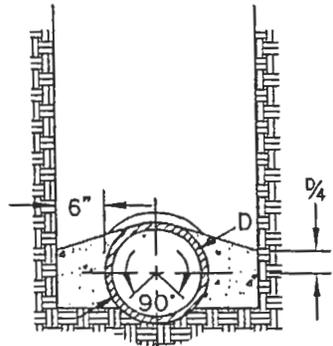
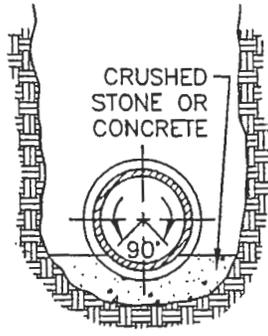
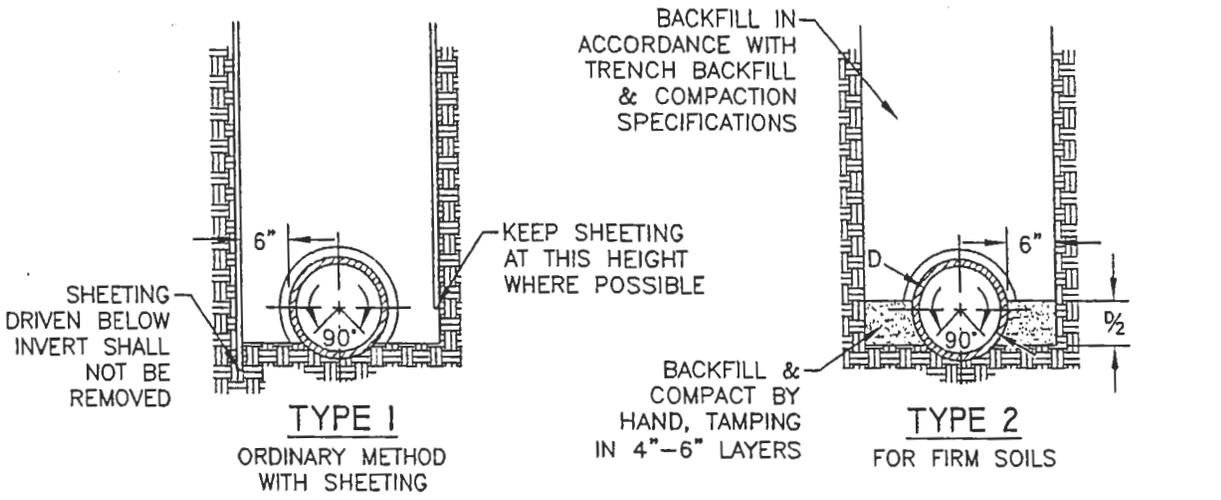
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 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

DROP MANHOLE

NO.  
S-II

SHEET 1 OF 1

EXHIBIT M



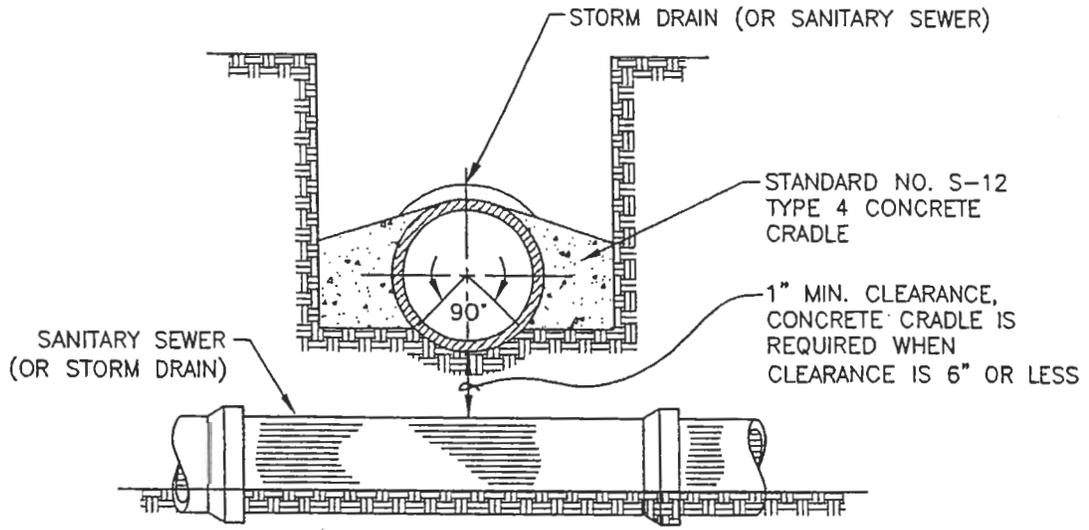
REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO STANDARD PLAN

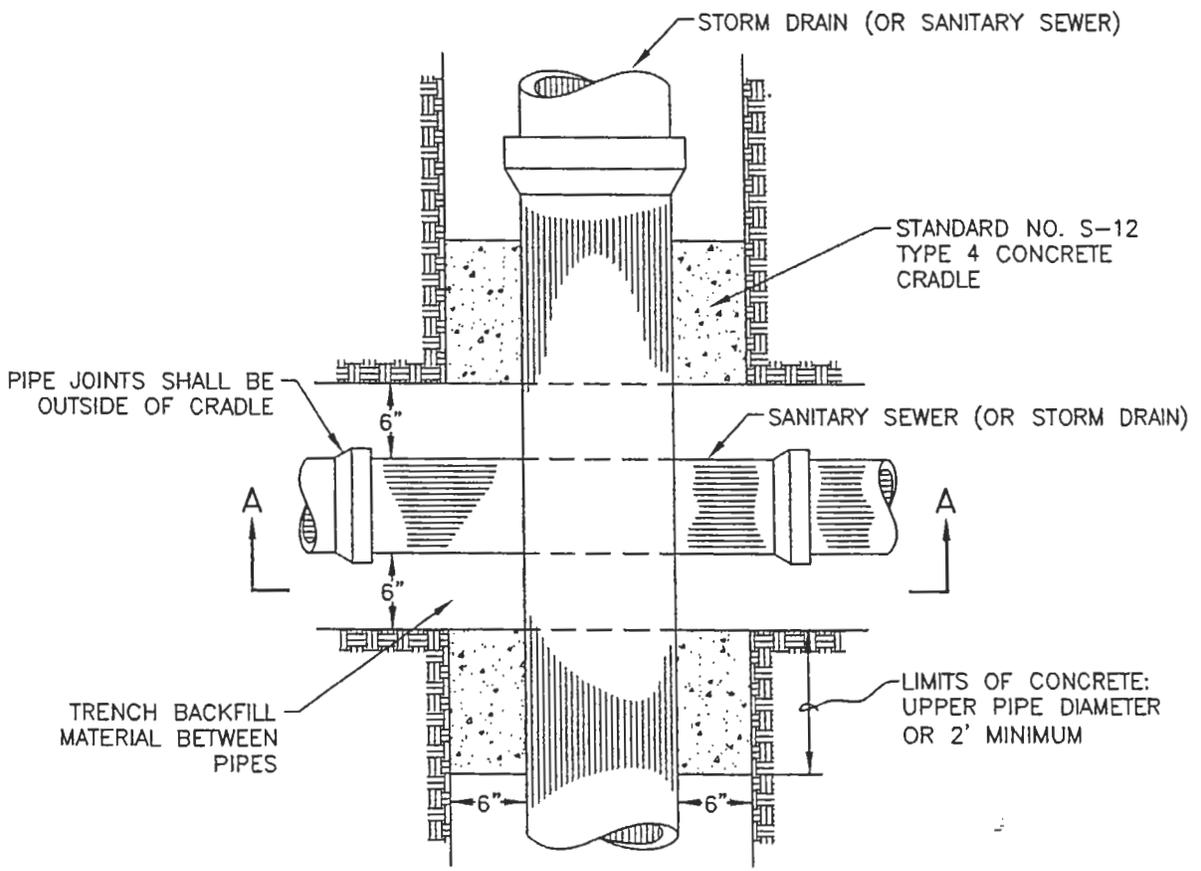
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 APPROVED: *[Signature]*  
 DIRECTOR OF ENGINEERING

APPROVED METHODS OF LAYING PIPE

NO. S-12  
 SHEET 1 OF 1



SECTION A-A



PLAN VIEW

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

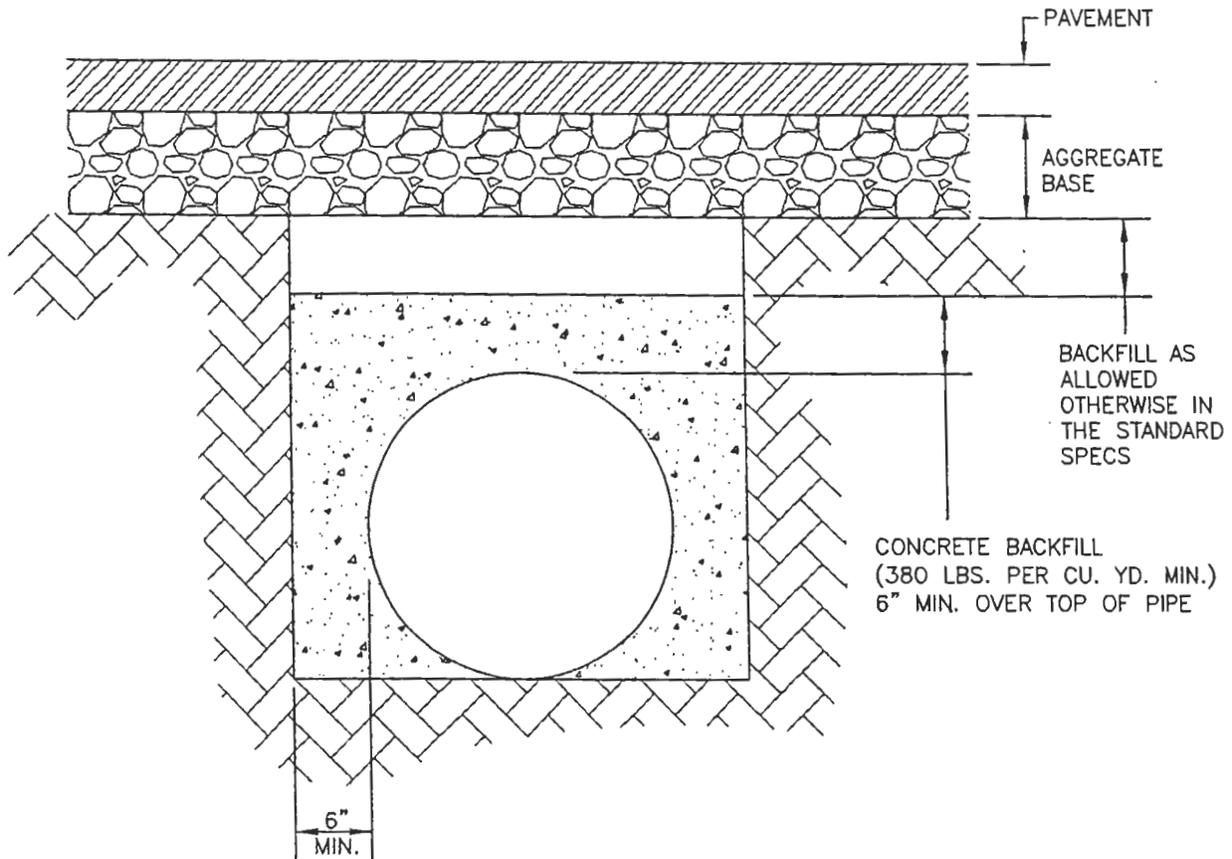
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 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

PIPE CROSSING CRADLE

NO. **S-12A**

SHEET 1 OF 1

EXHIBIT O



**NOTES:**

1. THIS DETAIL IS TO BE USED WHERE THERE WILL BE LESS THAN TWO FEET OF COVER BETWEEN THE TOP OF PLASTIC PIPES AND THE FINAL GRADE
2. PRIOR APPROVAL OF THE DIRECTOR OF PUBLIC WORKS IS REQUIRED
3. THE CRADLE MUST BE INSTALLED THE FULL DISTANCE BETWEEN STRUCTURES

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: MT      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**MODIFIED CONCRETE  
CRADLE**

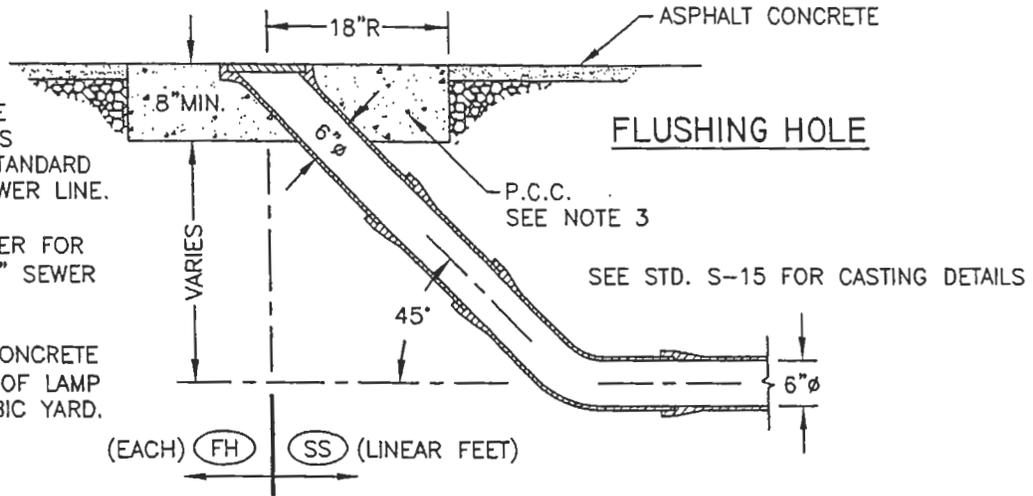
NO.  
**S-12M**

SHEET 1 OF 1

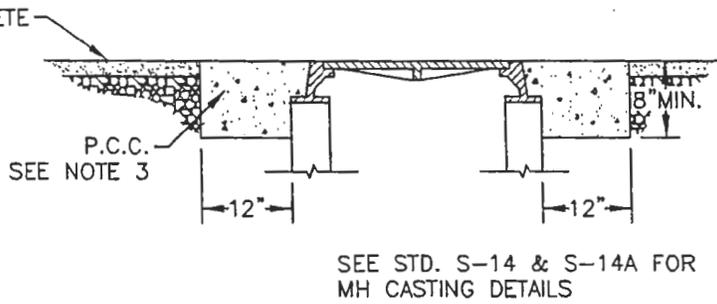
LOCATED IN STREET OR ALLEY

NOTES:

1. JOINTS TO BE CONSTRUCTED AS REQUIRED BY STANDARD SPECS. FOR SEWER LINE.
2. USE 8"Ø RISER FOR TERMINUS OF 8" SEWER MAIN.
3. CLASS "A" CONCRETE W/ 5 POUNDS OF LAMP BLACK PER CUBIC YARD.



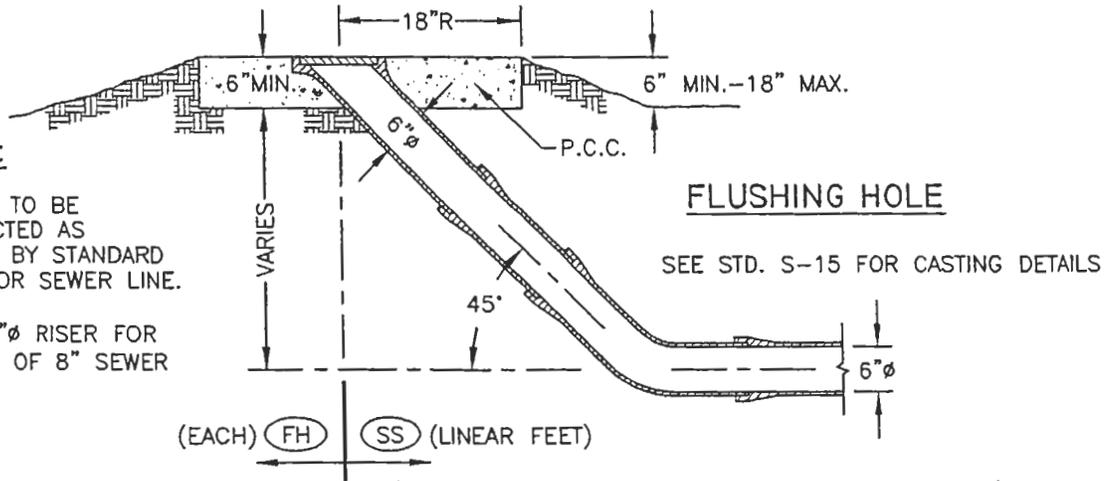
VALVE/MANHOLE FRAME & COVER



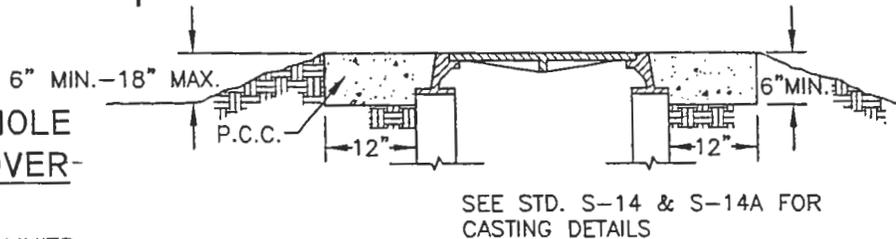
LOCATED IN EASEMENT

NOTES:

1. JOINTS TO BE CONSTRUCTED AS REQUIRED BY STANDARD SPECS. FOR SEWER LINE.
2. USE 8"Ø RISER FOR TERMINUS OF 8" SEWER MAIN.



VALVE/MANHOLE FRAME & COVER



(SS) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

TYPICAL METHOD FOR  
 SETTING APPURTENANCES

NO.  
 S-13

SHEET 1 OF 1



**NOTE:**

SEE STD. S-10 & S-13 FOR METHOD OF SETTING FRAME.

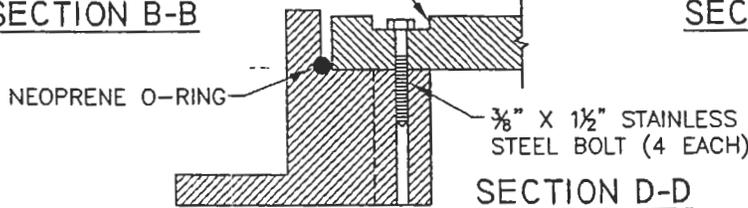
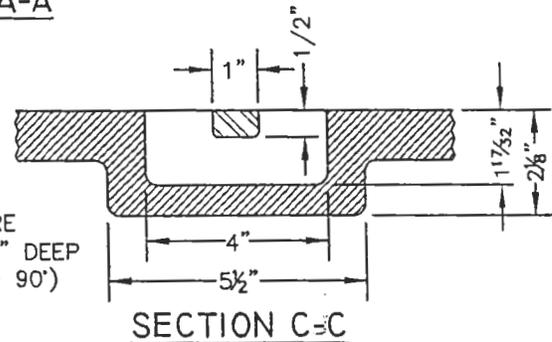
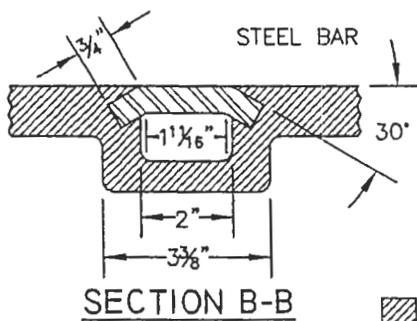
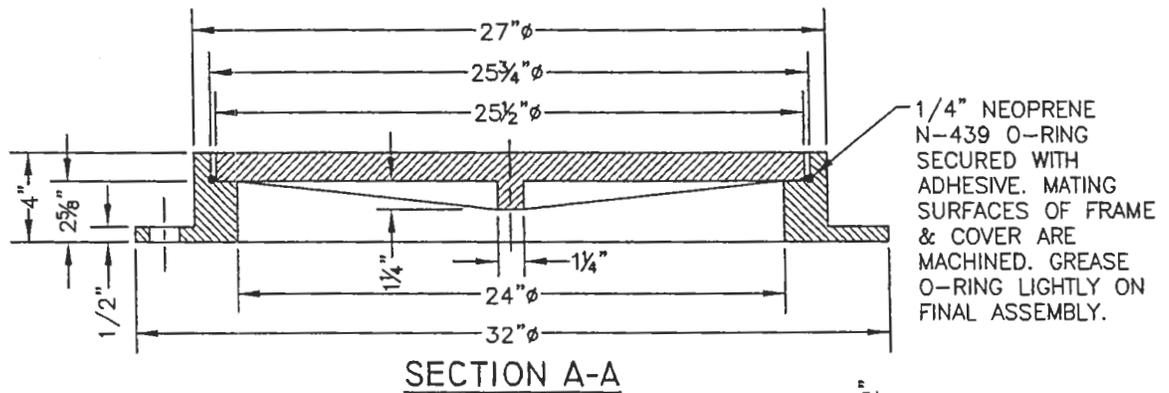
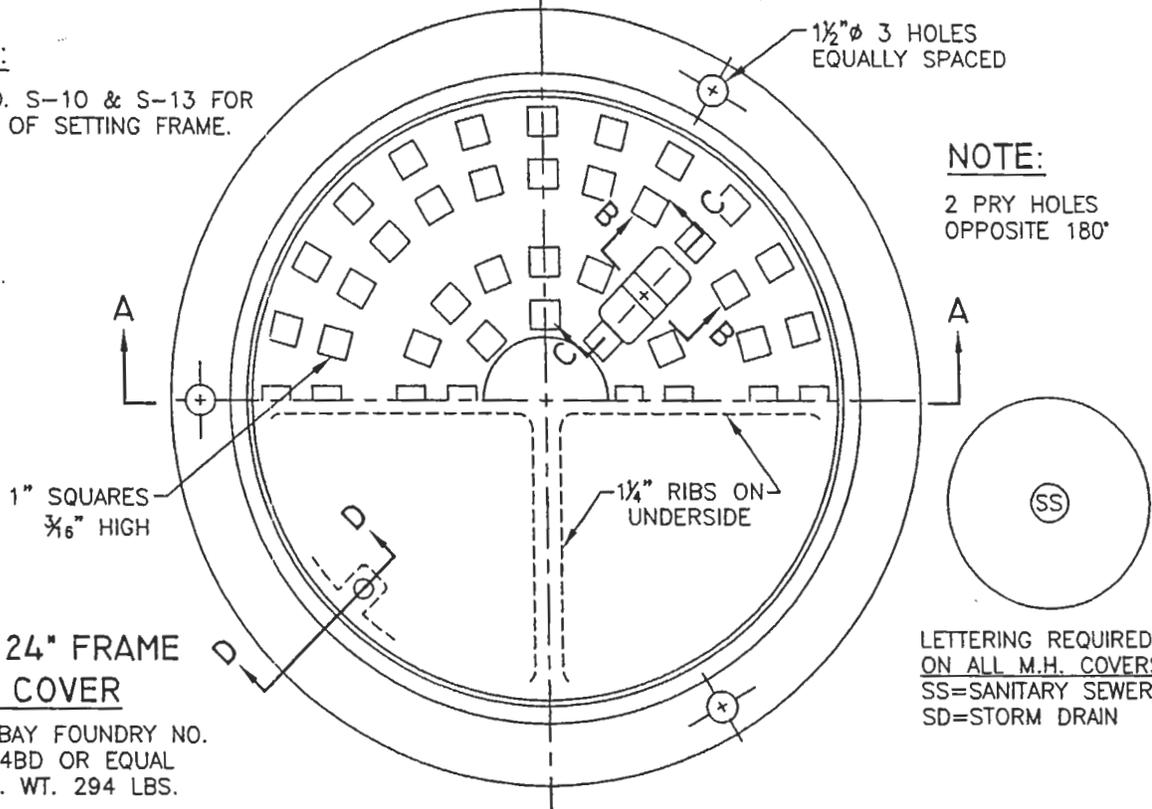
**NOTE:**

2 PRY HOLES OPPOSITE 180°

**STD. 24" FRAME & COVER**

SOUTH BAY FOUNDRY NO. SBF-624BD OR EQUAL APPROX. WT. 294 LBS.

LETTERING REQUIRED ON ALL M.H. COVERS:  
SS=SANITARY SEWER  
SD=STORM DRAIN



REVISION	BY	DATE	APP. BY	COUNCIL

CITY OF CHICO

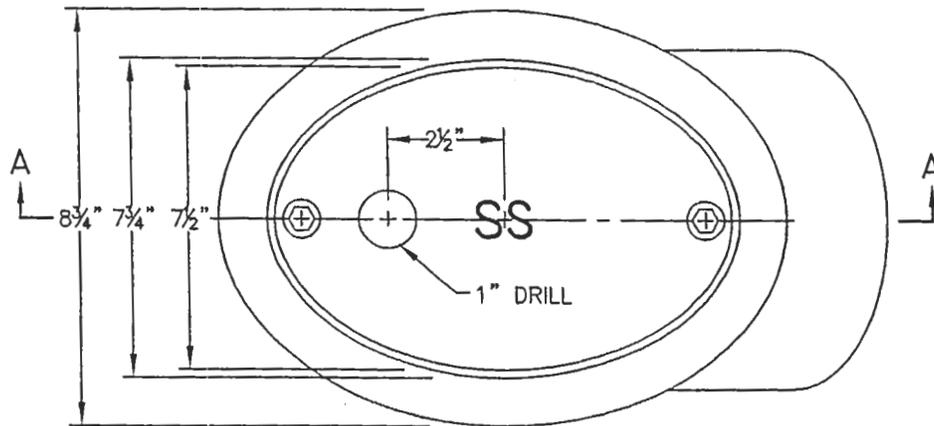
STANDARD PLAN

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

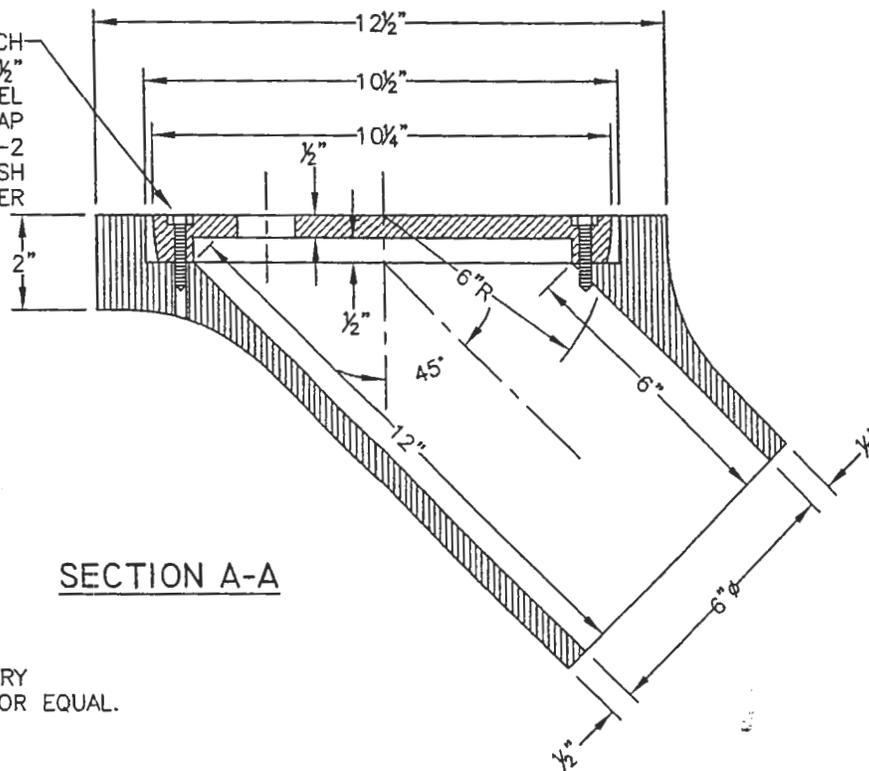
BOLT DOWN MANHOLE  
 FRAME & COVER DETAILS

NO. **S-14A**

SHEET 1 OF 1



INSTALL 2 EACH  
 1/4" X 1 1/2"  
 STAINLESS STEEL  
 HEX. HD. CAP  
 SCREW-20 NC-2  
 RECESSED FLUSH  
 WITH COVER



SECTION A-A

SOUTH BAY FOUNDRY  
 NO. SBF-1248BD OR EQUAL.

NOTES:

1. SEE STD. S-13 FOR METHOD OF INSTALLATION & RISER CONSTRUCTION.
2. USE 8"Ø CASTING FOR TERMINUS OF 8" SEWER MAIN.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

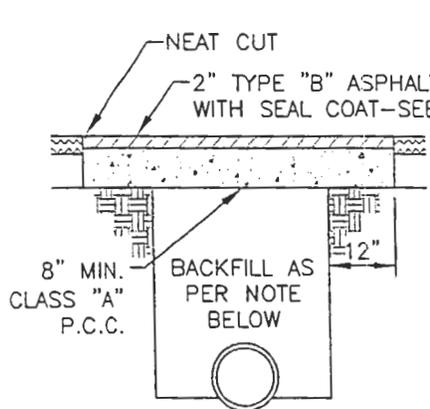
**FLUSHING HOLE  
 CAST IRON FRAME & COVER**

NO.  
**S-15**

SHEET 1 OF 1

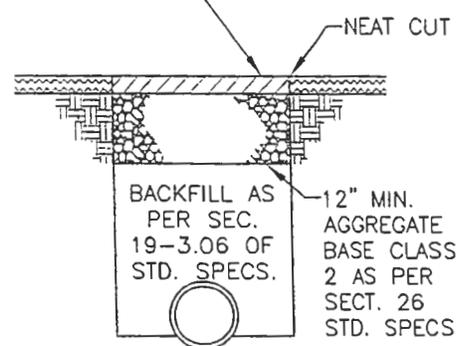
**EXHIBIT T**





ALTERNATE #1

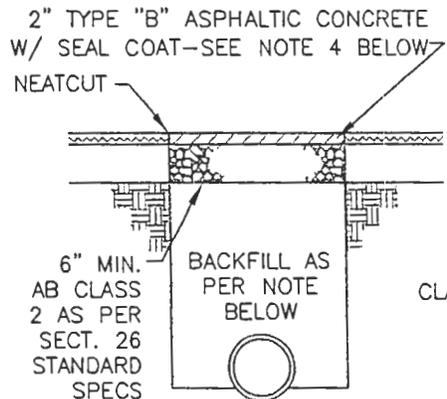
3" TYPE "B" ASPHALTIC CONCRETE WITH SEAL COAT—SEE NOTE 4 BELOW



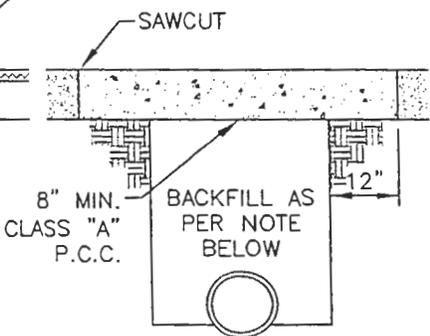
ALTERNATE #2

NOTE  
INSTALL ALT. 1 PAVEMENT REPLACEMENT UNLESS ALT. 2 IS SPECIFICALLY AUTHORIZED BY APPROVED PLANS OR THE ENGINEER

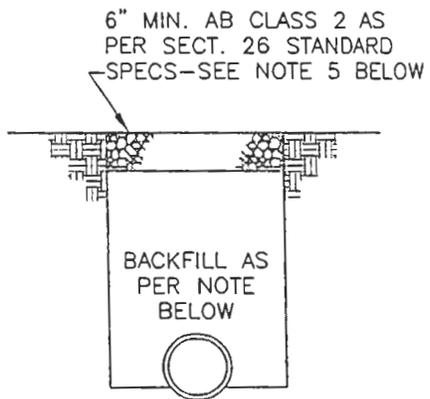
TYPE "A"  
IMPROVED ASPHALTIC CONCRETE STREETS



TYPE "B"  
IMPROVED ARMOR COAT OR SEAL COAT STREETS



TYPE "C"  
PORTLAND CEMENT CONCRETE STREETS



TYPE "D"  
UNIMPROVED STREETS, ALLEYS OR EASEMENTS

NOTES:

1. ALL WORK SHOWN ABOVE SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE STANDARD SPECIFICATIONS.
2. ALL EXCAVATIONS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE BACKFILLED IN ACCORDANCE WITH SECTION ENTITLED "TRENCH BACKFILL" CITY OF CHICO STANDARD SPECIFICATIONS OR SEC. 19-3 OF THE STANDARD SPECIFICATIONS.
3. AREA ADJACENT TO THE TRENCH SHALL BE LEFT IN A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING PRIOR TO CONSTRUCTION.
4. SEAL COAT—APPLY A BITUMINOUS BINDER COVERED WITH EITHER SAND OR SCREENINGS TO MATCH EXISTING SURFACE WHEN AND AS DIRECTED BY THE ENGINEER.
5. TYPE "D"—INSTALL 6" OF CONSOLIDATED TOPSOIL IN LANDSCAPED AREAS.

REVISION	BY	DATE	APP. BY COUNCIL

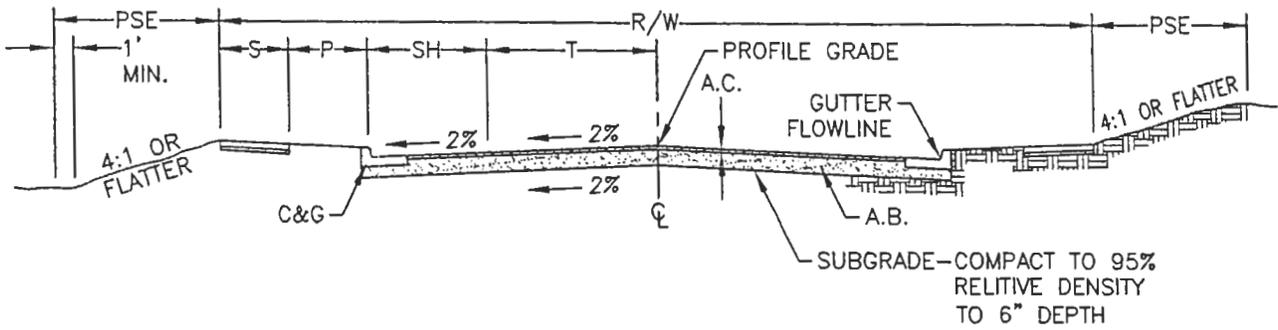
CITY OF CHICO

STANDARD PLAN

DRAWN BY: GL DATE: 6/06  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature] DIRECTOR OF ENGINEERING

TYPICAL DETAILS OF PAVEMENT REPLACEMENT

NO. S-17  
 SHEET 1 OF 1



**TABLE OF MINIMUM STREET CROSS SECTION WIDTHS**

SEE LEGEND, SHEET 2 OF 2, FOR NOTES

TYPE OF STREET		R/W	S	P	SH	T
ARTERIAL	NO PARKING	(1)	5'	7'	8'	12'
COLLECTOR	(1)	64'	5'	7'	8'	12'
LOCAL-RESIDENTIAL						
≤10 LOTS, THROUGH STREET OR ≤25 LOTS, CUL-DE-SAC & LOOP STREETS	NO PARKING	44'	5'	7'	0'	10'
	PARKING, 1 SIDE	50'	5'	7'	6'	10'
	PARKING, BOTH SIDES	56'	5'	7'	6'	10'
>11 LOTS & ≤50 LOTS, THROUGH STREET OR >26 LOTS & ≤50 LOTS, CUL-DE-SAC & LOOP STREETS	NO PARKING	48'	5'	7'	0'	12'
	PARKING, 1 SIDE	50'	5'	7'	6'	10'
	PARKING, BOTH SIDES	56'	5'	7'	6'	10'
>50 LOTS, ≤1/2 MILE BETWEEN STREET INTERSECTIONS	NO PARKING	48'	5'	7'	0'	12'
	PARKING, 1 SIDE	50'	5'	7'	6'	10'
	PARKING, BOTH SIDES	56'	5'	7'	6'	10'
>50 LOTS, >1/2 MILE BETWEEN STREET INTERSECTIONS	NO PARKING	48'	5'	7'	0'	12'
	PARKING, 1 SIDE	50'	5'	7'	6'	10'
	PARKING, BOTH SIDES	56'	5'	7'	6'	10'
LOCAL-COMMERCIAL	PARKING, BOTH SIDES	64'	5'	7'	8'	12'
INDUSTRIAL-ALL TYPES	PARKING, BOTH SIDES	68'	5'	7'	10'	12'

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**TYPICAL CROSS-SECTION  
STREETS**

NO. **S-18A**

SHEET 1 OF 2

# TABLE OF MINIMUM STREET CROSS SECTION WIDTHS

SEE LEGEND, SHEET 2 OF 2, FOR NOTES

TYPE OF STREET	A.C.	A.B.	CURB & GUTTER
ARTERIAL	3"	8"	VERTICAL
COLLECTOR	2"	6"	VERTICAL
LOCAL-RESIDENTIAL			
≤50 LOTS	1 1/2"	4"	ROLLED
>50 LOTS	2"	6"	VERTICAL
LOCAL-COMMERCIAL	2"	6"	VERTICAL
INDUSTRIAL-ALL TYPES	3"	8"	VERTICAL

## LEGEND AND NOTES:

T-TRAVELED WAY. ON OTHER THAN LOCAL STREETS, TRAFFIC VOLUME MAY DICTATE ADDITION OF A 14' MEDIAN AND/OR 12' LANES.

SH-SHOULDER. SHOULD A BIKE LANE BE REQUIRED, EITHER 1) PARKING WILL BE PROHIBITED WITH "SH"=5' OR 2) PARKING WILL BE RETAINED WITH "SH"=11'.

S-SIDEWALK. A 9.5' SIDEWALK WILL BE REQUIRED ON COMMERCIAL STREETS DESIGNATED BY THE D.P.W. AS "PEDESTRIAN ORIENTED"

PSE-10' WIDE PUBLIC SERVICE EASEMENT.

R/W-RIGHT-OF-WAY. A CHANGE IN "T" OR "SH" FROM THE VALUES GIVEN IN THE TABLE WILL REQUIRE A CORRESPONDING CHANGE IN "R/W".

SE-SLOPE EASEMENT. WIDTH TO BE AS REQUIRED BY THE D.P.W.

A.C. & A.B.-MINIMUM THICKNESS GIVEN. AN INCREASED THICKNESS WILL BE REQUIRED 1) IF NEEDED, BASED UPON D.P.W. TRAFFIC INDEX CALCULATION, OR 2) IF THE "R" VALUE OF THE SUBGRADE IS LESS THAN 25.

P-PARKWAY.

(1)-SHALL BE DETERMINED BY THE D.P.W. ON A CASE-BY-CASE BASIS.

ALLEYS-SEE STANDARD PLAN S-9

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

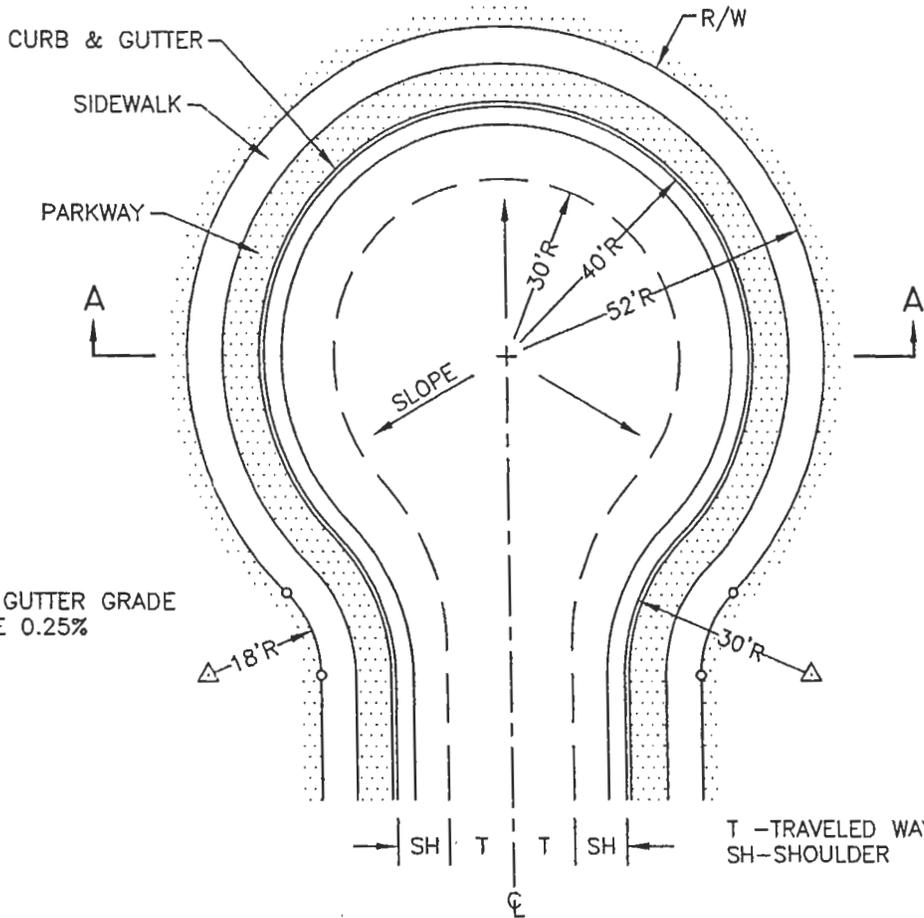
STANDARD PLAN

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

TYPICAL CROSS-SECTION  
STREETS

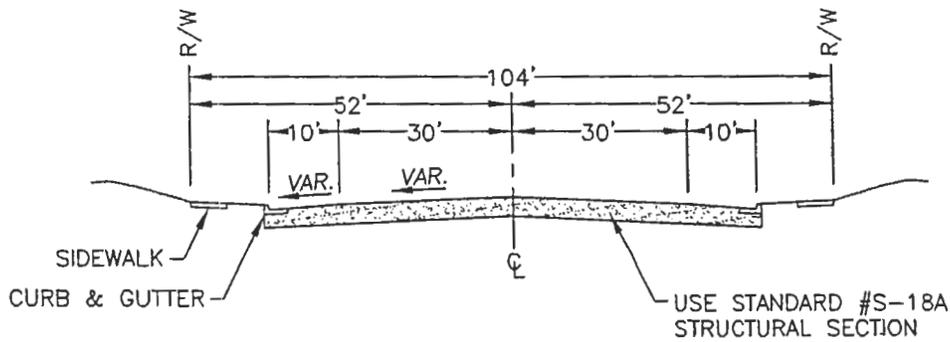
NO.  
S-18A

SHEET 2 OF 2



**NOTE:**  
MINIMUM GUTTER GRADE  
SHALL BE 0.25%

**PLAN**



**NOTE:**  
LIMITS OF CROSS-SLOPE VARIATION  
IN SECTION A-A:  
30' TRAVELED WAY - 1½% TO 2%  
10' SHOULDER - 2% TO 5%

**SECTION A-A**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

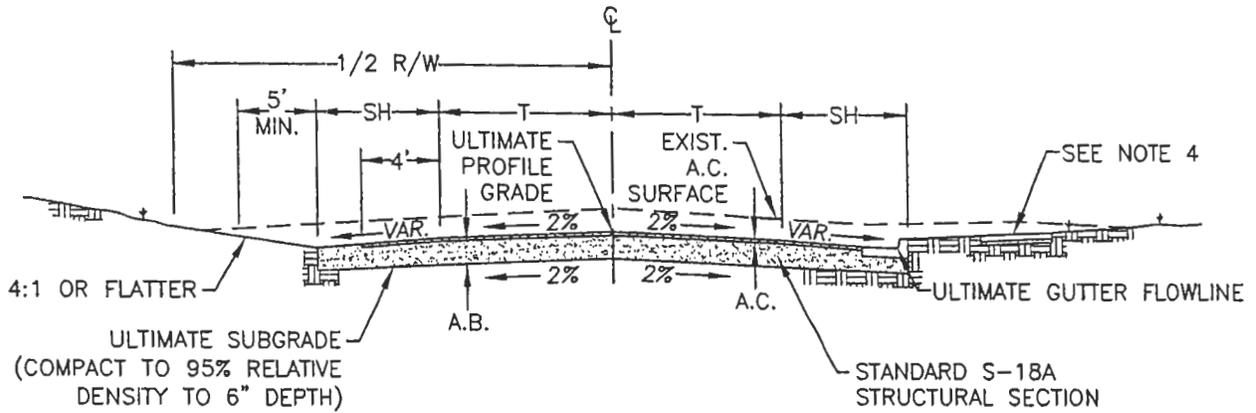
**STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
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 DIRECTOR OF ENGINEERING

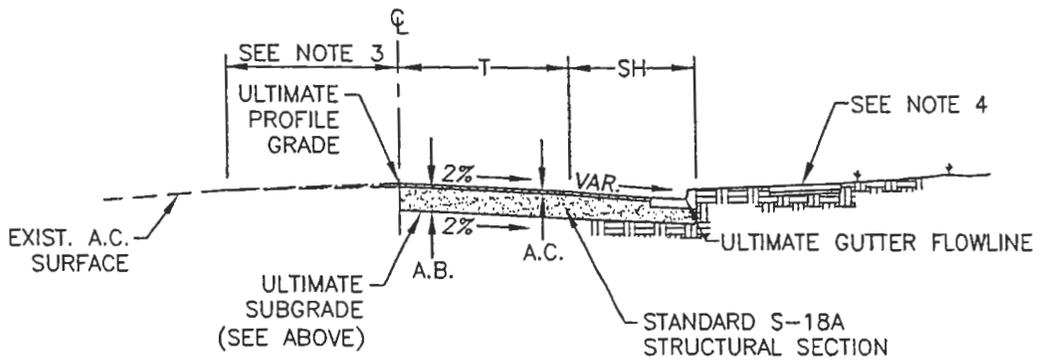
**TYPICAL CUL-DE-SAC**

NO.  
**S-18B**

SHEET 1 OF 1



EXISTING  $\text{CL}$  GRADE ABOVE ULTIMATE PROFILE GRADE



EXISTING  $\text{CL}$  GRADE AT OR BELOW ULTIMATE PROFILE GRADE

**NOTES:**

1. STREET IMPROVEMENTS SHOWN ON THIS SHEET ARE REQUIRED IN CONJUNCTION WITH DEVELOPMENT OF SUBDIVISIONS WITH 5 OR MORE LOTS.
2. SEE STANDARD NO. S-18A FOR CROSS-SECTION WIDTHS ("T", "SH", "R/W" AND "S").
3. PLACE A FEATHERED A.C. OVERLAY TO A WIDTH AS DIRECTED BY THE ENGINEER.
4. CONSTRUCT CURB, GUTTER, SIDEWALK AND SLOPE GRADING PER STANDARD NO. S-18A.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

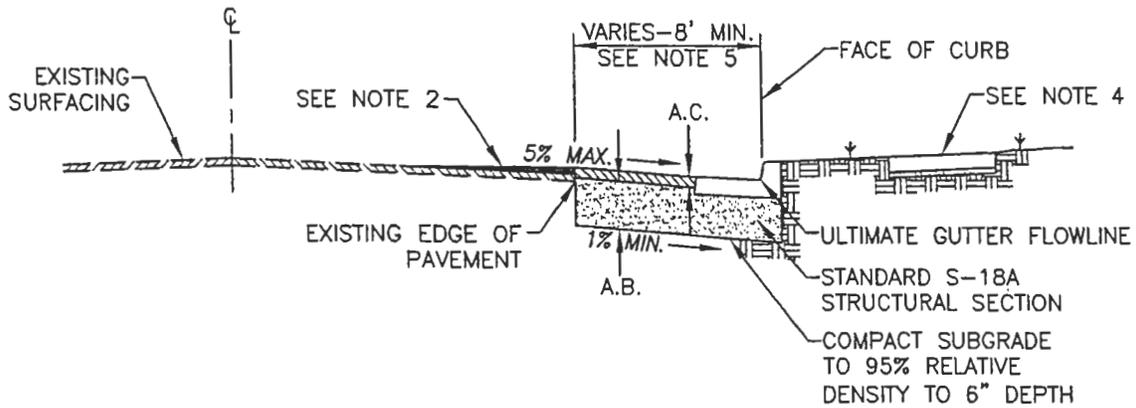
**STANDARD PLAN**

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**IMPROVEMENT OF  
 EXISTING STREET  
 (SEE NOTE 1)**

NO.  
**S-18D**

SHEET 1 OF 2



**NOTES:**

1. STREET IMPROVEMENTS SHOWN ON THIS SHEET TO BE CONSTRUCTED IN CONJUNCTION WITH BUILDING PERMITS AND SUBDIVISIONS OF FOUR (4) LOTS OR LESS.
2. PLACE A FEATHERED A.C. OVERLAY AS NECESSARY TO PROVIDE MIN. 1% CROSS SLOPE ON NEW CONSTRUCTION.
3. ALTERNATE STRUCTURAL SECTION: STRUCTURALLY EQUIVALENT FULL DEPTH A.C. SECTION ON COMPACTED NATIVE SUBGRADE.
4. CONSTRUCT CURB, GUTTER, SIDEWALK AND SLOPE GRADING PER STANDARD NO. S-18A.
5. RECONSTRUCT STREET SHOULDER AREA TO EDGE OF EXISTING PAVEMENT OR BEYOND AS MAY BE NEEDED TO MAINTAIN A MAXIMUM FIVE PERCENT (5%) CROSS SLOPE.

