

VOLUME II - DESIGN STANDARD FOR SUBDIVISIONS
(Class I, Rural, and Minor Land Subdivisions)



SECTION 1: SUBDIVISION

The term "subdivision" shall mean, for the purpose of this Design Manual, Class I Subdivisions, Rural Subdivisions, and Minor Land Divisions, commonly referred to as parcel maps.

- 1) Class I Subdivisions consist of five (5) or more parcels less than 2.0 acres in size.
- 2) Rural Subdivisions consist of five (5) or more parcels, two (2) acres or larger in size.
- 3) Minor land divisions (parcel maps) consist of four (4) or less lots of any size and those special projects containing five (5) or more lots as identified in the Minor Land Division Ordinance.

SECTION 2: GENERAL INFORMATION AND CRITERIA

A) Lot: The basic development unit - an area with fixed boundaries, used or intended to be used by open space (recreational), public facilities, one or more buildings and its accessory building(s), and not divided by any public highway or alley. A "zoning lot" must meet the requirements of the zoning district in which it is located and must front on a public street or an approved private street. The following list suggests the variety of lot types: corner, deep, interior, reversed corner, flag, and through or double frontage lot.

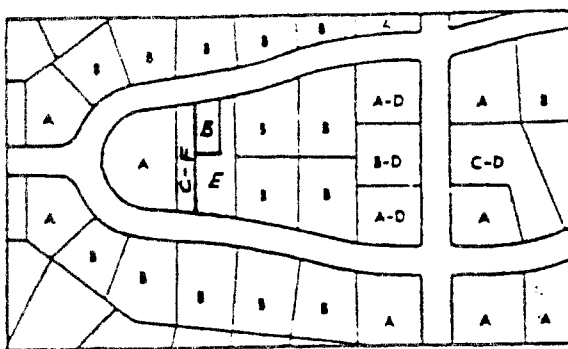
- 1) **Corner Lot**: A lot located at the intersection of two or more streets having an angle of intersection of not more than 135 degrees.
- 2) **Deep Lot**: A lot whose depth is excessive in relation to its frontage (sometimes called a "stringbean" lot). Lots are not to exceed a 3 to 1 ratio unless a design waiver is granted.
- 3) **Interior Lot**: A lot bounded by a street on only one side.
- 4) **Reversed Corner Lot**: A corner lot, the rear of which abuts the side of another lot.



- 5) Flag Shaped Lot: A lot which has a narrow strip of land abutting the street (flag pole) and expands into a larger area (the flag). A lot shall not be considered a flag lot if the frontage meets the minimum parcel width.
- 6) Through (Double Frontage) Lot: A lot abutting on two parallel, or approximately parallel streets.

LOT

This illustrates the basic types of lots



- A = Corner Lot
- B = Interior Lot
- C = Through (or Double Frontage) Lot
- D = Reversed Frontage Lot
- E = Flag Shaped Lot
- F = Deep Lot

B) Design of lots:

- 1) The dimensions, shape and orientation of the lots shall be determined with regard to solar orientation, topography, land features and circulation.
- 2) All lots shall conform to zoning requirements, particularly lot dimensions and area.
- 3) All lots shall provide building sites and open space areas suitable to the use and type of building contemplated and to the yards, parking and loading required by zoning, with the minimum grading and change of the natural drainage.
- 4) Area requirement for lots:: Lots having an average natural or graded (if proposed) slope of over 10 % shall have the minimum area and frontage indicated in the following table, or shall comply with zoning requirements for lot area and frontage, whichever is more restrictive.

SLOPE (% Grade)	AREA (SQ. FT.)	FRONTAGE (FT.)
10-20%	10,000	75
21-30%	20,000	120
31-40%	30,000	150

The remaining land area over 40% shall be preserved as natural open space or shall be added to a lot conforming to the foregoing slope area standards.



- 5) Frontage (lot widths) shall be determined at the right-of-way line. All lots shall have frontage to a public street or a street meeting County subdivision design and improvement standards. The minimum lot width shall be as is required within the appropriate zoning category for the project. The frontage of a lot in the turnaround area of a cul-de-sac or along a radius curve may be measured along the curve, at the required building setback. Lot width shall not include road easements existing or proposed, except as provided.
- 6) Construction of driveways required: A driveway shall be constructed where the street excavation or embankment along the frontage exceeds a depth or height or six feet; or,

where the Planning Division, Planning Commission or Board of Supervisors finds the reasonable access to a lot is blocked.
- 7) Flag shaped lots shall be discouraged.
- 8) Through lots or double frontage lots shall not normally be approved. Double frontage lots shall be provided when necessary for: (a) protection of residential properties from through traffic and adverse nonresidential uses;; (b) for separation of through and local traffic; (c) to overcome difficulties, topography, or other special conditions; and (d) when future divisions occur based upon the current Land Use Element of the General Plan. Screen planting and a fence or wall of a type approved by the County Engineer may be required along the rear property line in the form of a reserve strip, no less than 10 feet wide, within which existing live trees shall be preserved and across which there shall be no right of vehicular passage.
- 9) Reserve strips controlling access to streets or other land shall not be approved, except as provided in paragraph B-8 above, and only if ownership control of the strips is placed with the County.
- 10) The depth of the lots shall not be less than 100 feet nor more than three times the average width.
- 11) Side lot lines shall be substantially normal or radial to street lines.
- 12) No lot within a subdivision or minor land division of five or more lots shall be divided by a public road system.



- 13) No lot should be divided by special assessment district, fire district, school district, city, or county boundary lines.

C) Grading Requirements:

All grading shall adhere to the requirements of the El Dorado County Grading Ordinance, Section 15.14 of the County Code.

If a grading permit is not required, all other requirements as established within the Design Manual shall be adhered to.

MASS PAD GRADING CRITERIA

1. Basic Principles

- a. It is the intent of these grading standards that all grading shall reflect, to the greatest extent possible, the natural gradient and contours of the site. Grading shall be designed to minimize the appearance of extensive, artificial banks which may be visible from public streets or other public views.
- b. To the extent that it is consistent with sound engineering practices and the need to provide proper drainage and roadway configuration, pad elevations shall be determined with the objective to preserve native trees having a trunk diameter in excess of 6 inches and which are generally in good health.
- c. Cross-lot or rear-lot drainage shall generally be avoided. However rear-lot drainage can be utilized when it reduces the rear-lot vertical difference between adjacent lots. When rear-lot drainage is proposed, a properly designed drainage system shall be installed to collect drainage on each lot.

2. Differential Pad Elevations

- a. Side Yards: The differential pad elevation between adjacent interior side lot lines shall not exceed the product of street grade times the lot width.
- b. Rear Yards: The differential pad elevation between adjacent interior rear lot lines shall not exceed the product of the slope between the adjacent street centerlines times the distance between those centerlines.



3. Contour Grading

- a. Front Yards: In order to minimize a "stair step" effect on streetscapes in padded lot areas, the transitional slope areas along the side lot lines in the front yards shall be softened by reducing the slope or by contouring the top and toe of the slope into the front yards of each unit. Front yard landscaping shall be required to be installed by the subdivider in situations where mass pad grading is combined with a buildout program.
- b. Rear Yards: In order to allow for a maximum of usable rear yard and to provide proper drainage between lots, contour grading shall not be required along rear lot lines nor along side lot lines in those areas which are not visible from a public street.

4. Drainage

- a. Drainage System: Utilize concrete curb and gutter in all subdivisions where lots are less than 20,000 square feet. Grading shall provide for positive, controlled lot drainage to the street and/or storm drain system.
- b. House Construction: The Building Official, at final inspection for any house, shall verify that pad slopes and drainage substantially conform to approved plans.
- c. Subsequent Construction: For mass pad graded lots on which homes have been built, and which are subject to County permit issuance for construction of secondary structure, including but not limited to, pools, gazebos, etc., evidence of conformance to the original lot drainage pattern shall be provided as part of the building permit for secondary structures, or a revised lot drainage plan shall be approved which provides positive, controlled lot drainage. These shall be subject to the final sign-off by the Building Official.

LEVEL OF REVIEW

1. During the tentative map of tentative parcel map review, the Department of Transportation shall determine if a project meets the definition of "mass pad grading".
2. Subdivisions which meet the definition of "mass pad grading" shall be required to submit a preliminary plan consisting of either proposed finished contours or a diagram of the pad locations and limits of the tops, toes and slopes of all graded areas. Median elevations of pads shall also be shown on the diagram. Typical cross-sections may be submitted to illustrate critical areas.