REVISION	BY	DATE	APP. BY COUNCIL

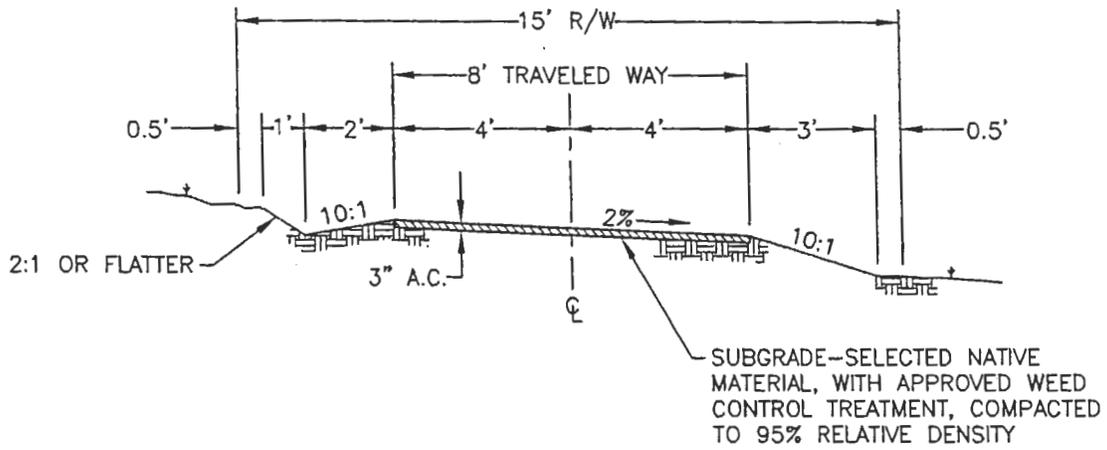
**CITY OF CHICO**

**STANDARD PLAN**

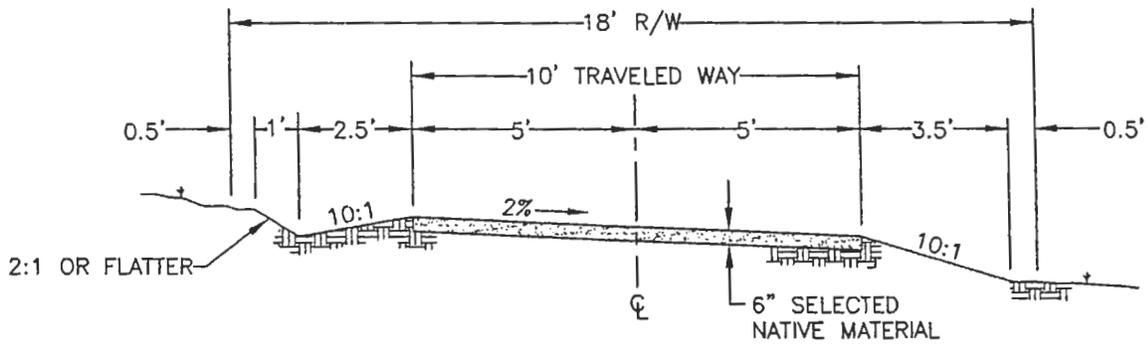
DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**IMPROVEMENT OF EXISTING  
 STREET-SHOULDER ONLY  
 (SEE NOTE 1)**

NO. **S-18D**  
 SHEET 2 OF 2



BICYCLE PATH



EQUESTRIAN WAY

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

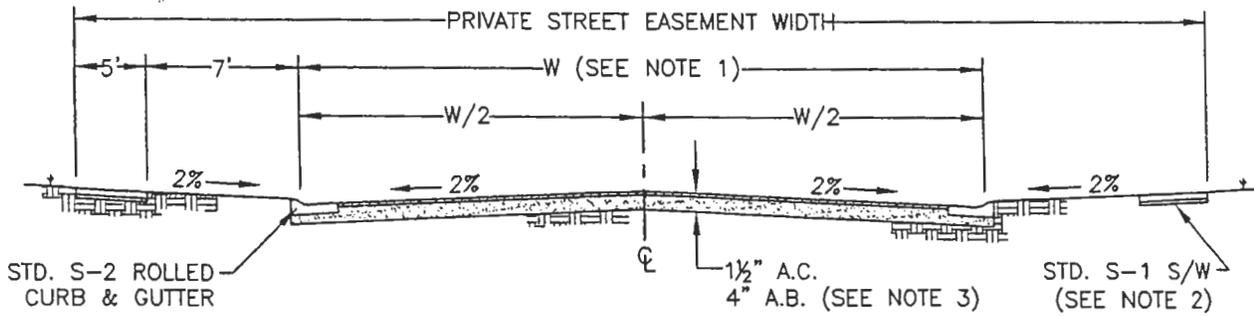
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 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

TYPICAL CROSS-SECTIONS  
 OTHER PUBLIC WAYS

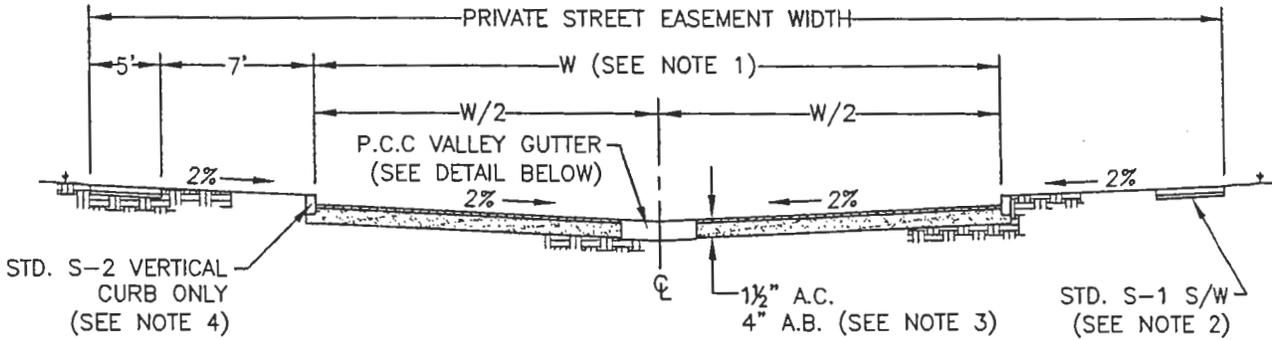
NO.  
 S-18E

SHEET 1 OF 1

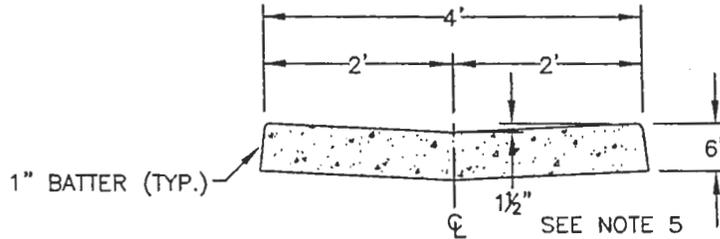
EXHIBIT Z



**CROWNED SECTION**



**VALLEY GUTTER SECTION**



**P.C.C. VALLEY GUTTER DETAIL**

**NOTES:**

1.  $W=T+SH$ , PER STANDARD PLAN S-18A.
2. SIDEWALKS MAY BE DELETED IF AN APPROVED COMPREHENSIVE ONSITE PEDESTRIAN SYSTEM IS PROVIDED.
3. MINIMUM THICKNESS GIVEN. AN INCREASED THICKNESS WILL BE REQUIRED DEPENDING ON TRAFFIC INDEX AND SOIL R VALUE.
4. ROLLED CURB AND GUTTER MAY BE INSTALLED AS AN ALTERNATIVE TO VERTICAL CURB.
5. P.C.C. VALLEY GUTTER NOT REQUIRED WHEN LONGITUDINAL SLOPE OF STREET IS 1% OR GREATER.
6. A VALLEY GUTTER SECTION SHALL NOT BE USED ON STREETS SERVING 26 OR MORE LOTS.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

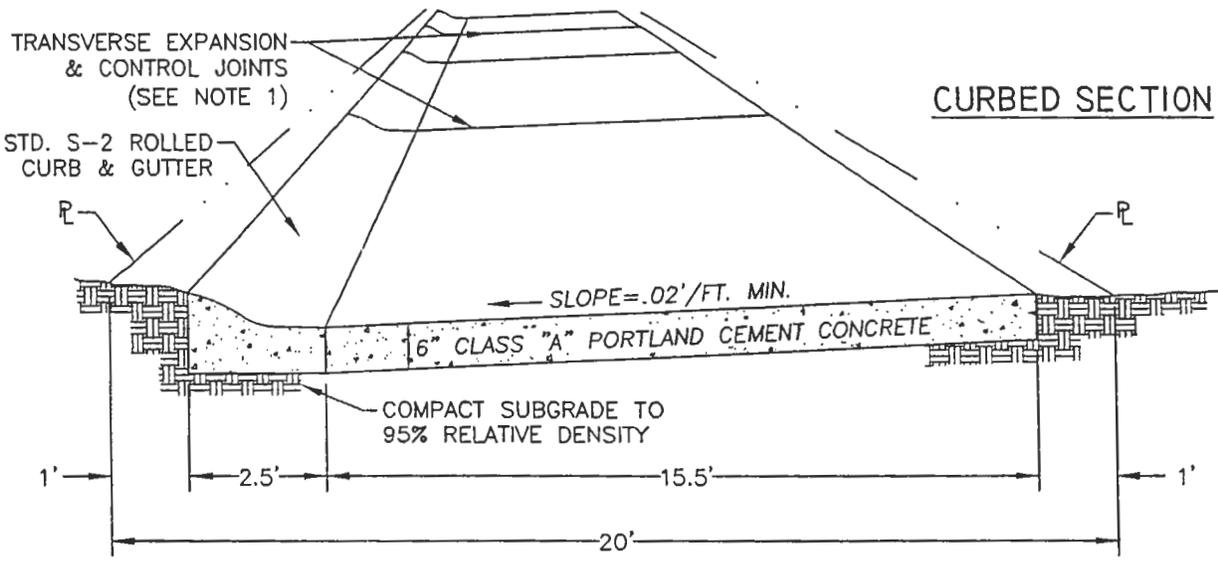
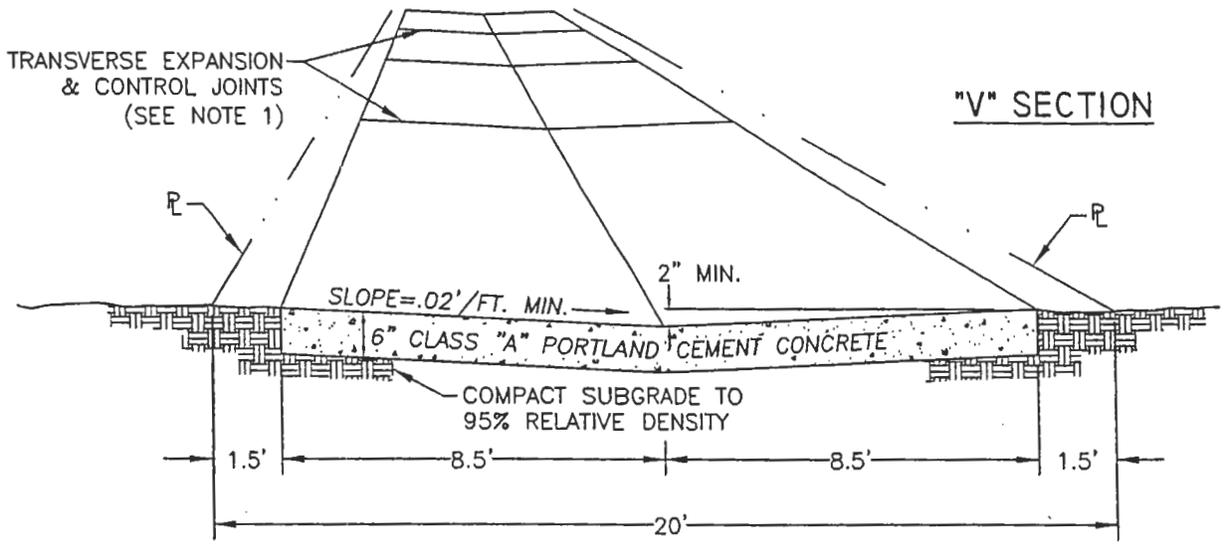
**STANDARD PLAN**

DRAWN BY: GL      DATE: 1/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**TYPICAL CROSS-SECTION  
PRIVATE STREETS**

NO.  
**S-18F**

SHEET 1 OF 1



**NOTES:**

1. INSTALL 1/4" WIDE TRANSVERSE EXPANSION JOINTS AT 48' INTERVALS AND 1/8" TRANSVERSE SCORED CONTROL JOINTS AT 12' INTERVALS.
2. ALL EXPANSION JOINTS AND THE FINISHING OF THE CONCRETE SURFACE SHALL BE DONE IN ACCORDANCE WITH STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION.
3. DIMENSIONS SHOWN ARE PRESENT MINIMUM STANDARDS. DIMENSIONS OF ALLEY RIGHTS OF WAY EXISTING PRIOR TO ADOPTION OF MINIMUM STANDARDS MAY VARY. CONSTRUCT TO THE WIDTH AND ALIGNMENT SHOWN ON THE IMPROVEMENT PLANS.
4. THE CURBED SECTION SHALL BE USED WHEN SANITARY SEWER FACILITIES ARE AT THE CENTERLINE OF THE ALLEY.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

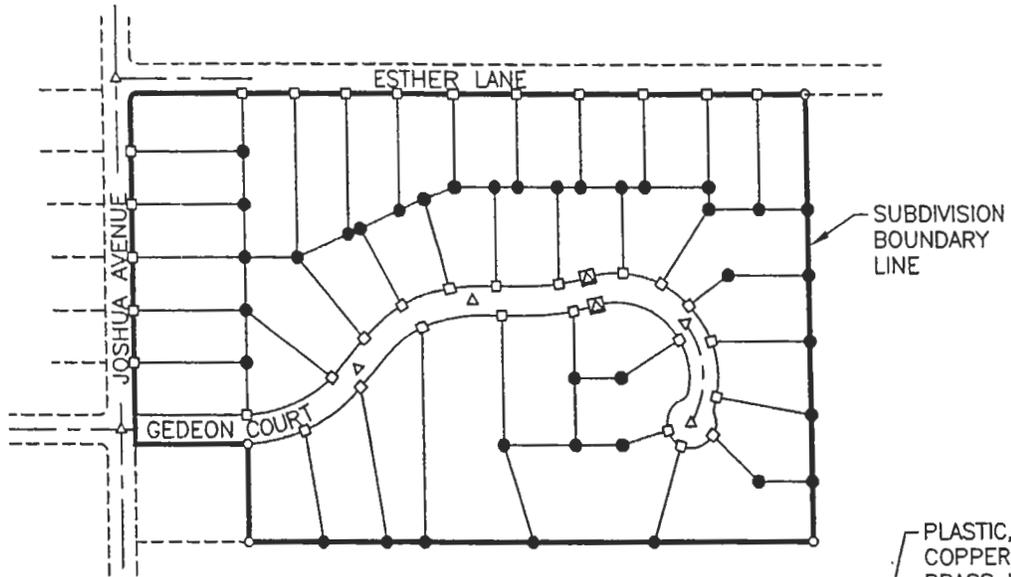
**STANDARD PLAN**

DRAWN BY: GL      DATE: 10/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**ALLEY PAVEMENT**

NO. **S-19**

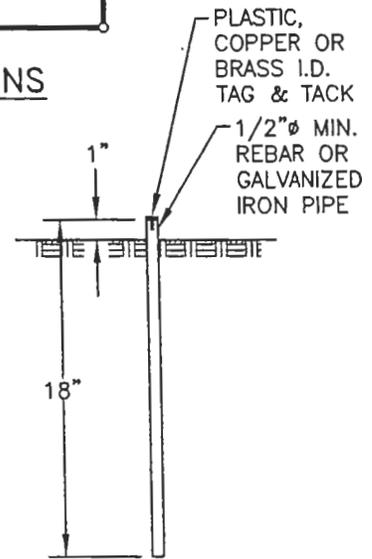
SHEET 1 OF 1



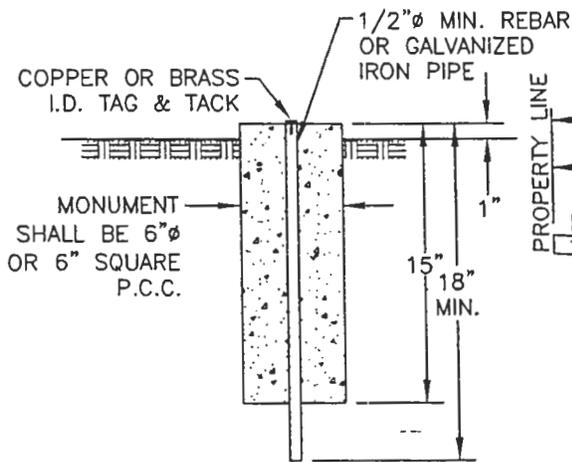
**STANDARD MONUMENT LOCATIONS**

**LEGEND**

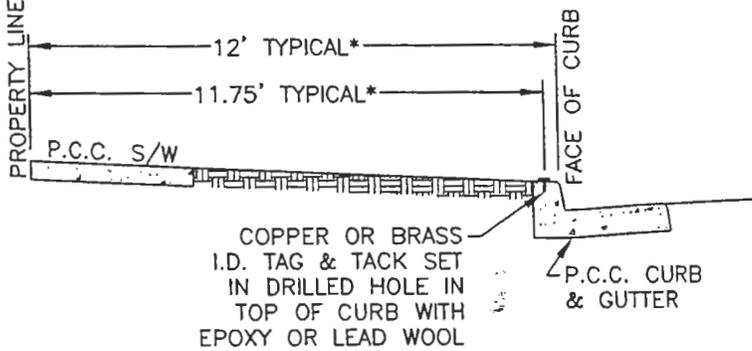
- 1/2" PIPE/REBAR MONUMENT.
- PERMANENT MONUMENT. (SUBDIVISION OR PARCEL MAP BOUNDARY CORNERS AND BOUNDARY LINE ANGLE POINTS)
- WITNESS CORNER. SET IN TOP OF CURB ON PROLONGATION OF LOT LINES. SHOW DISTANCE TO PROPERTY LINE ON RECORD OF SURVEY AND SUBDIVISION MAPS.
- △ 1 1/2" BRASS CAP MONUMENT W/18" X 1/2" SHAFT. SET AT INTERSECTIONS AND AT INTERVALS NOT TO EXCEED 500'. SET POINTS SHALL BE INTERVISABLE.
- ⊠ WITNESS MONUMENT. SET IF CENTERLINE MONUMENT CANNOT BE SET.



**PIPE/REBAR MONUMENT**



**PERMANENT MONUMENT**



**WITNESS CORNER**

\*NOTE: SEE STD. S-18A FOR PARKWAY WIDTH

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

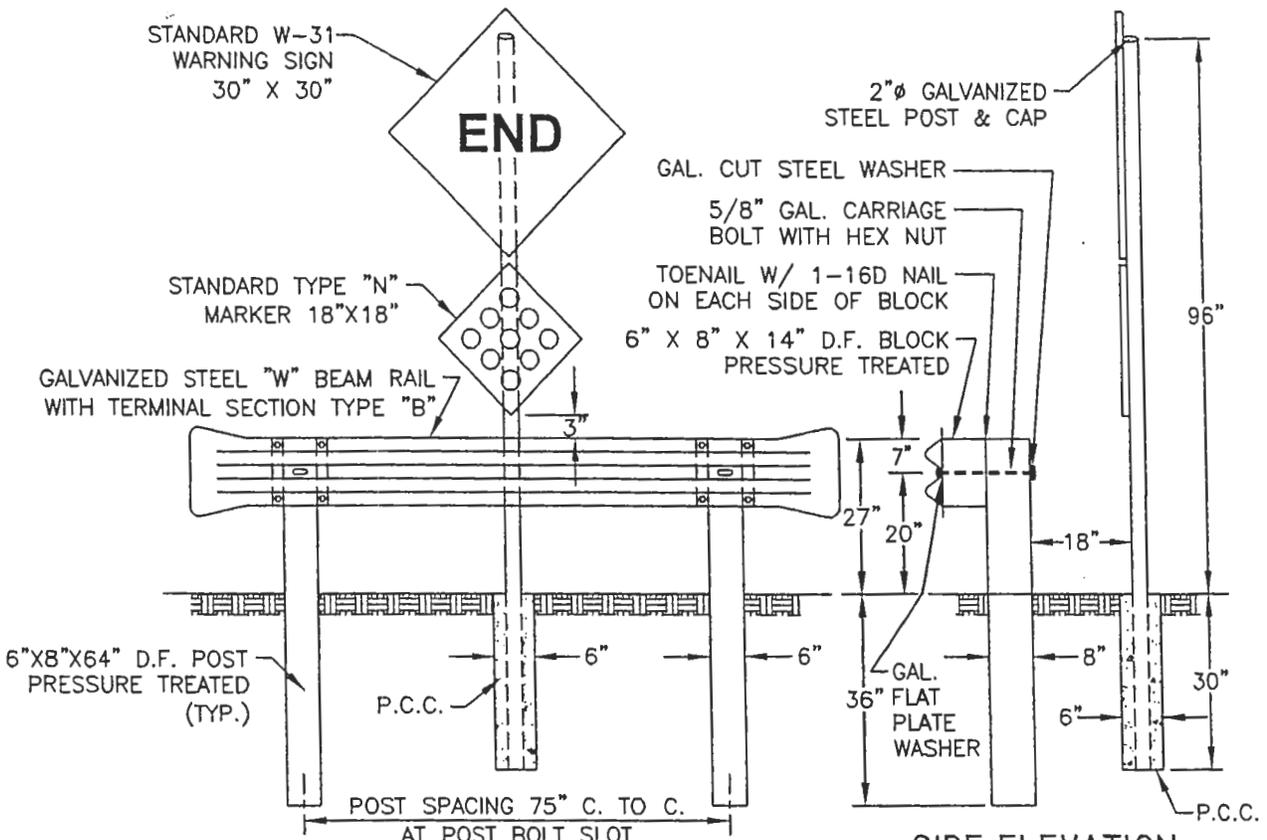
**STANDARD PLAN**

DRAWN BY: GL DATE: 5/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

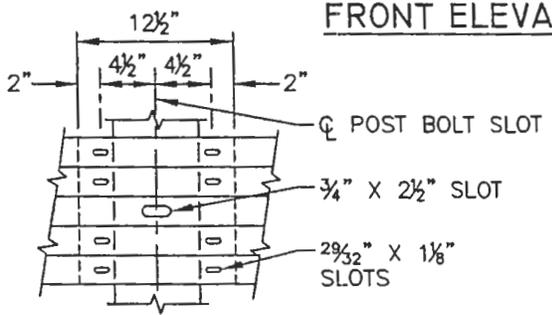
**CITY MONUMENTS  
 CONSTRUCTION & LOCATION**

NO.  
**S-20**

SHEET 1 OF 1

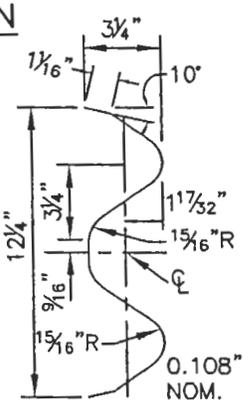


**FRONT ELEVATION**

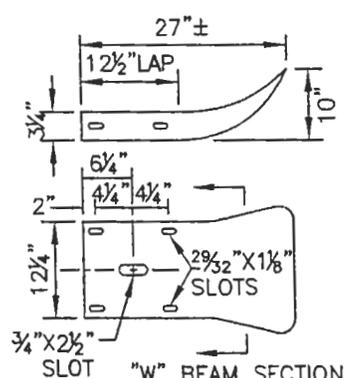


5/8"x1 1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH 1 1/4" RECESSED HEX NUTS - TOTAL 8 PER SPLICE AND 4 PER TERMINAL SECTION

**RAIL SPLICE**



**SECTION THRU "W" BEAM RAIL ELEMENT**



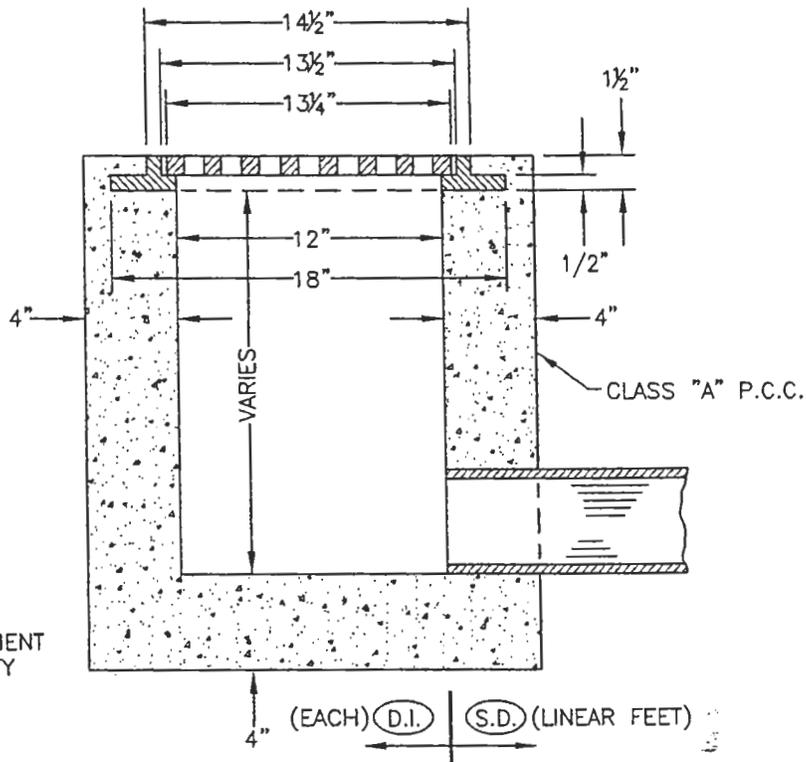
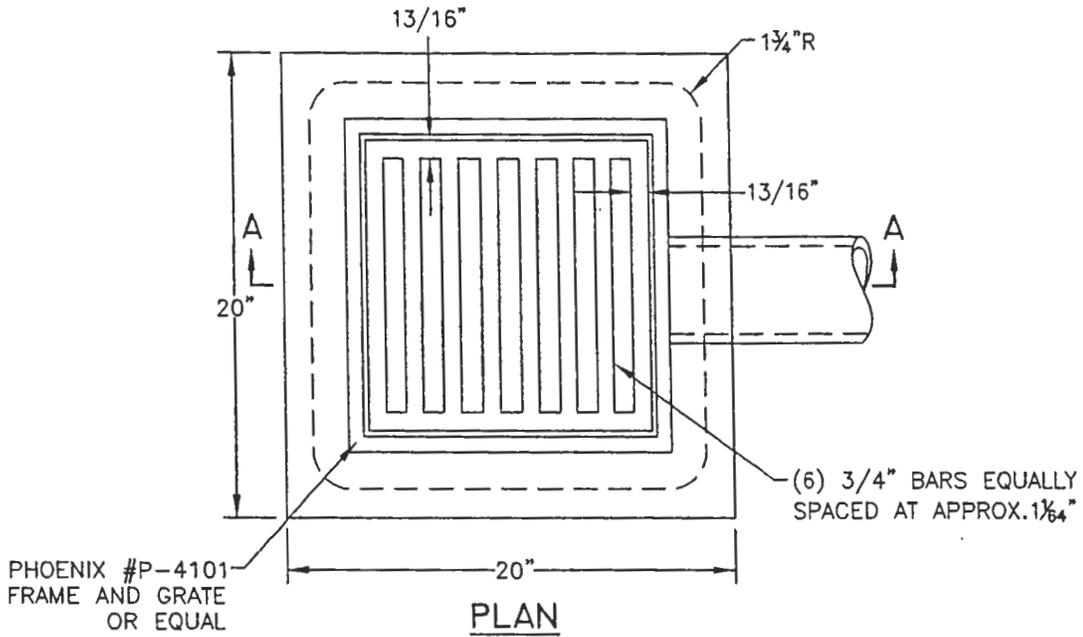
**TERMINAL SECTION**  
(TYPE "B" CALTRANS STD. A-77C-1)

**NOTES:**

1. END SIGNS AND TYPE "N" MARKERS SHALL CONFORM TO THE PROVISIONS IN SECTION 56-2, "ROADSIDE SIGNS", OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, JULY 2002. SIGNS AND MARKERS SHALL BE ALUMINUM PANELS NOT LESS THAN 0.080 INCH THICK. SIGN FACING SHALL BE HIGH INTENSITY GRADE, REFLECTIVE SHEETING CONFORMING TO THE STATE OF CALIFORNIA SPECIFICATIONS FOR REFLECTIVE SHEETING ALUMINUM SIGNS, JUNE 1985.
2. SIGNS AND MARKERS SHALL BE MOUNTED TO THE STEEL POSTS USING A HAWKINS - HAWKINS M2G-S2S "SIGN SADDLE" OR APPROVED EQUAL.
3. METAL BEAM GUARD RAILING SHALL CONFORM TO THE PROVISIONS IN SECTION 83-1, "RAILINGS", OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, JULY 2002.

REVISION	BY	DATE	APP. BY COUNCIL

<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>10/05</u>	STREET BARRICADES	NO. <b>S-21</b>
CHECKED BY: <u>MJ</u>	SCALE: <u>NONE</u>		
APPROVED: <u>[Signature]</u>	DIRECTOR OF ENGINEERING		
		SHEET 1 OF 1	



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

**NOTE:**

THIS DROP INLET SHALL BE USED FOR "THROUGH  
THE CURB" AREA DRAINS AND ALLEY DRAINS ONLY.

**SECTION A-A**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

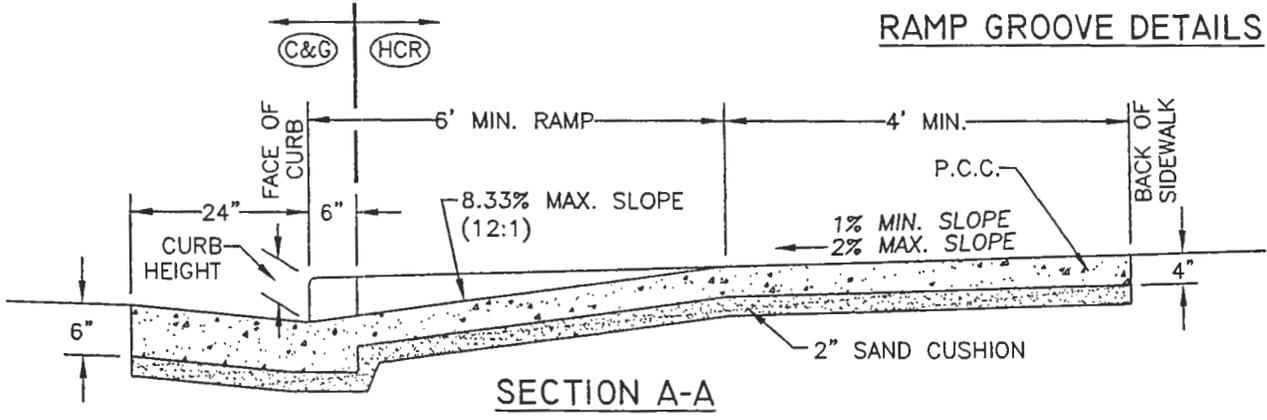
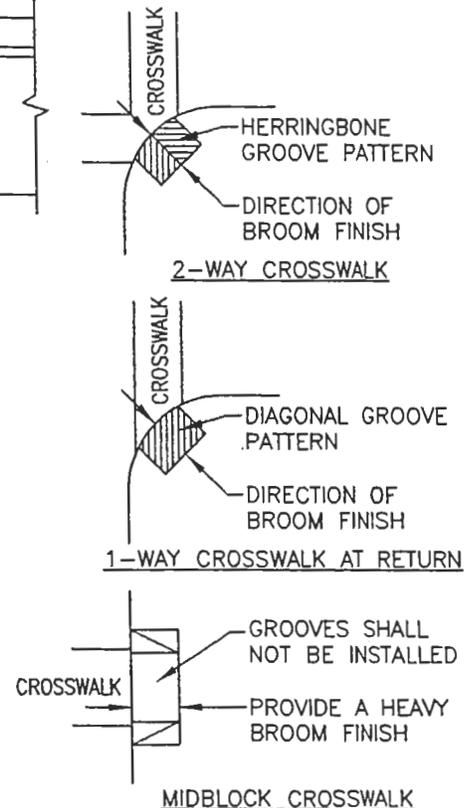
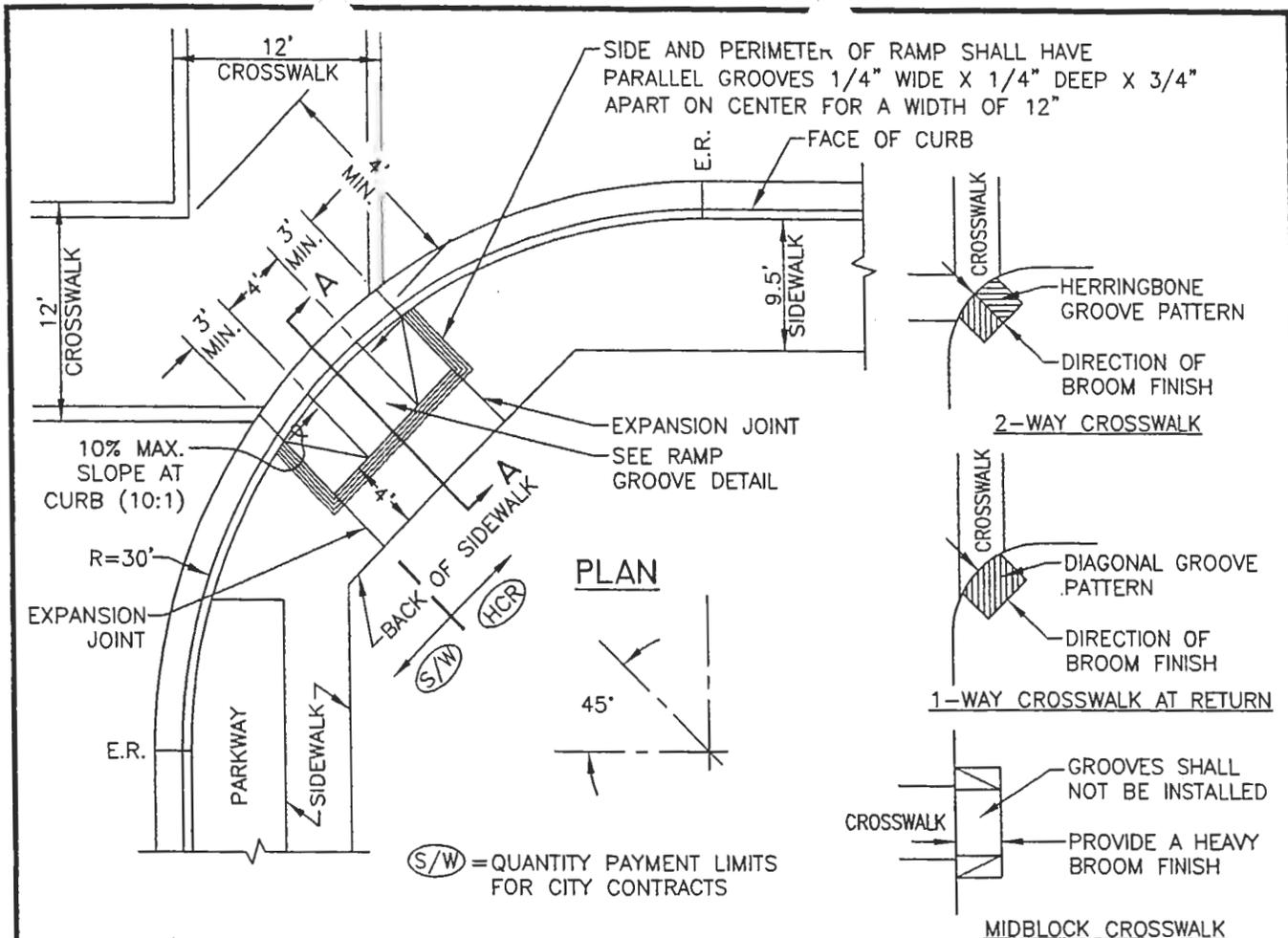
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**FLAT GRATE INLET**

NO.  
**S-26**

SHEET 1 OF 1

**EXHIBIT EE**



**NOTES:**

1. STANDARD S-27 SHALL BE USED WHERE THE SIDEWALK IS 9.5' WIDE AND CONTIGUOUS TO THE CURB AND WHERE STANDARD 5' SIDEWALK IS NOT CONTIGUOUS TO THE CURB.
2. SEE STANDARD S-5B, SECTION A-A FOR APPROVED METHODS OF POURING THE RAMP, CURB AND GUTTER.
3. RAMP SHALL HAVE PARALLEL GROOVES 1/4" WIDE BY 1/4" DEEP BY 1 1/2" ON CENTER, PARALLEL TO THE CROSSWALK AS SHOWN ON THE "RAMP GROOVE DETAILS".

REVISION	BY	DATE	APP. BY COUNCIL

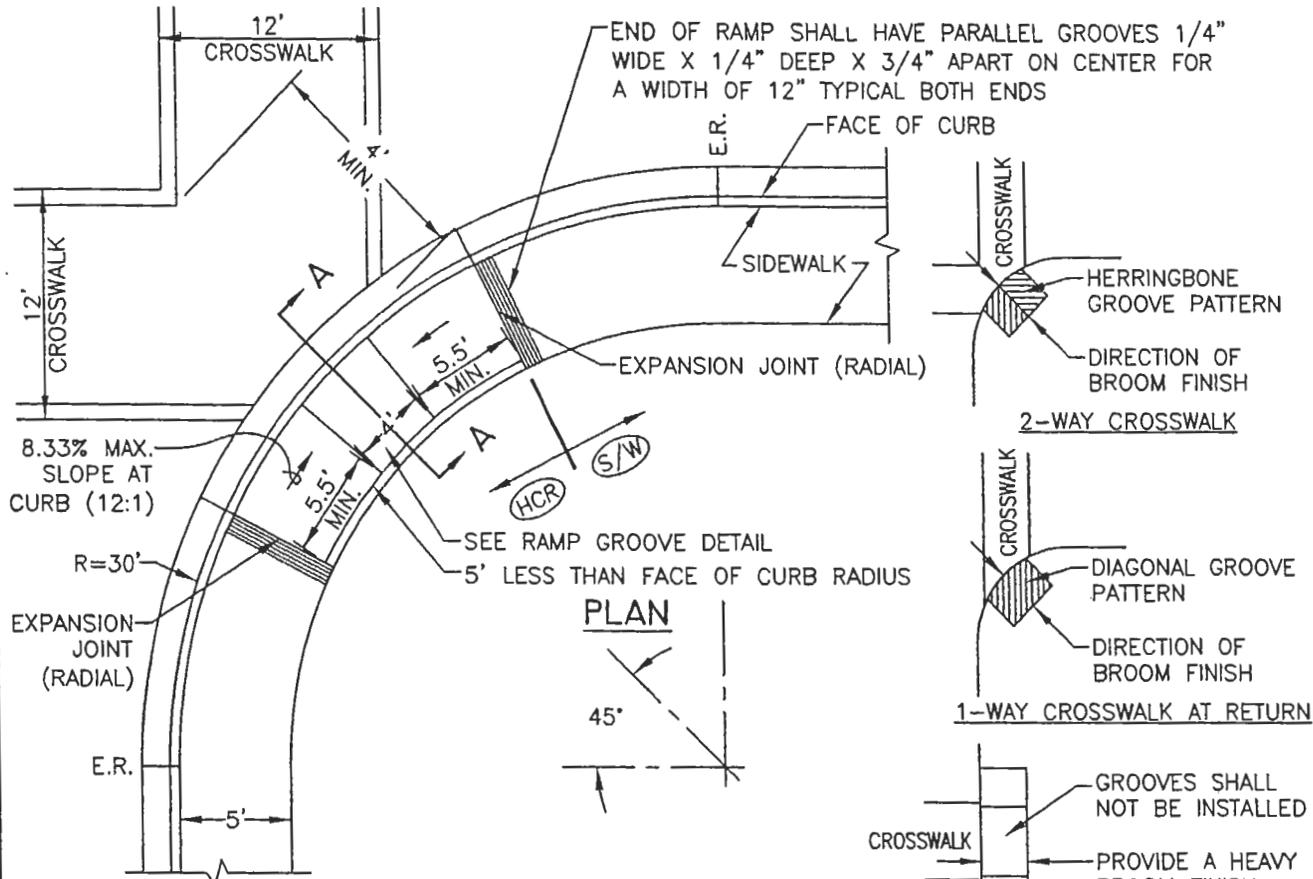
**CITY OF CHICO STANDARD PLAN**

DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

P.C.C. HANDICAPPED RAMP

NO. **S-27**

SHEET 1 OF 1



8.33% MAX. SLOPE AT CURB (12:1)

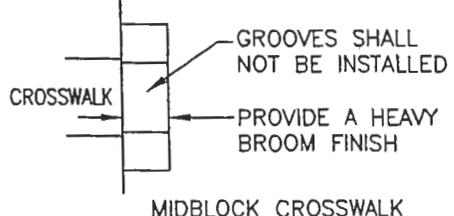
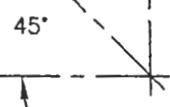
R=30'

EXPANSION JOINT (RADIAL)

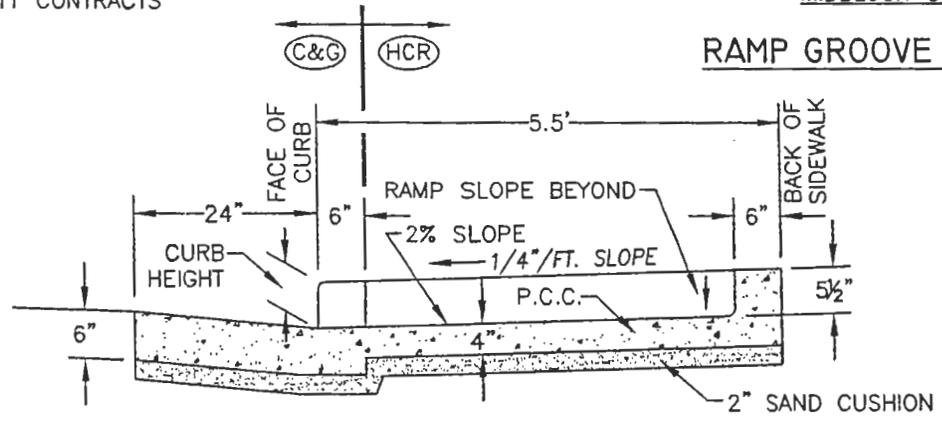
E.R.

(S/W) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS

**PLAN**



**RAMP GROOVE DETAILS**



**SECTION A-A**

**NOTES:**

1. STANDARD S-27A SHALL BE USED WITH STANDARD 5' SIDEWALK CONTIGUOUS TO THE CURB.
2. SEE STANDARD S-5B, SECTION A-A FOR APPROVED METHODS OF POURING THE RAMP, CURB AND GUTTER.
3. RAMP SHALL HAVE PARALLEL GROOVES 1/4" WIDE BY 1/4" DEEP BY 1/2" ON CENTER, PARALLEL TO THE CROSSWALK AS SHOWN ON THE "RAMP GROOVE DETAILS".

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

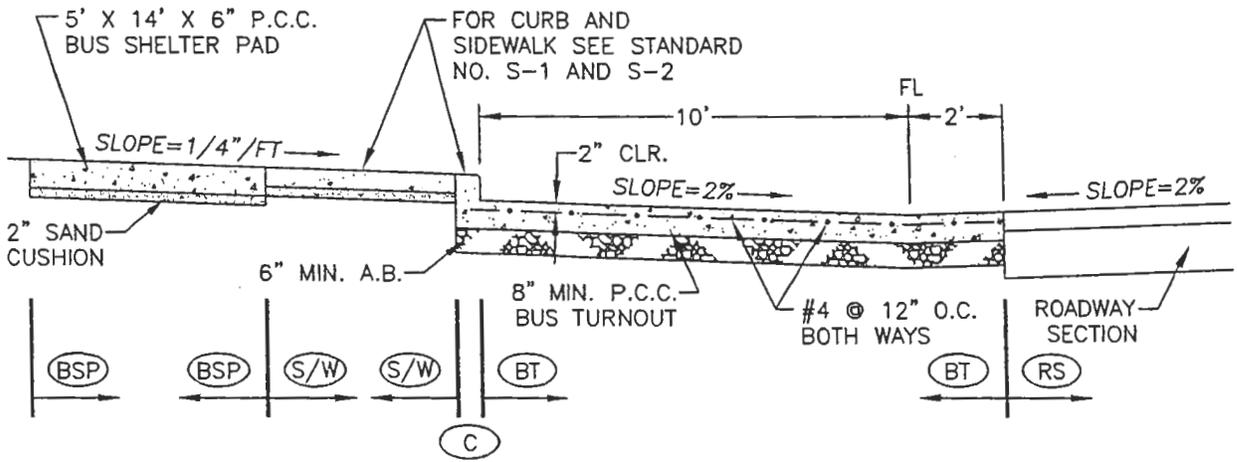
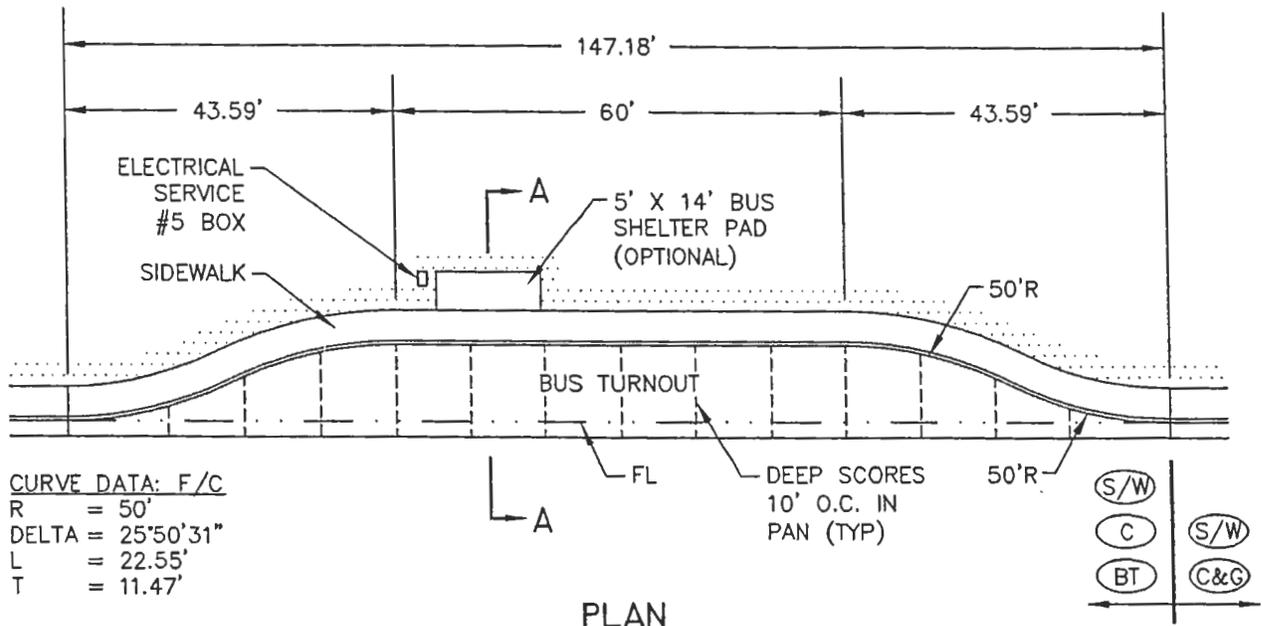
DRAWN BY: GL DATE: 5/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**P.C.C. HANDICAPPED RAMP**

NO. **S-27A**

SHEET 1 OF 1

**EXHIBIT GG**



**NOTES:**

1. FOR EACH ADITIONAL PASS THROUGH BUS SPACE ADD 50' AND FOR EACH ADDITIONAL LAYOVER BUS SPACE ADD 80'.
2. CONCRETE SHALL BE CLASS-A, REBAR STEEL SHALL BE 60 GRADE.
3. STANDARD BUS SHELTER: TOLAR MODEL #13NALD-GL

(BT) = QUANTITY PAYMENT LIMITS FOR CITY CONTRACTS

REVISION	BY	DATE	APP. BY	COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL      DATE: 10/05  
 CHECKED BY: MJ      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

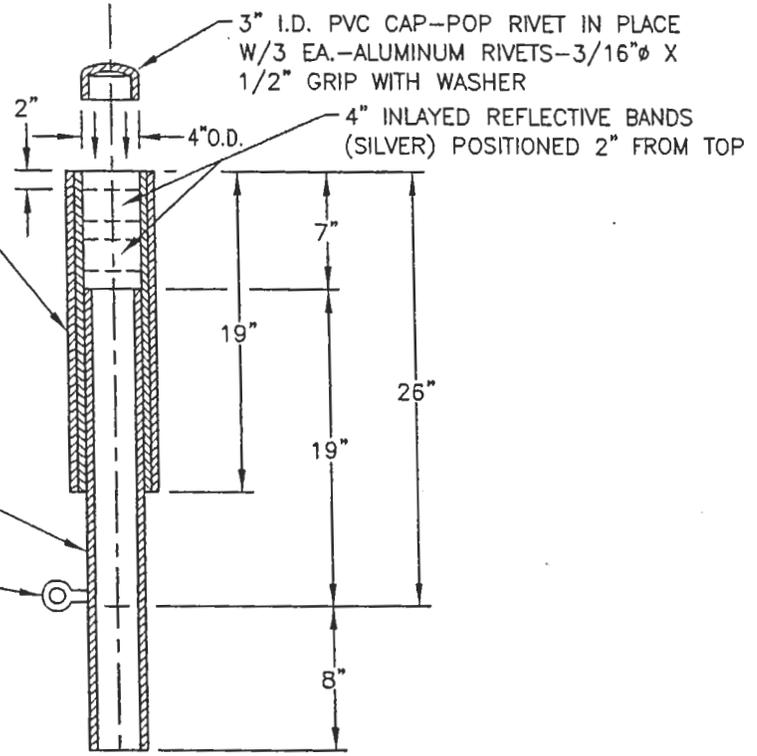
**BUS TURNOUT**

NO. **S-28**

SHEET 1 OF 1

**EXHIBIT HH**

FLUORESCENT ORANGE PLASTIC DELINEATOR HAWKINS-HAWKINS #V8E-42-PO-2(S)  
 3 3/4" I.D. X 42" LONG CUT TO 19" LENGTH  
 USE EXCESS TO PROVIDE DOUBLE LAYER FOR SNUG FIT. SLIP INNER LAYER AND POP RIVET TO PIPE WITH 6 EA. ALUMINUM RIVETS 3/16" Ø X 1/2" GRIP.



3" I.D. X 27" STANDARD WEIGHT GALVANIZED PIPE

WELD 1/2" X 1/2" EYEBOLT TO PIPE AND FLANGE ALIGN FOR PADLOCK

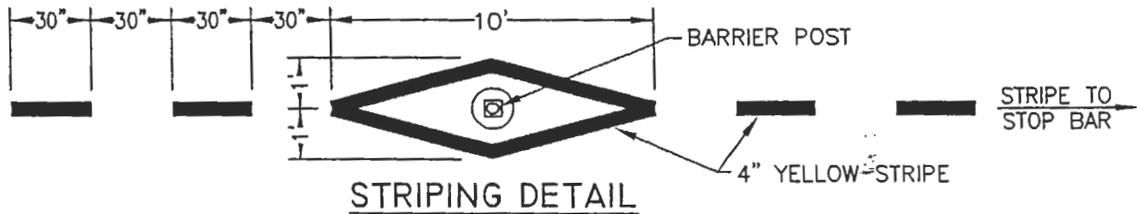
6" X 6" X 1/4" STEEL PLATE WELDED TO:

3 1/2" I.D. X 12" STANDARD WEIGHT GALVANIZED PIPE SLEEVE

CONCRETE FOOTING

DRAIN GRAVEL

**BARRIER POST**



**STRIPING DETAIL**

**NOTE:**

ALL FERROUS METALS SHALL BE GALVANIZED-FIELD WELDS WILL BE PERMITTED  
 WELDS MUST BE PAINTED IN ACCORDANCE WITH STATE STANDARD SPECIFICATION: SECTION 59-3

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

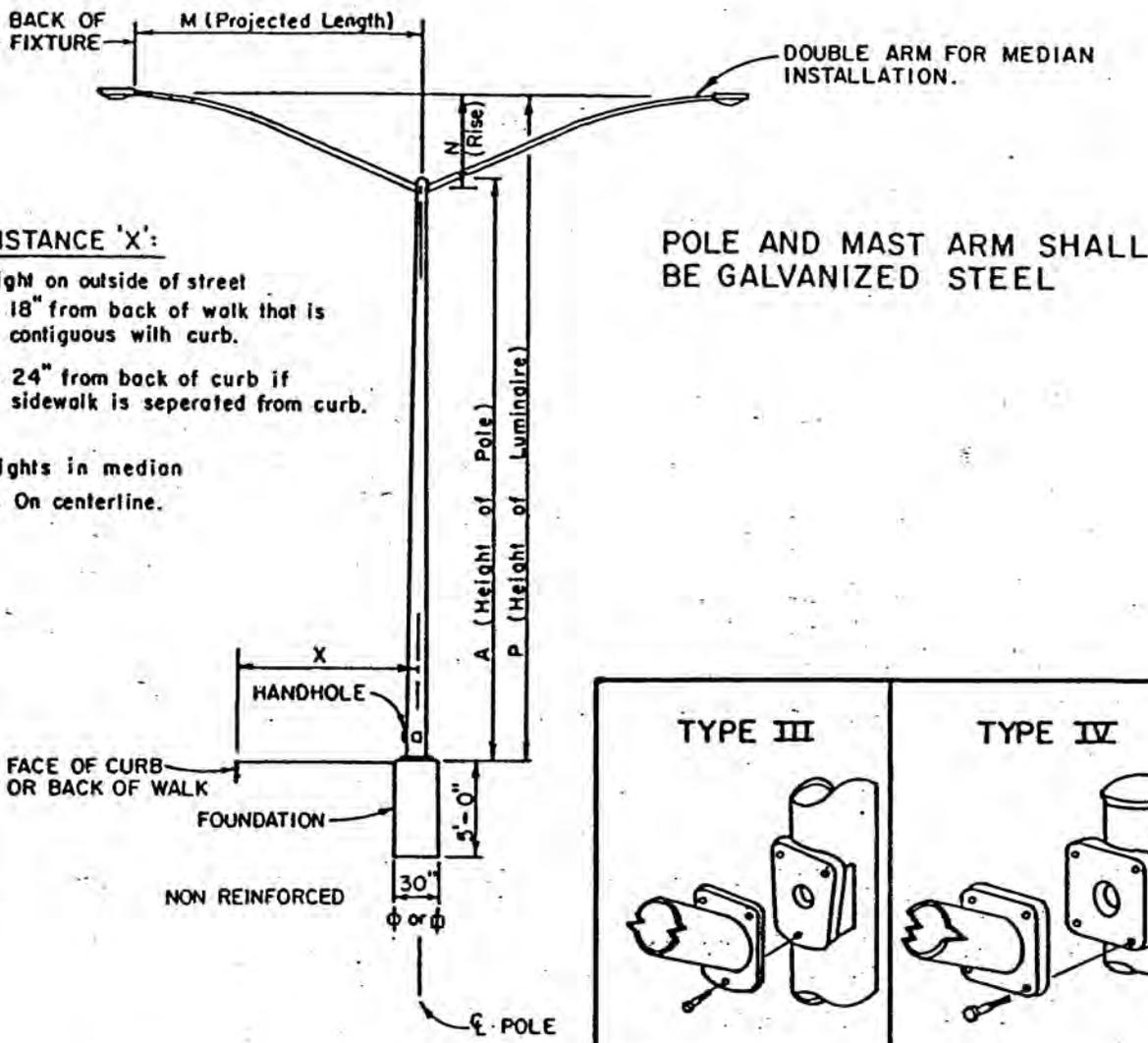
DRAWN BY: GL DATE: 1/05  
 CHECKED BY: MJ SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**BICYCLE BARRIER POST**

NO. **S-35**

SHEET 1 OF 1

**EXHIBIT II**

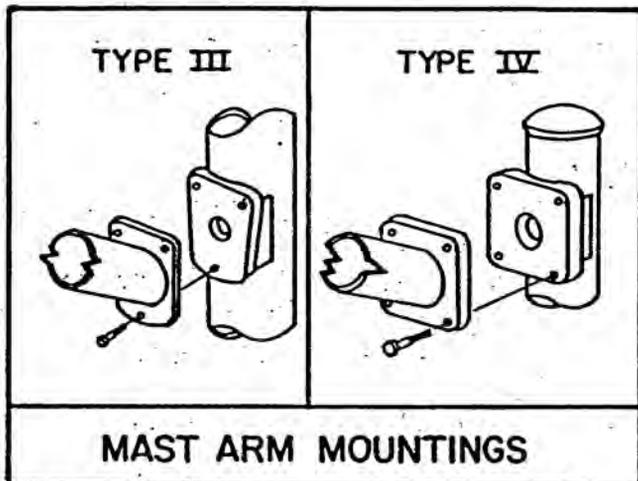


**DISTANCE 'X':**

- Light on outside of street
  - 18" from back of walk that is contiguous with curb.
  - 24" from back of curb if sidewalk is separated from curb.
- Lights in median
  - On centerline.

**POLE AND MAST ARM SHALL BE GALVANIZED STEEL**

**POLE ELEVATION**



**MAST ARM MOUNTINGS**

STREET WIDTH feet	M* feet	A* feet	N* feet	WATTAGE	MAXIMUM SPACING (see note 11, sheet 11) feet
20 - 32	6	30	1.5	70	150
36 - 40	6	30	1.5	100	200
44	6	30	1.5	150	110
60 - 68	12	30	2.5	200	100
74 - 80	12	30	2.5	150	150

**LIGHTS IN MEDIAN**

\* MINOR VARIATIONS - ON APPROVAL BY DIRECTOR OF PUBLIC WORKS

**CITY OF CHICO**

**STANDARD PLAN**

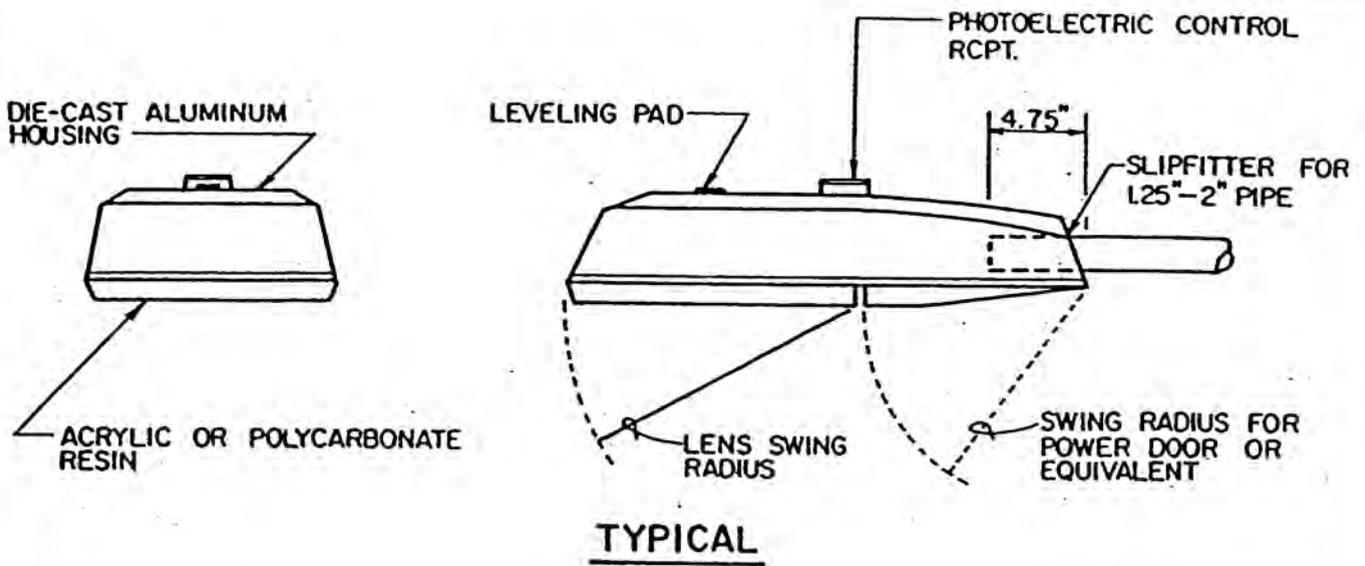
DRAWN BY JG DATE OCT., 1998  
 CHECKED RB SCALE N.T.S.  
 APPROVED [Signature]  
 DIRECTOR OF PUBLIC WORKS R.C.E.NO.

**STREET LIGHTS**  
**POLE AND MAST ARM DETAIL**

NO.  
**SL-1**  
 SHEET 1 OF 11

REVISION	BY	DATE	APP. BY COUNCIL
FOUNDATION; SPACING	E.C.R.	3/12/99	

REVISION	BY	DATE	APP BY COUNCIL
ORIGINAL	M.H.	10/16/90	#59 90-91
POLE SCHEDULE	M.E.T.	1/6/93	
PARKWAY	M.H.	5/18/93	#167 92-93



ALL LUMINAIRES WILL BE ROADWAY TYPE (COBRA HEAD). ALL LUMINAIRES WILL BE INSTALLED WITH OPERATIONAL PHOTOCELL. PHOTOCELL WILL BE INSTALLED WITH SENSOR FACING NORTH. REFRACTOR SHALL HAVE I.E.S. TYPE III LIGHT DISTRIBUTION PATTERN EXCEPT WHERE DIRECTED BY THE DIRECTOR OF PUBLIC WORKS. ALL LUMINAIRES SHALL BE HIGH PRESSURE SODIUM.  
 LUMINAIRES SHALL OPERATE AT 120 VOLTS UNLESS OTHERWISE APPROVED BY THE D.P.W.  
 LUMINAIRES SHALL BE CUTOFF TYPE UNLESS OTHERWISE APPROVED BY D.P.W.

POLES AND LUMINAIRES SHALL BE FROM THIS LIST OF APPROVED MATERIALS.

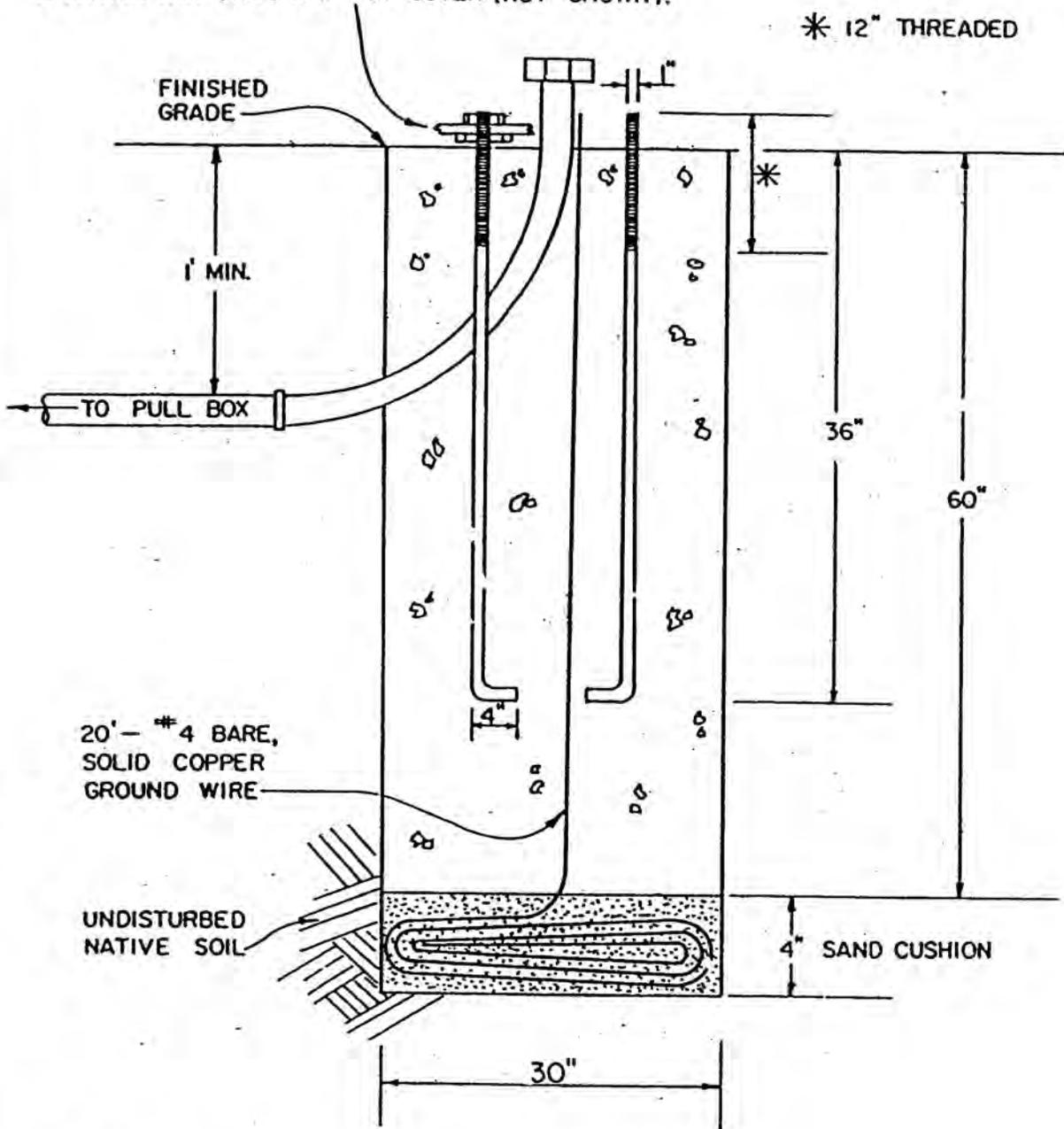
POLES	LUMINAIRES
AMERON N SERIES	GENERAL ELECTRIC M2AC xx S 1 N 2 (G or A) MC3 I G = 200 watts P or A = others
ANY POLE OF CALTRANS TYPE 15	
	ANY MEETING CALTRANS SPECS FOR H.P.S. TYPE III

REVISION	BY	DATE	APP BY COUNCIL
ORIGINAL	M.H.	10/16/90	#59 90-91
LUMINAIRE LIST	M.E.T.	3/18/93	#167 92-93
GENERAL NOTES	E.C.R.	3/12/99	

CITY OF CHICO		STANDARD PLAN	
DRAWN BY JG	DATE OCT, 1998	STREET LIGHTS LUMINAIRE DETAIL	NO. <b>SL-1</b>
CHECKED RB	SCALE N.T.S.		
APPROVED <i>[Signature]</i>	DIRECTOR OF PUBLIC WORKS R.C.E.NO.		
		SHEET 2 OF 11	

LEVELING NUT (BOTTOM), BASE PLATE (MIDDLE),  
SECURING NUT (TOP) AND NUT COVER (NOT SHOWN).

\* 12" THREADED



**NOTES:**

- 1) PRECAST FOUNDATIONS
  - a) may be used.
  - b) must be backfilled with a one-sack of cement per cubic yard cement sand slurry.
- 2) BOLT-COVER SHALL BE PROVIDED
- 3) WITH PRECAST FOUNDATION, THE POLE MAY BE GROUNDED VIA A BARE NO. 4 SOLID COPPER WIRE CLAMPED TO A 1/2 INCH X 10 FOOT GROUNDING ROD INSTALLED IN PULL BOX. (SEE PULL BOX DETAIL)
- 4) INSTALLATION SHALL INCLUDE SECURING NUTS, LEVELING NUTS, WASHERS, AND NUT COVERS.

REVISION	BY	DATE	APP. BY
ORIGINAL	M.H.	10/16/90	#59 90-91
NONE	M.H.	5/18/93	#167 92-93
FOUNDATION	E.C.R.	3/12/99	

**CITY OF CHICO**

**STANDARD PLAN**

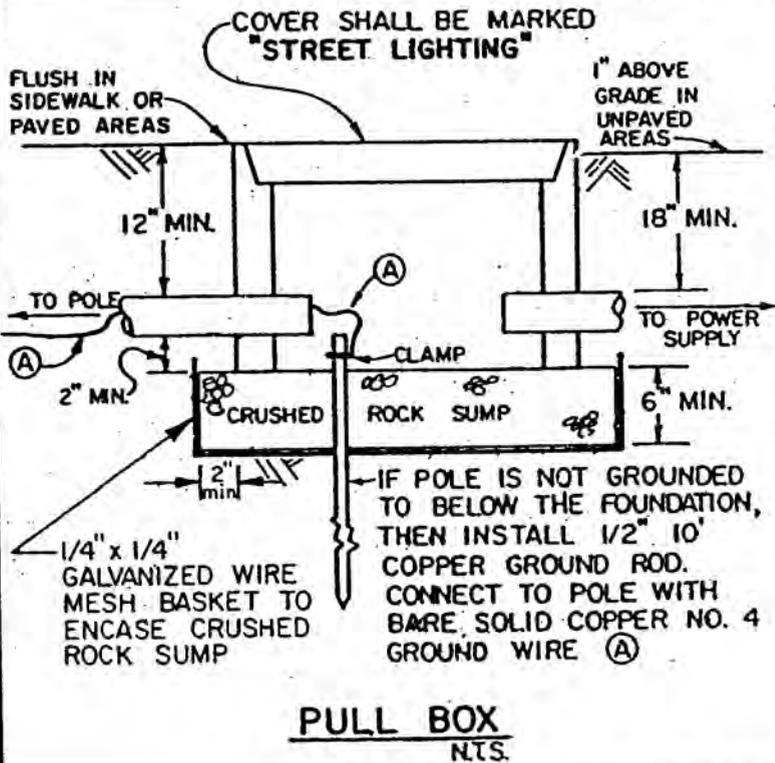
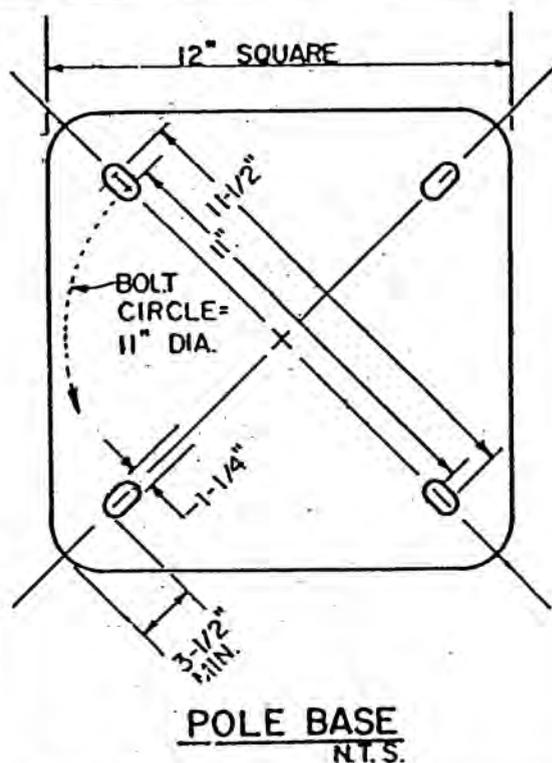
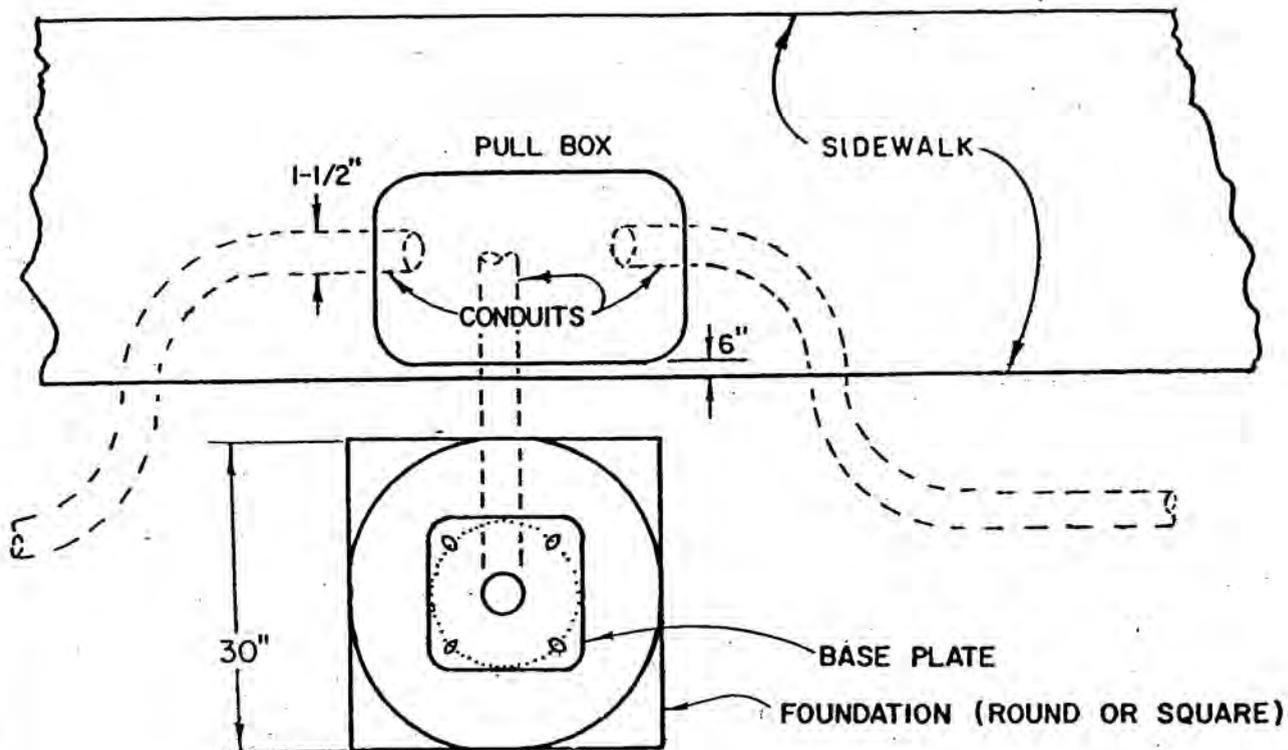
DRAWN BY JG DATE OCT, 1998  
 CHECKED RB SCALE N.T.S.  
 APPROVED [Signature]  
 DIRECTOR OF PUBLIC WORKS R.C.E. NO.

**STREET LIGHTS  
POLE FOUNDATION DETAIL**

NO.  
**SL-1**

SHEET 3 OF 11

**PLAN VIEW**  
N.T.S.



**CITY OF CHICO**

**STANDARD PLAN**

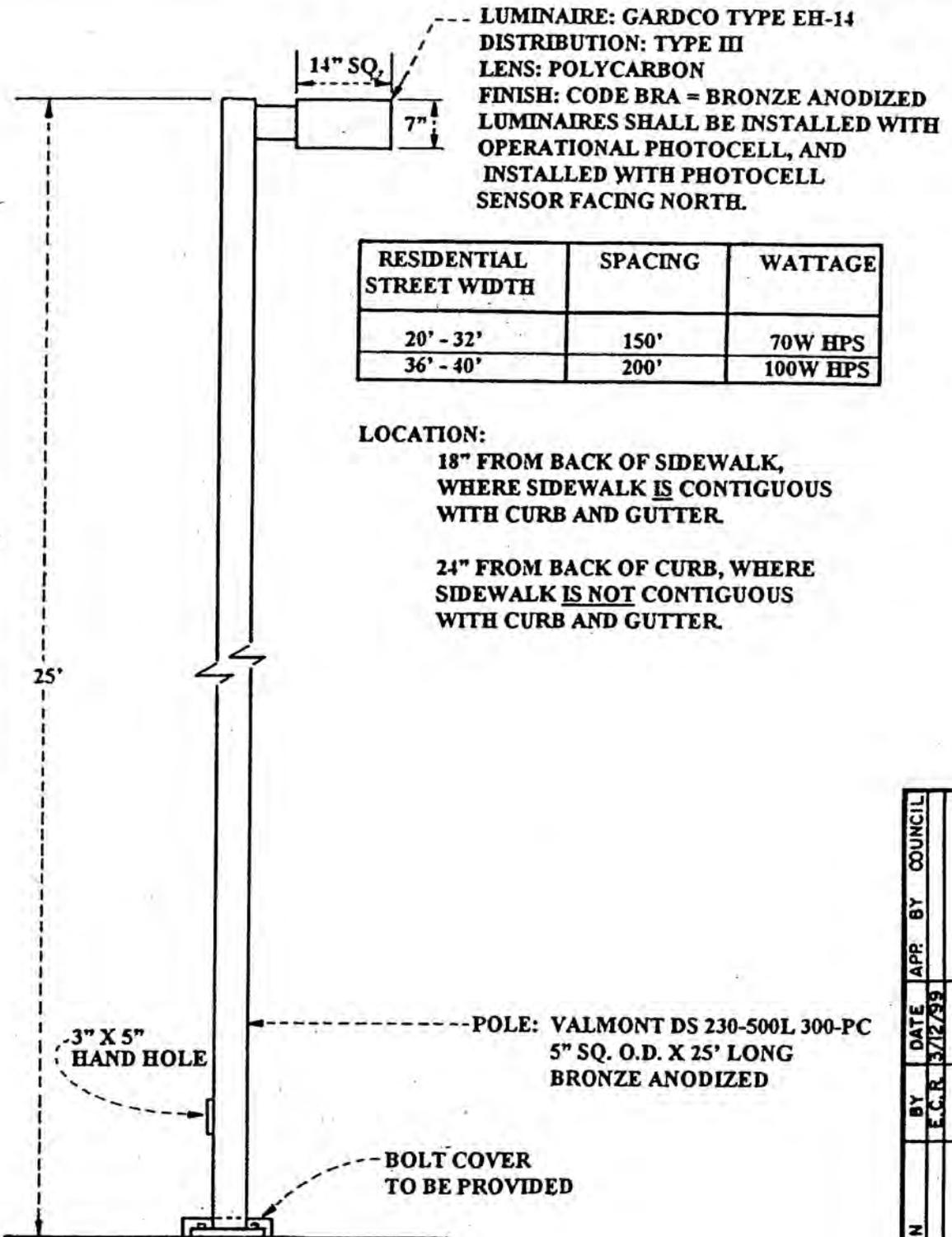
DRAWN BY JG DATE OCT., 1998  
 CHECKED RB SCALE N.T.S.  
 APPROVED [Signature]  
 DIRECTOR OF PUBLIC WORKS R.C.E. NO.

**STREET LIGHTS**  
**POLE BASE AND PULL BOX DETAIL**

NO. **SL-1**  
 SHEET 4 OF 11

REVISION	BY	DATE	APP. BY COUNCIL
ORIGINAL	M.H.	10/16/90	# 59 90-91
PULL BOX DETAIL	M.E.T.	1/7/93	
PARKWAY	M.H.	5/18/93	# 167 92-93

REVISION	BY	DATE	APP. BY COUNCIL
FOUNDATION	ECR.	3/12/99	



REVISION	BY	DATE	APR.	BY	COUNCIL
ORIGINAL	E.C.R.	3/2/99			

CITY OF CHICO

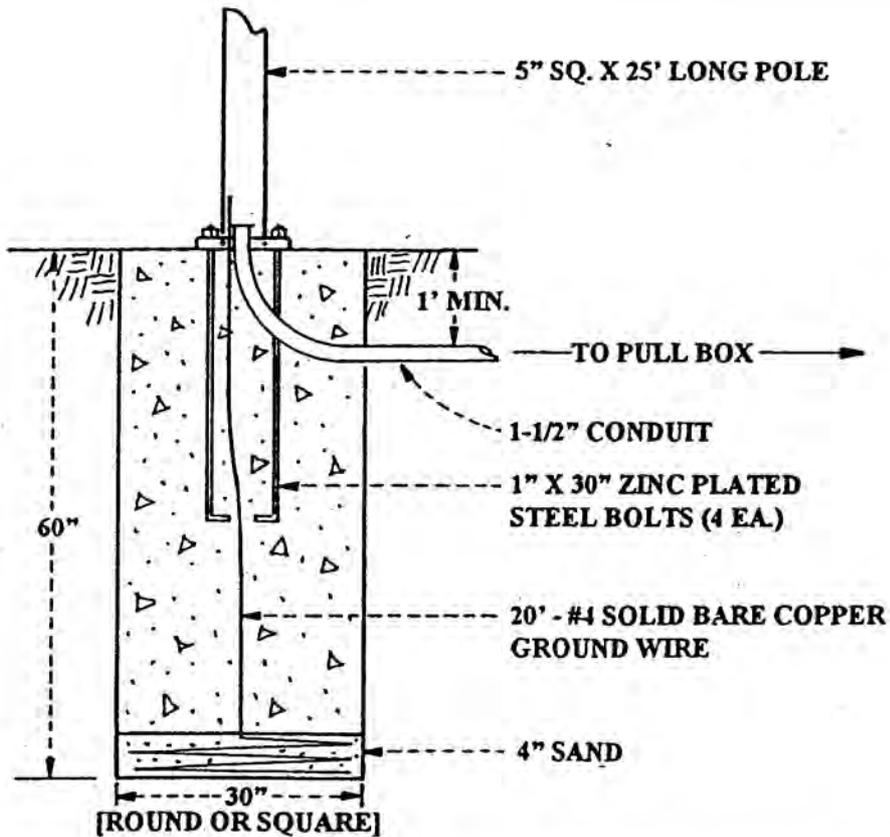
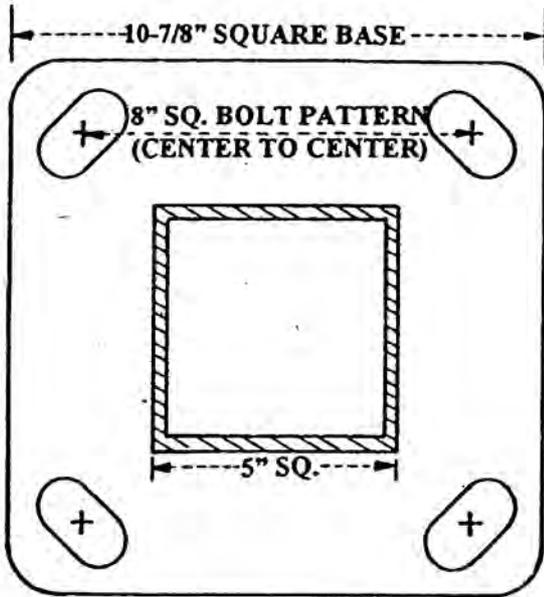
STANDARD PLAN

DRAWN BY JG DATE OCT. 1998  
 CHECKED RB SCALE NTS  
 APPROVED Eric Ross  
 DIRECTOR OF PUBLIC WORKS

RESIDENTIAL STREET LIGHTING  
 GARDCO LUMINAIRE  
 POLE AND LUMINAIRE DETAIL

SL - 1

SHEET 5 OF 11



REVISION	BY	DATE	APP. BY	COUNCIL
ORIGINAL		3/12/99		

CITY OF CHICO

STANDARD PLAN

DRAWN BY JG DATE OCT. 1998  
 CHECKED RB SCALE NTS  
 APPROVED [Signature]  
 DIRECTOR OF PUBLIC WORKS

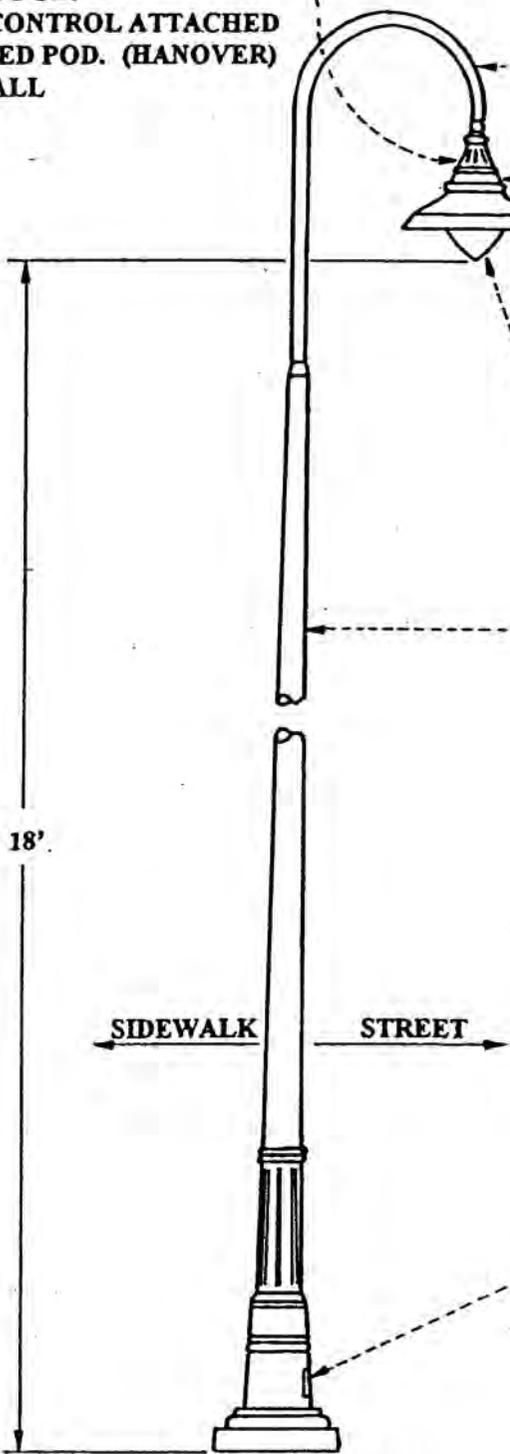
RESIDENTIAL STREET LIGHTING  
 GARDCO LUMINAIRE  
 FOUNDATION AND BASE DETAIL

SL - 1

SHEET 6 OF 11

**LIGHT POLE DETAIL**

CAST ALUMINUM FLUTED BALLAST POD.  
PHOTO CONTROL ATTACHED TO FLUTED POD. (HANOVER)  
0.250" WALL



2" DIA., 0.125" WALL (STERNBERG)  
2" DIA., 0.188" WALL (HANOVER)  
6061 - T6 STRUCTURAL GRADE ALUMINUM

BUTTON PHOTOCELL IN FITTER ORIENT NORTH (STERNBERG)

24" DIA. RLM (STERNBERG)  
30" DIA. RLM (HANOVER)

UNDERSIDE FINISHED IN HIGH REFLECTIVITY WHITE ENAMEL

POLYCARBONATE ACORNS  
STERNBERG - 12" X 12"  
HANOVER - 15-3/4" DIA.