D) Lands Subject to Hazards:

- 1) Land subject to hazards, such as slides, periodic or occasional inundation, or otherwise unsuitable for the intended use, shall be:
 - a) either set aside for uses in which danger to life or property would be minimal, or in which an aggravation of the hazard may not result, or by providing appropriate easements; or,
 - b) improved with such corrective measures, approved by the County Engineer, or Civil Engineer, as will be reasonably expected to limit the hazard or make the land suitable for the intended uses.
- 2) Land subject to extreme wildfire hazards shall be modified by such corrective measures as may be required by the Planning Division, Planning Commission and/or the Board of Supervisors, from recommendations made by the California Department of Forestry, United States Forest Service, and structural fire protection districts.

E) Curbs, Gutters and Sidewalks are Required:

- 1) On residential streets in subdivisions (major or minor) where one or more lots of less than 10,000 square feet are proposed, except that sidewalks are not required on single-family residential cul-de-sacs but, curbs and gutters shall be provided.
- 2) In all commercially and industrial zoned development, the requirement for sidewalks shall be reviewed on a case-by-case basis.
- 3) Public pedestrian walkways, or sidewalks may be required where deemed essential to provide for circulation and access to school playgrounds, parks, shopping centers, transportation, and other community facilities. The right-of-way for said walkway shall not be less than 10 feet wide and shall only be required when the project is within a one-mile radius of the community facility, existing or proposed.
- 4) Wherever the grade of sidewalks or walkways exceeds 20%, steps of a design acceptable to County Engineer shall be required.



SECTION 3: STREETS

A) Street Layout:

- 1) The layout, character, extent, width, grade and location of proposed streets shall be established with due regard to:
 - a) public convenience and safety;
 - b) topography and other land features;
 - c) proposed uses of the land to be served by such street;
 - d) expected traffic type and volume to be carried by such streets, and
 - e) proper relation to, connection with, continuation and projection of streets in the adjacent area, whether these streets are existing or proposed in another subdivision, in the general plan, or in the official map, as approved or adopted by the Board of Supervisors.



2) Access: (Proposed Clarification for Access)

Proposed streets for Class I, Rural Subdivisions and Minor Land Divisions shall connect to a County or State maintained street or highway having sufficient improvements to accommodate the additional traffic flow resulting from the proposed subdivision. Sufficient improvements shall mean:

- a) County or State maintained roads shall have adequate width, alignment, and surfacing to accommodate the increased level of traffic from the proposed development; or
- b) When the County road is identified to be improved under Chapter 12.32 et. seq. of the County Code, where the road improvement fees are collected; or
- c) When the development is a rural subdivision, the proposed street may connect, if authorized, to an existing rural subdivision street which connects to a County or State street of sufficient improvement.

If the proposed street of a Standard, Rural or Minor Land Division does not connect to a State or County maintained road, the road connection from the proposed subdivision to a State or County maintained road shall be improved as follows:

- a) Standard Subdivision - Road connection shall be of the same improvement standard as the proposed subdivision street(s).
- b) Rural Subdivision - Approved access on all rural subdivisions shall include a minimum 50 foot right-of-way and require the collector street through the development to be connected to a County or State maintained highway of sufficient standards to accommodate the additional traffic flow resulting from the proposed subdivision or connection to an existing approved rural subdivision road of the same or better standard.



If access is through another rural subdivision, written authorization is required from the entity responsible for the maintenance of said access road to roads consenting to the connection, and providing for the sharing of the maintenance costs on said access road or roads with the entity requiring said access to the County or State maintained highway. A statement is to appear in the Articles of Association, Articles of Incorporation, or other document, setting forth the duties and liabilities of the entity responsible for the maintenance of roads within a rural subdivision so that future road access to adjacent lands will not be unreasonably withheld.

c) Minor Land Division:

- i. Off-site Access Improvement: Off-site access required to serve the subdivision shall be improved to the same standards as required on-site but shall be limited to the equivalent cost for the on-site improvements.
 - ii. Roadway Width and Surfacing for Access Roads to Minor Land Divisions: The road preparation and graded width shall be to minimum County road standards but the minimum width of surfacing shall not be less than eighteen (18) feet and must have a stable all-weather gravel or paved surface.
 - iii. Drainage: The road shall have well-defined roadside ditches directing surface water away from the roadway to a water course. Water shall not cross the road surface but should be conveyed through a culvert of adequate size to accommodate storm water without flooding the roadway. If a reliable history of roadway flooding or damage caused by inadequate drainage facilities exists, the existing road shall not be approved for an access road.
- 3) Where a property is subdivided with one or more lots substantially larger than the minimum size required in the zoning district in which a subdivision is located, streets and lots may be required to be laid out so as to permit future re-subdivision in accordance with the standards contained under Volume II of this Design Manual.



- 4) When a subdivision abuts or contains an existing or proposed arterial or collector street, limited access highway, or railroad, special treatment may be required for the protection of residential properties, the separation of through and local traffic, and the requirements of future highway plans. Special treatment includes:
 - a) marginal access or service streets;
 - b) double frontage lots with screening by wall, fence and/or planting in a non-access reservation along the rear property line; and
 - c) parks or reservation of right-of-way.
- 5) Collector streets shall be designed to carry a maximum of the access traffic to, and through traffic within, the subdivision and traffic from local streets to arterial streets and highways. Lot frontage shall be avoided on these streets when the design traffic volume exceeds 400 vehicles per hours. Collector street spacing should be from 1/4 mile to one (1) mile.
- 6) Local streets should carry traffic limited to lots fronting such streets and should have a curvilinear and discontinuous alignment, such as loops and cul-de-sacs, so as to discourage through traffic, but carry traffic conveniently and as directly as possible to collector streets. Local street spacing should be from 250 feet to 1,500 feet apart.
- 7) Some proposed streets may be required to extend to the boundary line of the subdivision. When more than four (4) lots front such street stub, a temporary turnaround easement shall be provided at the end. A barrier approved by the County Engineer shall be installed at the end of the improved street.
- 8) Half streets shall not be approved for major subdivisions unless they are planned as stage construction of a four-lane street and two travel lanes are constructed. Parcel maps may be permitted to establish less than full right-of-way; however, the following criteria shall be considered:
 - a) The remaining right-of-way may be expected to be provided from a future division. If zoning, general plan designation, or parcel sizes prevent future division, no reduction in right-of-way shall be granted.



- b) If less than full right-of-way is granted, the full road improvements shall be required.
- 9) At least two connections with an existing, improved public street, or with a future street extension approved by the Planning Commission or the Board, shall be provided, except when a proposed subdivision only contains one cul-de-sac street that is less than 500 feet in length in which case the one connection is sufficient. When the secondary access is to be provided, with a future street extension, then a temporary exit road or acceptable alternative may be required, and approved by the Planning Director, with a favorable recommendation from the responsible fire agencies.

Minor Land Divisions may be approved with one access street of adequate capacity to accommodate the proposed increase in traffic. If approved, a future street route identifying a second connection or an acceptable alternative, to a County maintained road shall be prepared by project engineer and approved by the Planning Director. The proposed future street route, or acceptable alternative, shall then be utilized for future land divisions

- 10) Street intersections shall not exceed four separate streets, nor shall "Y" intersections be allowed.
- 11) The layout of proposed streets, where applicable, shall furthermore be designed in a manner acceptable to the approving body.
- 12) A dead-end street connecting to a County or State maintained street may exceed 500 feet in length, but not more than 2,640 feet, and only when geographic features restrict a street extension and the street will not serve more than twenty-four (24) existing or potential parcels. Dead-end streets are defined as any road originating from a County or State maintained road having two means of access. Such dead-end streets shall have a turnaround at the closed end and the following minimum widths:
 - a) Rural subdivisions and minor land divisions - 10-foot shoulders, for a total roadway width of 40 feet. Width reductions for shoulders may be reduced by the Planning Director with a favorable recommendation from the responsible fire agency;
 - b) Class 1 subdivisions - a pavement width of 36 feet;



- c) Commercial and industrial streets - a pavement width of 40 feet;
- d) Fuel modification (thinning) may be required up to 100 feet from the edge of the roadway (on-site) by the Planning Director upon favorable recommendation from the fire protection agencies, based on the following criteria:

<u>Fire Rating</u>	<u>When Length of Road is to Exceed</u>
Extreme	500 feet
High	800 feet
Moderate	1,000 feet

B) Street Geometry: (Major Subdivision or Minor Land Divisions, Five (5) or More Parcels)

- (1) Intersections shall be at least 150 feet apart at street centerline on local roads and 300 feet apart on collector roads.
- 2) Streets shall be laid out so as to intersect as nearly as possible at right angles, and no street shall intersect any other street at less than 70 degrees.
- 3) The summation of the absolute values of the centerline gradients of the proposed streets within an intersection shall not exceed 10%. The centerline gradient of a street terminating at an intersection shall not exceed 5% at any point within the intersection and for a distance of 50 feet from the point of the intersection. The gradient within turnarounds shall not exceed 8% or an acceptable alternative approved by the County Engineer.
- 4) All streets and intersections shall have a minimum sight distance based on the design speeds. The sight distance at intersections shall be at least 200 feet from a point on the minor road, 15 feet from the edge of the major road pavement.
- 5) Cul-de-sacs serving more than four (4) lots shall not be longer than 500 feet, or more than is allowed under the current fire rating as provided at the closed end, with a turnaround having an outside roadway radius of 40 feet and a right-of-way radius of 50 feet. A short, pear-shaped, one-way loop with a central island may be provided with an outside roadway radius of 60 feet and inside radius of 40



feet, and the right-of-way shall be 10 feet from the roadway. A hammerhead-shaped turnaround may be provided with the stubbed ends forming a T or Y, extending 50 feet from their point of intersection, having a surface width equal to the width of the incoming street and the right-of-way shall be 10 feet from the roadway, except in extreme fire hazard areas where the outside road radius shall be 60 feet and the right-of-way radius 70 feet (Std. Plan. 114).