TAPERED POLE - 0.250" WALL  
6061-T6 STRUCTURAL GRADE ALUMINUM  
WELDED FOR SINGLE CONSTRUCTION  
STERNBERG (5" BOTTOM - 3" TOP)  
HANOVER (5" BOTTOM - 4" TOP)

COLOR:  
STERNBERG - ANTIQUE BRONZE  
HANOVER - BRONZE

ACCESS DOOR WITH STAINLESS STEEL ALLEN HEAD SCREWS

**STERNBERG MDL. 1910 - RLM 24 - 2518 RRT 508  
OR  
HANOVER MDL. L55390**

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY JG DATE OCT. 1998  
CHECKED RB SCALE NTS

**RESIDENTIAL STREET LIGHTING  
ARCHED INVERTED LANTERN TYPE  
LUMINAIRE AND POLE DETAIL**

**SL - 1**

APPROVED *ECR*  
DIRECTOR OF PUBLIC WORKS

SHEET 7 OF 11

REVISION	BY	DATE	APP. BY
	ORIGINAL	E.C.R.	3/12/99

BOTTOM VIEW OF BASE



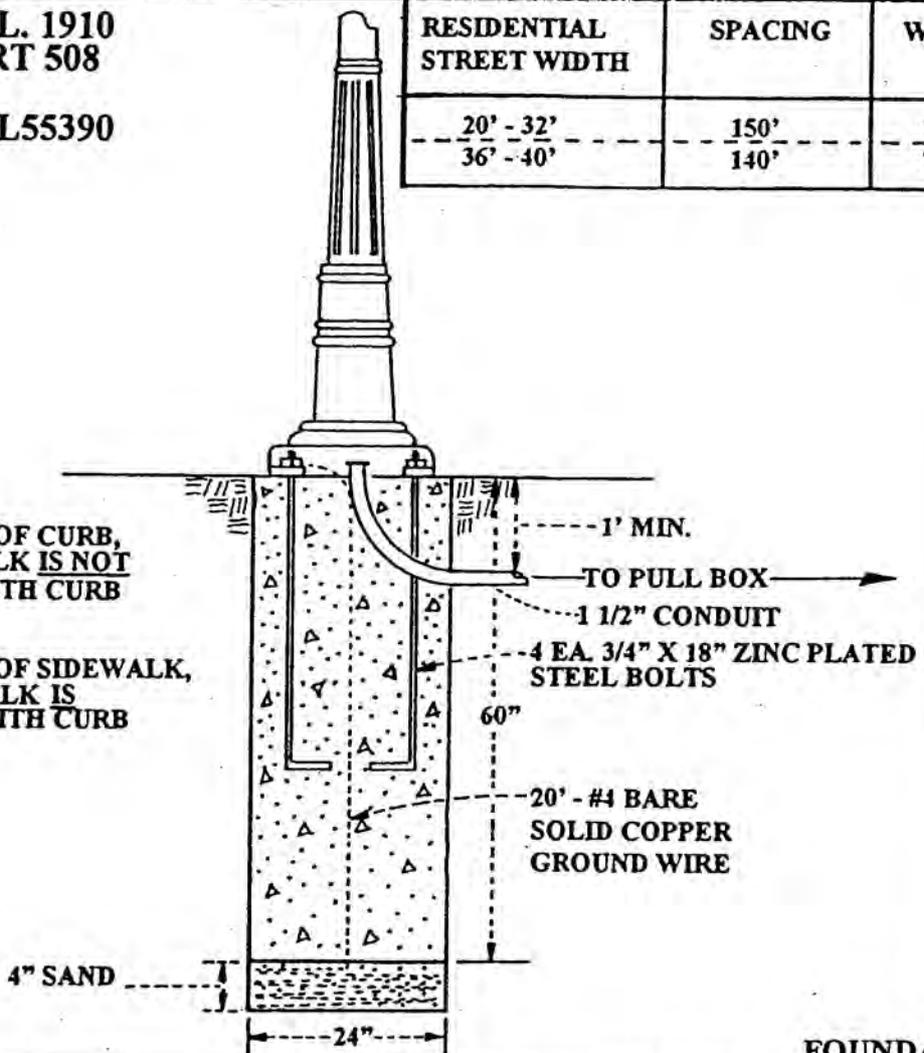
STERNBERG MDL. 1910  
RLM 24 - 2518 RRT 508  
OR  
HANOVER MDL. L55390

RESIDENTIAL STREET WIDTH	SPACING	WATTAGE
20' - 32'	150'	70W HPS
36' - 40'	140'	70W HPS

LOCATION:

24" FROM BACK OF CURB, WHERE SIDEWALK IS NOT CONTIGUOUS WITH CURB AND GUTTER

18" FROM BACK OF SIDEWALK, WHERE SIDEWALK IS CONTIGUOUS WITH CURB AND GUTTER



REVISION	BY	DATE	APP. BY	COUNCIL
ORIGINAL		3/12/99		

FOUNDATION

CITY OF CHICO

STANDARD PLAN

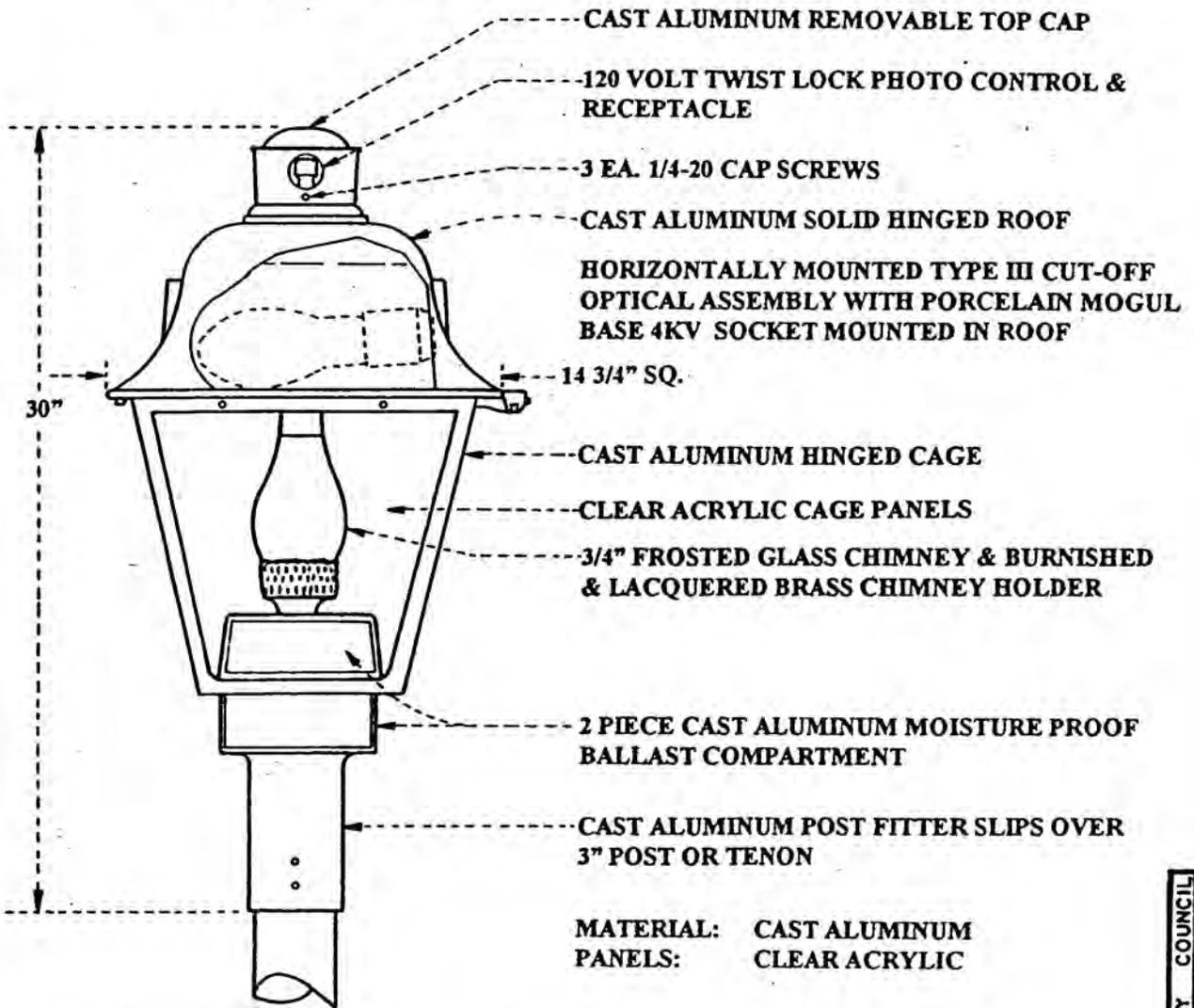
DRAWN BY JG DATE OCT., 1998  
 CHECKED RB SCALE NTS  
 APPROVED ECR  
 DIRECTOR OF PUBLIC WORKS

RESIDENTIAL STREET LIGHTING  
 ARCHED INVERTED LANTERN TYPE  
 FOUNDATION AND BASE DETAIL

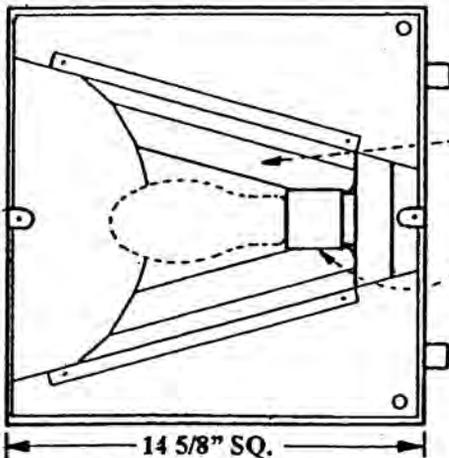
SL - 1

SHEET 8 OF 11

# HANOVER GRANDE JEFFERSON MODEL NO. 8432R3



MATERIAL: CAST ALUMINUM  
 PANELS: CLEAR ACRYLIC



**BOTTOM VIEW OF TYPE III CUT-OFF REFLECTOR SYSTEM**

TYPE III FABRICATED ALZAK REFLECTOR FOR HORIZONTAL LAMP MOUNTING

PORCELAIN MOGUL BASE HORIZONTALLY MOUNTED SOCKET

REVISION	BY	DATE	APP.	BY
ORIGINAL		3/12/99		COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY JG DATE OCT. 1998  
 CHECKED RB SCALE NTS  
 APPROVED CC Ross  
 DIRECTOR OF PUBLIC WORKS

RESIDENTIAL STREET LIGHTING  
 POST TOP LANTERN TYPE  
 LUMINAIRE

**SL - 1**

SHEET 9 OF 11

# HANOVER POLE MODEL NO. 329 - 18'

RESIDENTIAL STREET WIDTH	SPACING	WATTAGE
20' - 32'	150'	70W HPS
36' - 40'	140'	70W HPS

COLOR:	BRONZE
SHAFT MATERIAL:	TAPERED ALUMINUM
THICKNESS:	0.125"
DIAMETER:	3" O.D. TOP - 4" O.D. BOTTOM
BASE HEIGHT:	28 1/4"
BASE WIDTH:	13"
BASE DETAIL:	P-10L

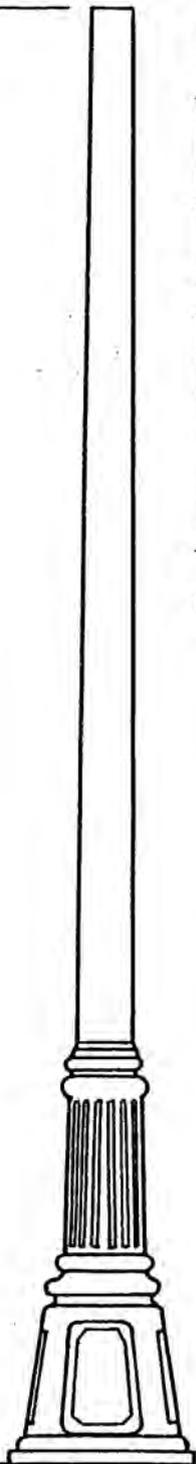
### LOCATION:

24" FROM BACK OF CURB, WHERE SIDEWALK IS NOT CONTIGUOUS WITH CURB AND GUTTER

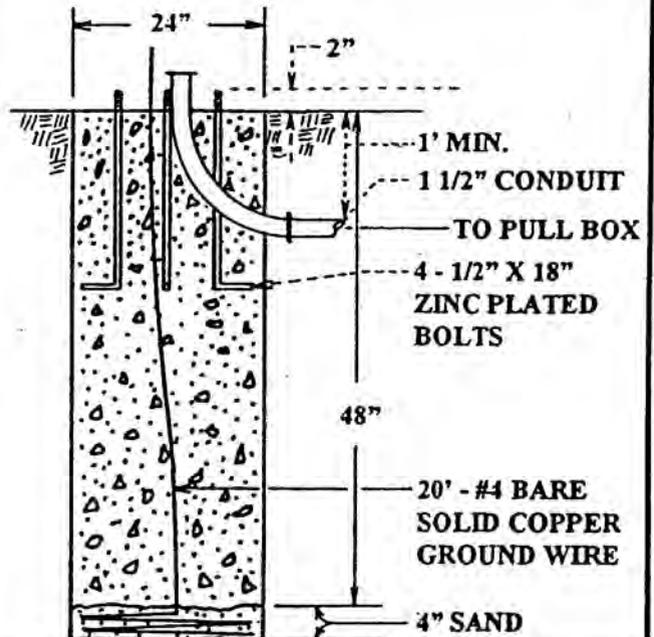
18" FROM BACK OF SIDEWALK, WHERE SIDEWALK IS CONTIGUOUS WITH CURB AND GUTTER

ORIGINAL	REVISION	BY	DATE	APP.	BY
		E.C.H.	5/12/99		COUNCIL

18'



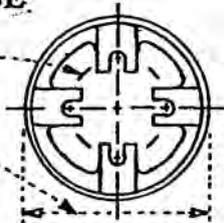
### FOUNDATION



### BOTTOM VIEW OF BASE

7" BOLT CIRCLE

13" OUTSIDE DIA.



CITY OF CHICO

STANDARD PLAN

DRAWN BY JG DATE OCT., 1998  
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 DIRECTOR OF PUBLIC WORKS

RESIDENTIAL STREET LIGHTING  
 POST TOP LANTERN TYPE  
 POLE AND FOUNDATION

**SL-1**

SHEET 10 OF 11

**GENERAL NOTES:**

1. All conduit to be used shall be rigid metal, or schedule 40 polyvinyl chloride, unless otherwise shown on the plans or stated in the Specifications. The minimum depth of cover for conduit shall be as follows:
  - A. Within sidewalk or landscape areas: 1'0" min.  
Between power supply and pull box: 18" min.
  - B. Within roadway areas: 24" min.
2. The underground conduit and all metal parts shall be continuously bonded and grounded.
3. Minimum radius of bends shall be 18" inches. All bends and/or offsets shall be made with factory fabricated sections. There shall be no more than three bends per run.
4. Unless otherwise approved by the Director of Public Works, a No. 5 pull box (Caltrans Std. ES-8) shall be used at all street light standards. Covers shall be inscribed "Street Lighting" and secured with solid brass hold-down bolts.
5. Long conduit runs are to be avoided. Direct power service from P.G. & E. Secondaries to the pull box shall be provided when possible. Junction boxes to be a maximum of 250 feet apart on long runs.
6. All splices shall be waterproof, made with approved solderless connectors of the proper size, and shall conform to Caltrans Std. Plan ES-13.
7. All empty conduits shall be capped and a 1/4" inch nylon pull rope shall be installed inside with each end secured in such a way as to assure that they will remain exposed.
8. When a private party is to develop a system and then dedicate the system to the City, the following shall apply: The private party shall be responsible for arrangements with P.G. & E., and all connection and service fees charged by the utility.
9. Each street light shall have a fuse-disconnect in the adjacent pull box.
10. All conductors shall be copper.
11. Lights to be placed on alternating sides of the street. Variations permitted with the approval of the Director of Public Works.

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**CITY OF CHICO**

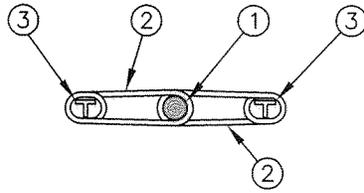
**STANDARD PLAN**

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 DIRECTOR OF PUBLIC WORKS

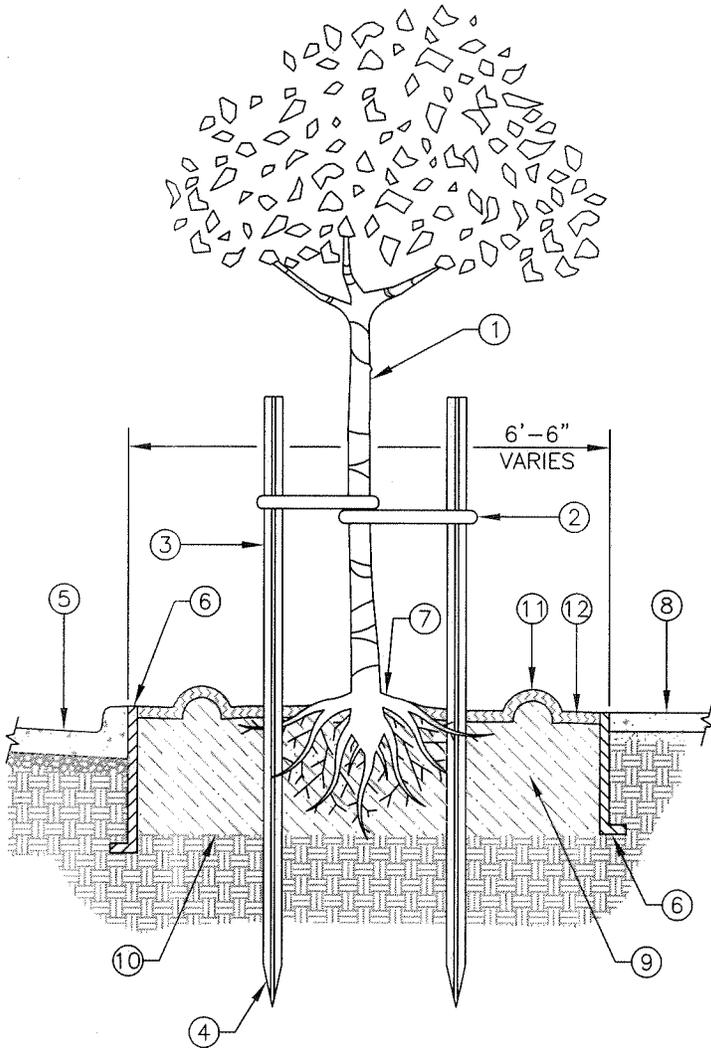
**STREET LIGHTS  
GENERAL NOTES**

**SL - 1**

SHEET 11 OF 11



PLAN VIEW



SECTION VIEW

NOTES:

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY STEEL GREEN T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN. INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 12" DEPTH (LB 12-2) NEXT TO SIDEWALKS AND 18" DEPTH (LB 18-2) NEXT TO CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑪ WATER RETENTION BERMS SHOULD BE SET 3' FROM THE TRUNK.
- ⑫ MULCH.

NOTE:

IN TURF AREAS PROVIDE ARBOR GUARD BRAND TRUNK PROTECTANT AND PROVIDE A BENDER BOARD AT THE OUTSIDE EDGE OF THE BERM.

REVISION	BY	DATE	APP. BY COUNCIL

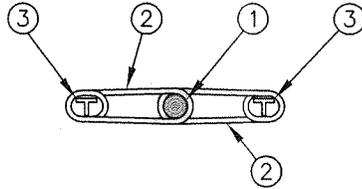
CITY OF CHICO

STANDARD PLAN

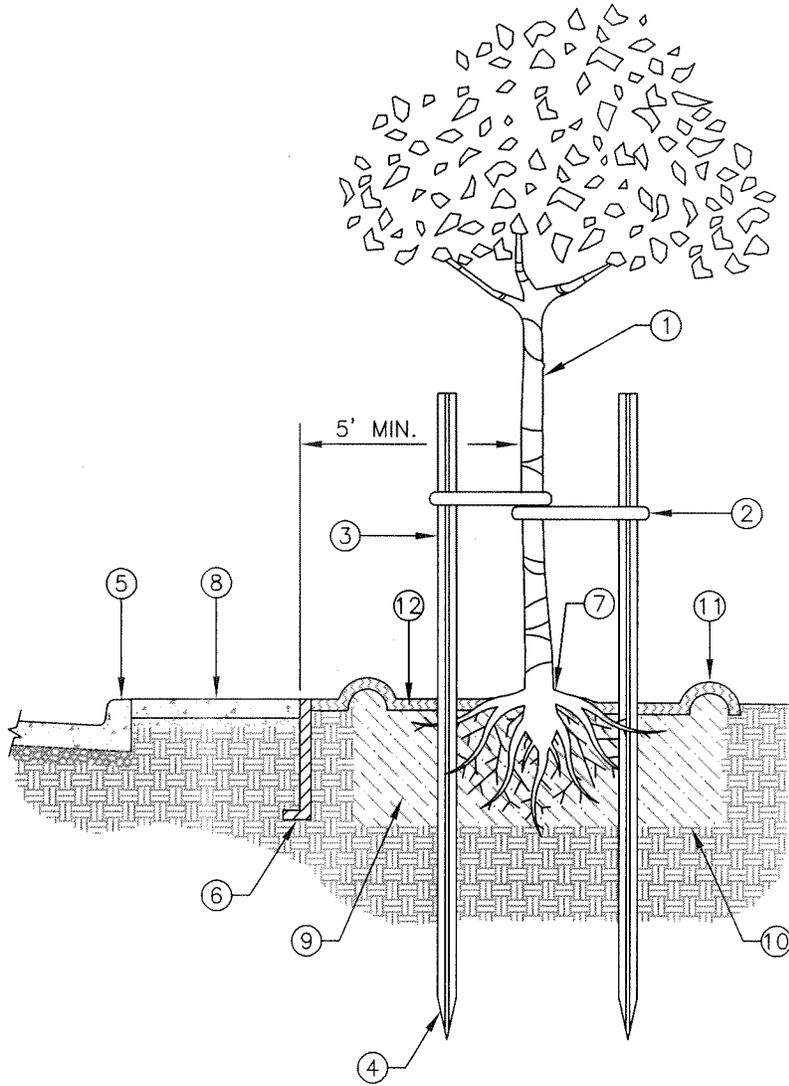
DRAWN BY: GL DATE: 9/09  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: *[Signature]*  
 CPSD DIRECTOR

FIFTEEN GALLON  
 TREE PLANTING DETAIL  
 AT PARKWAY STRIP

NO.  
**LS-1**  
 SHEET 1 OF 3



PLAN VIEW



SECTION VIEW

**NOTES:**

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY GREEN STEEL T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 12" DEPTH (LB 12-2) ALONG SIDEWALKS.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND 2" DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF SOIL MAY BE REQUIRED.
- ⑪ WATER RETENTION BERMS IN SHRUB AREAS.
- ⑫ MULCH.

NOTE:  
IN TURF AREAS PROVIDE  
ARBOR GUARD BRAND TRUNK  
PROTECTANT.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

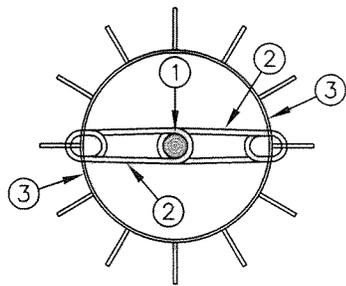
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 CPSD DIRECTOR

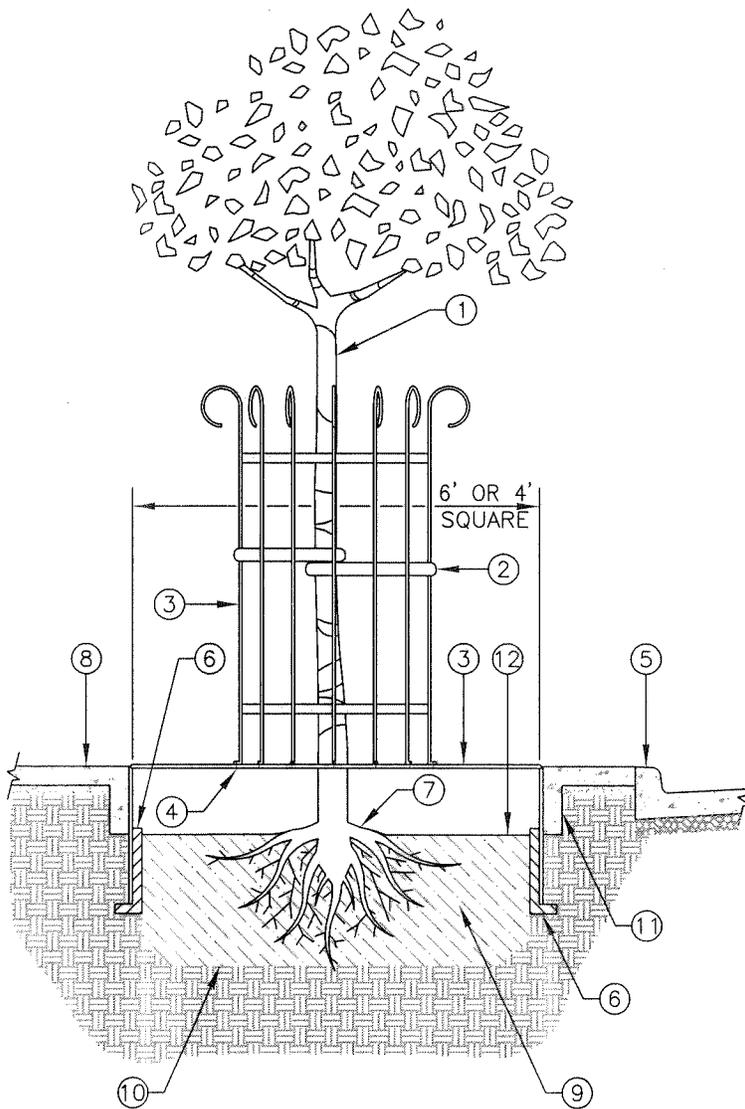
**FIFTEEN GALLON  
 TREE PLANTING DETAIL  
 AT BACK OF WALK**

NO.  
**LS-1**

SHEET 2 OF 3



PLAN VIEW



SECTION VIEW

NOTES:

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE, TWO PLACES.
- ③ NEENAH R-8713, 180° SQUARE, 60" OR 48" TREE GRATE WITH TREE GUARD, SEE CONSTRUCTION PLAN FOR DETAILS.
- ④ STEEL FLANGE 2"X3" PRE-DRILLED TO ACCEPT 2"X1/2"Ø THROUGH BOLT.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. 12" DEPTH (LB 12-2) NEXT TO SIDEWALKS AND 18" DEPTH (LB 18-2) NEXT TO CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT.
- ⑩ PLANTING HOLE SHALL BE THE WIDTH OF THE TREE WELL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑪ CONCRETE EDGE TO RETAIN SUBGRADE, 4" THICK MIN.
- ⑫ FINISH PLANTER GRADE - 7" BELOW TOP OF TREE GRATE.

REVISION			
BY	DATE	APP. BY	COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

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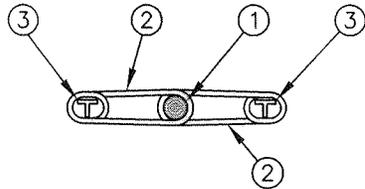
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CPSD DIRECTOR

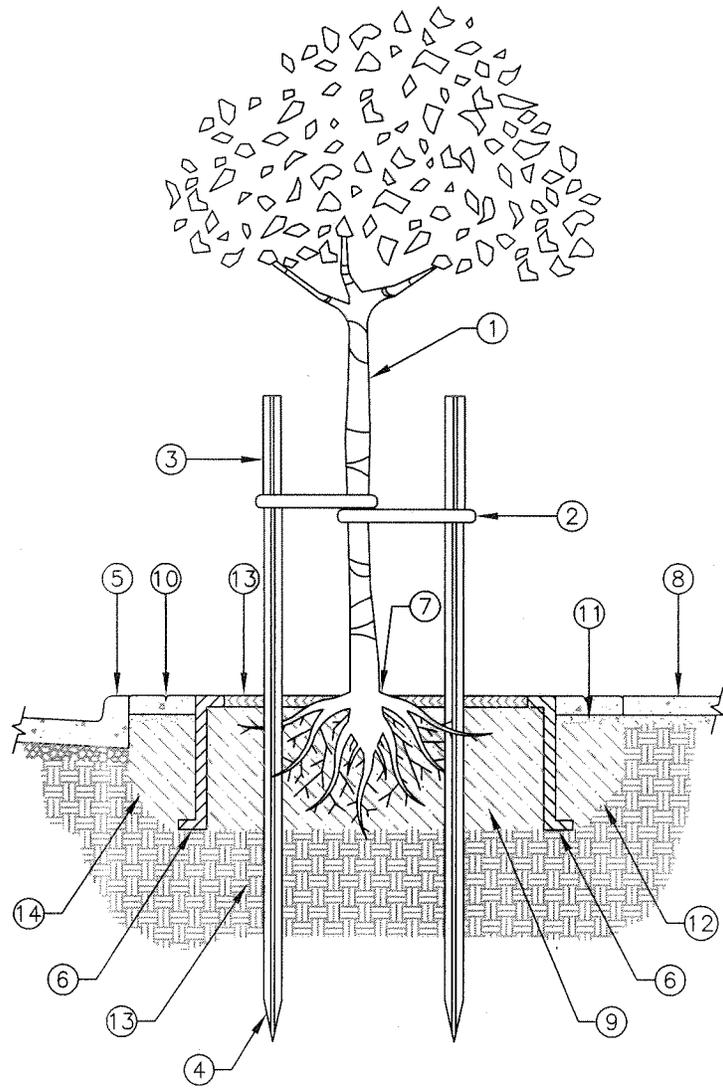
**FIFTEEN GALLON  
TREE PLANTING DETAIL  
WITH TREE GUARD**

NO.  
**LS-1**

SHEET 3 OF 3



**PLAN VIEW**



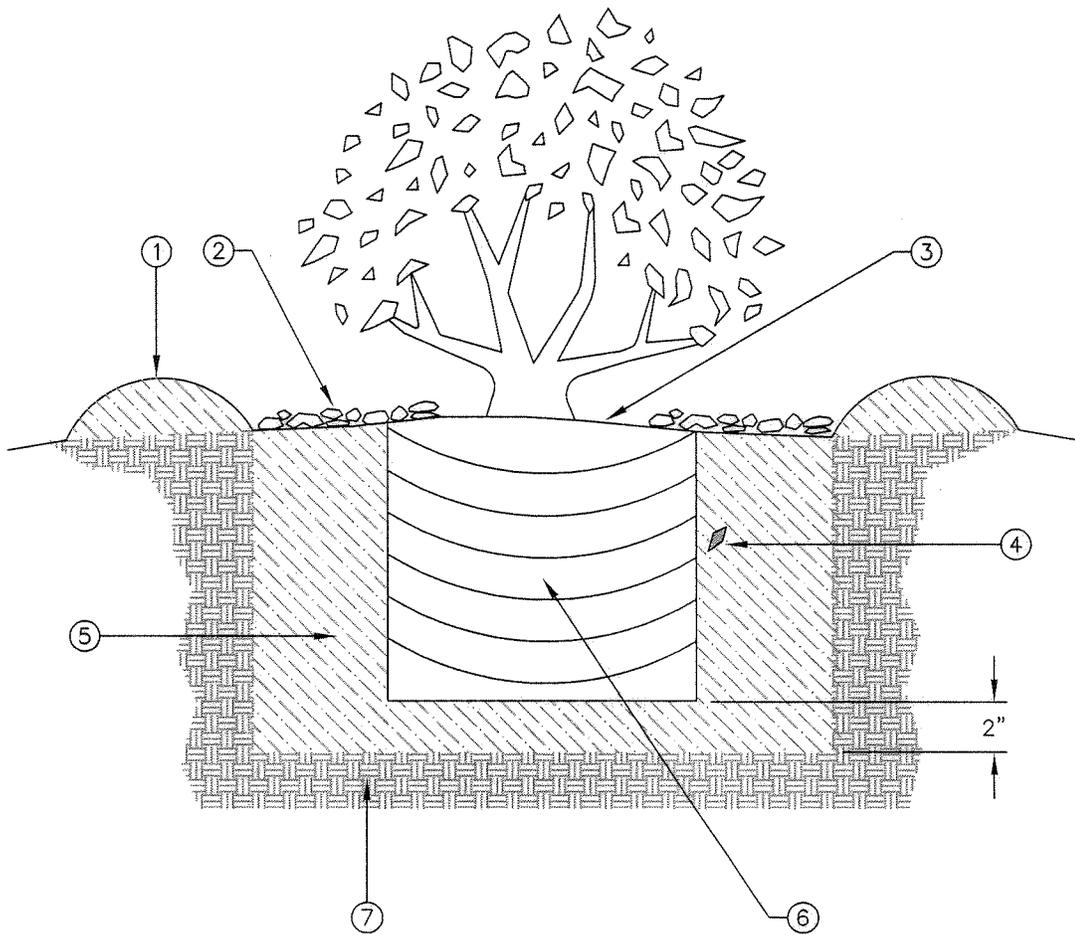
**SECTION VIEW**

**NOTES:**

- ① TREE AS PER C.D.F. STANDARDS FOR PURCHASING CONTAINER GROWN LANDSCAPE TREES.
- ② 3/4" WIDE REINFORCED PLASTIC GREEN TREE TIE.
- ③ 8' HEAVY DUTY STEEL T-POST. PLACE POSTS PERPENDICULAR TO PREVAILING WINDS AND OUTSIDE ROOTBALL IN UNDISTURBED NATIVE SOIL.
- ④ DRIVE POST 1' MIN INTO UNDISTURBED SOIL. PLACE POSTS MINIMUM 18" AWAY FROM TRUNK.
- ⑤ CURB AND GUTTER OR OTHER PAVING.
- ⑥ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL. SET AT LEVEL OF SURROUNDING CEMENT OR SOIL. 10' LONG CENTERED ON TREE, 18" DEPTH (LB 18-2) ALONG CURBING.
- ⑦ FIRST ROOTS SHALL BE VISIBLE AT TOP OF ROOTBALL. SET TOP OF ROOTBALL 1" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT. BREAK UP SIDES OF BALL AND SPREAD OUT ROOTS. NO CIRCLING ROOTS SHALL REMAIN WITHIN 12" OF THE TREE TRUNK.
- ⑧ SIDEWALK.
- ⑨ BACKFILL MIX PER SPECIFICATIONS OR SOIL REPORT. SOIL SHALL BE 2" BELOW WALK. COVER SOIL WITH 2" OF MULCH TO GRADE.
- ⑩ STAMPED CONCRETE, PER SPEC'S.
- ⑪ 2" SAND BASE.
- ⑫ PLANTING HOLE SHALL BE TWICE THE DIAMETER OF THE ROOTBALL AND NO DEEPER THAN THE TREE ROOTBALL. SCARIFY SIDES AND BOTTOM OF HOLE. IN PARKING AREAS OVER EXCAVATION OF COMPACTED SOIL MAY BE REQUIRED.
- ⑬ MULCH.

REVISION	BY	DATE	APP. BY COUNCIL

<b>CITY OF CHICO</b>		<b>STANDARD PLAN</b>	
DRAWN BY: <u>GL</u>	DATE: <u>9/09</u>	<b>FIFTEEN GALLON TREE PLANTING DETAIL WITH STAMPED CONCRETE</b>	NO. <b>LS-2</b>
CHECKED BY: <u>DB</u>	SCALE: <u>NONE</u>		
APPROVED: 	CPSD DIRECTOR		
		SHEET 1 OF 1	



SECTION VIEW

NOTES:

- ① TEMPORARY WATERING BASIN; 4" HIGH BERM, TWICE THE DIAMETER OF THE ROOTBALL.
- ② TOP DRESSING: MULCH PER SPECIFICATIONS.
- ③ SET CROWN OF PLANT 1" ABOVE FINISH GRADE SOIL TO ALLOW FOR SETTLEMENT.
- ④ FERTILIZER TABLET(S) PER SPECIFICATIONS.
- ⑤ BACKFILL MIXTURE PER SPECIFICATIONS.
- ⑥ WELL DEVELOPED SHRUB ROOTBALL.
- ⑦ PLANTING HOLE SHALL BE TWICE DIAMETER OF ROOTBALL & 2" DEEPER THAN THE SHRUB ROOTBALL; SCARIFY SIDES AND BOTTOM OF HOLE FOR ALL LINERS, ONE, FIVE AND FIFTEEN GALLON SHRUBS.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

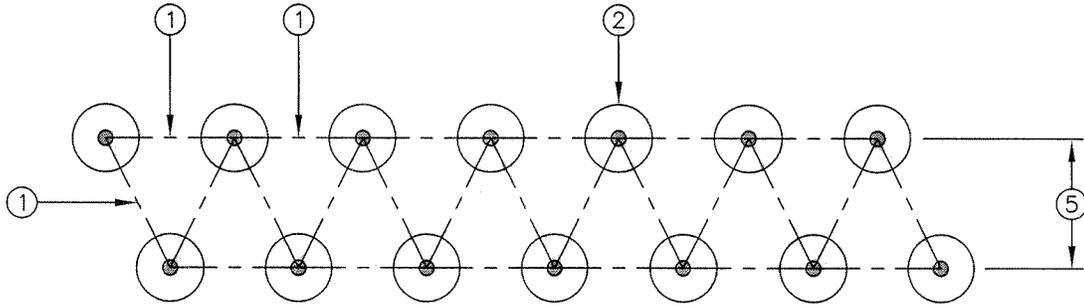
**STANDARD PLAN**

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 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

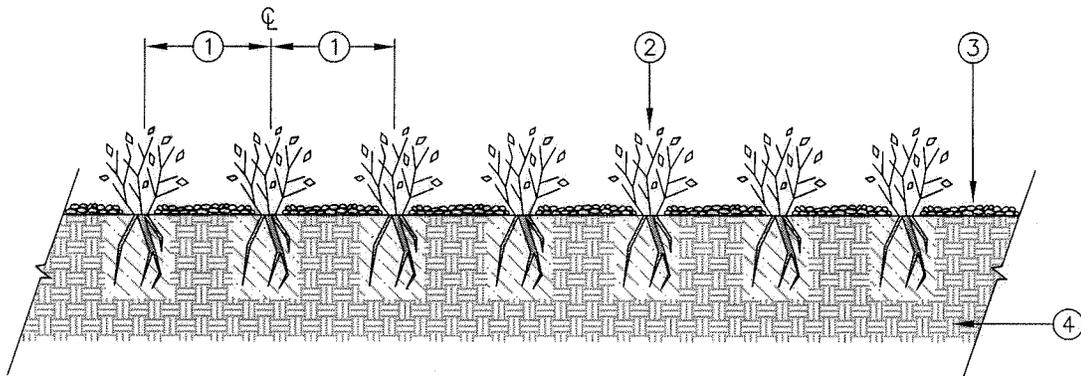
**CONTAINERIZED SHRUB  
PLANTING DETAIL**

NO.  
**LS-3**

SHEET 1 OF 1



PLAN VIEW



SECTION VIEW

NOTES:

- ① USE TRIANGULAR EQUIDISTANT SPACING BETWEEN PLANTINGS. SEE PLANS FOR SPACING DETAIL.
- ② GROUND COVER PLANTING LOCATION.
- ③ FINISH SURFACE WITH 1" OF TOP DRESSING OF MULCH. SEE SPECIFICATIONS.
- ④ AMENDED SOIL, SEE PLANS FOR SOIL PREPARATION.
- ⑤ PLANTING SPACING x 0.86.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

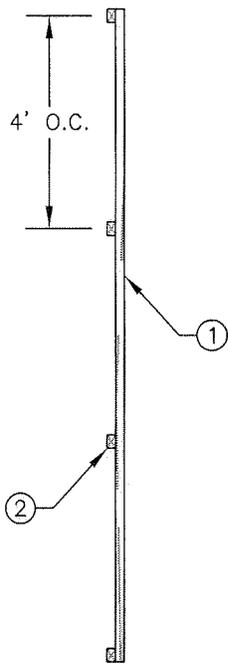
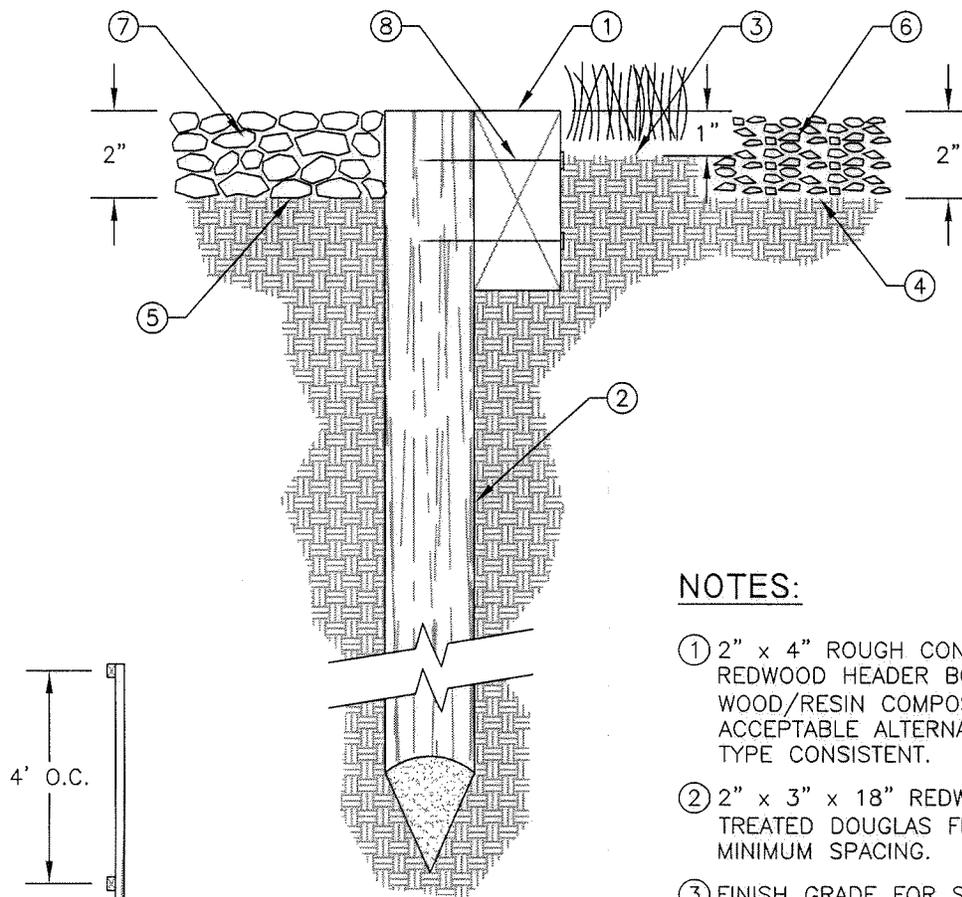
**STANDARD PLAN**

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**GROUND COVER  
PLANTING DETAIL**

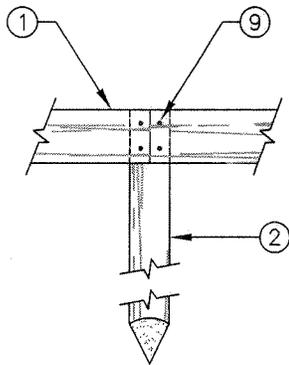
NO.  
**LS-4**

SHEET 1 OF 1



PLAN VIEW

SECTION VIEW



SPlice PROFILE VIEW

**NOTES:**

- ① 2" x 4" ROUGH CONSTRUCTION HEART REDWOOD HEADER BOARD. STEEL OR WOOD/RESIN COMPOSITE MATERIALS ARE ACCEPTABLE ALTERNATIVES. KEEP MATERIAL TYPE CONSISTENT.
- ② 2" x 3" x 18" REDWOOD OR PRESSURE TREATED DOUGLAS FIR STAKE @ 4' O.C. MINIMUM SPACING.
- ③ FINISH GRADE FOR SOIL IN TURF AREA -1".
- ④ FINISH GRADE FOR SOIL IN HARDSCAPE AREA -2".
- ⑤ FINISH GRADE FOR SOIL IN SHRUB OR GROUNDCOVER AREA -2".
- ⑥ DECOMPOSED GRANITE, ROCK DUST OR PAVING IN HARDSCAPE AREA.
- ⑦ REDWOOD BARK IN SHRUB AREA.
- ⑧ NAILS AT STAKES SHALL BE 16d GALVANIZED COMMON, 2 PER STAKE MINIMUM.
- ⑨ NAILS AT SPLICES SHALL BE 8d GALVANIZED COMMON, 4 PER SPLICE MINIMUM.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

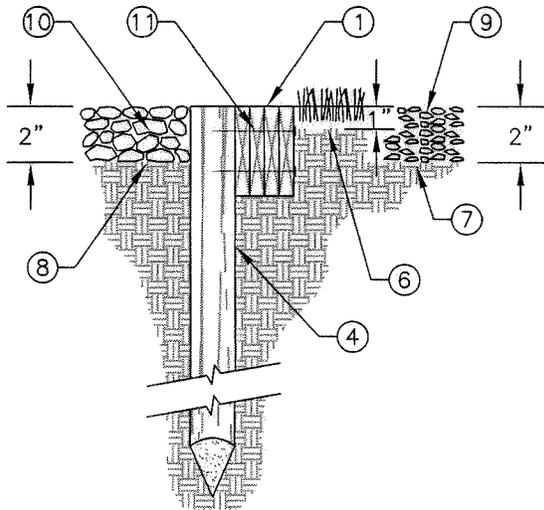
**STANDARD PLAN**

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 DIRECTOR OF ENGINEERING

**HEADER DETAIL**

NO.  
**LS-5**

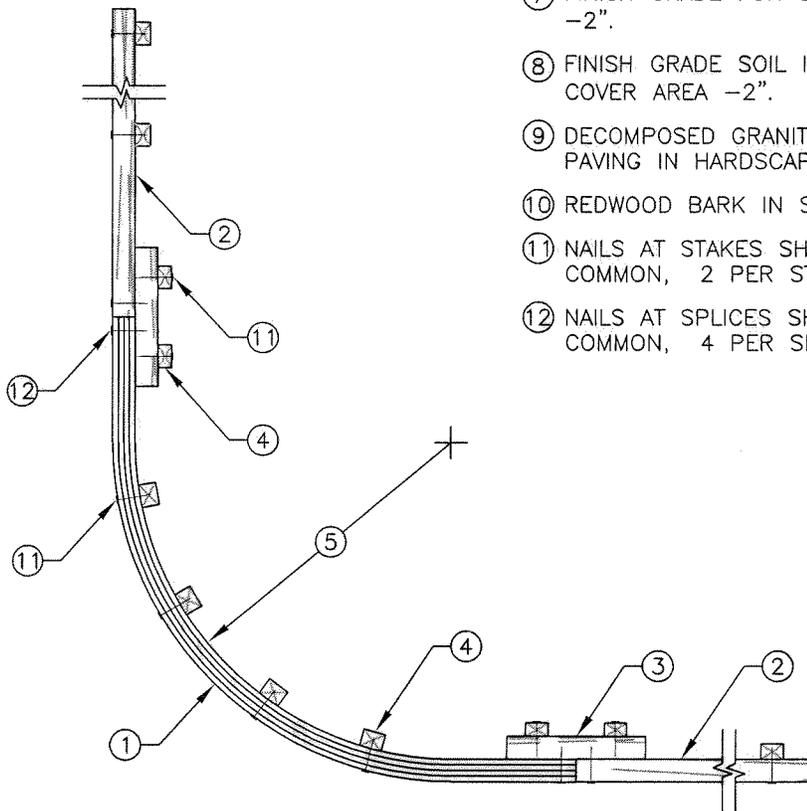
SHEET 1 OF 2



SECTION VIEW

NOTES:

- ① TWO (2) 1" x 4" OR FOUR (4) 1/2" x 4" LAMINATED ROUGH CONSTRUCTION HEART REDWOOD BENDER BOARDS AS REQUIRED TO MAKE SMOOTH CURVES. STEEL OR WOOD/RESIN COMPOSITE MATERIALS ARE ACCEPTABLE ALTERNATIVES. KEEP MATERIAL TYPE CONSISTENT.
- ② 2" x 4" ROUGH CONSTRUCTION HEART REDWOOD HEADER BOARD.
- ③ 2" x 4" x 24" ROUGH CONSTRUCTION HEART REDWOOD BACKING BLOCK AT SPLICES.
- ④ 2" x 3" x 18" MINIMUM, REDWOOD OR PRESSURE TREATED DOUGLAS FIR STAKE @ 4' O.C. MINIMUM SPACING.
- ⑤ RADIUS AS PER PLANS.
- ⑥ FINISH GRADE FOR SOIL IN TURF AREA -1".
- ⑦ FINISH GRADE FOR SOIL IN HARDSCAPE AREA -2".
- ⑧ FINISH GRADE SOIL IN SHRUB OR GROUND COVER AREA -2".
- ⑨ DECOMPOSED GRANITE, ROCK DUST OR PAVING IN HARDSCAPE AREA.
- ⑩ REDWOOD BARK IN SHRUB AREA.
- ⑪ NAILS AT STAKES SHALL BE 16d GALVANIZED COMMON, 2 PER STAKE MINIMUM.
- ⑫ NAILS AT SPLICES SHALL BE 8d GALVANIZED COMMON, 4 PER SPLICE MINIMUM.



PLAN VIEW

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

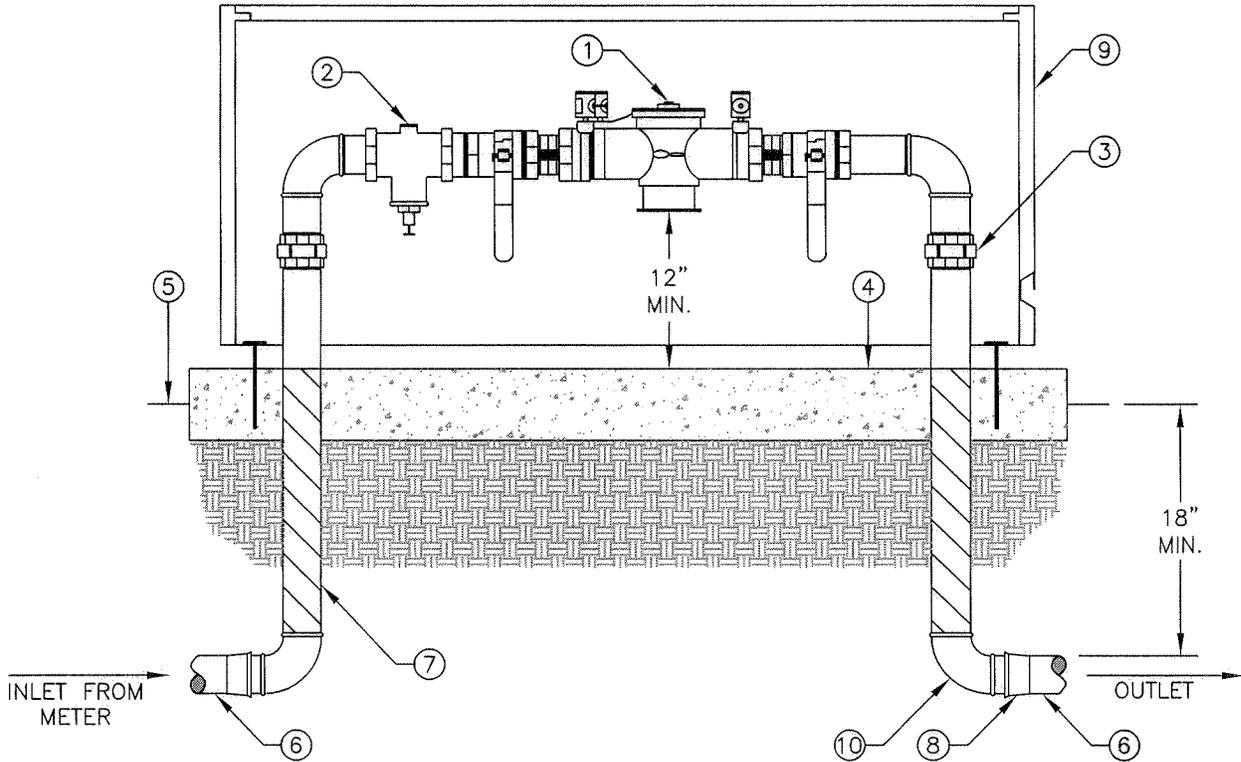
**STANDARD PLAN**

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 CHECKED BY: DB      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**LAMINATED HEADER DETAIL**

NO.  
**LS-5**

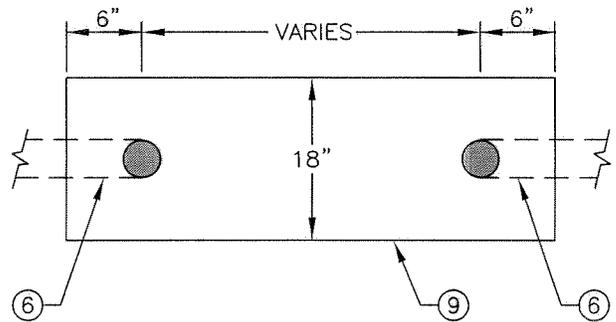
SHEET 2 OF 2



SECTION VIEW

NOTES:

- ① WILKINS 975RP REDUCED BACKFLOW PREVENTER OR APPROVED EQUAL. SEE PLANS FOR SIZE.
- ② WILKINS 70 PRESSURE REGULATOR OR APPROVED EQUAL, IF REQUIRED, SEE PLANS.
- ③ UNION (TYP).
- ④ 4" CONCRETE PAD SET 2" ABOVE FINISH GRADE IN GROUNDCOVER OR DECOMPOSED GRANITE, 1" ABOVE FINISH GRADE IN TURF.
- ⑤ FINISH GRADE.
- ⑥ SCHEDULE 40 OR 315 PVC MAINLINE. SEE PLANS FOR SIZE AND TYPE.
- ⑦ WRAP ALL BURIED GALVANIZED PIPE PER SPECS.
- ⑧ PVC SCHEDULE 40 ADAPTER/BUSHING (MFT x SLIP)
- ⑨ STAINLESS STEEL OR ALUMINUM ENCLOSURE, STRONG BOX SBBC AL SERIES OR APPROVED EQUAL. SEE PLANS FOR SIZE.
- ⑩ SCH. 40 GALVANIZED PIPE AND FITTINGS.



PLAN VIEW

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**CITY OF CHICO**

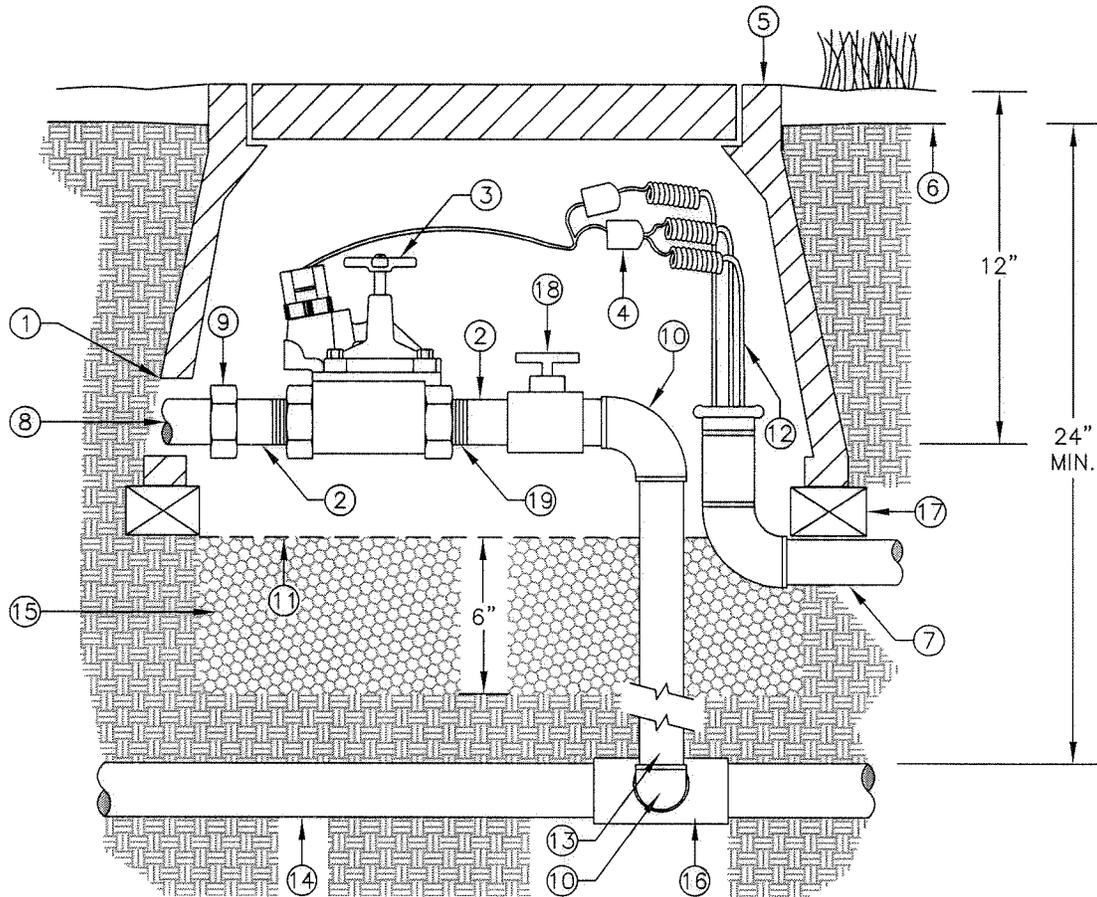
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**REDUCED PRESSURE  
 BACKFLOW PREVENTER**

NO.  
**LS-7**

SHEET 1 OF 1



**SECTION VIEW**

**NOTES:**

- ① TRIM VALVE BOX TO PROVIDE 1" CLEARANCE OVER PIPE.
- ② MACHINED SCHEDULE 40 PVC SHORT NIPPLE, T.O.E.
- ③ REMOTE CONTROL VALVE HARDIE 700 SERIES OR RAINBIRD P.E.B. SERIES, ONE PER BOX.
- ④ DBY. PENTITE OR OTHER CITY APPROVED SPLICE.
- ⑤ PLASTIC VALVE BOX, CARSON 1419B 14" x 19" OR EQUAL AS SPECIFIED WITH LID LABELED "IRRIGATION". SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ⑥ FINISH GRADE.
- ⑦ SCHED. 40 ELECTRICAL CONDUIT AND SWEEP, SEE PLANS FOR SIZE.
- ⑧ PVC SCHD. 40 LATERAL LINE; PROVIDE 18" LENGTH PRIOR TO FIRST FITTING.
- ⑨ SCHEDULE 80 PVC UNION, SxS.
- ⑩ SCHEDULE 40 PVC ELBOW SxS.
- ⑪ 1/4" GALVANIZED WIRE CLOTH PLACED ABOVE GRAVEL.
- ⑫ CONTROL AND COMMON WIRES, SIZE AS REQ.. PROVIDE MINIMUM 18" COILED EXTRA.
- ⑬ SCHEDULE 40 PVC NIPPLE, LENGTH AS REQUIRED.
- ⑭ SOLVENT WELD SCH. 40 OR CLASS 315 MAINLINE. 24" MINIMUM COVER.
- ⑮ PEA GRAVEL; 6" DEPTH.
- ⑯ SCHEDULE 80 PVC TEE (SxSxS).
- ⑰ (4) COMMON BRICKS FOR VALVE BOX SUPPORT.
- ⑱ LINE SIZE BALL VALVE.
- ⑲ USE MIN. 3 WRAPS OF TEFLON TAPE AT EACH THREADED CONNECTION.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

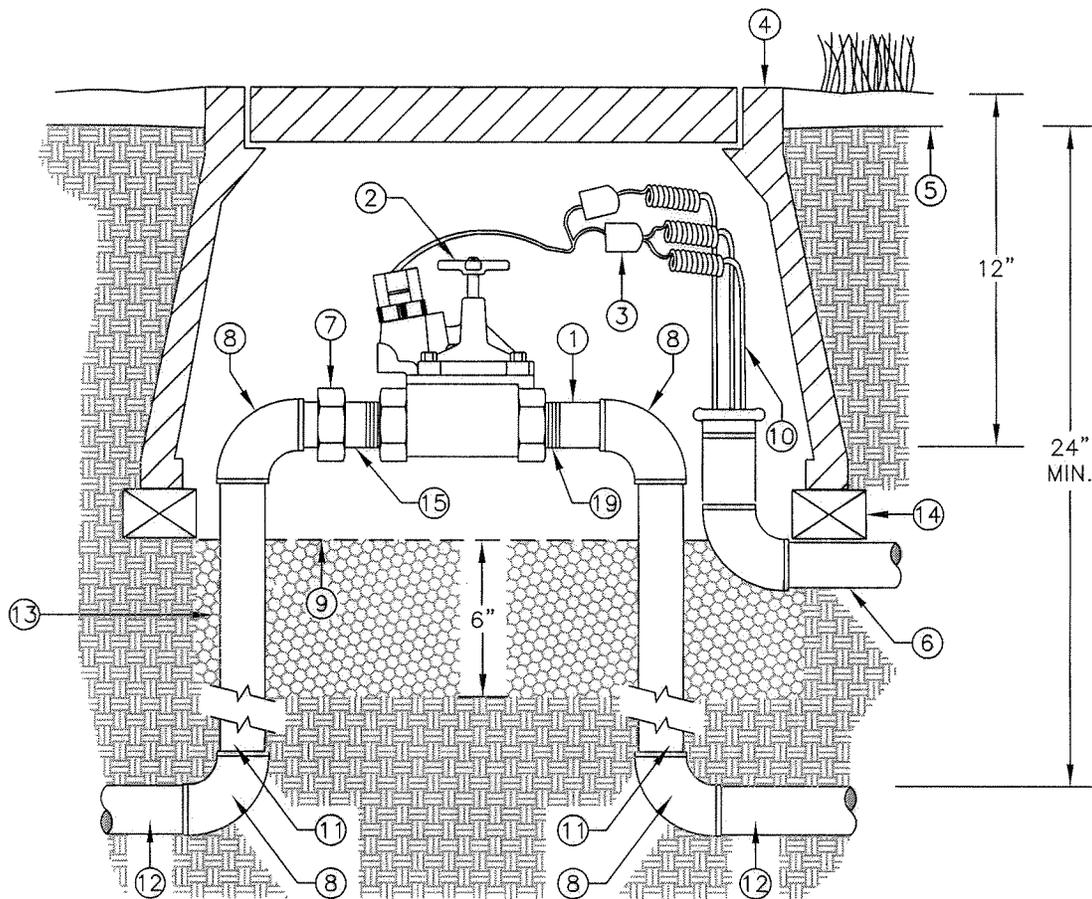
**STANDARD PLAN**

DRAWN BY: GL DATE: 10/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**REMOTE CONTROL VALVE**

NO. **LS-8**

SHEET 1 OF 2



**SECTION VIEW**

**NOTES:**

- ① MACHINED SCHEDULE 40 PVC SHORT NIPPLE, T.O.E.
- ② REMOTE CONTROL VALVE HARDIE 100 SERIES (CENTURY), NORMALLY OPEN OR EQUAL, ONE PER BOX.
- ③ DBY. PENTITE OR OTHER CITY APPROVED SPLICE.
- ④ PLASTIC VALVE BOX, CARSON 1419B 14" x 19" OR EQUAL AS SPECIFIED WITH LID LABELED "IRRIGATION". SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ⑤ FINISH GRADE.
- ⑥ SCHED. 40 ELECTRICAL CONDUIT AND SWEEP, SEE PLANS FOR SIZE.
- ⑦ SCHEDULE 80 PVC UNION, SxS.
- ⑧ SCHEDULE 40 PVC ELBOW SxS.
- ⑨ 1/4" GALVANIZED WIRE CLOTH PLACED ABOVE GRAVEL.
- ⑩ CONTROL AND COMMON WIRES, SIZE AS REQ.. PROVIDE MINIMUM 18" COILED EXTRA.
- ⑪ SCHEDULE 40 PVC NIPPLE, LENGTH AS REQUIRED.
- ⑫ SOLVENT WELD SCH. 40 OR CLASS 315 MAINLINE. 24" MINIMUM COVER.
- ⑬ PEA GRAVEL; 6" DEPTH.
- ⑭ (4) COMMON BRICKS FOR VALVE BOX SUPPORT.
- ⑮ SCHEDULE 40 MALE ADAPTER (SxMPT).
- ⑯ USE MIN. 3 WRAPS OF TEFLON TAPE AT EACH THREADED CONNECTION.

REVISION			
BY	DATE	APP. BY	COUNCIL

**CITY OF CHICO**

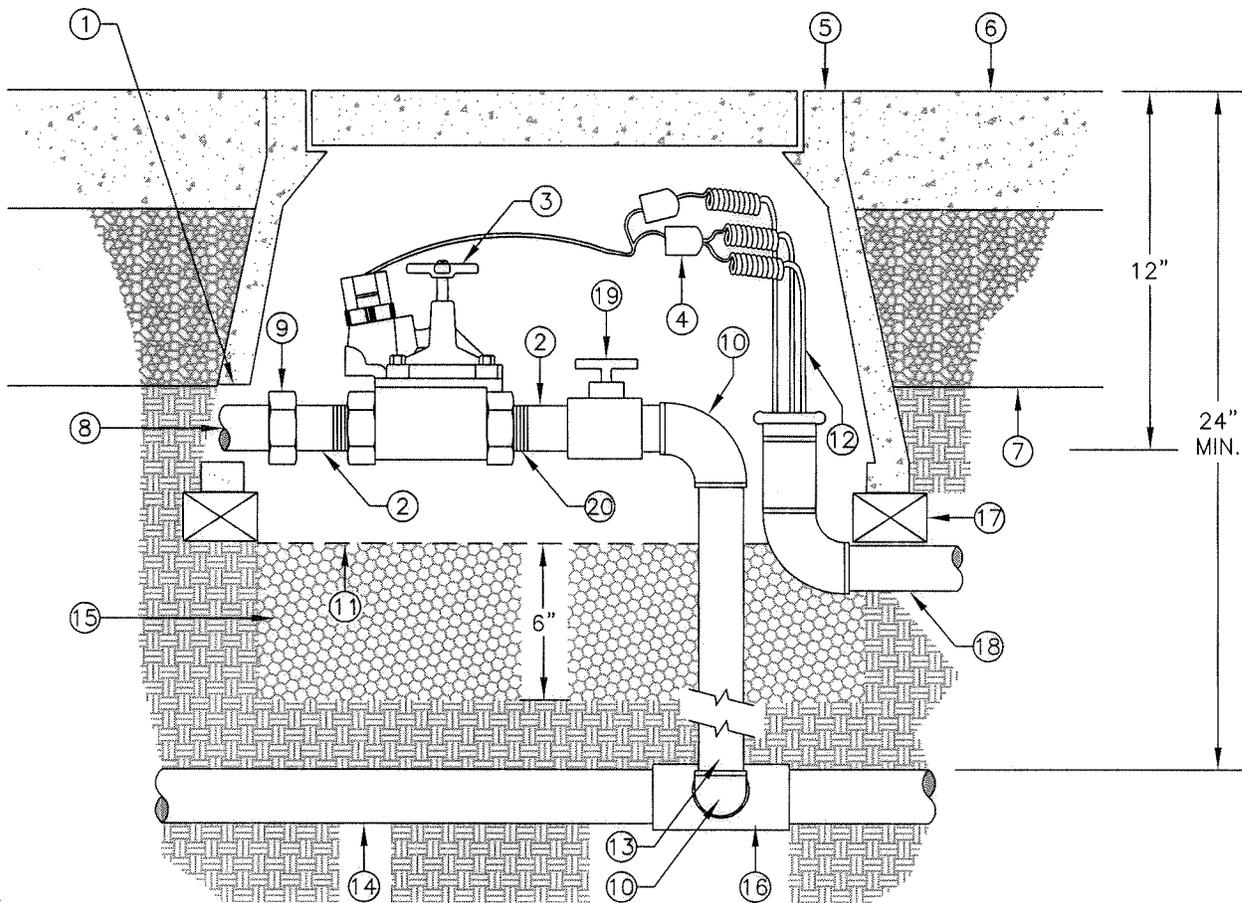
**STANDARD PLAN**

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 DIRECTOR OF ENGINEERING

**MASTER REMOTE CONTROL VALVE**

NO. **LS-8**

SHEET 2 OF 2



**SECTION VIEW**

**NOTES:**

- ① TRIM VALVE BOX TO PROVIDE 1" CLEARANCE OVER PIPE.
- ② MACHINED SCHEDULE 40 PVC SHORT NIPPLE, T.O.E.
- ③ REMOTE CONTROL VALVE HARDIE 700 SERIES OR RAINBIRD P.E.B. SERIES, ONE PER BOX.
- ④ DBY. PENTITE OR OTHER CITY APPROVED SPLICE.
- ⑤ CONCRETE VALVE BOX, CHRISTY B-9 UTILITY BOX OR APPROVED EQUAL WITH LID LABELED "IRRIGATION".
- ⑥ CONCRETE PAVING.
- ⑦ COMPACTED BASE, DEPTH PER PLANS.
- ⑧ PVC SCHD. 40 LATERAL LINE; PROVIDE 18" LENGTH PRIOR TO FIRST FITTING.
- ⑨ SCHEDULE 80 PVC UNION, SxS.
- ⑩ SCHEDULE 40 PVC ELBOW SxS.
- ⑪ 1/4" GALVANIZED WIRE CLOTH PLACED ABOVE GRAVEL.
- ⑫ CONTROL AND COMMON WIRES, SIZE AS REQ.. PROVIDE MINIMUM 18" COILED EXTRA.
- ⑬ SCHEDULE 40 PVC NIPPLE, LENGTH AS REQUIRED.
- ⑭ SOLVENT WELD SCH. 40 OR CLASS 315 MAINLINE. 24" MINIMUM COVER.
- ⑮ PEA GRAVEL; 6" DEPTH.
- ⑯ SCHEDULE 80 PVC TEE (SxSxS).
- ⑰ (4) COMMON BRICKS FOR VALVE BOX SUPPORT.
- ⑱ SCHEDULE 40 ELECTRICAL CONDUIT AND SWEEP ELL.
- ⑲ LINE SIZE BALL VALVE.
- ⑳ USE MIN. 3 WRAPS OF TEFLON TAPE AT EACH THREADED CONNECTION.

REVISION	BY	DATE	APP. BY COUNCIL

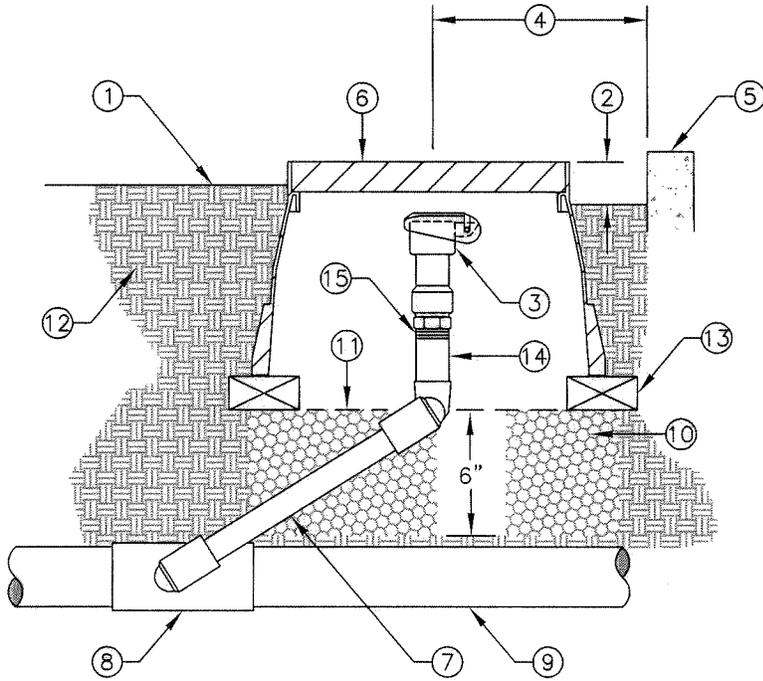
**CITY OF CHICO**

**STANDARD PLAN**

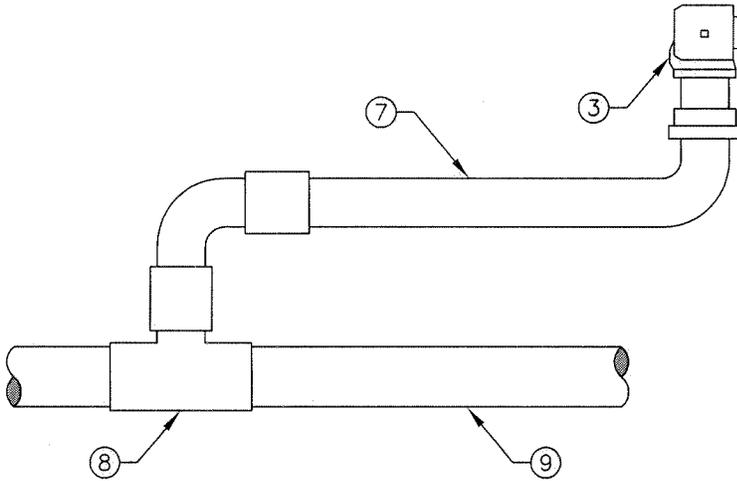
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**REMOTE CONTROL  
 VALVE IN PAVING  
 (NON VEHICULAR)**

NO.  
**LS-9**  
 SHEET 1 OF 1



SECTION VIEW



PLAN VIEW

**NOTES:**

- ① FINISH GRADE.
- ② SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ③ QUICK COUPLING VALVE WITH LOCKING RUBBER COVER, RAINBIRD 44-LRC OR APPROVED EQUAL.
- ④ SET QUICK COUPLER 12" FROM EDGE OF PLANTING AREA.
- ⑤ CURB, HEADER OR PAVING.
- ⑥ PLASTIC VALVE BOX WITH QUICK COUPLER VALVE, CARSON 910 OR APPROVED EQUAL.
- ⑦ MANUFACTURED TRIPLE SWING JOINT, KBI SPIGOT X SOCKET, OR EQUAL.
- ⑧ SCHEDULE 40 PVC TEE (SXSXS).
- ⑨ SCHEDULE 40 OR CLASS 315 PVC MAINLINE; 24" MINIMUM COVER.
- ⑩ PEA GRAVEL, 6" DEPTH.
- ⑪ 1/4" GALVANIZED WIRE CLOTH PLACED ABOVE GRAVEL.
- ⑫ PREPARED SUBGRADE.
- ⑬ (3) COMMON BRICKS FOR SUPPORT.
- ⑭ NIPPLE, T.O.E.
- ⑮ USE MINIMUM 3 WRAPS OF TEFLON TAPE AT EACH THREADED CONNECTION.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

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 DIRECTOR OF ENGINEERING

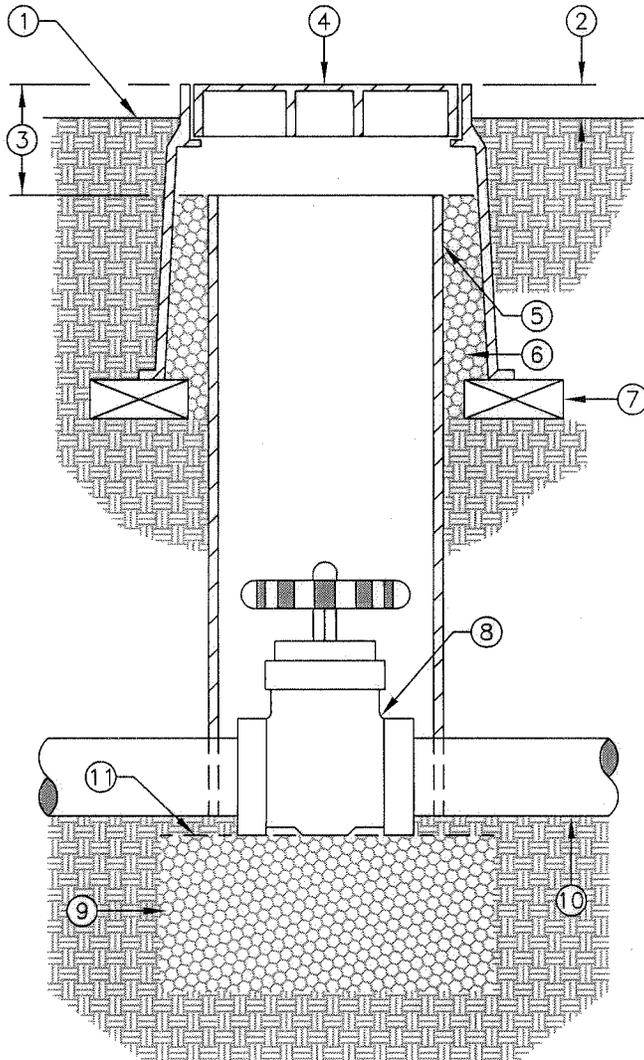
**QUICK COUPLING VALVE**

NO.  
**LS-10**

SHEET 1 OF 1

**NOTES:**

- ① FINISH GRADE.
- ② SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ③ ALLOW 3" BETWEEN TOP OF VALVE BOX AND PVC PIPE.
- ④ CARSON 910 OR EQUAL 10" DIAMETER GREEN PLASTIC VALVE BOX WITH LOCKING LID.
- ⑤ 6" DIAMETER SCHEDULE 40 PVC PIPE. LENGTH AS REQUIRED.
- ⑥ PEA GRAVEL - 1 CU. FT.
- ⑦ (3) COMMON BRICKS FOR SUPPORT.
- ⑧ LINE SIZE BALL VALVE, SEE PROJECT SPECS. FOR MANUFACTURER.
- ⑨ 6" MINIMUM DEPTH PEA GRAVEL.
- ⑩ SCHEDULE 40 OR CLASS 315 PVC PRESSURE LINE, 24" MINIMUM COVER.
- ⑪ 1/4" GALVANIZED WIRE CLOTH.



**SECTION VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

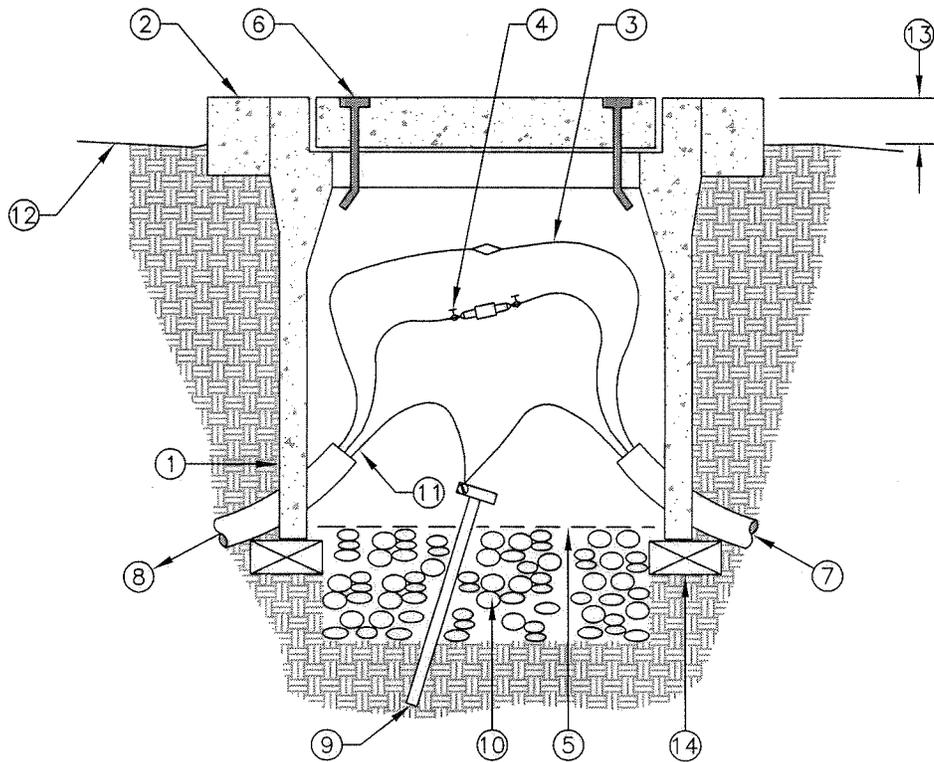
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 DIRECTOR OF ENGINEERING

**TRU-UNION BALL VALVE**

NO. **LS-II**

SHEET 1 OF 1





SECTION VIEW

NOTES:

- |   |  |
|---|--|
| <p>① NO. 5½ BOX, LID LABELED "IRRIGATION", CONCRETE FORNI OR EQUAL.</p> <p>② INSTALL NEW 6" x 6" P.C.C. COLLAR.</p> <p>③ PROVIDE 6' OF CONDUCTOR SLACK - INSIDE OF HANDHOLE, NEATLY COILED. CONDUCTOR SIZE PER SPEC'S.</p> <p>④ WATERPROOF 1 POLE FUSED SPLICE. CONNECT WITH 5 AMP FUSE, PER SPEC'S.</p> <p>⑤ 1/4" GALVANIZED WIRE MESH.</p> <p>⑥ HOLD DOWN BOLT.</p> <p>⑦ FROM PG&amp;E OR POWER SOURCE.</p> | <p>⑧ TO LOAD.</p> <p>⑨ 5/8" COPPER CLAD GROUND ROD, LENGTH AS REQUIRED.</p> <p>⑩ 3/4" DRAIN ROCK 6" DEPTH.</p> <p>⑪ SEAL CONDUIT WITH ELECTRICIANS PUTTY.</p> <p>⑫ FINISH GRADE.</p> <p>⑬ SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.</p> <p>⑭ (3) COMMON BRICKS FOR SUPPORT.</p> |
|---|--|

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

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 DIRECTOR OF ENGINEERING

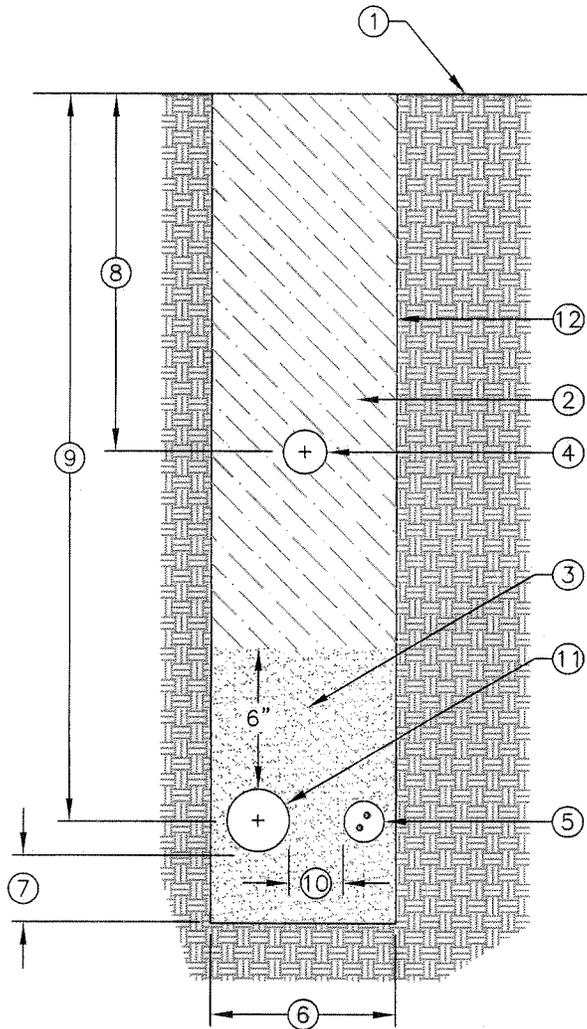
**CONTROLLER SERVICE  
PULL BOX**

NO.  
**LS-13**

SHEET 1 OF 1

**NOTES:**

- ① FINISH GRADE.
- ② TOPSOIL BACKFILL, NO PARTICLES GREATER THAN 1". COMPACT PER SPECIFICATIONS.
- ③ SIX INCHES SAND FILL COVER, ABOVE MAINLINE.
- ④ PVC PIPE LATERAL.
- ⑤ ELECTRIC WIRES IN 2" SCHEDULE 40 ELECTRICAL CONDUIT FROM CONTROLLER TO VALVE.
- ⑥ 6" UNLESS OTHERWISE NOTED.
- ⑦ 2" FROM BOTTOM OF TRENCH.
- ⑧ LATERAL - 12" MIN. COVER.
- ⑨ MAINLINE - 24" MIN. COVER.
- ⑩ 2" MINIMUM SEPARATION.
- ⑪ PVC PIPE MAINLINE.
- ⑫ SIDES OF TRENCH WILL BE DUG SQUARE AND BE CLEAN OF ALL SHARP MATERIAL.



**SECTION VIEW**

REVISION	BY	DATE	APP. BY	COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

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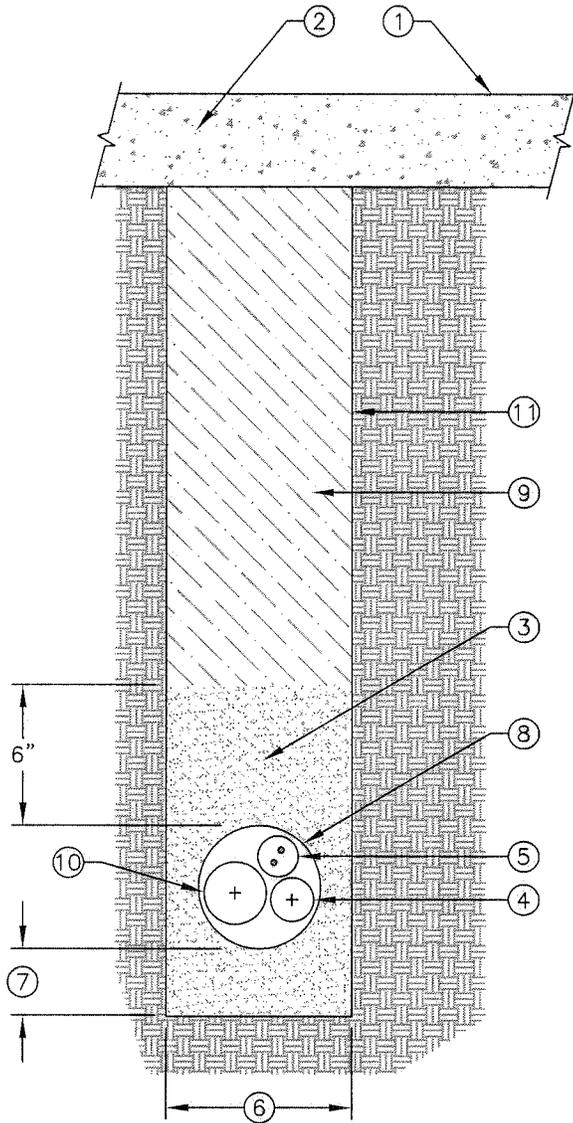
**TRENCHING DETAIL**

NO.  
**LS-14**

SHEET 1 OF 3

**NOTES:**

- ① FINISH GRADE.
- ② PAVING.
- ③ SIX INCHES SAND FILL COVER, ABOVE TOP PIPE.
- ④ PVC PIPE LATERAL.
- ⑤ ELECTRIC WIRES IN 2" SCHEDULE 40 ELECTRICAL CONDUIT FROM CONTROLLER TO VALVE.
- ⑥ 6" UNLESS OTHERWISE NOTED.
- ⑦ 2" FROM BOTTOM OF TRENCH.
- ⑧ SLEEVING - 26" BENEATH PAVING, MINIMUM SIZE: 4" OR AS REQUIRED.
- ⑨ NATIVE SOIL COMPACTED TO 95%.
- ⑩ PVC PIPE MAINLINE.
- ⑪ SIDES OF TRENCH WILL BE DUG SQUARE AND BE CLEAN OF ALL SHARP MATERIAL.



**SECTION VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

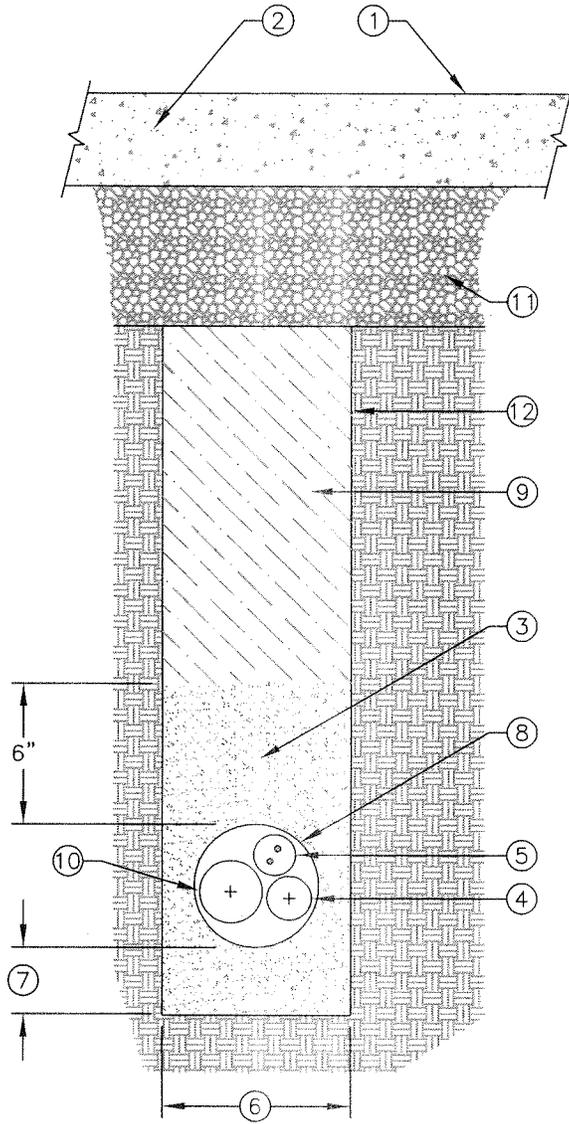
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 DIRECTOR OF ENGINEERING

**TRENCHING DETAIL  
 BENEATH PAVING  
 (NON-VEHICULAR)**

NO.  
**LS-14**  
 SHEET 2 OF 3

**NOTES:**

- ① FINISH GRADE.
- ② PAVING.
- ③ SIX INCHES SAND FILL COVER, ABOVE TOP PIPE.
- ④ PVC PIPE LATERAL.
- ⑤ ELECTRIC WIRES IN 2" SCHEDULE 40 ELECTRICAL CONDUIT FROM CONTROLLER TO VALVE.
- ⑥ 6" UNLESS OTHERWISE NOTED.
- ⑦ 2" FROM BOTTOM OF TRENCH.
- ⑧ SLEEVING - 26" BENEATH PAVING, MINIMUM SIZE: 4" OR AS REQUIRED.
- ⑨ NATIVE SOIL COMPACTED TO 95%.
- ⑩ PVC PIPE MAINLINE.
- ⑪ PAVEMENT SUBGRADE AS PER CITY OF CHICO SPECIFICATIONS.
- ⑫ SIDES OF TRENCH WILL BE DUG SQUARE AND BE CLEAN OF ALL SHARP MATERIAL.