- 6) A tangent at least one hundred (100) feet long shall be introduced between reversed curves. The County Engineer may approve of a tangent shorter than 1,200 feet on local roads provided the adjacent curves have a minimum radius of 200 feet or an acceptable alternate approved by the County Engineer.
- 7) The minimum centerline curve radius length of subdivision streets shall be 100 feet for local streets and 300 feet for minor collecting streets. The minimum curve radius length for major collector streets and arterial streets shall be determined by the County Engineer.
- 8) Changes in horizontal direction shall occur through curves having a centerline radius at least fifty-five (55) feet in length. (Four or fewer parcels only).
- 9) The gradient of any street shall not exceed the following limits:

Arterial-----To be determined by County Engineer

Major Collector-----To be determined by County Engineer

Minor Collector-----10%

Local, Short Loops,
Dead ends, and Cul-
de-sacs-----12% (may be increased 15% for
lengths not exceeding 600 feet)

Minor Land
Divisions-----The road gradient shall not
exceed 15%.

The gradient of any street (major or minor land division) above 3,000 feet elevation shall not exceed 10%.

The gradient of any street shall not be less than 0.5% (sag and crest vertical curves expected).



- 10) Changes in street grades for major and minor land division of 5 or more lots shall be connected by vertical curves of minimum length in feet equal to the following factors times the algebraic differences in the rate of grade expressed in percent.

TYPE OF STREET	FACTOR
Arterial	To be determined by County Engineer
Major Collector	To be determined by County Engineer
Minor Collector	28
Local	20 (except 28 through intersections)

The factor may be reduced on local streets to 10 for sag vertical curves and for crest vertical curves ending at "T" intersections on local streets.

C) Minimum Rights of Way for Class I, and Rural Subdivisions and Minor Land Division Road Easements

- 1) The street rights-of-way and public road easement width shall be based on functional classification as shown in the current El Dorado County Regional Transportation Plan, and shall not be less than the following basic right-of-way widths:

STREET TYPE	BASIC ROW WIDTH (Feet)
Arterial	80
Major Collector	80
Minor Collector	60
Local	50

Except for streets above 3,000 feet elevation, or in extreme fire hazard areas, the minimum right-of-way widths shall be 60 feet (provisions) for snow storage and fire protection shall be incorporated when necessary. These requirements are only for major and minor land division, 5 or more parcels.

- 2) Basic street rights-of-way and road easement lines shall be equal distance from, and parallel to, the roadway centerline.



D) Improvement Requirements - ALL LAND DIVISIONS:

- 1) Street width, all land divisions: The street rights-of-way shall conform to Volume II, Section 30. The typical street section, Volume IV, for Class I, Rural Subdivisions, commercial land divisions, and minor land divisions shall be determined with consideration of its functional and extreme fire hazard classification and its anticipated traffic volume.
- 2) Improvement requirements for Class I subdivisions, industrial and commercial land divisions, rural subdivisions, and minor land divisions, shall be as is identified in Volume IV - Standard Plans. The County Engineer may approve of equivalent surfacing and base with other materials.
- 3) Streets for any lands industrially and/or commercially zoned, shall be improved to Class I improvement requirements, except the pavement and base shall be increased to provide a base at least eight (8) inches thick and pavement at least 3 inches thick.
- 4) Erosion Control: "Grading work should be timed to commence and be completed during the dry season months of May through September. Erosion stabilization work should be completed by October 15, or additional practices will be required to stabilize disturbed areas through the wet season." (See Volume III for Erosion Control Requirements and Specifications.)
- 5) Brush, trees, stumps and other debris shall be cleared from the entire graded area of any and all streets, and additional areas as determined by the County Engineer (or for rural subdivisions and minor land divisions - a civil engineer).
- 6) Street signs: Street name signs of a type and construction approved by the County Engineer shall be placed at each intersection. Traffic control signs shall be placed where designated by the County Engineer. A sign at each access of a rural and minor land division reading, "This Road is Not County Maintained", shall be placed in a prominent location, and shall have 4-inch block letters - black on white background.
- 7) Other requirements: The County Engineer may require additional location and construction requirements as he determines to be necessary to prevent excessive operating costs, protection against deterioration, and obsolescence.



- 8) In addition to the construction standards listed herein, the current edition of the State of California, Department of Transportation, Standard Specifications and Standard Plans, shall be used with special provisions prepared by a civil engineer and approved by the County Engineer in lieu thereof.

E) Street Names:

Street names and suffixes shall be designated by the subdivider, subject to the approval of the approving agency and in accordance with Ordinance No. 2021. The following agency shall review and approve street names for the appropriate Land Division.

Minor Land Division - Planning Division-Community Development Department

Major Land Division - Planning Commission and/or Board of Supervisors

NOTE: All proposed street names shall be reviewed by the Planning Division of the Community Development Department for compliance with Ordinance No. 2021.

SECTION 4: DRAINAGE CRITERIA FOR ALL LAND DIVISIONS

A) General Drainage Requirements:

The subdivisions shall be designed to receive surface water, stream water, and flood water emanating from outside its boundaries and from within and passing such water through and off the subdivision without injury to improvements, buildings or building sites. Surface waters shall be discharged into the natural watercourse to which they would normally drain. If surface waters are gathered, they must be conveyed under control to a water course. Design of drainage facilities shall be such that they will accommodate the ultimate development within the drainage area with minimum modification to building setback areas around wetlands (i.e., marsh, springs and streams).

B) Definitions:

1) Surface Waters

Surface waters are those falling upon, arising from, and naturally spreading over lands and produced by rainfall, melting snow, or springs. They continue to be surface waters until, in obedience to the laws of gravity, they percolate through the ground or flow vagrantly over the surface of the land into well-defined watercourses or streams.



2) Stream Waters

Stream waters are former surface waters which have gathered together into a well-defined watercourse.

- 3) A watercourse is a running stream of water, a natural stream, or storm water channel, including rivers, creeks, runs, and rivulets. Streams flow in a particular direction though it need not flow continually. They may sometimes be dry, and they usually flow in a definite channel having a bed, sides, or banks. It does not include the water flowing in the hollows or ravines in land, which is the surface water from rain or melting snow and is discharged through them from a higher to a lower level, but which at other times are destitute of water.

4) Flood Waters

The term "flood waters" is used to indicate waters which escape from a watercourse in great volume and flow over adjoining lands in no regular channel, though the fact that such errant waters make for themselves a temporary channel or follow some natural channel, gully or depression, does not affect their character as flood waters or give to the course which they follow the character of a natural watercourse.

5) Drainage Way

The term "drainage way" has been used herein to refer to those natural depressions in the earth's surface, such as swales, ravines, draws and hollows, in which surface waters tend to collect, but which do not constitute a watercourse in the defined sense.

C) Design of Drainage Facilities:

1) Hydrologic Design

- a) Those watercourses set forth in an adopted master plan of drainage for the County of El Dorado shall be designed and constructed for the quantities of water indicated in such master plan. All other watercourses and drainage ways shall be designed by a civil engineer in accordance with the criteria described herein.



- b) Drainage facilities for areas greater than 100 acres shall be designed for an average recurrence interval of 100 year flood utilizing any available head on culverts. Drainage facilities for areas less than 100 acres shall be designed for an average recurrence interval of 10 years with no head on culverts.

Design flows shall be computed by use of rational formula: $Q = C I A$ or other methods acceptable to the County Engineer. Basic data prerequisite to the determination of "C" and "I" may be obtained from the State Department of Transportation Highway Design Manual or determined through the application of hydrology.