SECTION VIEW

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

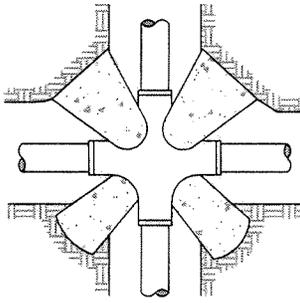
**STANDARD PLAN**

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 DIRECTOR OF ENGINEERING

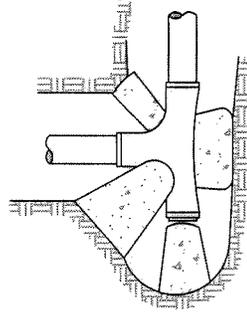
**TRENCHING DETAIL  
 BENEATH PAVING  
 (VEHICULAR)**

NO.  
**LS-14**

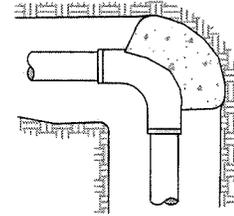
SHEET 3 OF 3



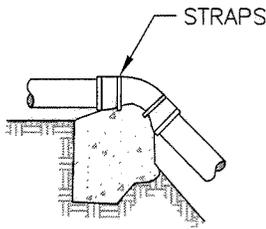
PLAN



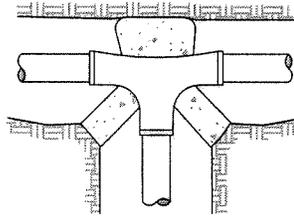
PLAN



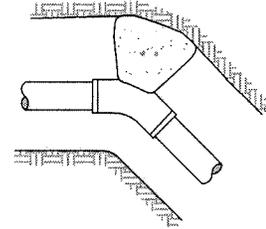
PLAN



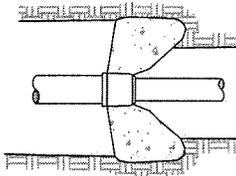
PROFILE



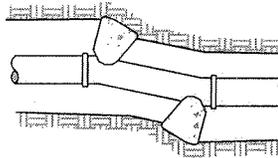
PLAN



PLAN



PLAN



PLAN

NOTES:

1. ALL MAINLINE TO BE INSTALLED AND TESTED ACCORDING TO PIPE MANUFACTURER'S SPECS, WHICH SHALL BE A PART OF THE INSTALLATION SPECS.
2. ALL TRENCH DEPTHS AND WIDTHS SHALL BE AS SHOWN ON THE IRRIGATION PLANS.
3. FINAL LOCATION OF THRUST BLOCKS SHALL BE DETERMINED BY THE PROJECT DESIGNER.
4. SIZE OF BEARING SURFACE PER SPECIFICATIONS.
5. BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL.
6. INSTALL THRUST BLOCK AS SHOWN ABOVE ON ALL RING-TITE PIPE AND SOLVENT WELD PIPE 3" OR LARGER.
7. INSTALL THRUST BLOCKS ON SOLVENT WELD PIPE 2½" OR SMALLER MAINLINES ONLY WHEN MAINLINE PRESSURE IS GREATER THEN 75 PSI.

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**CITY OF CHICO**

**STANDARD PLAN**

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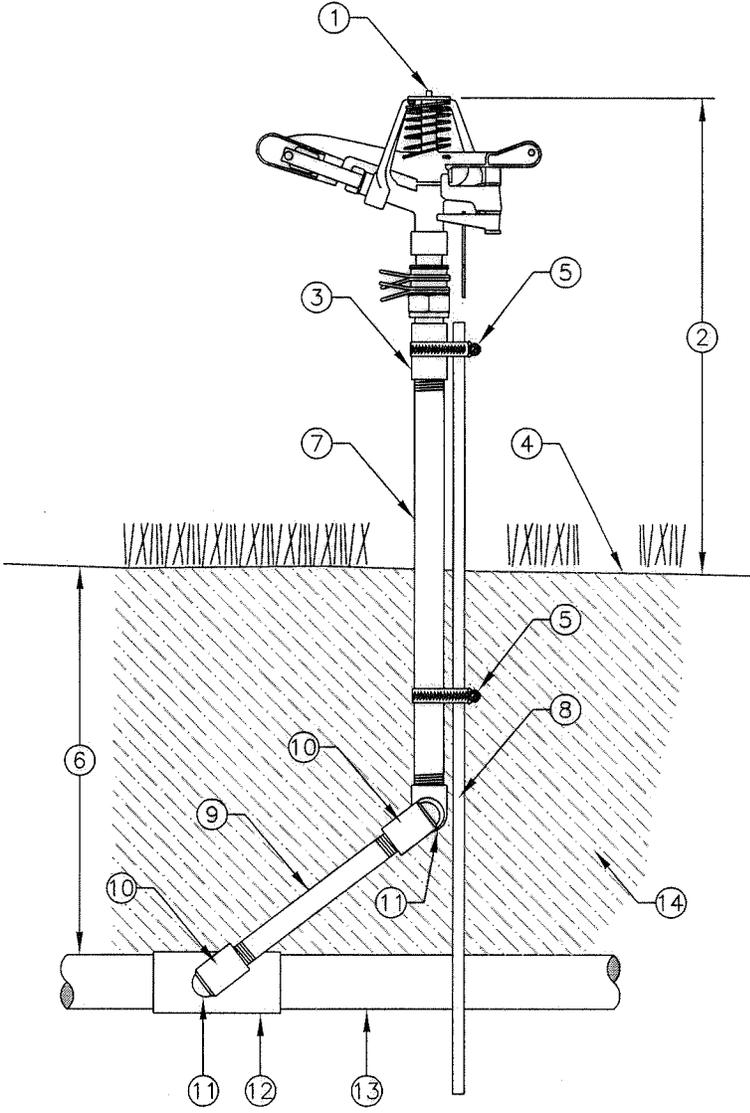
**TYPICAL THRUST BLOCK  
 DETAILS FOR RING-TITE  
 AND SOLVENT WELD PIPE**

No.  
**LS-15**

SHEET 1 OF 1

**NOTES:**

- ① IMPACT SPRINKLER HEAD.
- ② SET HEIGHT OF SPRINKLER HEAD PER PLAN, 10" MIN. ABOVE FINISH GRADE.
- ③ SCHEDULE 40 GALVANIZED STEEL COUPLING.
- ④ FINISH GRADE.
- ⑤ TWO STAINLESS STEEL HOSE CLAMPS, SIZE AS REQUIRED.
- ⑥ 12" MIN. COVER.
- ⑦ SCHEDULE 40 GALVANIZED STEEL NIPPLE, LENGTH AS REQUIRED. CONNECT TO SCHEDULE 80 PVC ELBOW (NOT SHOWN).
- ⑧ #6 REBAR STAKE; 36" MIN. LENGTH, 30" INTO GROUND.
- ⑨ SCHEDULE 80 PVC NIPPLE 12" MIN. LENGTH.
- ⑩ SCHEDULE 40 PVC STREET ELBOW, CONNECT TO SCHEDULE 80 SHORT NIPPLE.
- ⑪ SCHEDULE 80 PVC ELBOW (TxT).
- ⑫ SCHEDULE 40 PVC TEE (SxSxT).
- ⑬ SCHEDULE 40 PVC LATERAL LINE.
- ⑭ NATIVE SOIL BACKFILL FREE OF ROCKS LARGER THAN 1".



**SECTION VIEW**

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**CITY OF CHICO**

**STANDARD PLAN**

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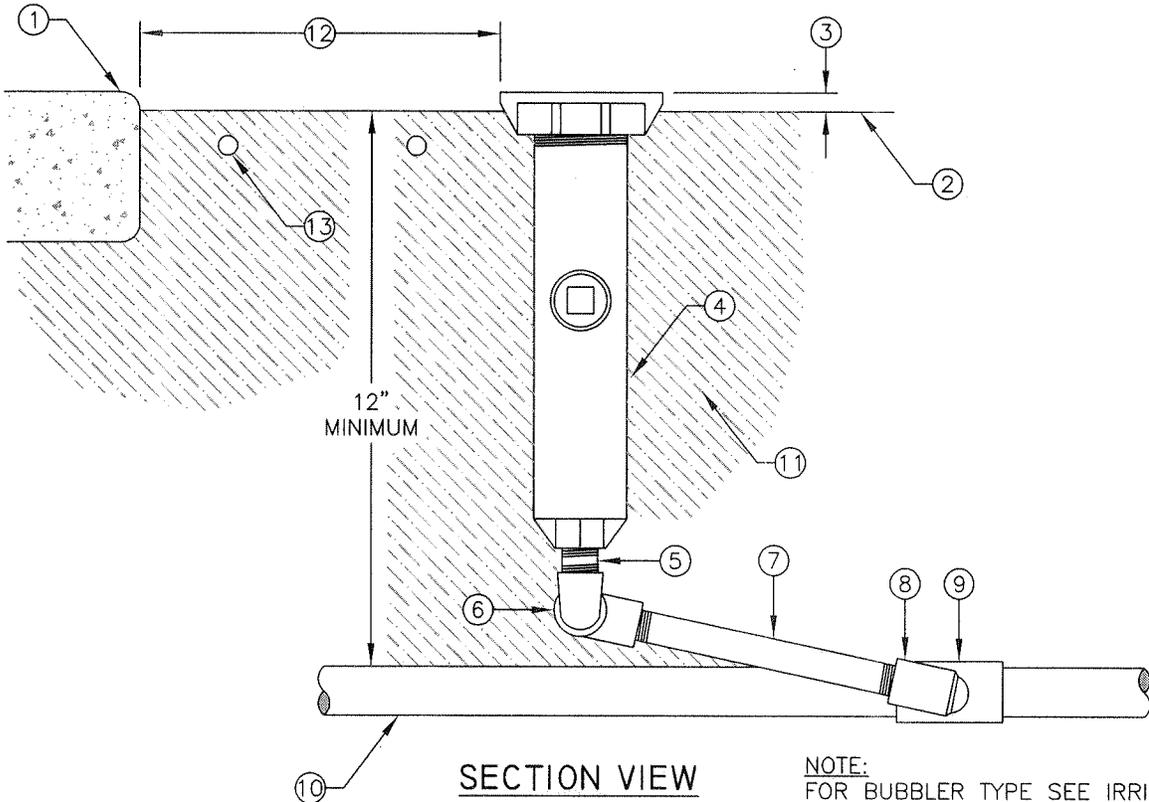
**IMPACT RISER  
WITH SWING JOINT**

NO.  
**LS-16**

SHEET 1 OF 1

**NOTES:**

- ① EDGE OF PAVING OR FACE OF WALL. NARROW OR IRREGULAR SHAPED AREAS, INCLUDING TURF, LESS THAN 8 FEET IN WIDTH IN ANY DIRECTION SHALL BE IRRIGATED WITH SUBSURFACE OR LOW VOLUME IRRIGATION SYSTEM.
- ② FINISH GRADE.
- ③ SET TOP OF SPRINKLER AT FINISH GRADE OF CONCRETE AND ABOVE SOIL GRADE; ½" TO ¾" IN SOD, 2" IN PLANTER, DECOMPOSED GRANITE OR MULCH. TOP OF SPRINKLER SHALL BE LEVEL WITH TOP OF PAVING. IF A BUBBLER IS USED, TOP OF BUBBLER SHALL BE LEVEL WITH TOP OF PAVING.
- ④ POP-UP SPRAY HEAD.
- ⑤ SCHEDULE 80 RISER, LENGTH AS REQUIRED.
- ⑥ DOUBLE SWING JOINT; SCHEDULE 40 PVC STREET ELBOW, SCHEDULE 40 PVC ELBOW T x T.
- ⑦ SCHEDULE 80 NIPPLE LENGTH AS REQUIRED.
- ⑧ SCHEDULE 40 PVC STREET ELBOW.
- ⑨ TEE OR ELBOW SCHEDULE 40.
- ⑩ LATERAL LINE SCHEDULE 40.
- ⑪ NATIVE SOIL BACKFILL, FREE OF ROCKS LARGER THAN 1".
- ⑫ OVERHEAD IRRIGATION SHALL NOT BE PERMITTED WITHIN 24 INCHES OF A NON PERMEABLE SURFACE.
- ⑬ IF AREA TO BE PLANTED. PROVIDE 2 DRIPLINES.



NOTE:  
FOR BUBBLER TYPE SEE IRRIGATION  
LEGEND AND PLANS.

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**CITY OF CHICO**

**STANDARD PLAN**

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 CSD DIRECTOR

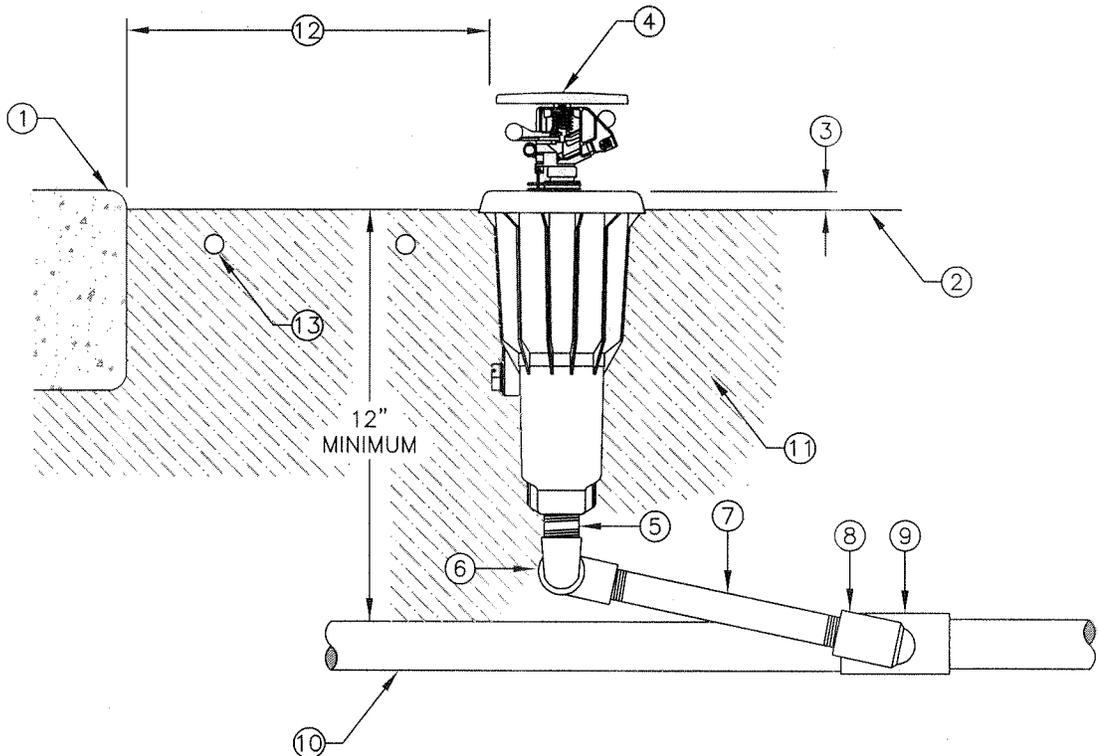
**SPRINKLER/BUBBLER POP-UP**

NO.  
**LS-17**

SHEET 1 OF 1

**NOTES:**

- ① EDGE OF PAVING OR FACE OF WALL. NARROW OR IRREGULAR SHAPED AREAS, INCLUDING TURF, LESS THAN 8 FEET IN WIDTH IN ANY DIRECTION SHALL BE IRRIGATED WITH SUBSURFACE OR LOW VOLUME IRRIGATION SYSTEM.
- ② FINISH GRADE.
- ③ SET TOP OF ROTOR AT FINISH GRADE OF CONCRETE AND ABOVE SOIL GRADE; ½" TO ¾" IN SOD, 2" IN PLANTER, DECOMPOSED GRANITE OR MULCH. TOP OF ROTOR SHALL BE LEVEL WITH TOP OF PAVING.
- ④ TURF POP-UP IMPACT ROTOR.
- ⑤ SCHEDULE 80 RISER, LENGTH AS REQUIRED.
- ⑥ DOUBLE SWING JOINT; SCHEDULE 40 PVC STREET ELBOW, SCHEDULE 40 PVC ELBOW T x T.
- ⑦ SCHEDULE 80 NIPPLE.
- ⑧ SCHEDULE 40 PVC STREET ELBOW.
- ⑨ LATERAL LINE WITH PVC TEE OR ELBOW.
- ⑩ PVC SCHEDULE 40 LATERAL LINE.
- ⑪ NATIVE SOIL BACKFILL, FREE OF ROCKS LARGER THAN 1".
- ⑫ OVERHEAD IRRIGATION SHALL NOT BE PERMITTED WITHIN 24 INCHES OF A NON PERMEABLE SURFACE.
- ⑬ IF AREA TO BE PLANTED. PROVIDE 2 DRIPLINES.



**SECTION VIEW**

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**CITY OF CHICO**

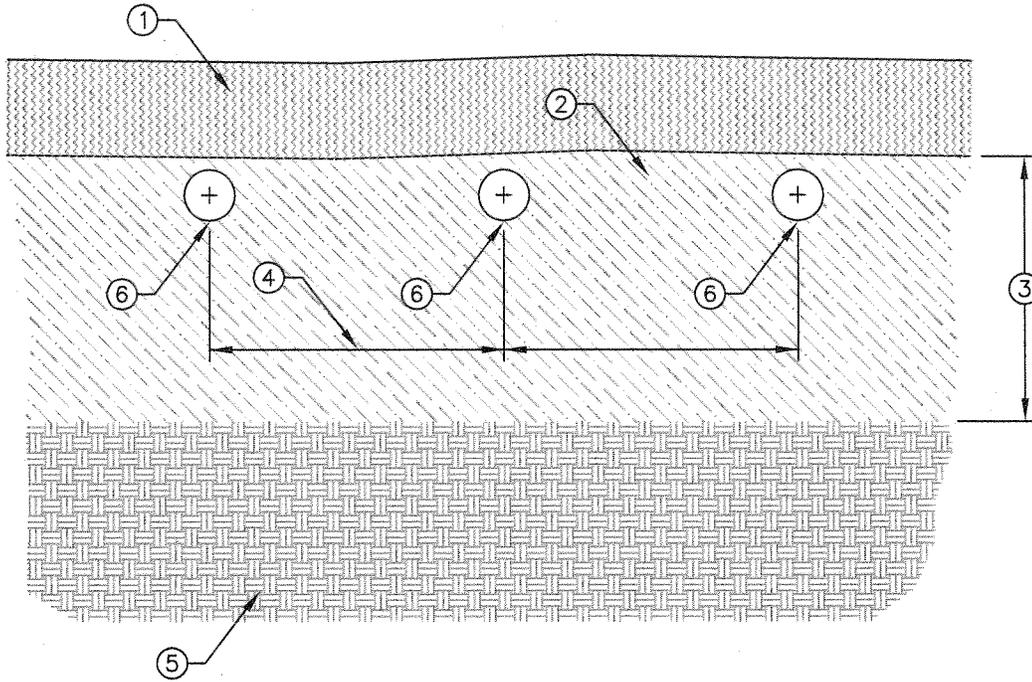
**STANDARD PLAN**

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 CPD DIRECTOR

**TURF IMPACT ROTOR  
 WITH SWING JOINT**

NO.  
**LS-18**

SHEET 1 OF 1



SECTION VIEW

NOTES:

- ① 2" TO 4" LAYER OF MULCH.
- ② AMENDED TOPSOIL.
- ③ MINIMUM 8 INCHES DEPTH AMENDED SOIL, WILL VARY ACCORDING TO SOIL CONDITIONS, AS CALLED FOR ON PLANS.
- ④ 12" - 24" SPACING. SPACING WILL VARY ACCORDING TO SOIL CONDITIONS AND TYPE OF LANDSCAPING, AS CALLED FOR ON PLANS.
- ⑤ PREPARED SUB-GRADE PER PROJECT PLANS AND SPECIFICATIONS.
- ⑥ SUBTERRANEAN DRIP TUBING, SET IN SOIL SURFACE, NO DEEPER THAN 2".

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**CITY OF CHICO**

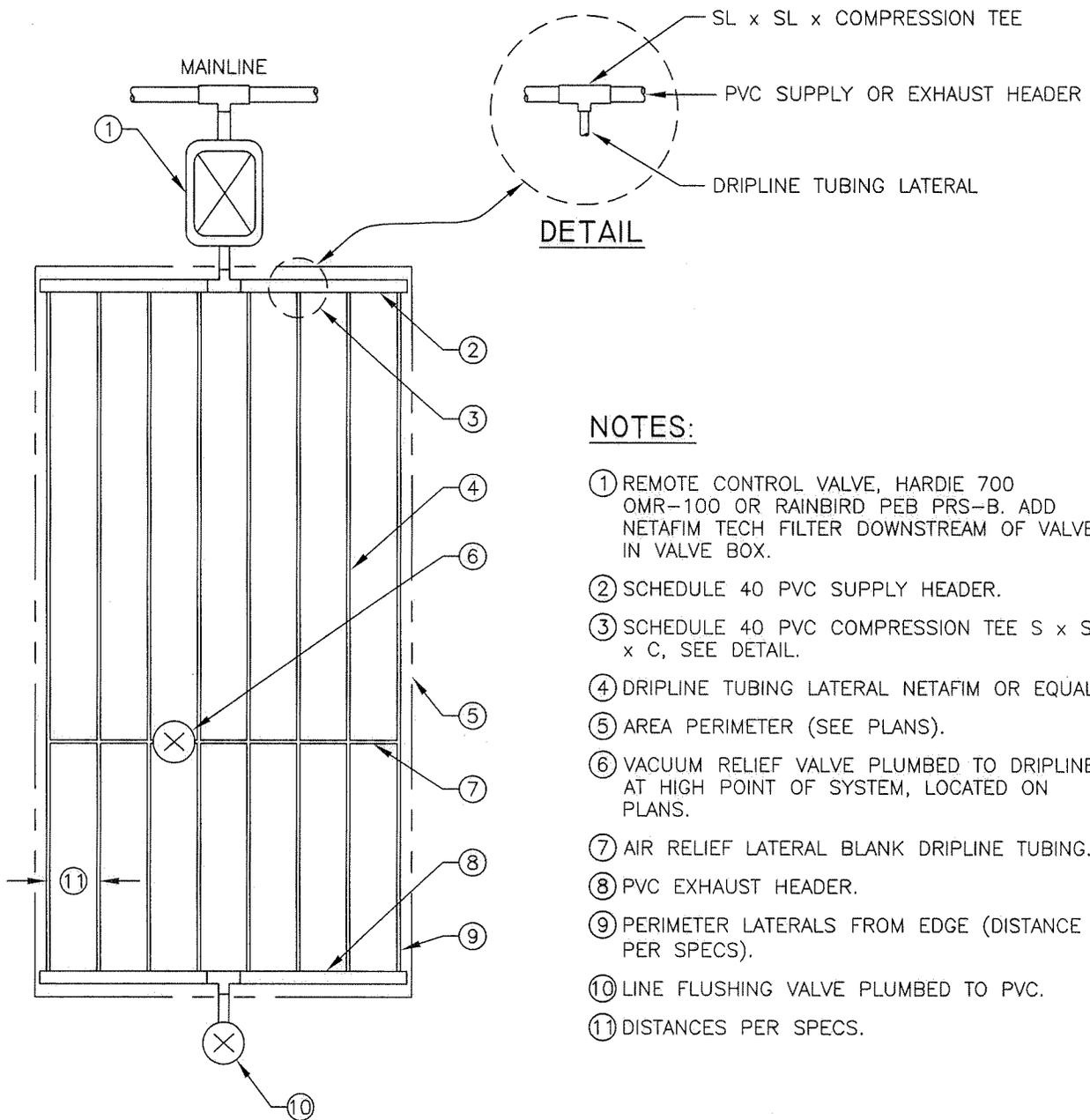
**STANDARD PLAN**

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 APPROVED: [Signature]  
 OPSD DIRECTOR

**SUBTERRANEAN DRIP  
SPACING**

NO.  
**LS-19**

SHEET 1 OF 1



**NOTES:**

- ① REMOTE CONTROL VALVE, HARDIE 700 OMR-100 OR RAINBIRD PEB PRS-B. ADD NETAFIM TECH FILTER DOWNSTREAM OF VALVE IN VALVE BOX.
- ② SCHEDULE 40 PVC SUPPLY HEADER.
- ③ SCHEDULE 40 PVC COMPRESSION TEE S x S x C, SEE DETAIL.
- ④ DRIPLINE TUBING LATERAL NETAFIM OR EQUAL.
- ⑤ AREA PERIMETER (SEE PLANS).
- ⑥ VACUUM RELIEF VALVE PLUMBED TO DRIPLINE AT HIGH POINT OF SYSTEM, LOCATED ON PLANS.
- ⑦ AIR RELIEF LATERAL BLANK DRIPLINE TUBING.
- ⑧ PVC EXHAUST HEADER.
- ⑨ PERIMETER LATERALS FROM EDGE (DISTANCE PER SPECS).
- ⑩ LINE FLUSHING VALVE PLUMBED TO PVC.
- ⑪ DISTANCES PER SPECS.

PLAN VIEW

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

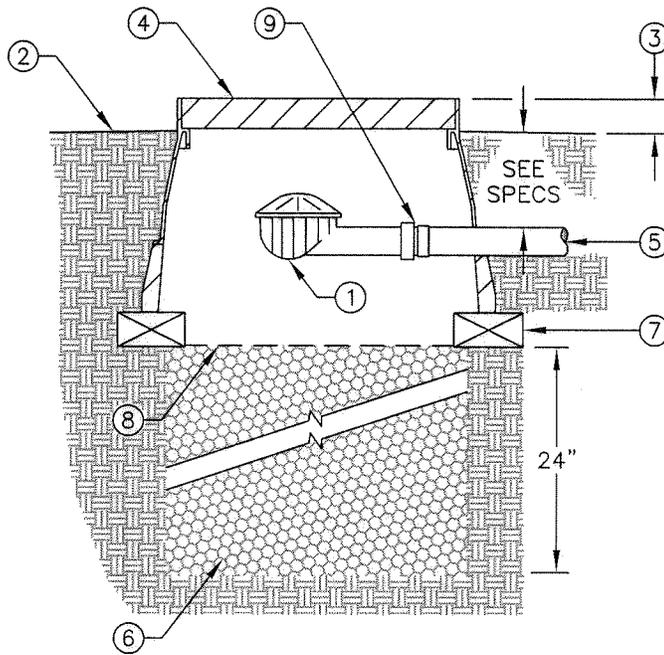
**STANDARD PLAN**

DRAWN BY: GL      DATE: 11/06  
 CHECKED BY: DB      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**SUBTERRANEAN  
DRIPLINE LAYOUT**

NO.  
**LS-20**

SHEET 1 OF 1



SECTION VIEW

NOTES:

- ① DRIPLINE FLUSHING VALVE GEOFLOW FLUSH VALVE OR EQUAL.
- ② FINISH GRADE.
- ③ SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ④ 10" ROUND VALVE BOX CARSON #910 OR EQUAL.
- ⑤ PVC FROM EXHAUST HEADER.
- ⑥ PEA GRAVEL SUMP (6" - 8" DIAMETER).
- ⑦ (3) COMMON BRICKS FOR SUPPORT.
- ⑧ 1/4" GALVANIZED WIRE MESH.
- ⑨ PVC FEMALE ADAPTER.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 11/06

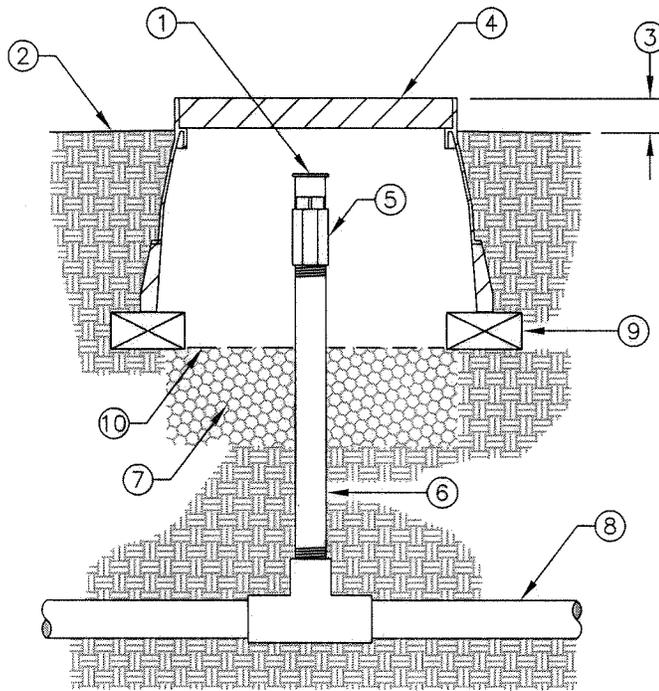
CHECKED BY: DB SCALE: NONE

APPROVED: [Signature]  
DIRECTOR OF ENGINEERING

**DRIPLINE FLUSHING VALVE**

NO.  
**LS-21**

SHEET 1 OF 1



SECTION VIEW

NOTES:

- ① AIR/VACUUM RELIEF VALVE GEOFLOW OR EQUAL.
- ② FINISH GRADE.
- ③ SET TOP OF BOX ABOVE FINISH GRADE: 1" IN SOD, 2" IN PLANTER OR DECOMPOSED GRANITE.
- ④ 10" ROUND VALVE BOX CARSON #910 OR EQUAL.
- ⑤ 1/2" PVC COUPLING (TxT).
- ⑥ 1/2" SCHEDULE 80 NIPPLE (LENGTH AS REQUIRED).
- ⑦ PEA GRAVEL, 6" DEPTH.
- ⑧ POLY TUBING, CONNECT TO NIPPLE WITH COMPRESSION TEE S x S x C.
- ⑨ (3) COMMON BRICKS FOR SUPPORT.
- ⑩ 1/4" GALVANIZED WIRE MESH.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

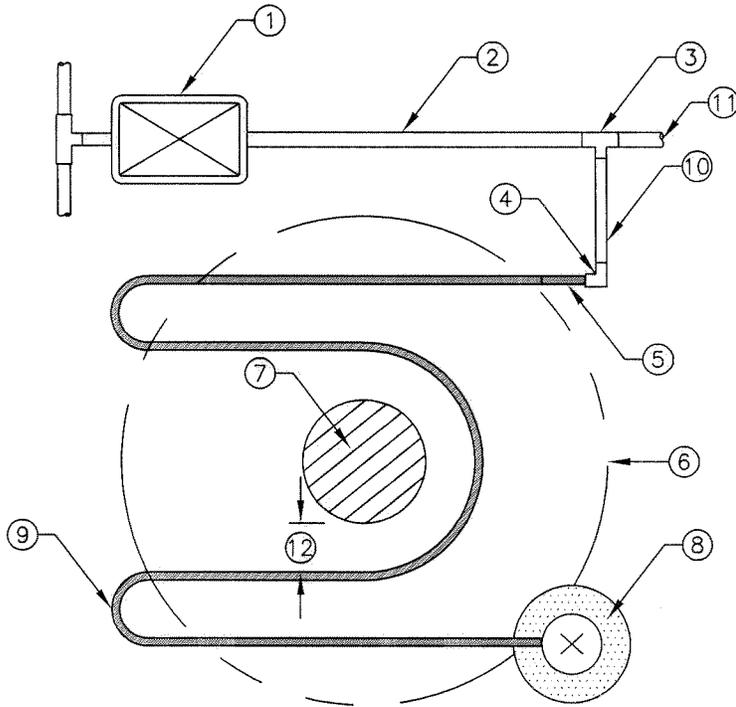
**STANDARD PLAN**

DRAWN BY: GL      DATE: 11/06  
 CHECKED BY: DB      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**AIR/VACUUM RELIEF VALVE**

NO.  
**LS-22**

SHEET 1 OF 1



PLAN VIEW

**NOTES:**

- ① REMOTE CONTROL VALVE, HARDIE 700 OMR-100 OR RAINBIRD PEB PRS-B. ADD NETAFIM TECH FILTER DOWNSTREAM OF VALVE IN VALVE BOX.
- ② PVC SUPPLY HEADER, CONTINUOUS TO NEXT TREE.
- ③ 3/4" SCHEDULE 40 TEE (S x S x S).
- ④ COMPRESSION REDUCER SCHEDULE 40 S x C ELBOW.
- ⑤ START OF DRIP LINE, SIZE AND TYPE PER PROJECT SPECS.
- ⑥ ESTIMATED DRIPLINE OF MATURE TREE IN 5 YEARS.
- ⑦ TREE ROOTBALL.
- ⑧ LINE FLUSHING VALVE.
- ⑨ DRIPLINE.
- ⑩ SCHEDULE 40 PVC SUPPLY LINE.
- ⑪ PVC SUPPLY TO NEXT TREE.
- ⑫ SPACE DRIPLINE 6" FROM EDGE OF ROOTBALL.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL      DATE: 11/06  
 CHECKED BY: DB      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

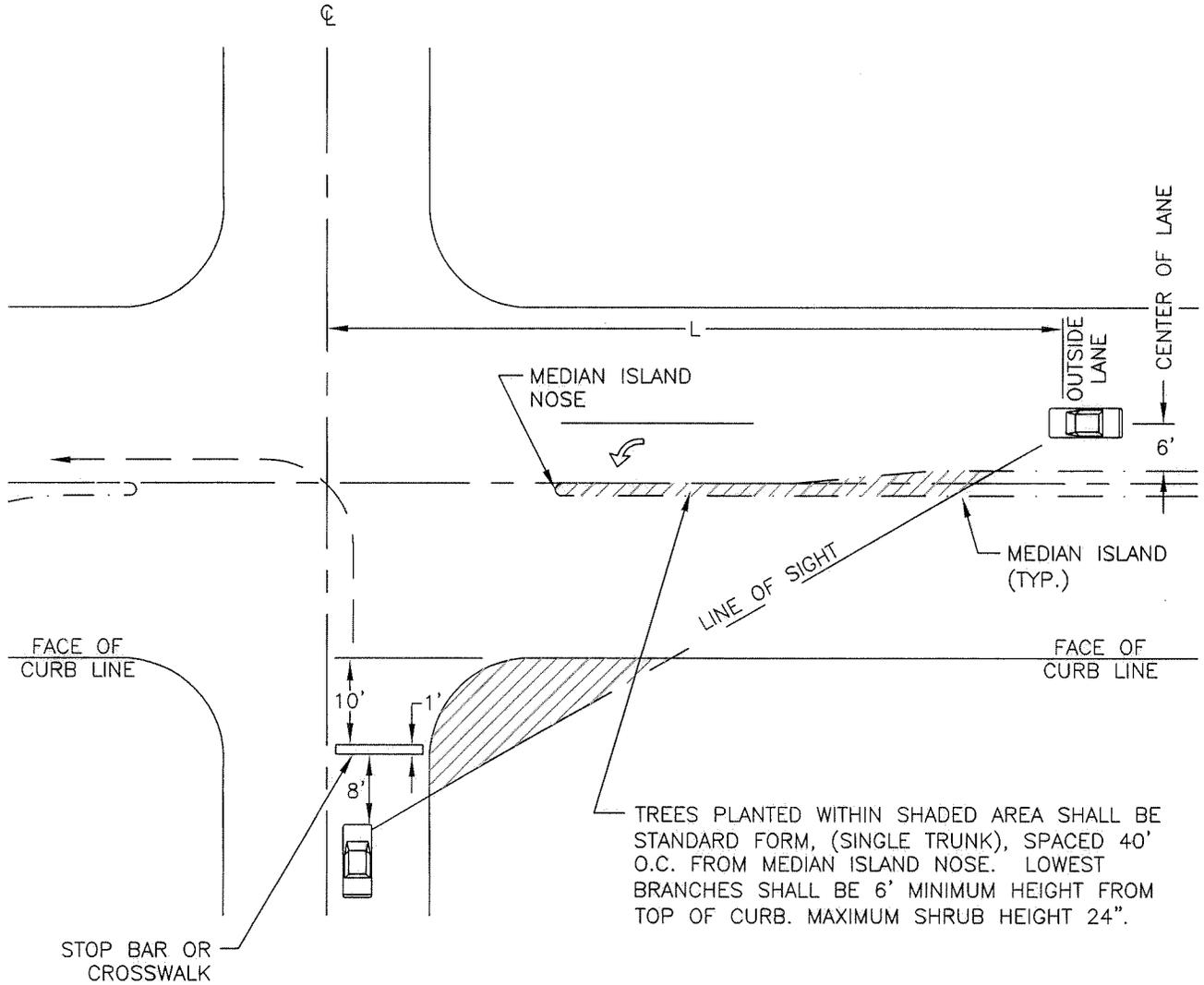
**DRIPLINE LAYOUT  
FOR TREES**

NO.  
**LS-23**

SHEET 1 OF 1

**NOTE:**

DETAIL TYPICAL FOR BOTH DIRECTIONS AT 4-WAY  
UNSIGNALIZED INTERSECTIONS.  $L = \text{SPEED LIMIT} \times 11$   
EXAMPLE: 35 MPH  $\times$  11 = 385'



**PLAN VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

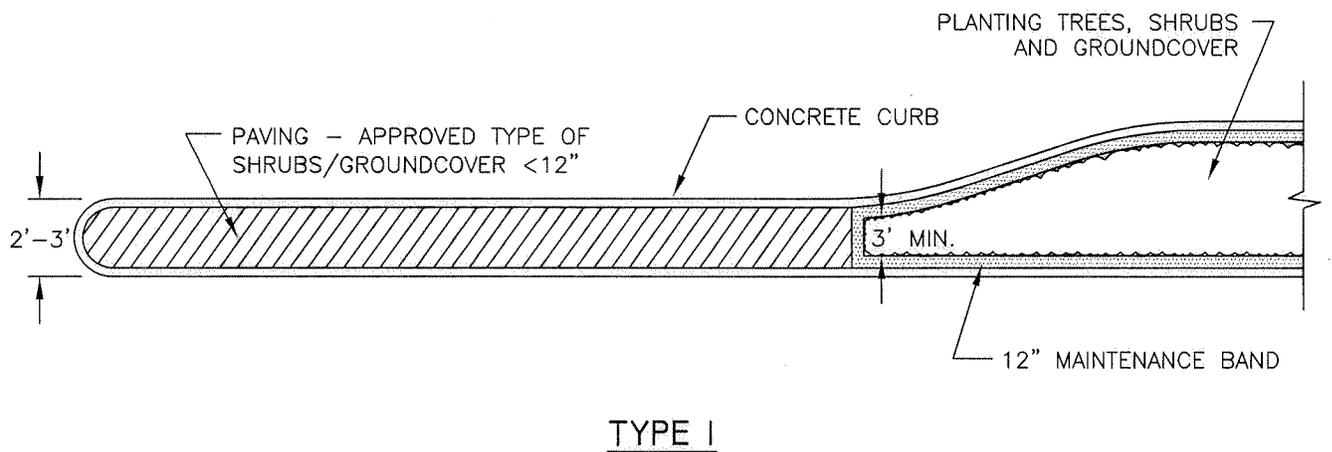
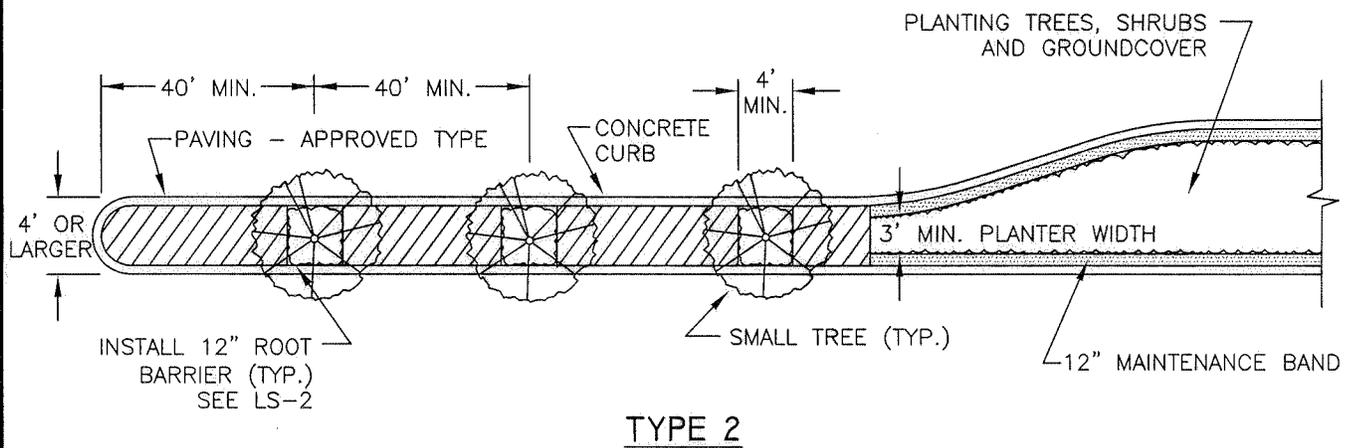
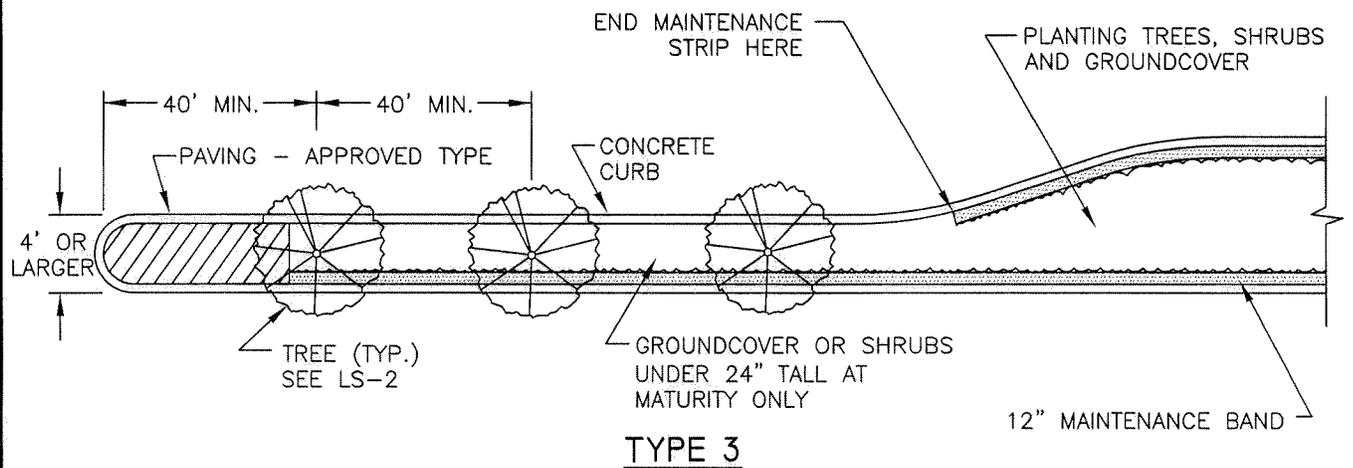
**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL DATE: 11/06  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

**SIGHT DISTANCE CLEARANCE  
AT NON-SIGNALIZED  
INTERSECTIONS**

NO. **LS-24**  
 SHEET 1 OF 1



**PLAN VIEW**

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

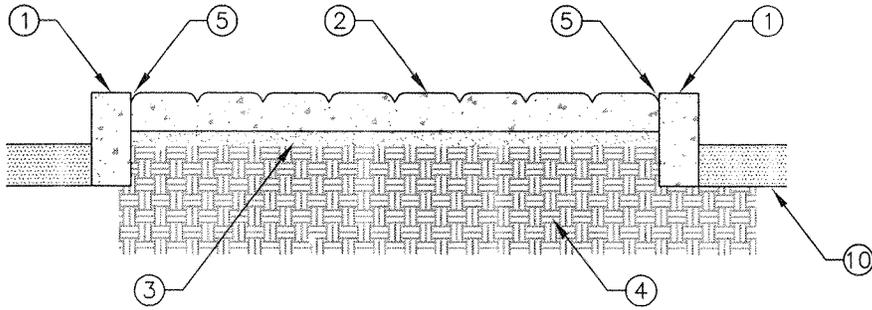
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 CHECKED BY: DB      SCALE: NONE  
 APPROVED: [Signature]  
 DIRECTOR OF ENGINEERING

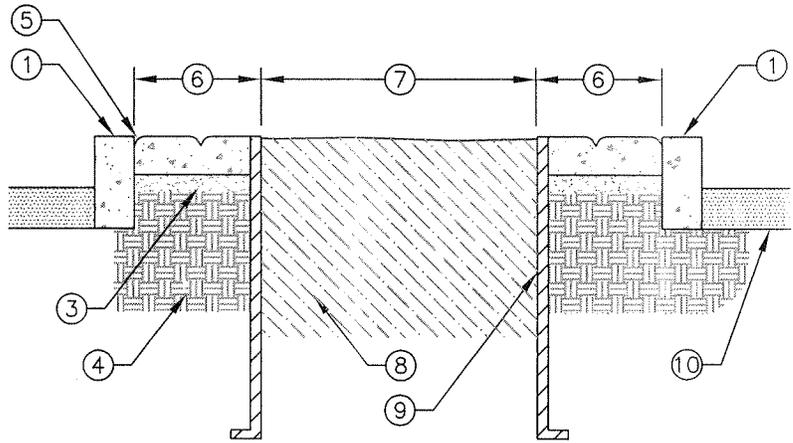
**TREE AND PAVEMENT  
LAYOUT IN MEDIAN ISLAND**

NO.  
**LS-25**

SHEET 1 OF 1



**SECTION VIEW**  
AT CONCRETE



**SECTION VIEW**  
AT TREE

**NOTES:**

- ① CONCRETE CURB.
- ② STAMPED CONCRETE - 4" THICK. PATTERN: CANYON STONE. COLOR HARDENER: DESERT TAN, B-12. RELEASE AGENT: SONORAN TAN, B-10.
- ③ 2" SAND BASE.
- ④ COMPACTED SUBGRADE PER SPECIFICATIONS.
- ⑤ TOOLED EDGE.
- ⑥ 1' CONCRETE MOW BAND.
- ⑦ PLANTING AREA, VARIES WITH LOCATION.
- ⑧ PREPARED PLANTING SOIL PER SPECIFICATIONS.
- ⑨ ROOT CONTROL BARRIER BY "DEEP ROOT CORP." OR APPROVED EQUAL 10' LONG CENTERED ON TREE, 18" DEPTH (LB 18-2) ALONG CURB.
- ⑩ AC ROADWAY.

REVISION	BY	DATE	APP. BY COUNCIL

**CITY OF CHICO**

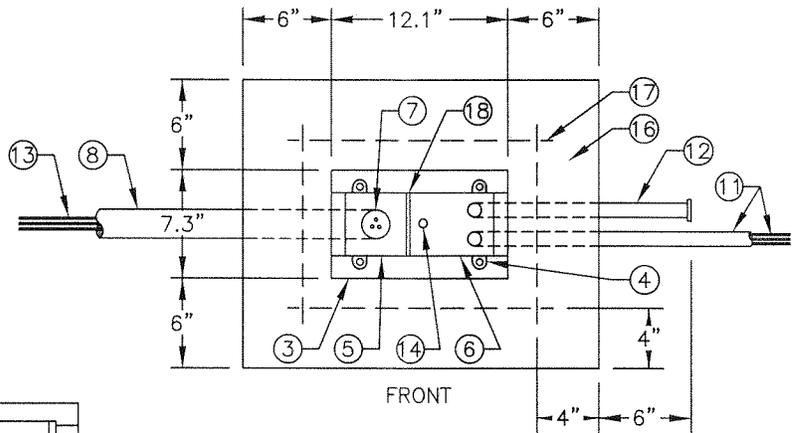
**STANDARD PLAN**

DRAWN BY: GL DATE: 9/09  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: [Signature]  
 CP&D DIRECTOR

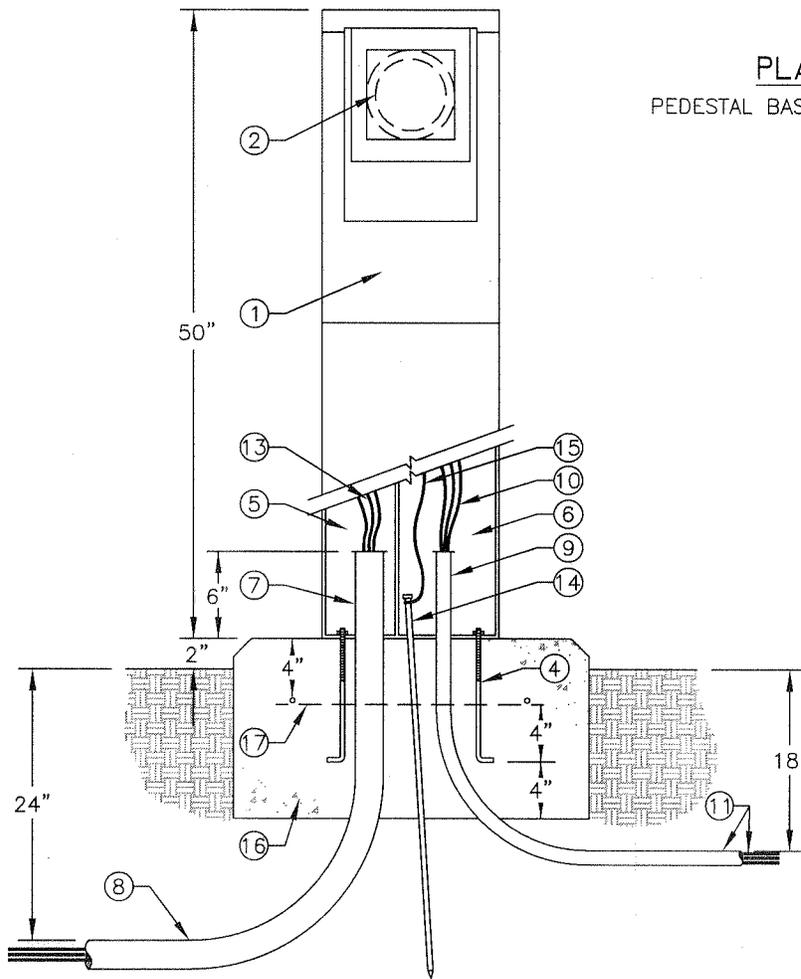
**STAMPED CONCRETE  
BULLNOSE AND MOW BAND**

NO.  
**LS-26**

SHEET 1 OF 1



PLAN VIEW  
PEDESTAL BASE & CONCRETE FTG.



FRONT ELEVATION/SECTION VIEW

NOTE:  
SEE SHEET 2 FOR KEYNOTES  
& GENERAL NOTES

REVISION	BY	DATE	APP. BY COUNCIL

CITY OF CHICO

STANDARD PLAN

DRAWN BY: GL DATE: 9/09  
 CHECKED BY: DB SCALE: NONE  
 APPROVED: *[Signature]*  
 CPSD DIRECTOR

METERED ELECTRICAL  
SERVICE ENCLOSURE

NO.  
LS-27

SHEET 1 OF 2

**KEYNOTES:**

- ① TESCO MODEL 26-000 TYPE III AF METERED ELECTRICAL SERVICE ENCLOSURE, OR APPROVED EQUAL.
- ② METER (BY PG&E)
- ③ METER PEDESTAL BASE.
- ④ 5/8"φ x 8" GALV. J-BOLT ANCHORS W/ GALV. WASHERS, (TYP OF 4). REFER TO MANUFACTURER'S LAYOUT DIMENSIONS.
- ⑤ SERVICE SIDE OF PEDESTAL.
- ⑥ LOAD SIDE OF PEDESTAL.
- ⑦ 2"φ SCH. 40 PVC ELECTRICAL CONDUIT STUB-UP (BY PROJECT CONTRACTOR).
- ⑧ 2"φ SCH. 40 PVC ELECTRICAL CONDUIT W/ 5/16" PULL CORD TO PG&E SECONDARY SERVICE PULL BOX (P.O.C.). REFER TO PROJECT PLANS.
- ⑨ TWO 1"φ SCH. 40 PVC ELECTRICAL CONDUIT STUB-UPS. REFER TO PEDESTAL BASE PLAN VIEW.
- ⑩ TWO #10 W/ GROUND FROM POWER DISTRIBUTION PANEL IRRIGATION CIRCUIT BREAKER - TO IRRIGATION CONTROLLER.
- ⑪ 1"φ SCH. 40 PVC ELECTRICAL CONDUIT W/ TWO #10 W/ GROUND TO AUTO IRRIGATION CONTROLLER OR TO PULL BOX. REFER TO CITY OF CHICO STANDARD PLANS LS12 & LS13 RESPECTIVELY AND PROJECT PLANS.
- ⑫ 1"φ SCH. 40 PVC ELECTRICAL CONDUIT FOR DISTRIBUTION PANEL SPARE 120V CIRCUIT BREAKER (FUTURE). STUB 6" BEYOND PEDESTAL CONCRETE PAD/FOOTING.
- ⑬ SERVICE CONDUCTORS, TO METER (BY PG&E).
- ⑭ 5/8"φ COPPER CLAD GROUND ROD, LENGTH & INSTALLATION PER CODE.
- ⑮ #8 BARE COPPER GROUND. INSTALLATION PER CODE.
- ⑯ CONCRETE PAD/FOOTING, SLOPE EXPOSED CONCRETE 1/4" TO DRAIN W/ 1/2" CHAMFER ALL AROUND.
- ⑰ #4 REBAR
- ⑱ BARRIER

**GENERAL NOTES:**

- ① METERED SERVICE ENCLOSURE: 12 GA H.D. GALV. STEEL PAINTED STANDARD GREEN W/ 100 AMP METER SOCKET & SUPPORT HARDWARE, 100 AMP MAIN DISCONNECT, DISTRIBUTION PANEL OF ONE 20 AMP CIRCUIT BREAKER (IRRIGATION CONTROLLER), ONE 20 AMP CIRCUIT BREAKER (SPARE). CABINET TO BE PREWIRED AND ALL COMPONENTS TO HAVE FASTENED ENGRAVED NAMEPLATES.
- ② REFER TO PROJECT PLANS FOR LOCATION OF PG&E SECONDARY POWER P.O.C., LOCATION OF 120V ELECTRICAL PULL BOXES, CONDUIT SIZES AND AUTO IRRIGATION CONTROLLER LOCATION.
- ③ ALL ELECTRICAL WORK TO BE PERFORMED BY A LICENSED ELECTRICIAN IN FULL ACCORDANCE W/ NEC & LOCAL CODES.
- ④ ALL METER PEDESTAL PADLOCKS TO BE FURNISHED BY THE CITY OF CHICO.

REVISION	BY	DATE	APP. BY	COUNCIL

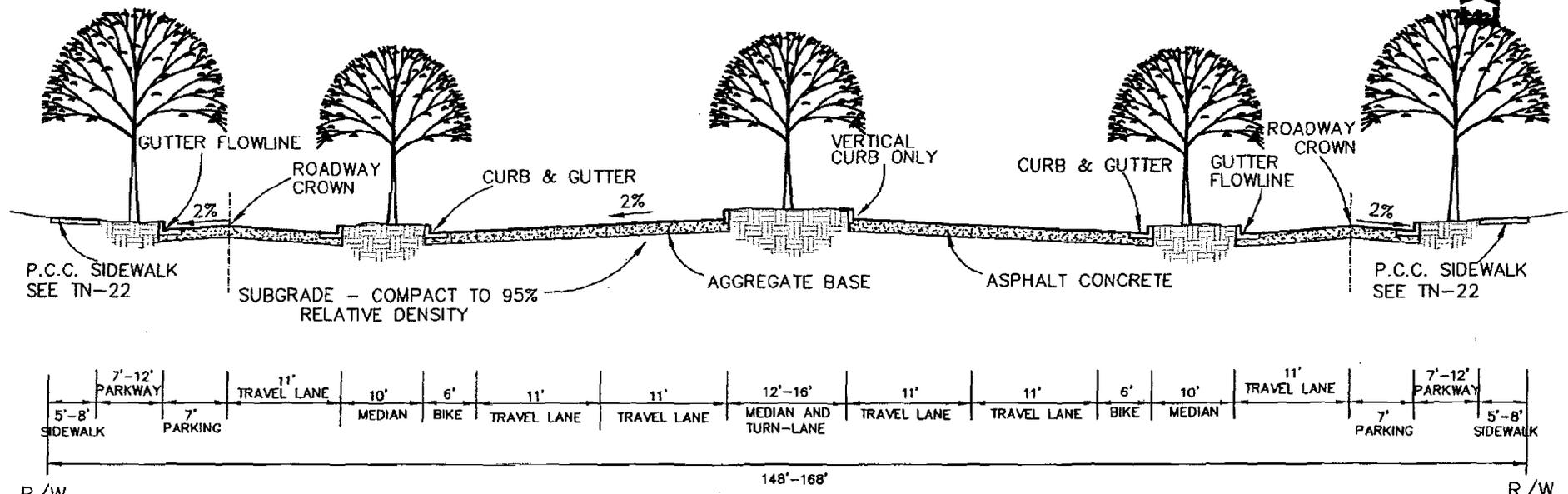
**CITY OF CHICO**

**STANDARD PLAN**

DRAWN BY: GL      DATE: 9/09  
 CHECKED BY: DB      SCALE: NONE  
 APPROVED:   
 CPSD DIRECTOR

**METERED ELECTRICAL  
 SERVICE ENCLOSURE  
 KEYNOTES & GENERAL NOTES**

NO.  
**LS-27**  
 SHEET 2 OF 2



**NOTES:**

- VERTICAL CURBS TYPICAL
- PARKING ALLOWED ON SIDE DRIVE
- LIMITED CENTERLINE ACCESS
- REQUIRES ALLEY FOR ACCESS TO OFF-STREET PARKING

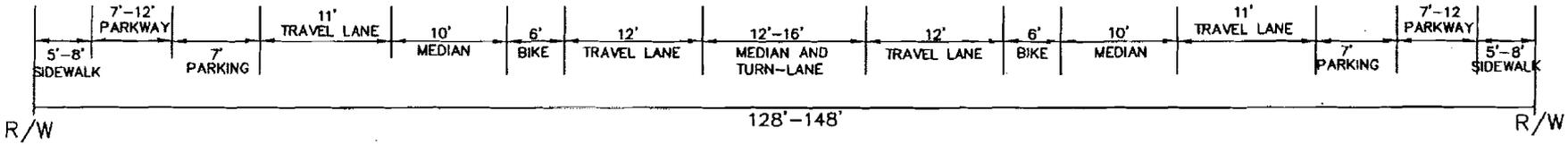
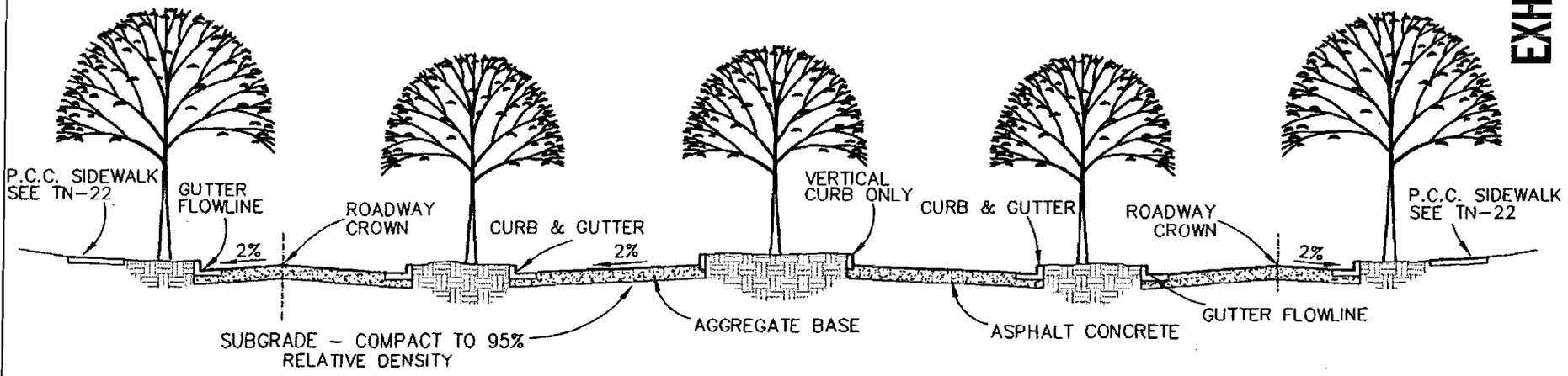
- ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

DRAWN BY	RMS/VKS	DATE	MARCH 2007
CHECKED		SCALE	NONE
APPROVED			
	ASST. DIRECTOR OF ENGINEERING		

HIGH-CAPACITY BOULEVARD WITH FRONTAGE LANES

TN-1



NOTES:

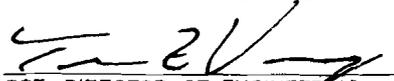
- VERTICAL CURBS TYPICAL
- PARKING ALLOWED ON SIDE DRIVE
- LIMITED CENTERLINE ACCESS
- REQUIRES ALLEY FOR ACCESS TO OFF-STREET PARKING

ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS

SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM  
 PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
 MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

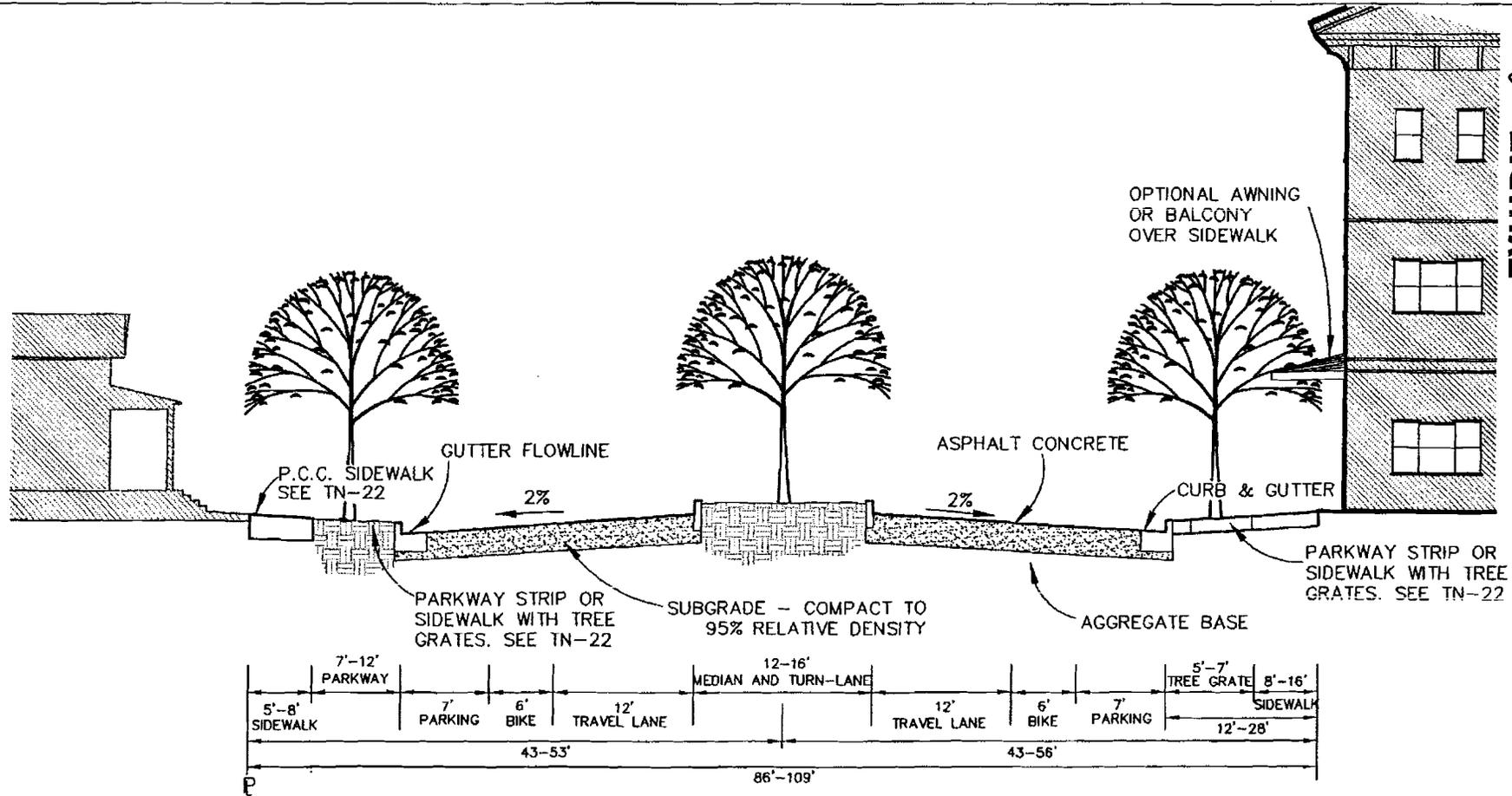
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 CHECKED \_\_\_\_\_ SCALE NONE

APPROVED   
 ASST. DIRECTOR OF ENGINEERING

BOULEVARD WITH FRONTAGE LANES

TN-2

EXHIBIT C



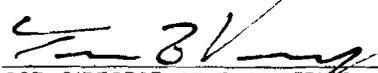
NOTES:

VERTICAL CURBS TYPICAL  
 PARKING AND BIKE LANES PROVIDED  
 ASPHALT CONCRETE AND AGGREGATE  
 BASE THICKNESS TO BE DETERMINED BY  
 "R" VALUES AND TRAFFIC INDEX CALCULATIONS

SIDEWALK WIDTH - 5' MINIMUM, 16' MAXIMUM  
 PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
 MEASURED FROM FRONT OF WALK TO FACE OF CURB

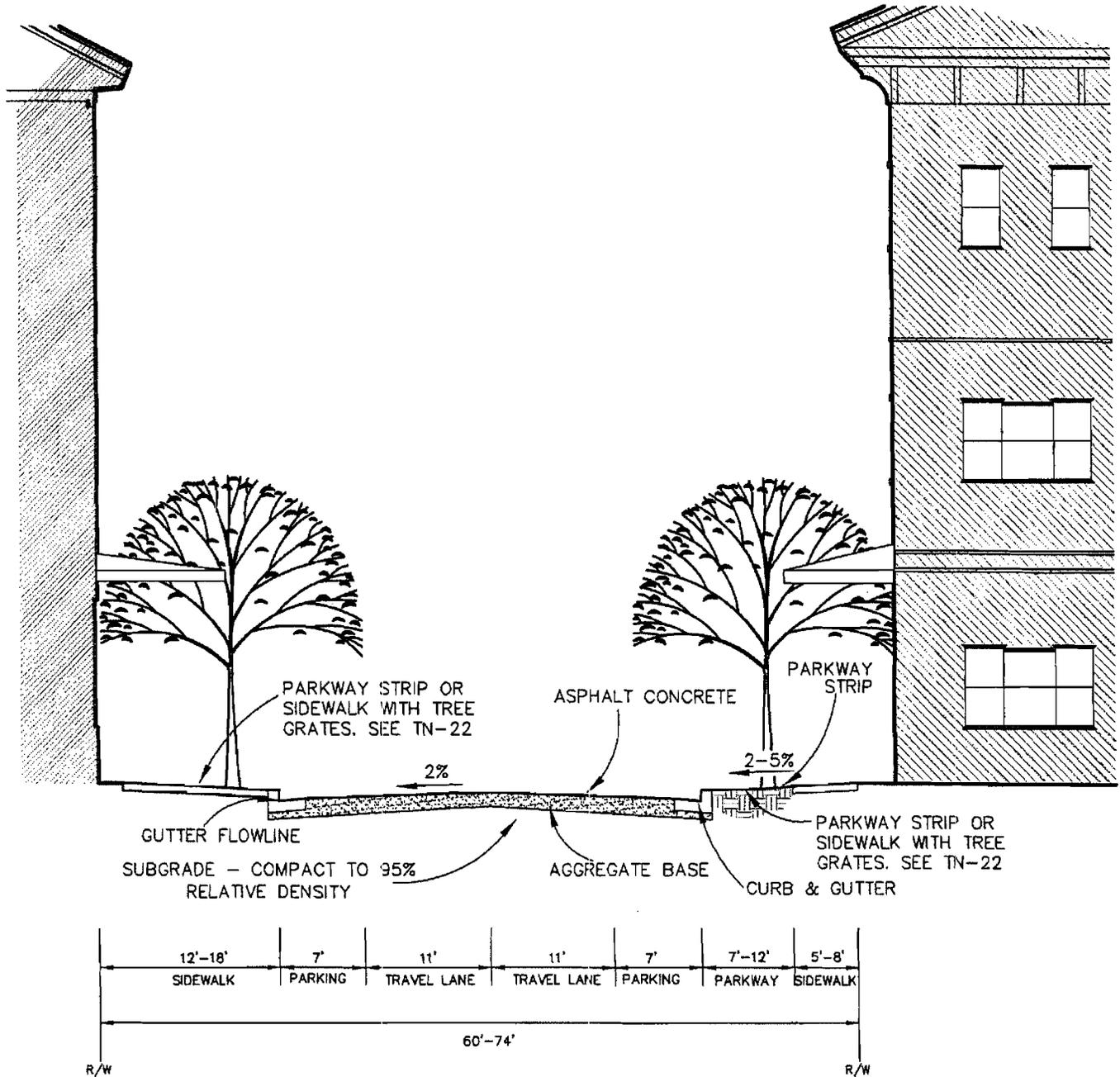
CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE

APPROVED   
 ASST. DIRECTOR OF ENGINEERING

BOULEVARD

TN-3



**NOTES:**

VERTICAL CURBS TYPICAL  
 REQUIRES REAR ALLEY FOR ACCESS  
 TO OFF-STREET PARKING

ASPHALT CONCRETE AND AGGREGATE BASE  
 THICKNESS TO BE DETERMINED BY "R" VALUES  
 AND TRAFFIC INDEX CALCULATIONS

SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM  
 PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
 MEASURED FROM FRONT OF WALK  
 TO FACE OF CURB

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

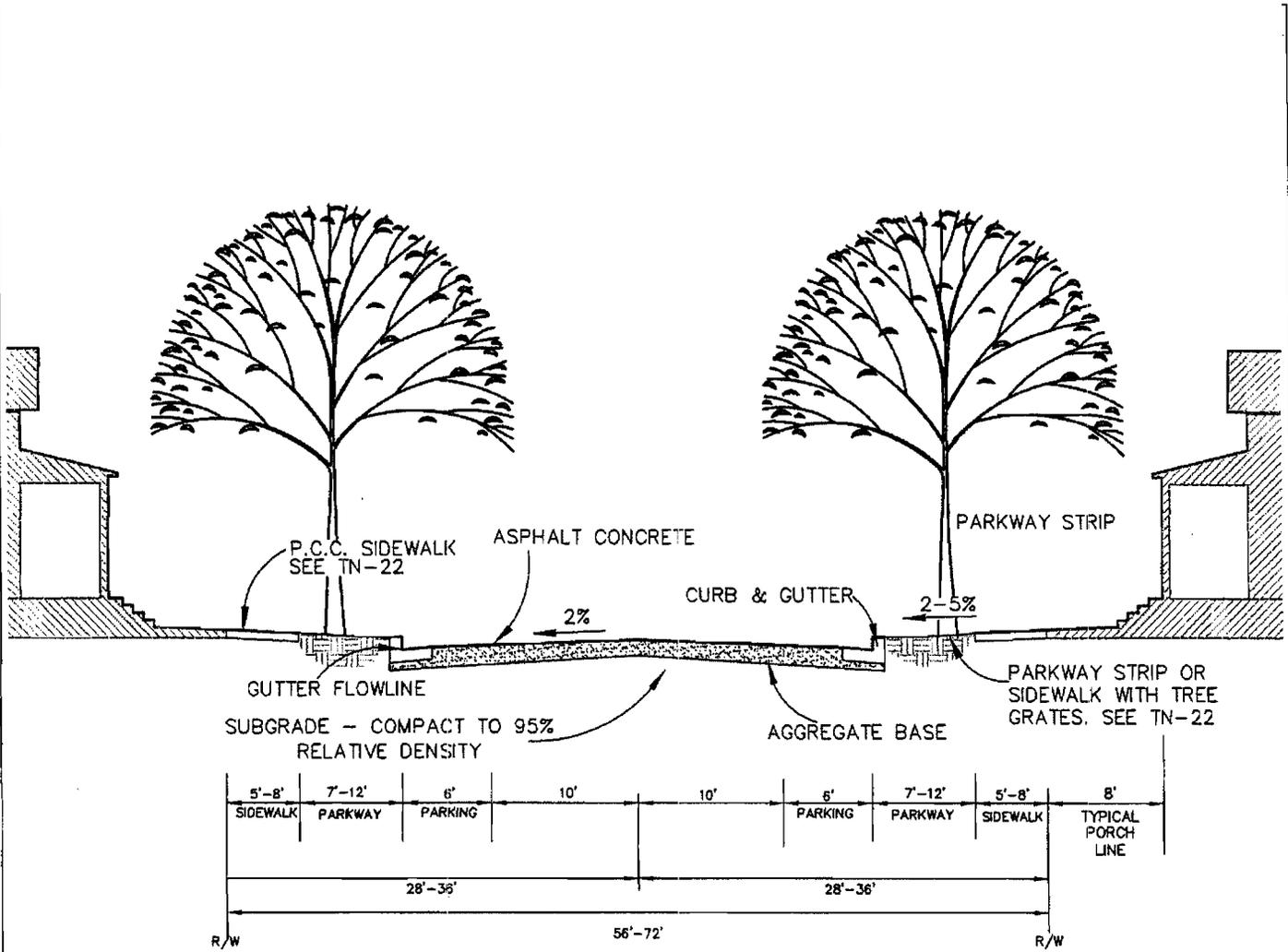
CHECKED \_\_\_\_\_ SCALE NONE

APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

36' AVENUE

TN-4

**EXHIBIT** (6/19/07)



**NOTES:**

- RESIDENTIAL STREET SECTION
- VERTICAL CURBS TYPICAL
- PARKING ALLOWED ON BOTH SIDES
- ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

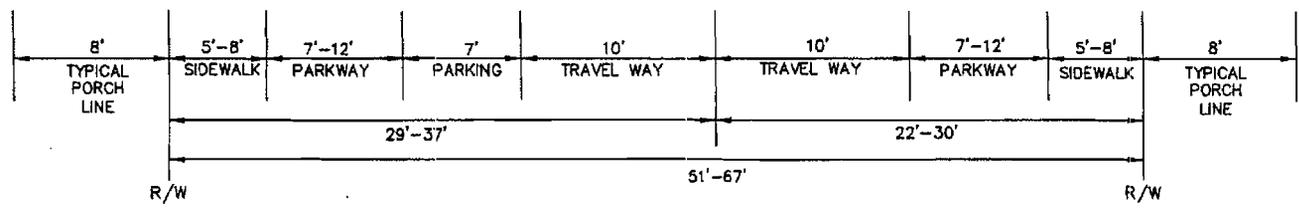
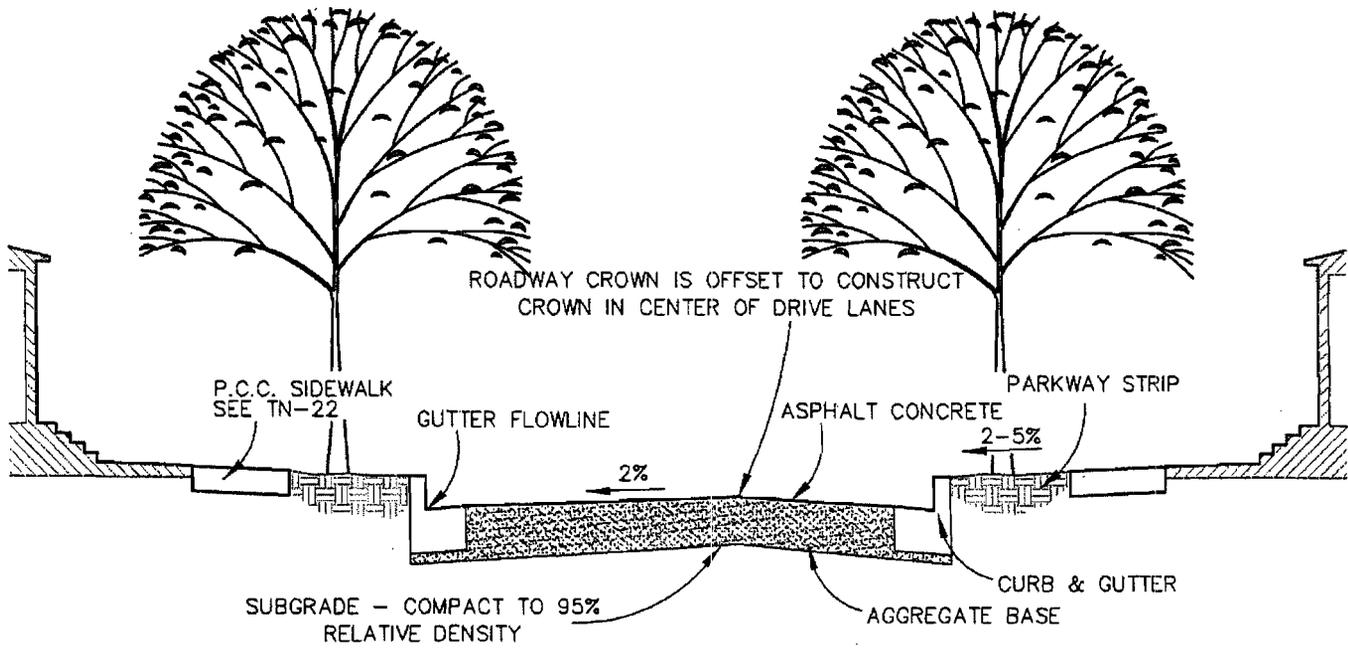
DRAWN BY RMS/VKS    DATE MARCH 2007  
 CHECKED \_\_\_\_\_    SCALE NONE  
 APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

32' INTERIOR STREET

**EXHIBIT E**

TN-5

(6/19/07)



**NOTES:**

- VERTICAL CURBS TYPICAL
- RESIDENTIAL STREET SECTION
- PARKING ALLOWED ON ONE SIDE ONLY
- ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM MEASURED FROM FRONT OF WALK TO FACE OF CURB
- REQUIRES ALLEY FOR ACCESS TO OFF-STREET PARKING

CITY OF CHICO

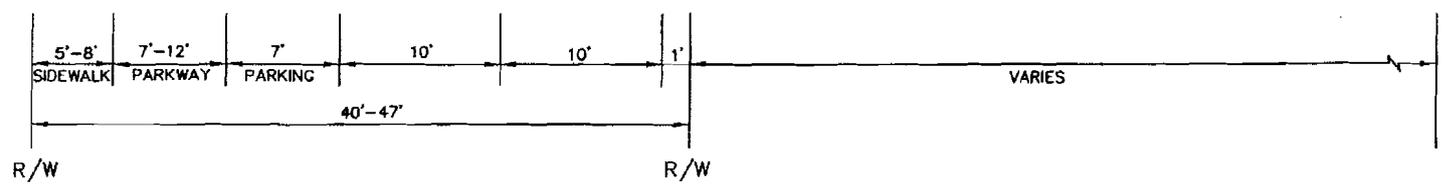
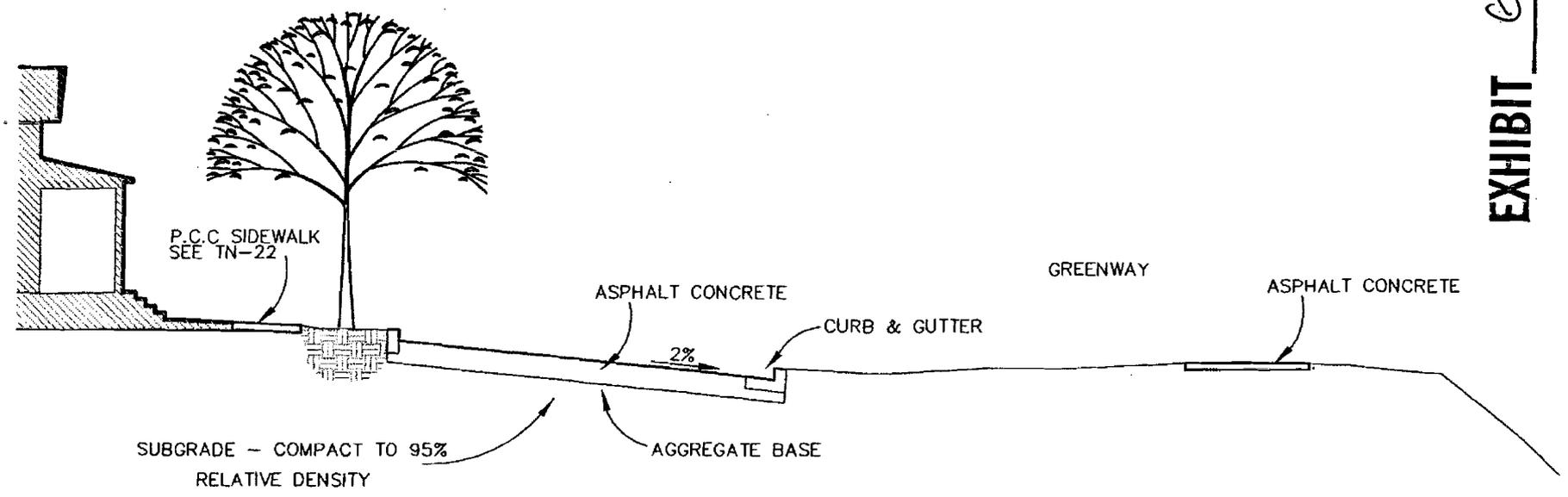
DRAWN BY	RMS/VKS	DATE	MARCH 2007
CHECKED		SCALE	NONE
APPROVED			
ASST. DIRECTOR OF ENGINEERING			

27' INTERIOR STREET

TN-6

**EXHIBIT F**

(6/19/07)



**NOTES:**  
 VERTICAL CURBS TYPICAL  
 OCCURS ALONG ANY GREENWAY  
 REQUIRES ALLEY FOR ACCESS  
 TO OFF-STREET PARKING

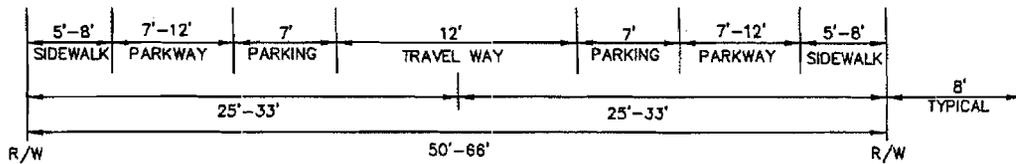
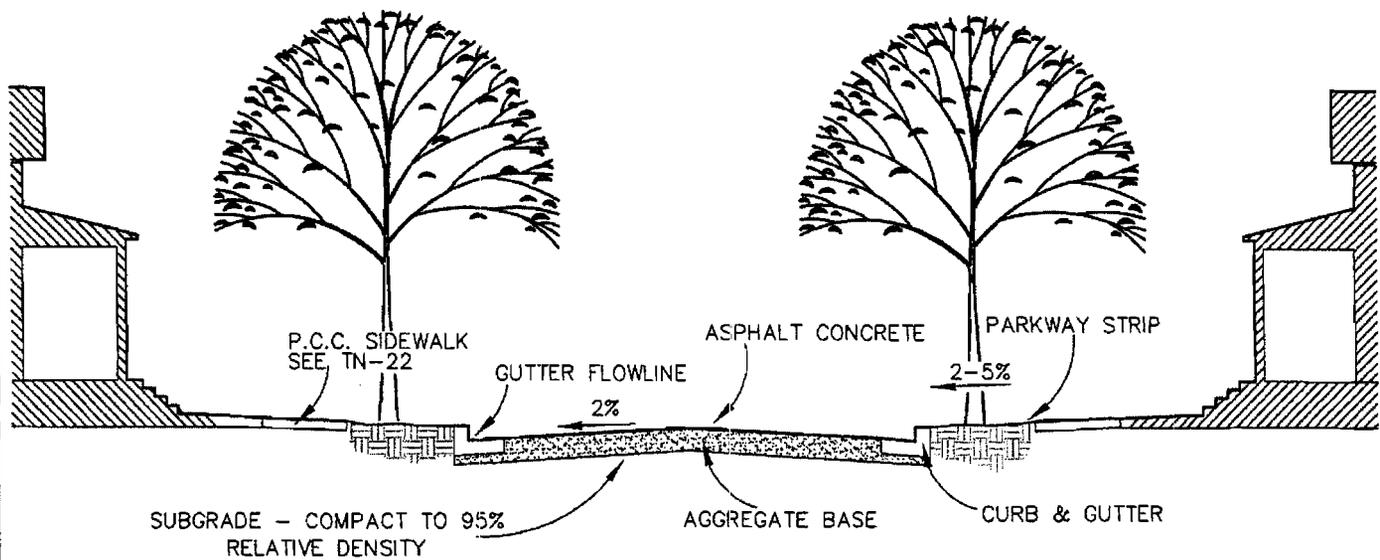
ASPHALT CONCRETE AND AGGREGATE  
 BASE THICKNESS TO BE DETERMINED BY  
 "R" VALUES AND TRAFFIC INDEX CALCULATIONS  
 SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM  
 PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
 MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

27' DRIVE AT GREENWAY

TN-7



**NOTES:**

RESIDENTIAL STREET SECTION

VERTICAL CURBS TYPICAL

PARKING ALLOWED ON BOTH SIDES

ASPHALT CONCRETE AND AGGREGATE  
BASE THICKNESS TO BE DETERMINED BY  
"R" VALUES AND TRAFFIC INDEX CALCULATIONS

SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM

PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
MEASURED FROM FRONT OF WALK TO FACE OF CURB

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

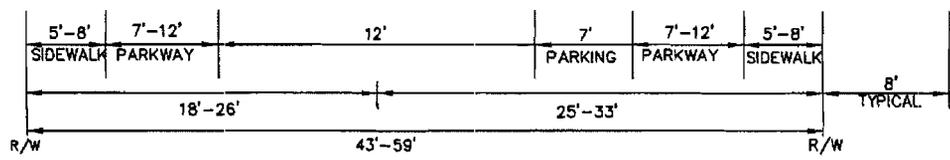
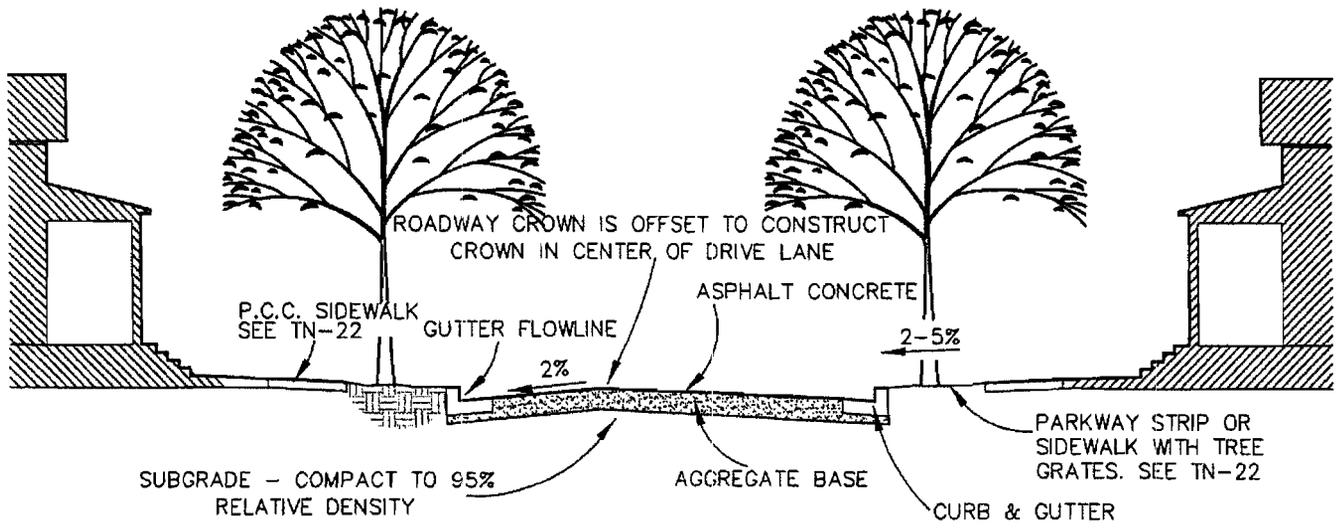
APPROVED [Signature]  
ASST. DIRECTOR OF ENGINEERING

26' INTERIOR STREET  
(ONE WAY)

TN-8

**EXHIBIT** 11

(6/19/07)



**NOTES:**

- RESIDENTIAL STREET SECTION
- PARKING ALLOWED ON ONE SIDE ONLY
- VERTICAL CURBS TYPICAL
- SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM
- PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM
- MEASURED FROM FRONT OF WALK TO FACE OF CURB

ASPHALT CONCRETE AND AGGREGATE BASE THICKNESS TO BE DETERMINED BY "R" VALUES AND TRAFFIC INDEX CALCULATIONS

CITY OF CHICO

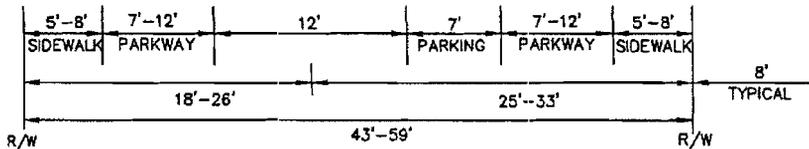
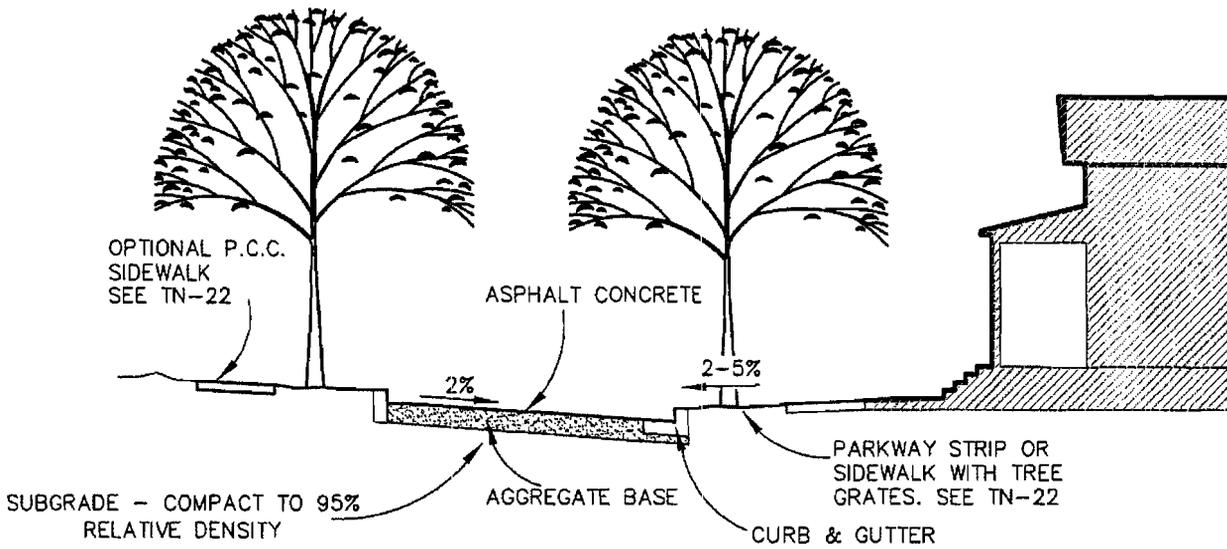
DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED *[Signature]*  
 ASST. DIRECTOR OF ENGINEERING

19" INTERIOR STREET  
 (ONE WAY)

**EXHIBIT I**

TN-9

(6/19/07)



**NOTES:**

**RESIDENTIAL STREET SECTION**

TO BE UTILIZED ADJACENT TO NEIGHBORHOOD GREEN

VERTICAL CURBS TYPICAL

PARKING ALLOWED ON HOUSE SIDE ONLY

ASPHALT CONCRETE AND AGGREGATE  
BASE THICKNESS TO BE DETERMINED BY  
"R" VALUES AND TRAFFIC INDEX CALCULATIONS

SIDEWALK WIDTH - 5' MINIMUM, 8' MAXIMUM

PARKWAY WIDTH - 7' MINIMUM, 12' MAXIMUM  
MEASURED FROM FRONT OF WALK TO FACE OF CURB

SIDEWALK MAY BE OMITTED ON GREEN SIDE

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

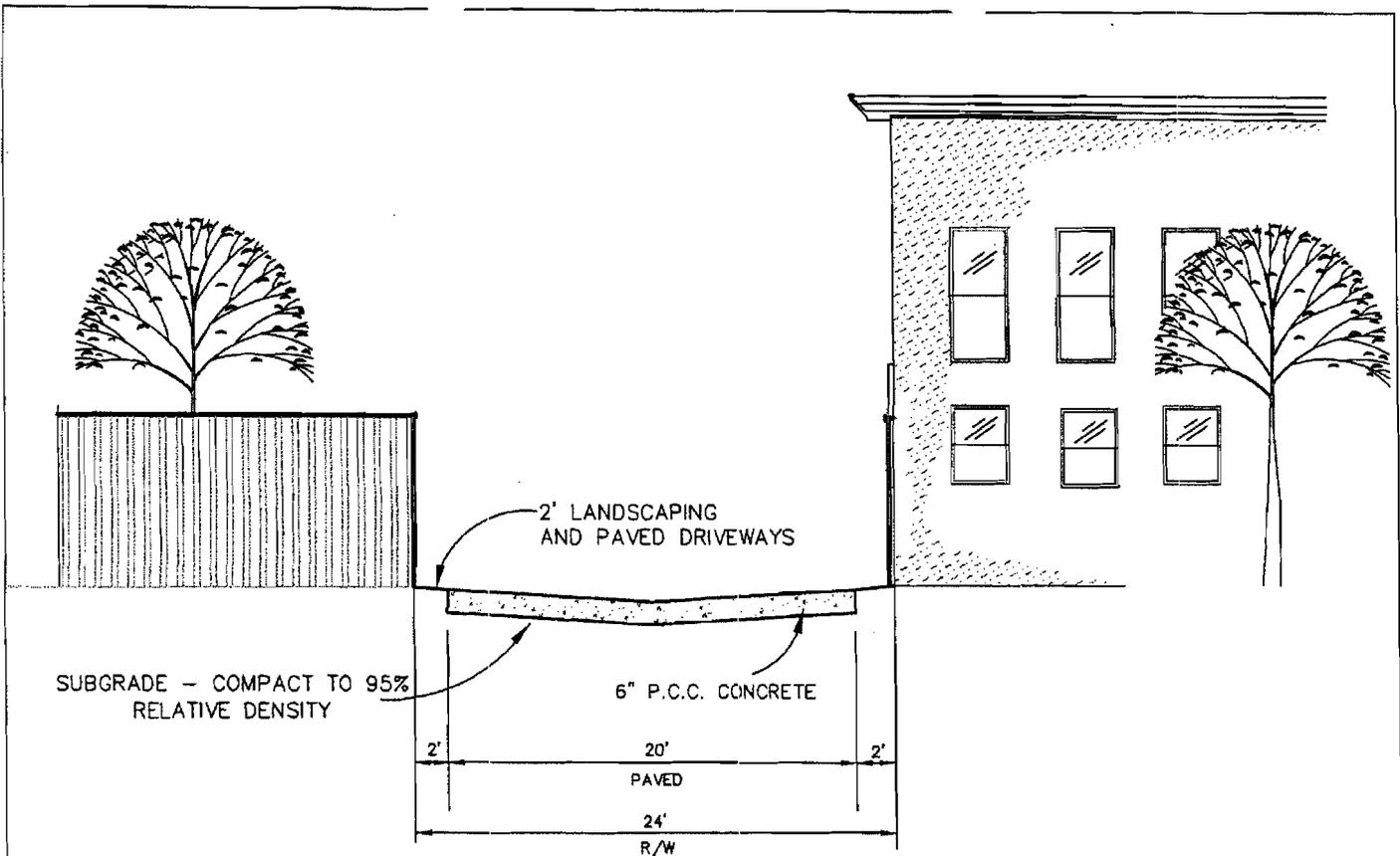
APPROVED   
ASST. DIRECTOR OF ENGINEERING

19' INTERIOR STREET  
(ONE WAY ON NEIGHBORHOOD GREEN)

TN-10

**EXHIBIT** J

(6/19/07)



**NOTES:**

NO PARKING IN R.O.W.  
 PROVIDES SERVICE ACCESS

DRY UTILITIES TO BE INSTALLED IN SHOULDERS

UTILITY PEDESTALS, LANDSCAPING OR OTHER  
 OBSTRUCTIONS SHALL NOT INTERFERE WITH  
 GARAGE ACCESS

SEE CHICO STD PLAN S-9 FOR IMPROVEMENT NOTES

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

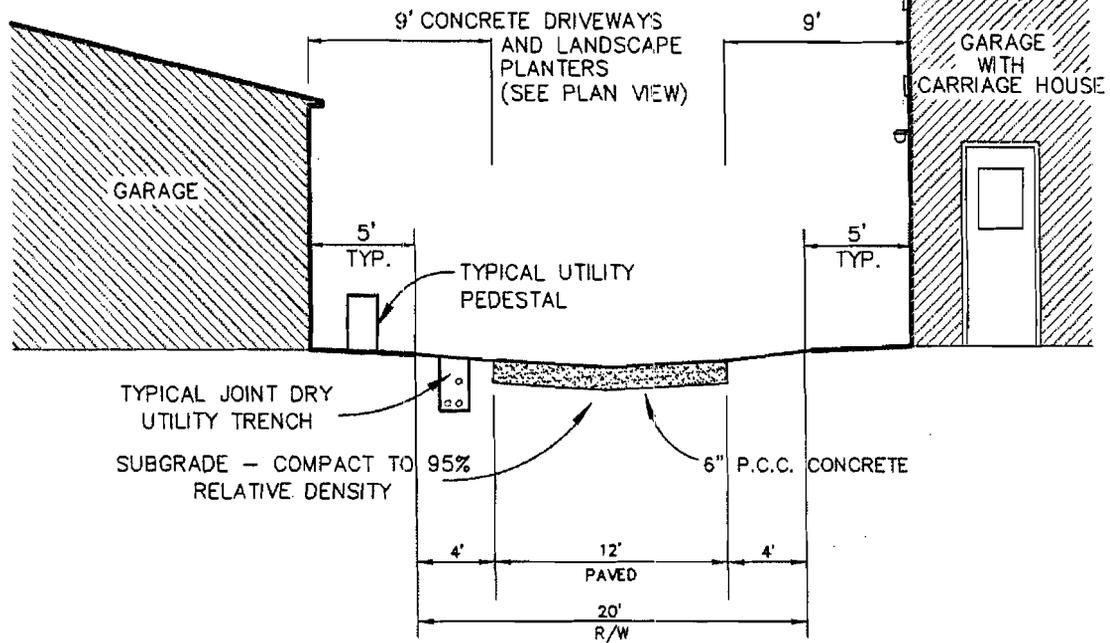
APPROVED *Tom B. V...*  
 ASST. DIRECTOR OF ENGINEERING

ALLEY COMMERCIAL

TN-11

**EXHIBIT** K

(6/19/07)



**NOTES:**

NO PARKING IN R.O.W.