2) Hydraulic Design

- a) The depth of flow or ponding shall not exceed a level which would cause inundation of building sites or areas required for water disposal systems.
- b) Roadside ditches shall be designed to carry off from the roadside only. Roadside ditches shall not be used to transport stream water or other water that has been gathered and conveyed to the roadside. Drainage channels in easements shall be constructed to discharge water from the roadside ditches. The depth and velocity of flow in roadside ditches should be analyzed and tabulated to determine erosion measures and frequency of cross culverts.
- c) The subdivision shall be designed so that streets do not run along drainage ways. Drainage ways shall not block reasonable access to lots. Reasonable access is defined as permitting a driveway to be constructed utilizing an 18-inch diameter pipe or smaller. If large drainage ways must be located within the road rights of way, the water shall be carried underground in closed conduit.
- d) Depressed areas that may cause ponding shall be graded to drain freely.
- e) The minimum culvert size for street crossings shall be 18 inches in diameter. The minimum size for street cross culverts with grate covered drop inlets, shall be 12 inches in diameter.



f) Street cross culverts placed in drainage ways shall have flared end sections, beveled end sections, or P.C.C. concrete headwalls on the inlet side. The outlet side shall have such end sections or slope protection that will return water to the normal flow without causing erosion.

g) The maximum allowable velocities for roadside ditches and open channels shall be:

TYPE OF LINING	VELOCITIES (FT./SECOND)
Earth	3 to 6
Rock	10
Grouted Rock	15

h) Where natural drainage ways and other courses contain sufficient areas to convey the design discharge and where such natural waterways have proven themselves reasonably stable and it can be shown that erosion is not likely to occur as a result of the subdivision, such channels may remain in their natural state.

3) Structural Design

- a) Drainage facilities shall conform to standards found in this Design Manual. If applicable standards are not available, structural design shall be made and materials shall be specified by the civil engineer.
- b) Drainage channels shall have side slopes of 2 to 1, or flatter unless mechanical stabilization is used. Bank stabilization and stream bed stabilization along constructed or natural channels is required if the channel velocities are sufficient to cause bank or bed erosion.
- c) If closed conduit is used, manholes shall be provided at all angle points and at intervals not to exceed 300 feet along the conduit.
- d) Drainage facilities shall be able to withstand legal vehicle loads and contain materials that will have a service life of 50 years.

D) Easements for Drainage Purposes

- 1) Drainage easements shall be shown on the parcel or final map and identified by the words, "Drainage Easement".



- 2) Drainage easements for closed conduits and appurtenances shall be no less than 10 feet in width and sufficient to provide 2 feet of clearance outside such conduits and appurtenances. Drainage easements for closed conduits shall not traverse a building site and shall, insofar as possible, be placed along or adjacent to lot boundary lines in a straight alignment without angle points.
- 3) Drainage easements for constructed channels and appurtenances shall be no less than 10 feet in width and sufficient to contain the top width of the channel plus a 5 foot continuous maintenance way on one side and 2 feet on the other side for channels less than 20 feet in top width. The maintenance way shall be 15 feet when the channel width is greater than 20 feet.
- 4) Drainage easements for natural waterways:
 - a) Drainage ways originating within the subdivision and not receiving water from culverts or roadside ditches do not require easements. All other drainage ways and all watercourses require drainage easements.
 - b) Drainage easements for natural waterways shall be located and approximately shown within the lot or parcel.
 - c) Drainage easements shall be no less than 10 feet wide and sufficient to contain the channel plus additional space for a maintenance way.

E) Drainage Easement Maintenance

- 1) Class I Subdivisions to be required to formulate a community services district or develop a county services area to provide drainage easements maintenance.

SECTION 5: WATER SUPPLY AND DISTRIBUTION SYSTEM

A) Water Supply and Distribution Systems Required For Domestic Use and Fire Protection

Water supply and distribution systems shall be provided to all lots when lots or parcels are less than 4.5 acres and public sewer is not available.



When water supply and distribution systems are provided, then it shall be constructed to the standards contained in this section or to the public purveyor's requirements, whichever is greater. The public purveyor shall have final approval of the design of all water distribution systems.

B) Source

The water supplied for a subdivision shall be obtained from a source free from pollution, and from a source adequate to provide a continuous supply of water that is wholesome, potable, in no way harmful or dangerous to health, and insofar as practicable, free from objectionable odors, taste, color and turbidity.

C) Pressure

The water supply and distribution system shall be so designed and constructed that it will maintain a normal operating pressure at all service connections not less than 25 pounds per square inch above atmospheric pressure, or more than 125 pounds per square inch above atmospheric pressure, except that during periods of hourly maximum demands, the pressure at the time of peak seasonal loads may not be less than 20 pounds per square inch above atmospheric pressure and that during periods of hourly minimum demand, the pressure may not be more than the design of the pipe line installed.

D) Water Supply

The water supply shall be so designed and constructed that it will supply at least the following volume rates for two hours at any fire hydrant in the system while the system is in normal operation without reducing the water pressure in any part of the system below 20 pounds per square inch above atmospheric pressure:

DWELLINGS PER ACRE	GALLONS PER MINUTE FOR TWO (2) HOURS
2 or less	500
More than 2	750

Larger flows may be required by the fire protection agency having the responsibility in that area where structural conditions require it.



E) Water Mains

- 1) Water mains shall be placed in street or public utility easements.
- 2) The distribution system shall be laid out in a properly segmented grid or loop system with valves provided at intersections and at intervals so that repairs may be affected with a minimum interruption of service.
- 3) Dead ends in mains shall be avoided insofar as practicable, and a means shall be provided to flush any dead ends which may be installed in the mains.
- 4) All water mains on which fire hydrants are connected shall be one of the following minimum sizes:
 - a) six inches inside diameter within a grid or loop system and on dead-end legs of less than 600 feet long;
 - b) eight inches or longer inside diameter for all other mains.

F) Service Connections

For Class 1 Subdivisions, a service connection pipe at least three-quarters inch inside diameter shall be placed to each lot from the water main.

G) Fire Hydrants

Fire hydrants shall be placed so no point in any of the streets fronting on lots served by the water distribution system are further than 250 feet from the nearest hydrant in a standard subdivision or when less than two (2) acre parcels are proposed; for rural subdivisions and minor land divisions with water mains - 500 feet; and 125 feet in a commercial and industrial area. Each fire hydrant shall be installed in a street and shall have a gate valve between the water main and the riser.

Fire hydrants shall be of a type and size approved by the public entity providing services, and shall have two 2-1/2 inch outlets and one 4-1/2 inch outlet (4-inch Tahoe). Fire hydrants shall be located not more than 8 feet from the edge of the roadway and near the level with the roadway. The 4-1/2 inch outlet (4-inch Tahoe), shall be no less than 18 inches above the ground level or greater than 24 inches. (See Std. 106A and 106B). The location of fire hydrant installations is subject to approval by the structural fire protection agency having the responsibility in that area.



H) Materials

Metallic and nonmetallic materials may be used separately and in combination to construct component parts of a water system including, but not limited to, conduits, pipes, couplings, caulking materials, protective linings and coatings, services, valves, hydrants, pumps, tanks and reservoirs, provided:

- 1) The material shall have a reasonable useful service life;
- 2) The material shall be capable of withstanding, with ample safety factors, the internal and external forces to which it may be subject to in service;
- 3) The material shall not cause the water to become impure, unwholesome, unpotable or unhealthful;
- 4) Materials and equipment shall be so selected as to mitigate corrosion, electrolysis and deterioration.

I) Standards of Construction

- 1) Water mains shall be installed below the frost line or be otherwise protected to prevent freezing and shall not have less than 30 inches of cover over the top of the pipe in public streets.
- 2) Service pipe shall be laid to a depth sufficient to prevent freezing and not less than 18 inches except at its termination in connecting with a meter or customer's piping.
- 3) Water mains and other services, when crossing other utilities, shall be separated by at least one foot.
- 4) Water mains and services installed within streets shall be installed and successfully tested under pressure before pavement is constructed.

J) Plans and Specifications

Prior to the approval of the final map or filing of the parcel map, (5 or more parcels), the subdivider shall submit to the County Engineer, plans and specifications of the water supply and distribution systems prepared by a civil engineer, registered in the State of California, of sufficient detail to enable the County Engineer to ascertain whether such systems conform to the standards set forth herein and to standard acceptable engineering practices. Such plans and specifications shall be reviewed, approved and signed by the authorized representative of the appropriate fire district and water district responsible for providing service upon completion of the project.



K) Additional Requirements

The County Engineer or water purveyor may require additional improvements for water systems having unusual problems.

L) Water Commitment - Final Maps (Major and Minor)

Prior to approval of the final map by the Board of Supervisors, or prior to the filing of a parcel map, the required water improvements shall be completed or described within a subdivision agreement and a security provided to guarantee completion.

The public purveyor shall submit a letter stating that the water improvements have been completed to its satisfaction or that the improvements described in the subdivision agreement are acceptable to the public purveyor. The letter shall include a statement from the public purveyor that it is willing and able to provide service to each lot of the subdivision when the described improvements are completed.

SECTION 6: FIRE PROTECTION REQUIREMENTS (As Revised 9/81)

The following are considered minimum fire protection requirements and may be modified by the Planning Director with a favorable recommendation from the fire protection district. Such modification may include the increase or decrease of the minimum fire protection requirement standards dependent upon the unique needs of the servicing fire district.