PROVIDES GARAGE ACCESS

DRY UTILITIES TO BE INSTALLED IN SHOULDERS

UTILITY PEDESTALS, LANDSCAPING OR OTHER OBSTRUCTIONS SHALL NOT INTERFERE WITH GARAGE ACCESS

SEE CHICO STD PLAN S-9 FOR IMPROVEMENT NOTES

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

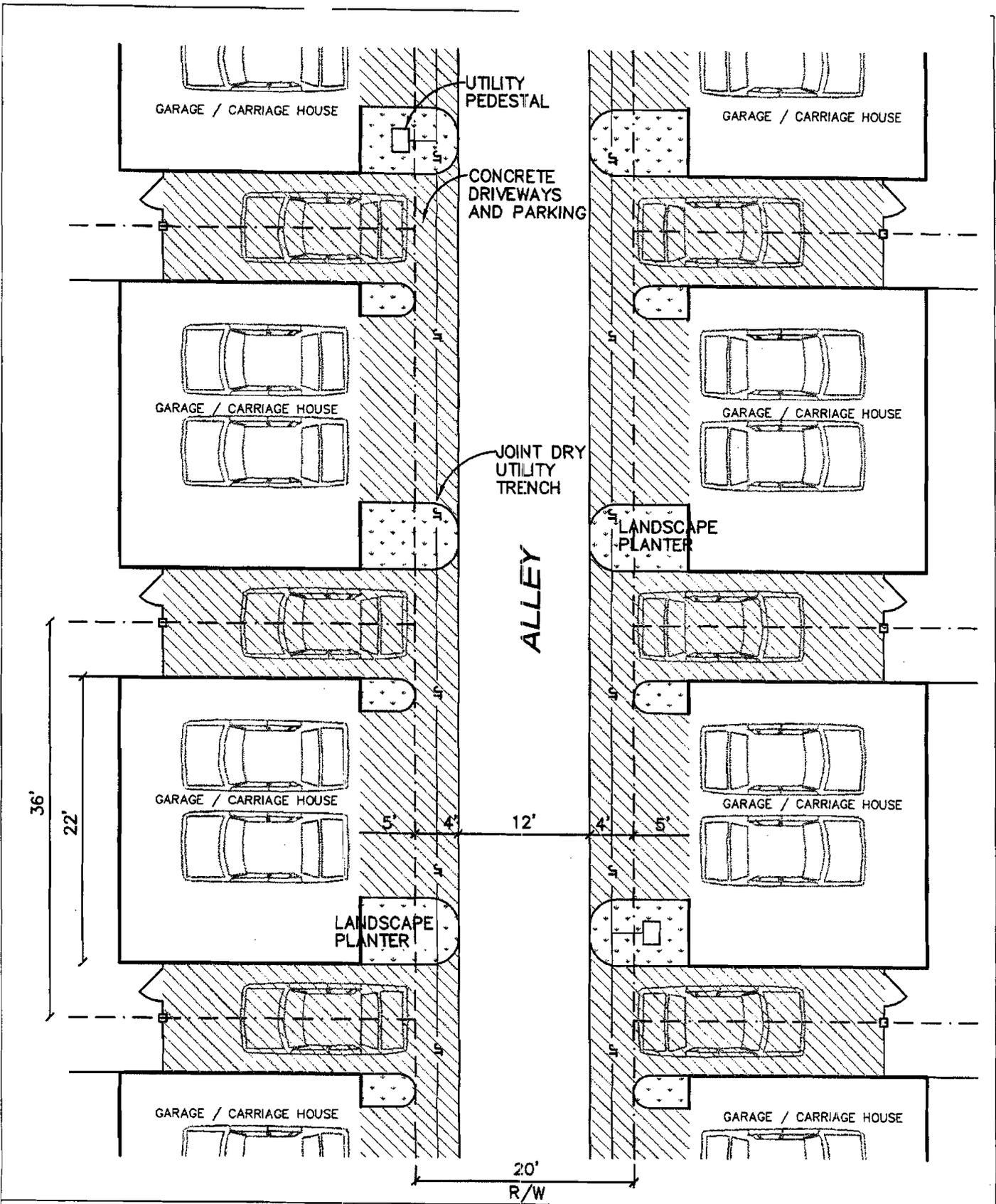
APPROVED *[Signature]*  
ASST. DIRECTOR OF ENGINEERING

ALLEY

TN-12

**EXHIBIT**   L  

(6/19/07)



CITY OF CHICO

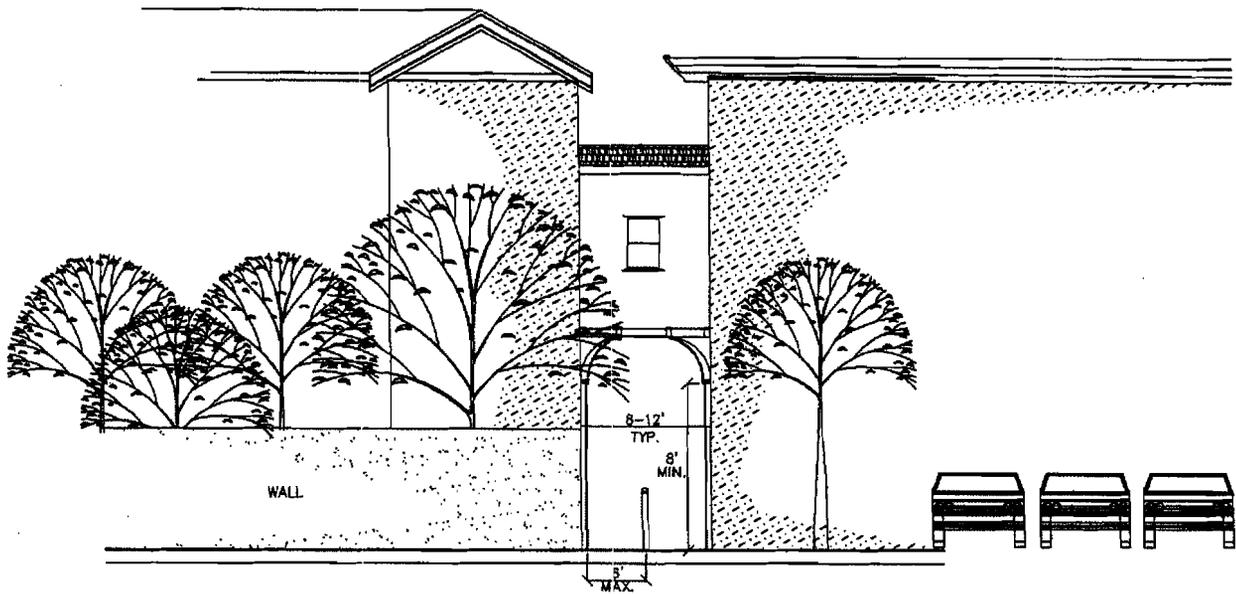
DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED [Signature]  
 ASST. DIRECTOR OF ENGINEERING

TYPICAL PLAN VIEW  
 NEIGHBORHOOD GENERAL ALLEY

**EXHIBIT**

TN-13

(6/19/07)



**NOTES:**

PEDESTRIAN / BICYCLE ACCESS ONLY

CURBS AND/OR BOLLARDS SHALL BE USED TO RESTRICT VEHICULAR ACCESS

PRIVATELY OWNED WITH GRANT OF PUBLIC ACCESS EASEMENT

PROVIDES ACCESS TO COURTYARD OR PARKING

IF ARCHED OPENING IS USED, 8 FOOT MINIMUM HEIGHT MEASURES AT THE LOWEST POINT OF THE ARCH.

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

APPROVED

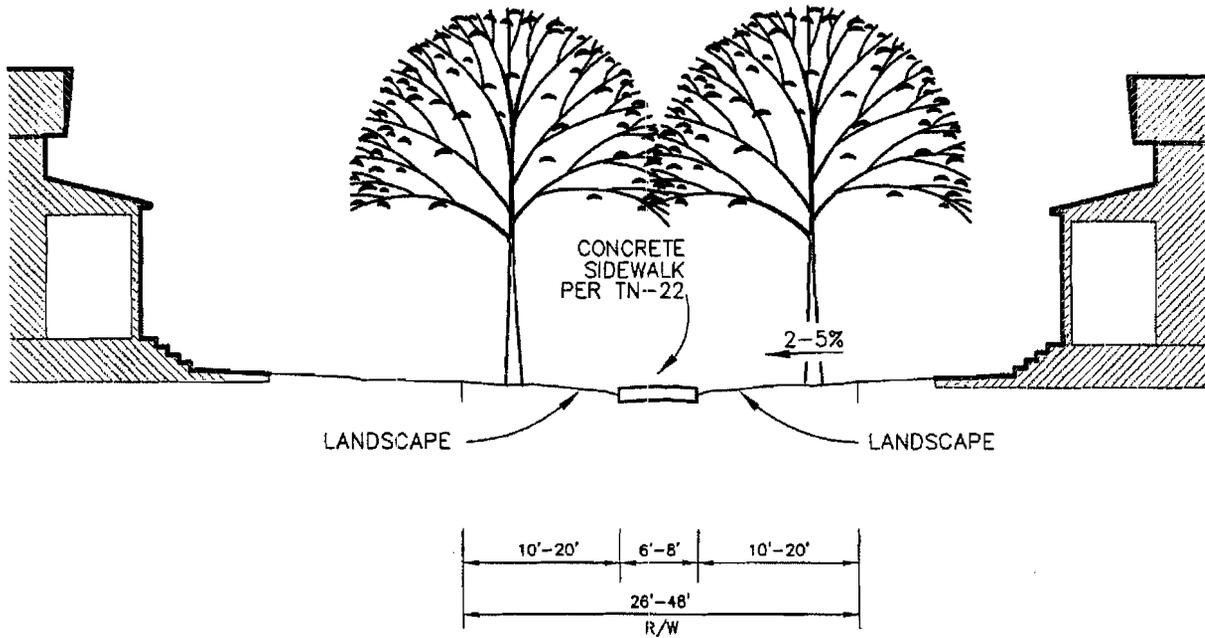
*Tom & Vicky*  
ASST. DIRECTOR OF ENGINEERING

PEDESTRIAN PASSAGE

**EXHIBIT N**

TN-14

(6/19/07)

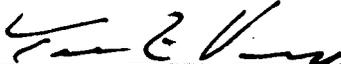


**NOTES:**

- PEDESTRIAN / BICYCLE ACCESS ONLY
- BIKE/PED WIDTH - 6' MINIMUM, 8' MAXIMUM
- LANDSCAPE WIDTH - 10' MINIMUM, 20' MAXIMUM

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE

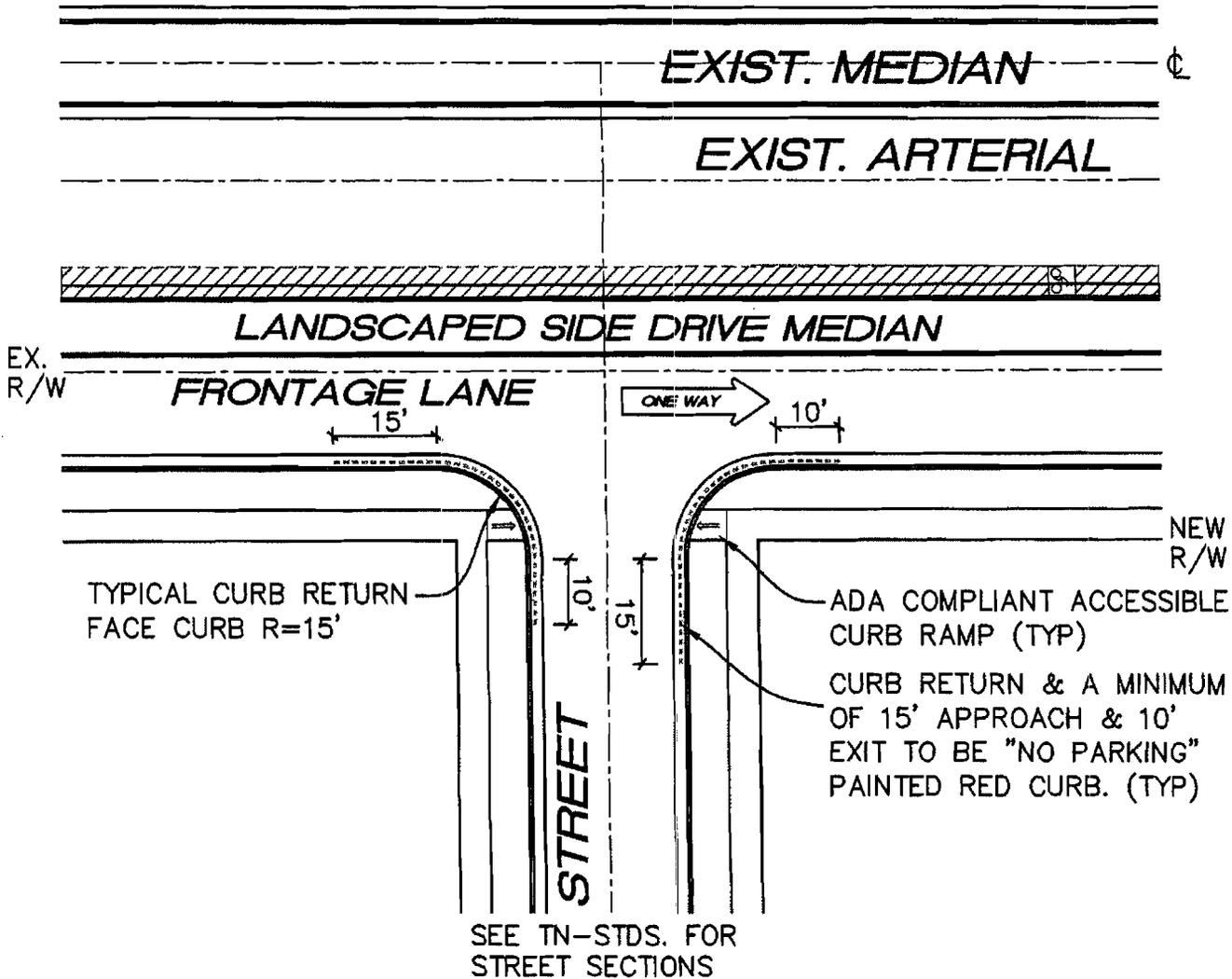
APPROVED   
 ASST. DIRECTOR OF ENGINEERING

MID-BLOCK PASSAGE

**EXHIBIT** 

TN-15

(6/19/07)



CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
CHECKED \_\_\_\_\_ SCALE NONE

APPROVED

ASST. DIRECTOR OF ENGINEERING

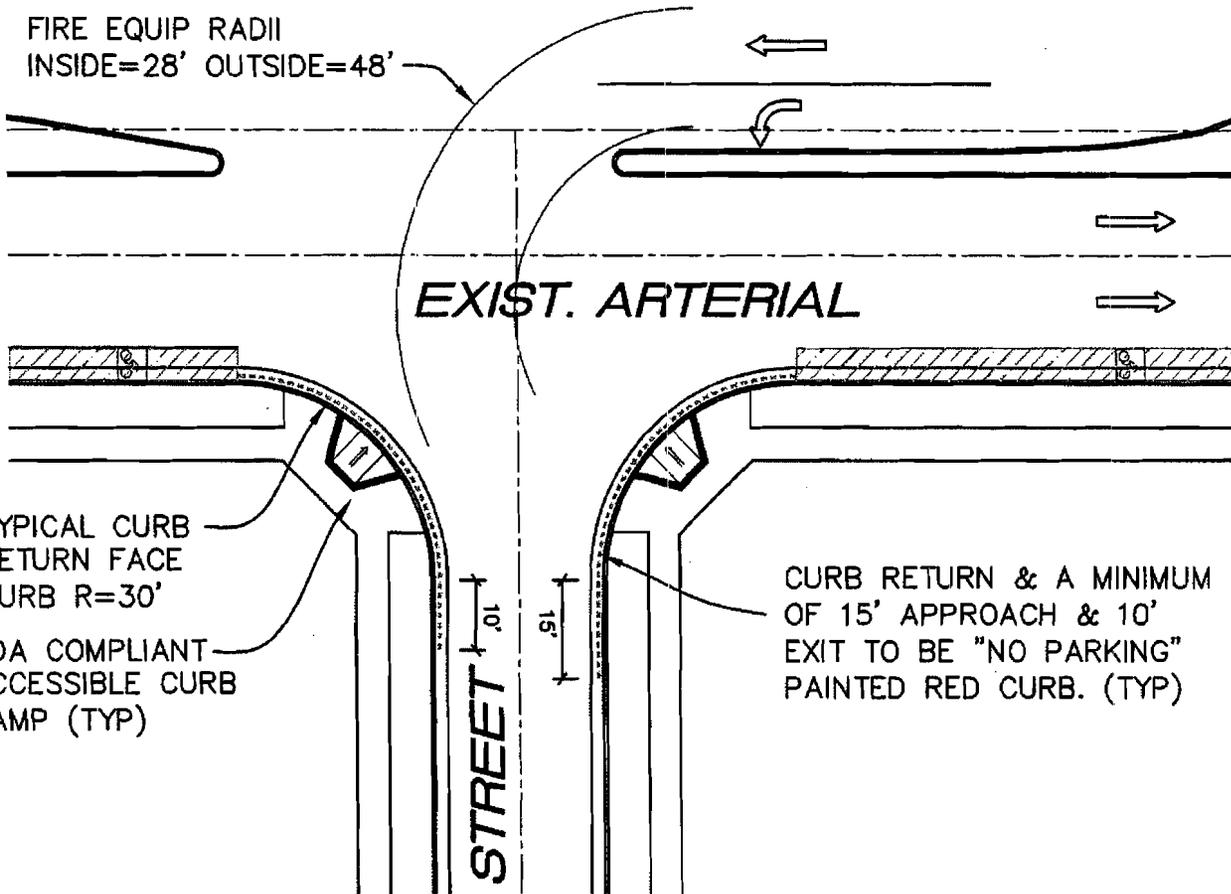
STREET - EXISTING MODIFIED  
ARTERIAL INTERSECTION  
ON NETWORK

TN-16

EXHIBIT P

(6/19/07)

FIRE EQUIP RADII  
INSIDE=28' OUTSIDE=48'



EXIST. ARTERIAL

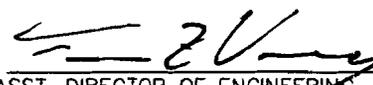
TYPICAL CURB  
RETURN FACE  
CURB R=30'  
ADA COMPLIANT  
ACCESSIBLE CURB  
RAMP (TYP)

CURB RETURN & A MINIMUM  
OF 15' APPROACH & 10'  
EXIT TO BE "NO PARKING"  
PAINTED RED CURB. (TYP)

SEE TN-STDS. FOR  
STREET SECTIONS

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
CHECKED \_\_\_\_\_ SCALE NONE

APPROVED   
ASST. DIRECTOR OF ENGINEERING

STREET - EXISTING ARTERIAL  
INTERSECTION  
ON NETWORK

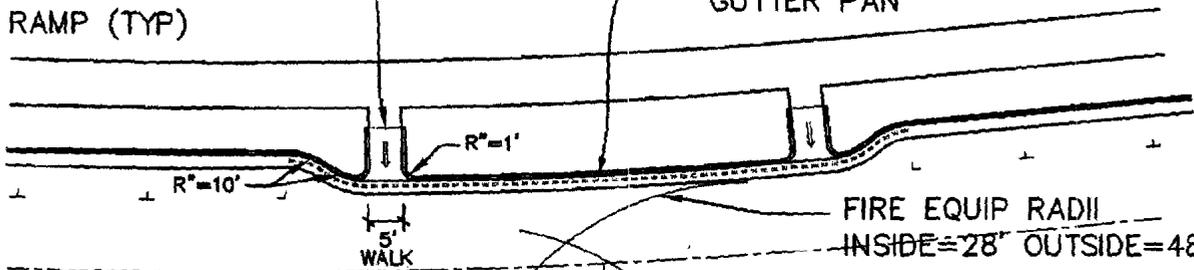
TN-17

EXHIBIT 

(6/19/07)

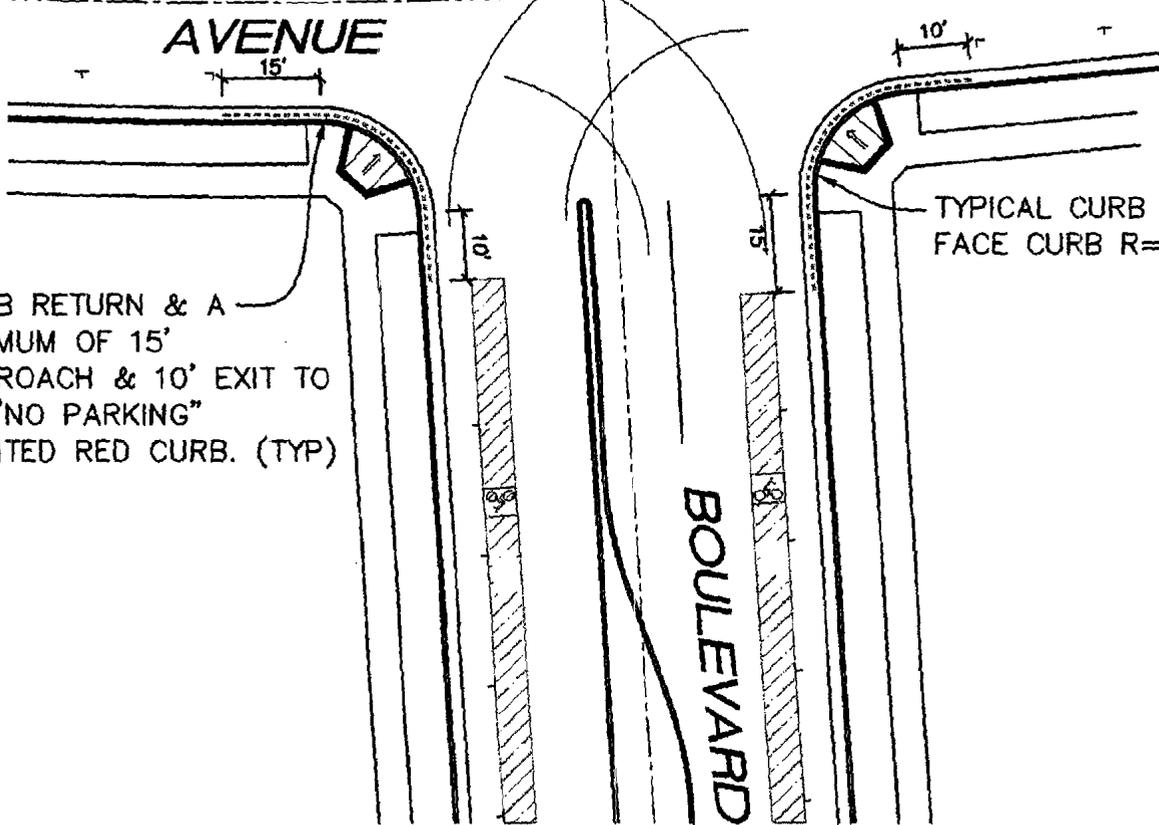
ADA COMPLIANT  
ACCESSIBLE CURB  
RAMP (TYP)

CONTINUOUS  
GUTTER PAN



FIRE EQUIP RADII  
INSIDE=28' OUTSIDE=48'

AVENUE



TYPICAL CURB RETURN  
FACE CURB R=15'

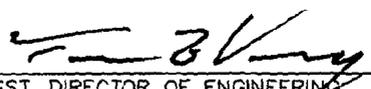
CURB RETURN & A  
MINIMUM OF 15'  
APPROACH & 10' EXIT TO  
BE "NO PARKING"  
PAINTED RED CURB. (TYP)

BOULEVARD

SEE TN-STDS. FOR  
STREET SECTIONS

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
CHECKED \_\_\_\_\_ SCALE NONE

APPROVED   
ASST. DIRECTOR OF ENGINEERING

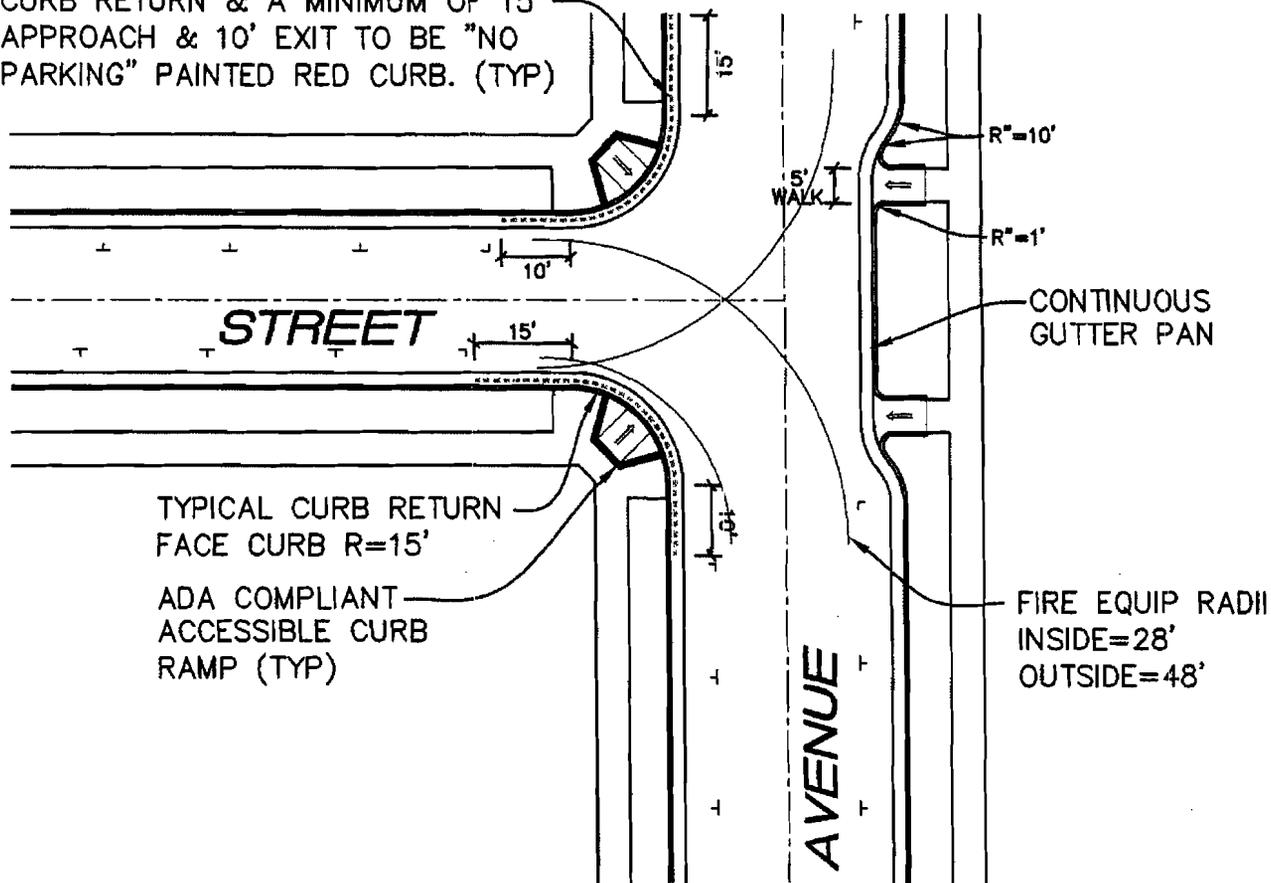
BOULEVARD - AVENUE  
INTERSECTION  
ON NETWORK

TN-18

EXHIBIT R

(6/19/07)

CURB RETURN & A MINIMUM OF 15' APPROACH & 10' EXIT TO BE "NO PARKING" PAINTED RED CURB. (TYP)



SEE TN-STDS. FOR STREET SECTIONS

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE

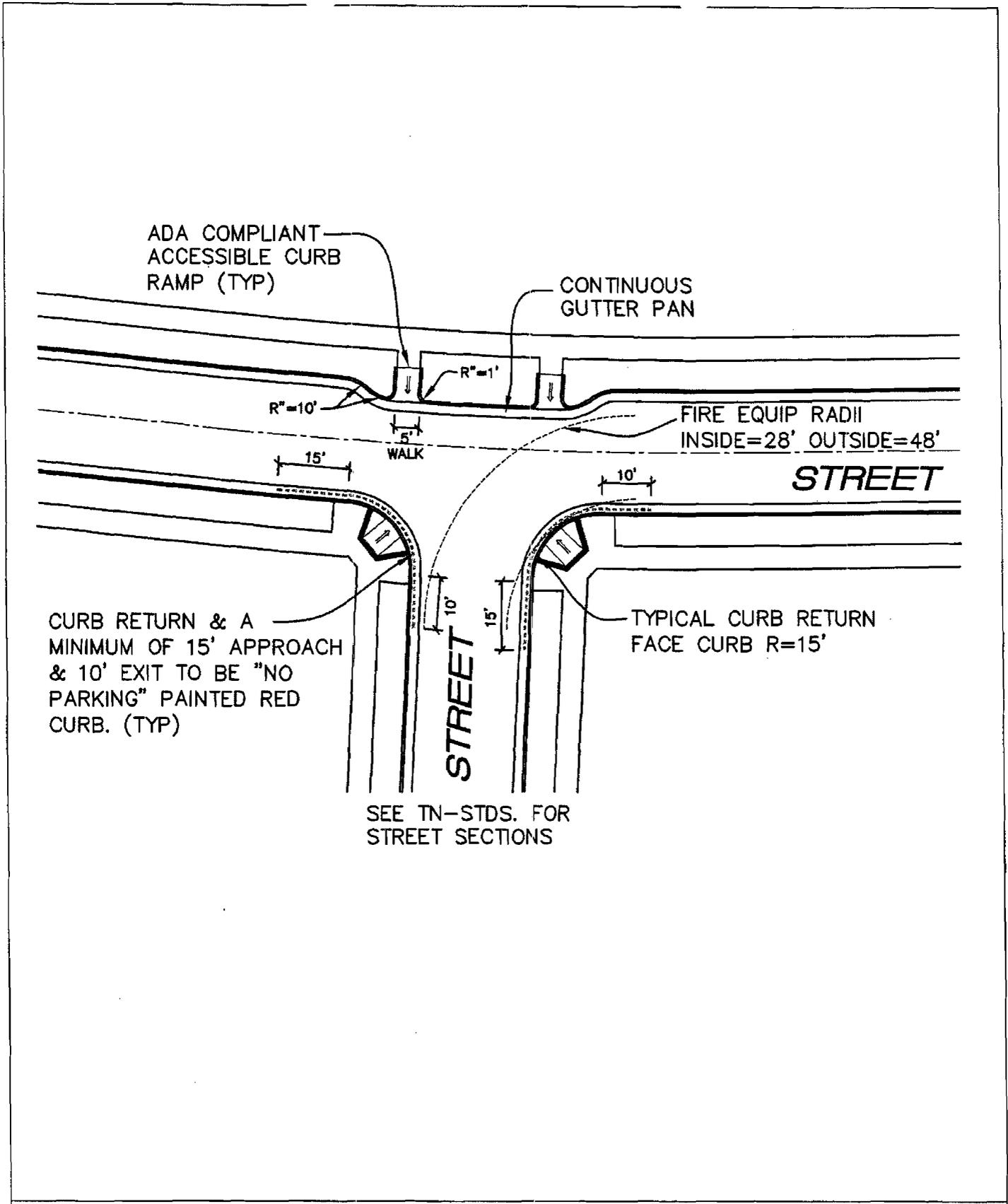
APPROVED [Signature]  
 ASST. DIRECTOR OF ENGINEERING

AVENUE -- STREET INTERSECTION  
 ON NETWORK

TN-19

EXHIBIT S

(6/19/07)



CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007  
 CHECKED \_\_\_\_\_ SCALE NONE

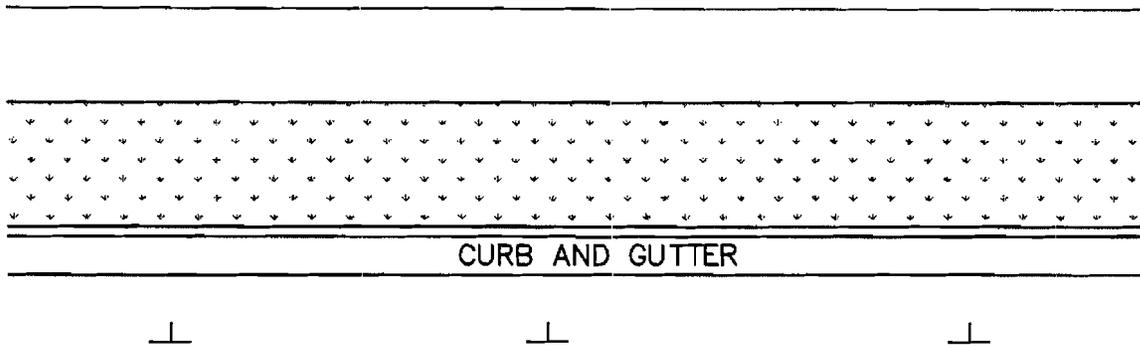
APPROVED *Tom Blay*  
 ASST. DIRECTOR OF ENGINEERING

STREET - "T" INTERSECTION  
 OFF NETWORK

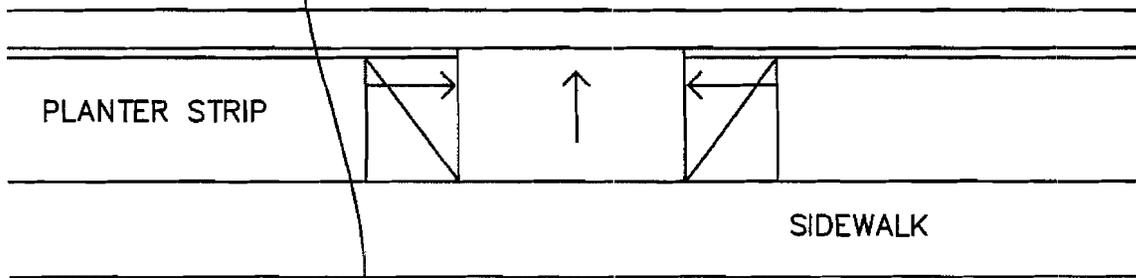
TN-20

**EXHIBIT** T

(6/19/07)



**STREET**



A MINIMUM OF 15' ON EACH SIDE OF AN ALLEY CUT TO BE "NO PARKING" PAINTED RED CURB. (TYP)

**ALLEY**

SEE TN-STDS. FOR STREET SECTIONS

CITY OF CHICO

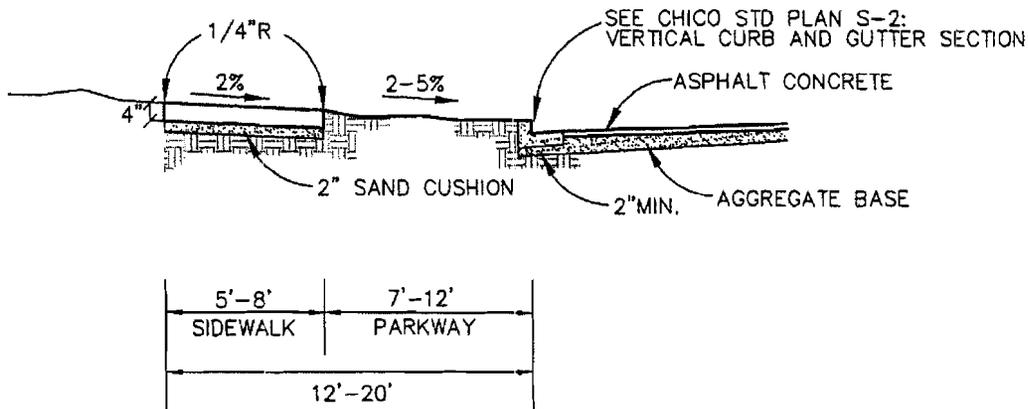
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 CHECKED \_\_\_\_\_ SCALE NONE  
 APPROVED [Signature]  
 ASST. DIRECTOR OF ENGINEERING

STREET - ALLEY INTERSECTION  
 OFF NETWORK

TN-21

**EXHIBIT** U

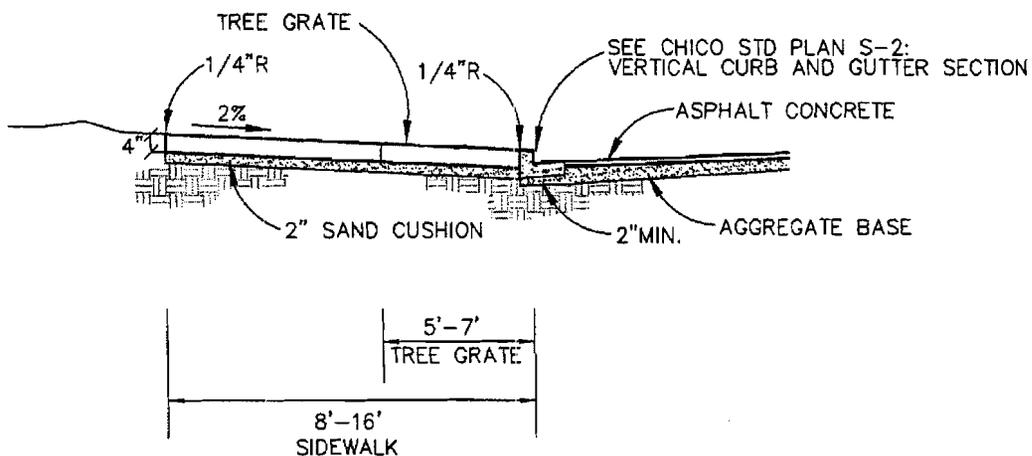
(6/19/07)



**NOTES:**

THIS SIDEWALK CONFIGURATION SHALL BE USED IN CONJUNCTION WITH ALL TND STREET SECTIONS, TN-1 THROUGH TN-21.

SEE CHICO STD PLAN S-1 FOR TYPICAL SIDEWALK SCORE LINES.



**NOTES:**

THIS OPTIONAL SIDEWALK CONFIGURATION AVAILABLE FOR USE IN TND SUBZONES NC AND CORE.

SEE CHICO STD PLAN S-1 FOR TYPICAL SIDEWALK SCORE LINES.

CITY OF CHICO

DRAWN BY RMS/VKS DATE MARCH 2007

CHECKED \_\_\_\_\_ SCALE NONE

APPROVED [Signature]  
ASST. DIRECTOR OF ENGINEERING

SIDEWALK DETAILS:  
PLANTER AND TREE GRATE OPTIONS

TN-22

**EXHIBIT** V

(6/19/07)

**Chapter 18R.36**

**SUBDIVISION IMPROVEMENT REQUIREMENTS**

**Section:**

**18R.36.010 Schedule of unit costs to be utilized in developing estimates of cost for improvement guarantees.**

**18R.36.010 Schedule of unit costs to be utilized in developing estimates of cost for improvement guarantees.**

The unit costs to be utilized by the building and development services director in determining the estimate of cost for required improvements to be guaranteed by the improvement security shall be as set forth in Section 14R.14.010 of this code.

(Res. No. 58 79-80 (part), Res. No. 113-07)

**TITLE 18R FOOTNOTES**

1. For statutory provisions on local regulations of land divisions, see Government Code §66410 et seq. For additional provisions regarding divisions of land, see Title 18 of this code.
2. For code provisions authorizing subdivision design criteria to be promulgated by the director of public works and the city planner and approved by resolution of the council, see §18.35.020.
3. For code provisions authorizing subdivision improvement standards to be promulgated by the director of public works and the city planner and approved by the council by resolution, see §18.35.020.