A) Fire Protection Required

- 1) When division of land (minor or major) is proposed and is within a fire protection district, the minimum fire protection requirements must be met, unless modified by agreement between the subdivider and structural fire protection district and wildland fire protection agencies.
- 2) When a major subdivision (no matter the size of the lots) is proposed, it shall be within a structural fire protection district.
- 3) A proposed minor land division creating parcels 9.0 acres or smaller shall be within a structural fire protection district.
- 4) If the proposed subdivision (major or minor) creating parcels 9.0 acres or smaller, or a commercial or industrial division is not within an existing fire protection district, one of the following shall occur:



- a) annex to an existing fire protection district;
or,
- b) contract for service with existing structural fire protection district until such time as the annexation is finalized.

B) No Fire Protection Required

- 1) When a minor land division is proposed and is creating parcels 9.1 acres or larger and is not within a fire district, but is located within the sphere of influence, minimum fire protection requirements shall not be required. However, review by the future fire protection district shall be required and comments shall be provided to the developer as comments only.
- 2) When no structural fire protection exists, the subdivider may be required by the Planning Director, at the recommendation of the California Department of Forestry, U.S. Forest Service and future fire protection district, to:
 - a) expand cleared rights-of-way and enlarge cul-de-sacs;
 - b) perform selective clearing so that fuel load levels are reduced; and,
 - c) other reasonable measures to protect structures in area where structural fire protection does not exist; i.e., if the land division is adjacent to existing water lines, it may be required to be extended for fire protection purposes.

C) Water Supply and Source Requirements for Fire Protection (Major and Minor Land Divisions, Five (5) or more parcels)

The supply system and source shall provide a minimum of 60,000 usable gallons of storage for 5 to 50 lots; 120,000 gallons for 51 to 100 lots; and 180,000 gallons for 100 or more lots. The water supply system and source shall be located at the direction of the Planning Director and based on comments received from the structural fire protection district.

- 1) Where water distribution systems are not available, the following will be considered by the structural fire protection district:



- a) tanks;
 - b) reservoirs;
 - c) canals; and
 - d) other systems as may be approved by the structural fire protection district.
- 2) Any of the above water supplies, or combinations thereof, may be required by the Planning Director with a favorable recommendation from the structural fire protection agency having the responsibility in that area.
 - 3) A facility for refilling fire trucks shall be provided for taking of water from the water supplies and shall conform to the standard drawings. The standard drawings may be modified by the fire protection district having the responsibility in that area where structural conditions require it.
 - 4) Fire hydrant locations shall be approved by the Fire Chief of the district providing the service, under Article 10, Section 10.301 of UFC.

SECTION 7: WATER SUPPLY FOR DOMESTIC USE, FOR PARCELS NOT SUPPLIED WITH WATER BY A PUBLIC AGENCY

- A) On parcels of 4.5 acres and larger, individual wells can be utilized.
- B) Information will be required by Environmental Health to assure an adequate water supply per parcel. This may be done by a combination of:
 - 1) tests wells (must produce 5 gpm to be considered as an indicator for adjacent parcels) and/or;
 - 2) data from surrounding properties.
- C) In water scarce areas, additional requirements may be placed on the subdivider to assure adequate water availability.

SECTION 8: SEWAGE COLLECTION AND DISPOSAL SYSTEM REQUIRED

- A) The sewage collection and disposal system provided, shall comply with the following standards or the public purveyor's requirements, whichever is greater. The following land divisions shall be serviced by a sewer system supplied by a public agency and sewer lines shall be extended to each parcel created:



- 1) Commercial and Industrial Land Divisions;
- 2) standard Subdivisions;
- 3) minor land divisions creating one or more parcels smaller than 4.5 acres.

Prior to filing the final map or parcel map, sewer service must be available for immediate use or agreements to make improvements guaranteed by suitable security.

Sewer service requirements may be waived by the approving body where such system is not available and where public water systems are provided under Section 5A.

B) Disposal System

The means used to dispose of sewage shall have sufficient capacity to dispose of all sewage and industrial waste which may be reasonably anticipated from the full expected use of the division of lands in addition to any other area such system may serve. The disposal system shall so treat all sewage, including any industrial waste, all liquid, solid or gaseous residue after treatment, so it will not contaminate any surface or underground waters to a degree which creates an actual hazard to the public health through poisoning or the spread of disease, or pollute any surface or underground water to a degree which adversely affects such waters for domestic, industrial, agricultural, navigational, recreational or other beneficial use, or shall such system create a nuisance to any community by odors or unsightliness resulting from unreasonable practice in the disposal of sewage.

C) Metallic and nonmetallic materials may be used separately and in combination to construct the component parts of a sewer collection and disposal system provided:

- 1) the material shall have reasonably useful service life;
- 2) the material shall be capable of withstanding, with ample safety factors, the internal and external forces to which it may be subjected in service;
- 3) material and equipment shall be so selected as to minimize corrosion, electrolysis and deterioration; and



- 4) concrete pipe shall not be used for sewer mains or laterals.

D) Sewer Mains

Sewage shall be collected in a network of sewer mains laid within the rights-of-way of streets or public utilities easements leading to the sewage disposal system. All sewer mains shall be of sufficient size to carry all sewage and industrial waste which can reasonably be anticipated from the full expected use of all lots and areas served by the mains. Gravity sewer mains shall be laid to such grade that will provide a minimum velocity of flow of two (2) feet per second at all points in such mains. Sewer mains shall be installed with not less than 30 inches of cover and shall have a 10 foot separation from the water line except where water and sewer lines cross.

E) Laterals

A service connection lateral of not less than 4-inch nominal size for a gravity flow system shall be placed to each lot from the sewer main in a Class 1 Subdivision and where new line extensions are constructed for other land divisions. Laterals shall be laid to a minimum grade of one-fourth (1/4) inch per foot from the lot line to the sewer main. A cleanout shall be provided upon each lateral just within the boundary line of the lot served. Such laterals and cleanouts shall be installed in accordance with the Sanitary Sewer Detail Drawings hereinafter set forth.

F) Sewer Opening

Manholes shall be constructed in gravity flow sewer mains at every change of grade or direction, and along straight portions of mains, so that no point in any main shall be farther than 250 feet from the nearest manhole. A lamp hole or manhole must be provided at the end of all sewer mains. Manholes and lamp holes shall be installed in accordance with the sanitary sewer standard drawings.

G) Storm Waters

No storm water drain shall be connected to any sewer main or lateral.

H) Trenching

All sewer mains, manholes, and laterals, shall be placed, successfully tested, and the backfill compacted, prior to the surfacing of the streets affected.

09-0348.E.28



I) Plans and Specifications

Prior to the approval of the final map or filing a parcel map (5 or more parcels), the subdivider shall submit to the County Engineer, plans of the sewage collection and disposal system prepared by a civil engineer, registered in the State of California, of sufficient detail to enable the County Engineer to ascertain whether such system conforms to the standards set forth herein and to standard acceptable engineering practices. Such plans and specifications shall be signed by the authorized representative of the entity that will operate the sewer systems, certifying it has approved the final construction plans and specifications, and that it is willing to maintain and operate the sewer system on its completion.

J) Additional Requirements

The County Engineer or the public purveyor may require additional improvements for sewer systems having unusual problems.

K) Sewer Commitment - Final Maps (Major and Minor)

Prior to approval of the final map by the Board of Supervisors, or prior to the filing of a parcel map, the required sewer improvements shall be completed or described within a subdivision agreement and a security provided to guarantee completion.

The public purveyor shall submit a letter stating the sewer improvements have been completed to its satisfaction or that the improvements described in the subdivision agreement are acceptable to the public purveyor. The letter shall include a statement from the public purveyor that it is willing and able to provide service to each lot of the subdivision when the described improvements are completed.

L) Use of Community Sewage Disposal System/Facilities for the Western Slope of El Dorado County

The use of a community sewage disposal system may be allowed when public sewer service is not available or feasible. The allowance of such system or facility shall be determined on a case-by-case basis and each determined on its own merit.

The purpose of this section is to provide for the establishment of on-site community sewage disposal systems/facilities in areas where the connection to a public sewer is not currently feasible. The allowance of such system/facility is to be determined on a case-by-case basis, each determined on its own merit.

09-0348.E.29



The on-site community sewage disposal system/facility, hereinafter called system, shall mean any works and/or facilities used to collect, treat or dispose of domestic waste water generated within the boundaries of a project.

This section shall govern the management of all systems not proposed to be connected to an existing public sewer facility. This section is intended to regulate the use of new systems or the expansion of capacity for existing systems constructed after the effective date of this section for the treatment and disposal of domestic sewage. This section shall be applicable to those users, including residential, commercial and industrial developments, whose waste discharge can be considered as normal domestic sewage and public sewage facilities are not available.

This section shall not be applicable to commercial or industrial developments where other than normal domestic sewage is generated. These systems shall be allowed only in Industrial, Commercial, Multi-Family Residential and Single Family Residential - High Density areas as designated on the El Dorado County area plans.

This section shall be liberally construed so as to ensure protection of the public health, to assure reliable and reasonable service to the customer, to prevent degradation of surface and/or subsurface waters, to minimize any other detrimental environmental effects that could result from the collection, treatment, storage, and disposal of sewage or waste water associated with on-site sewage disposal systems.

The developer of a project that requires a system, except those systems relying upon community leach field disposal of septic tank effluent, shall enter into a contractual agreement with a public entity to supervise the operation and maintenance of the system. The public entity shall be the El Dorado Irrigation District, the Georgetown Divide Public Utility District, or the City of Placerville, hereinafter called "Entity."

The developer shall cause to be formed, a property owner's association or similar body, hereinafter called "Body"*, which shall be responsible for the normal and routine operation of the system. The contractual agreement shall include, as participants, the Body, the

*In the case of single owner of a multi-unit residential or recreational type facility (such as a mobile home park or campground), the owner shall be the Body.



supervising Entity, and the County of El Dorado, if applicable, hereinafter called County. Provisions shall be made in the contractual agreement to prevent the termination of said contract without the concurrence of all parties to the contract. The contractual agreement shall be tied to the property services by the system so that the supervising Entity shall have the power to assess the Body for any expense incurred, with the right to lien the property should the Body default. The Body must be able to collect funds for the normal operation and maintenance of the system. The Body must have in its employ, or contract with, a person to operate, monitor and routinely maintain the system on a day-to-day basis. This person shall be a qualified waste water plant operator, certified by the State.

The level of certification shall be commensurate with the required duties and responsibilities. In the event of problems with the operation and maintenance by the Body, the Entity shall take all steps necessary to correct the problems in a timely fashion to the satisfaction of the El Dorado County Health Department.

A defined area of benefit and service fees within a county service area or public utility district shall be established prior to the recordation of a final map. The funding for this area of benefit shall be set up so as to accrue funds to provide for the future repair and/or replacement of major components of the system. The level of funding shall be reviewed under authority of the El Dorado County Board of Supervisors or public utility district on a yearly basis to determine if sufficient monies are available to provide the necessary ability to correct any foreseeable problems with the system. The contractual agreement shall stipulate the manner in which this funding can be used for project repair and/or replacement. The County may require a bond or other accepted surety to cover the initial period until sufficient funds have accrued to the service areas to handle potential problems. The amount of surety may be reduced annually by the amount equal to the reserve funds accrued within the past year. The contractual agreement shall be continued until the system, in its entirety, has been abandoned and the dwelling units and other buildings served by such system have been connected to a public sewer system. This policy shall provide that when a subregional sewer treatment plant and collection system becomes available, a review of the system will be made. If it is determined by the Entity to be advantageous, the system shall be connected to the public sewer system. Those

LEVELS OF RESPONSIBILITY AND FUNDING
FOR ON-SITE COMMUNITY SEWAGE DISPOSAL SYSTEM

RESPONSIBILITY

Abate problems if required

Review and approve design and construction

Supervise operation and maintenance

Step in and correct problems should they develop and not be corrected

Provide day-to-day operation and maintenance by certified plant operator

FUNDING

Establish, collect and hold in reserve fees for recapitalization

Assess fee to cover costs; place liens if owners fail to pay fee; request reimbursement from County Service Area where appropriate

Assess and collect fee to cover cost of daily operation and maintenance

COUNTY SERVICE AREA
AREA OF BENEFIT



PUBLIC ENTITY



BODY





All systems shall be designed by a qualified registered engineer and approved by all agencies involved. The design must be approved by the supervising Entity, the Division of Environmental Health, and the California Regional Water Quality Control Board, Central Valley Region. Construction shall be supervised by the appropriate agencies, engineer, and public entity. Upon approval by all agencies, and after the necessary contractual agreements and county service areas of benefits have been established, the California Regional Water Quality Board will issue a waste water permit to the Entity. The Entity will be accountable to the County for the correction of problems or nuisance conditions that may develop.

All the above provisions shall be made conditions to the Final Map.

Prior to recordation of final map, the developer must have approval assigned and contractual agreement with Entity. Entity has no obligation to issue permit or enter contractual agreement with developer solely as a result of this policy. The entity shall be responsible for operation and maintenance of sewer facilities within the County maintained streets.

SECTION 9: UNDERGROUND POWER AND/OR COMMUNICATION UTILITY SYSTEMS

- A) Underground power and/or communication systems shall be referred to as separate entities.
- B) Electrical and communication systems shall be placed in public streets, public utility easements, or rights-of-way acquired by the applicable utility.
- C) Standards of Construction
 - 1) Electrical and communication systems shall have 24 inch minimum cover when in public street.
 - 2) Electrical and communication systems in public streets shall be placed before pavement is constructed and shall be accurately constructed in conformance with the plans.
 - 3) Surface facilities that will be located in paved areas shall have traffic frames and lids conforming to the standard drawings approved by the County Engineer.



- 4) Surface facilities that protrude from the finished grades shall be located so that they will not cause a hazard.
- 5) The final plans and specifications shall show the work to be performed by the subdivider, normally consisting of conduit, pull boxes, and transformer pads. Wires are normally supplied by the utility entity and need not be shown on the plans.
- 6) When crossing other utilities, electrical systems shall be separated by at least one foot and their vertical and horizontal locations shall conform to details on the approved plans.
- 7) Electrical systems shall be set at a minimum of 5 feet (horizontal distance) from sewer or water lines.

D) Plans and Specifications

Prior to the approval of the final map, the subdivider shall submit to the County Engineer plans showing the location of the electrical and communication systems, prepared by a civil engineer, registered in the State of California, of sufficient detail to enable the County Engineer to ascertain whether such systems conform to the standards set forth herein and to standard acceptable engineering practices. Such plans and specifications shall be approved by the authorized representative of the entity operating the electrical or communication systems, and shall be accompanied by a letter from the entity stating that the entity and subdivider have entered into an agreement that will provide the utility's service to a lot line at each lot in the subdivision.

SECTION 10: ENCROACHMENTS ON COUNTY MAINTAINED ROADS

All encroachments onto County maintained roads shall conform to the applicable standard in Chapter 2, Road Encroachments, Chapter 12.08 et seq. of the County Code and the standards in this Design Manual. Road encroachments shall be authorized by a subdivision agreement or road improvement agreement approved by the Board of Supervisors or an encroachment permit issued by the Department of Public Works.

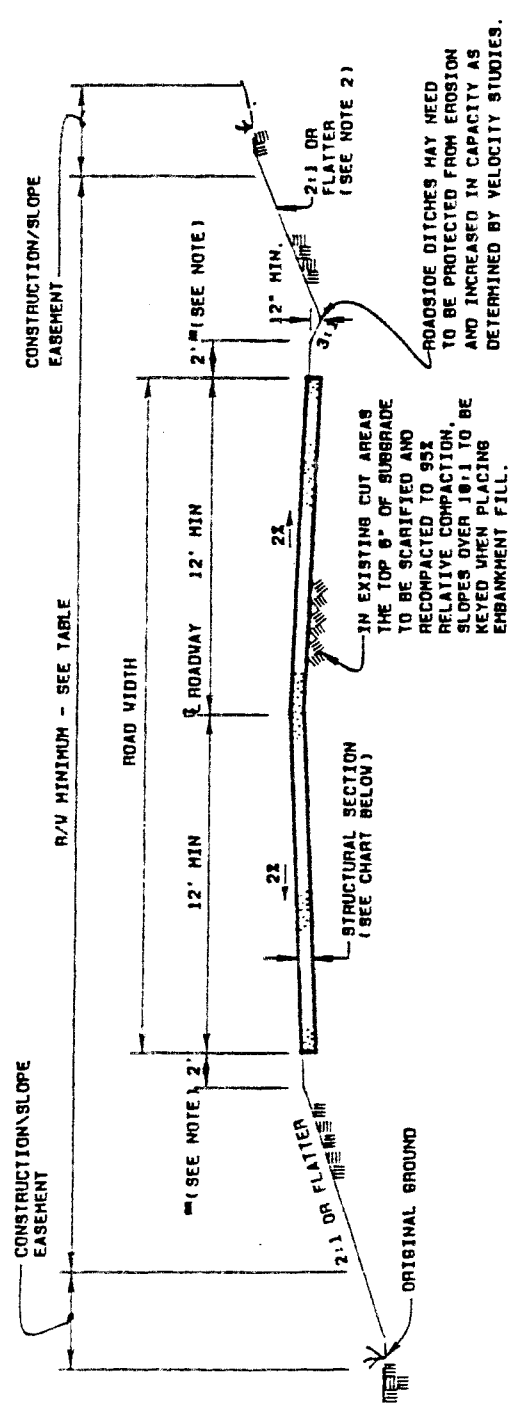
NOTES:

- EMBANKMENT SHALL BE COMPACTED TO 90% (C.T.M. 231F OR A.S.T.M. 1556). THE TOP 6" OF NATIVE SUBGRADE WILL BE COMPACTED TO 95% AS WELL AS CLASS II AGGREGATE BASE & SUBBASE.
- CUT AND FILL SLOPES SHALL BE NO STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL UNLESS A CIVIL ENGINEER OR GEOTECHNICAL ENGINEER DETERMINES THAT A STEEPER SLOPE WILL BE SAFE FOR THE INTENDED USE. WILL NOT BE SUSCEPTIBLE TO EROSION, AND WILL NOT CAUSE ADDITIONAL MAINTENANCE.
- GRAVEL SURFACE BELOW 3000' SHALL BE COMPACTED AGGREGATE SUBBASE. WHITE GRADES EXCEED 15%, AND ON GRADE'S GRADES OVER 3,000 FT. ELEVATION A CHIP SEAL WILL BE APPLIED OVER 6" OF AB. SEE NOTE 3 FOR CHIP SEALS AND NOTE 8 FOR A.C. INFORMATION.
- CHIP SEAL SURFACE IS M8000 SEAL PLACED ON COMPACTED AGGREGATE BASE WITH A DOUBLE APPLICATION OF 3/8" BY #6 CHIPS WITH A TOP COURSE OF 1/4" BY #10 CHIPS.
- WHERE ROAD WIDTHS ARE 10' OR GREATER, THE OUTSIDE 4' ON EACH SIDE NEED NOT BE A.C. SURFACED BUT FINISHED GRADE OF 4" A.B. SHOULDERS SHALL CONTINUE AT 2% WITH FINISHED A.C. GRADE. DRAINAGE WILL BE CONTROLLED SO AS TO NOT ENDOE SLOPES.
- ADT'S SHALL BE THOSE SHOWN IN THE LAND CAPABILITY REPORT UNLESS DETERMINED BY THE COUNTY ENGINEER.
- OVER ALL CLASS II AGGREGATE BASE. ASPHALT CONCRETE SHALL BE TYPE B PER CALTRANS SPECIFICATION 39. FOR GRADES EXCEEDING 7% AND ELEVATIONS OVER 3,000 FT., 3/4" MAX. HED. TYPE B TO BE USED. THE A.C. SECTION WILL BE 2" OVER 6" OF AB. TACK COAT TO BE USED BETWEEN A.C. LIFTS.

NOT TO SCALE

**RURAL
SUBDIVISION
& PARCEL MAP
ROADWAYS**

**8TD.
PLAN
101C**

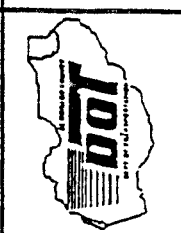


OR HIGHER WITH COUNTY ENGINEERS APPROVAL (NOT TO EXCEED 18%)

OR HIGHER WITH COUNTY ENGINEERS APPROVAL (NOT TO EXCEED 18%)

OR HIGHER WITH COUNTY ENGINEERS APPROVAL (NOT TO EXCEED 18%)

OR HIGHER WITH COUNTY ENGINEERS APPROVAL (NOT TO EXCEED 18%)



**EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS**

R/W	ROAD WIDTH	MAXIMUM ADT	STRUCTURAL SECTION AGGREGATE	STRUCTURAL SECTION SURFACE	DESIGN SPEED	MAX. GRADE
50'	00	LESS THAN 3,000	6" SB	GRAVEL	20	12%*
50'	00	3001 TO 5,000	6" AB	CHIP SEAL	25	12%*
60'	00	5001 TO 7,000	6" AB	2.5" A.C.	30	12%
60'	00	GREATER THAN 7,000	8" AB	3" A.C.	35	12%

GENERATED: 04/03/00

DATE: 04/03/00

BY: JH/SR/BS

APPROVED: *Scott Chubb*
DIRECTOR OF TRANSPORTATION

DATE: 03/27/00

BY: *John H. Klyne*
SENIOR CIVIL ENGINEER

PROJECT: C33427

P.E. NO.

NOTES:

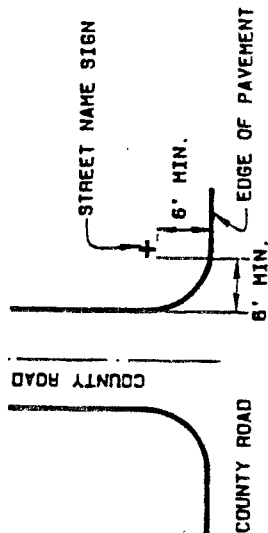
- STREET NAME PANELS FOR COUNTY ROADS SHALL BE FLAT ALUMINUM PLATES, 0.08" THICK. PANELS SHALL BE 6" X 24" OR 6" X 30", DEPENDING ON STREET NAME LENGTH. LETTERING TO BE 1" AND 4" SERIES "B", SILVER REFLECTIVE SHEETING ON GREEN SCOT-LITE BACKING.
- STREET NAME PANELS FOR PRIVATE ROADS SHALL BE FLAT ALUMINUM PLATES, 0.08" THICK. PANELS SHALL BE 8" X 30" OR 8" X 24", DEPENDING ON STREET NAME LENGTH. LETTERING TO BE 1" AND 4" SERIES "B", SILVER REFLECTIVE SHEETING ON BROWN SCOT-LITE BACKING.

NOT TO SCALE

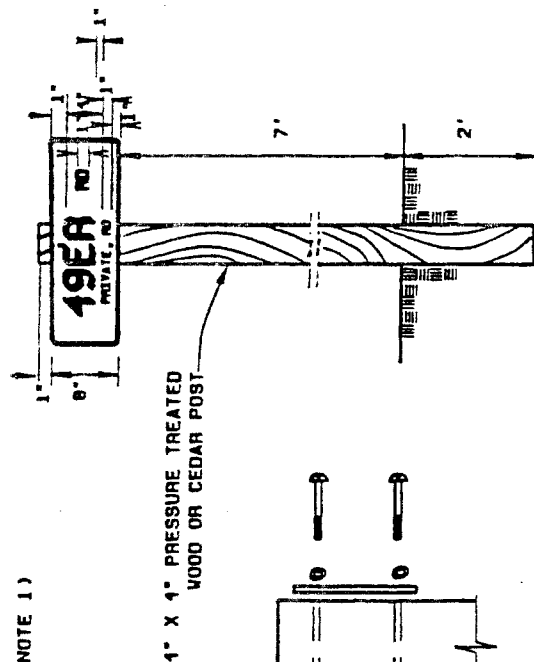
STD. PLAN

STREET SIGN

105B



LOCATION OF COUNTY ROAD STREET SIGN



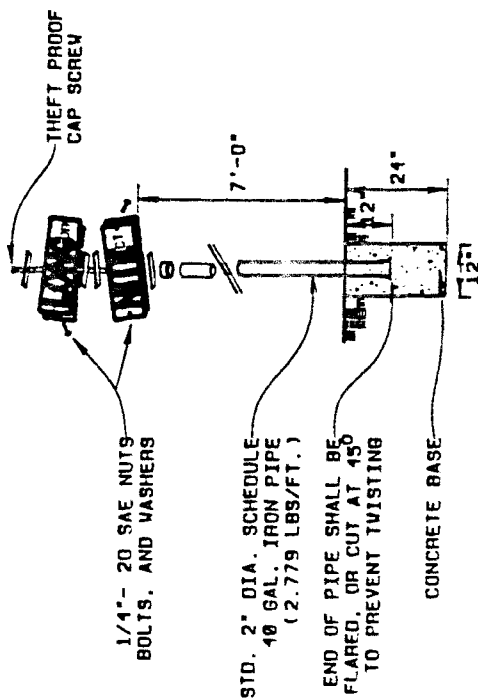
TYPICAL SIGN ASSEMBLY
PRIVATE ROAD STREET SIGN

(SEE NOTE 2)



EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION

DESIGN STANDARDS



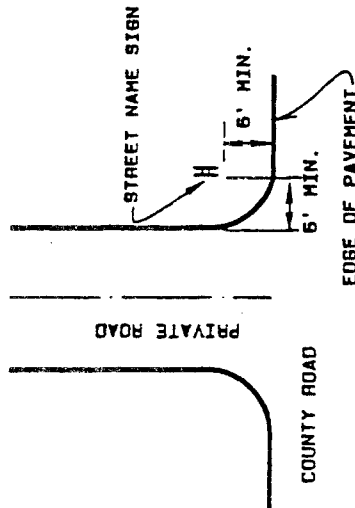
1/4" - 20 SAE NUTS
BOLTS, AND WASHERS

STD. 2" DIA. SCHEDULE
40 GAL. IRON PIPE
(2.779 LBS/FT.)

END OF PIPE SHALL BE
FLARED, OR CUT AT 45°
TO PREVENT TWISTING

CONCRETE BASE

COUNTY ROAD STREET SIGN (SEE NOTE 1)



LOCATION OF PRIVATE STREET SIGN

09-0348

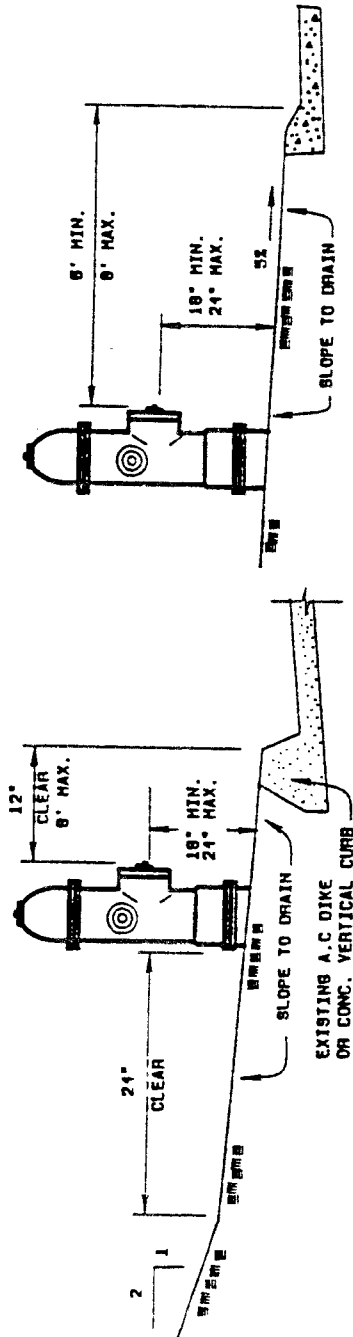
GENERATED	REVISIONS	APPROVED:	P. E. NO.
6		<i>Scott Chadd</i> DIRECTOR OF TRANSPORTATION	C33427
DATE: 5/14/80		<i>Bob Klope</i> SENIOR CIVIL ENGINEER	
DESIGNED: JM/SR/RS			
CHECKED: SKT			
DATE:			

NOTES:

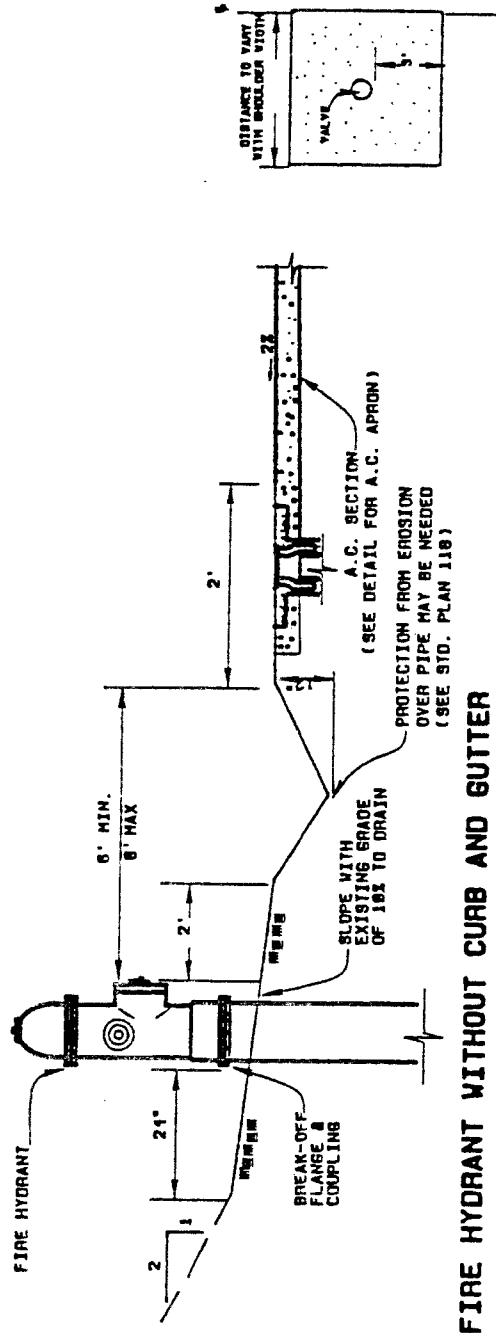
1. THE FIRE HYDRANT IS TO BE PLACED BEHIND THE DRAINAGE DITCH AND NO FURTHER THAN 8 FEET FROM DRIVEABLE SHOULDER SURFACE OR BACK OF CURB.
2. ALL VALVE BOXES SET IN THE A.C. OR CONCRETE TO BE F.G. MINUS 1/4"
3. CONTACT LOCAL WATER AGENCY FOR FIRE HYDRANT AND VALVE ASSEMBLY REQUIREMENTS.

NOT TO SCALE

STD. PLAN 100
FIRE HYDRANT LOCATION DETAIL
 BEHIND CURB AND GUTTER WITHOUT CURB AND GUTTER



FIRE HYDRANT BEHIND VERTICAL CURB & GUTTER **BEHIND ROLLED CURB & GUTTER**



FIRE HYDRANT WITHOUT CURB AND GUTTER



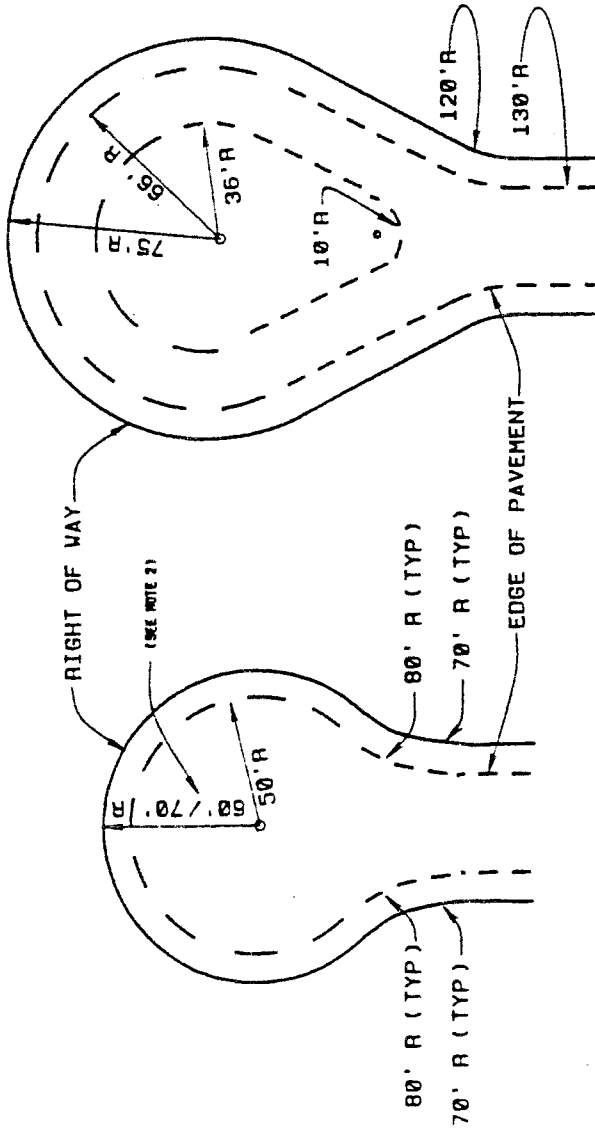
EL DORADO COUNTY
 DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS

APPROVED: *Scott Chadd*
 DIRECTOR OF TRANSPORTATION
Alan K. Kope C33427
 SENIOR CIVIL ENGINEER P.E. NO.

GENERATED	REVISIONS
DATE: 01/17/80	
BY: JIM/SR/BS	
CHK: SKP	

NOTES:

1. CUL-DE-SACS MAY BE ASYMMETRICAL TO THE LEFT OR RIGHT OF CENTERLINE.
2. IF FIRE HAZARDS EXIST, 70' MIN. RADIUS REQUIRED.
3. CALTRANS HS-20 CUL-DE-SAC DETAIL MAY BE USED WITH COUNTY ENGINEER'S APPROVAL.



TYPE B
PEAR-SHAPED

TYPE A
STANDARD

NOT TO SCALE

STD.
PLAN

114

CUL-DE-SACS



EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS

APPROVED: *Scott G. Gualala*
DIRECTOR OF TRANSPORTATION
Deborah H. Hays 033427
SENIOR CIVIL ENGINEER P.E. NO.

GENERATED	REVISIONS
DATE: 3/17/00	
BY: JM/SR/BS	
CHKD: SKP	