

Guidelines for Preparation of Subdivision Maps and Plans

A. Parcel Maps and Final Maps

1. Must be consistent with tentative map and conditions of approval.
2. Show deed references for all abutting properties. Lot lines, lot numbers, and tract numbers for abutting subdivisions should be shown.
3. Show tract name and number, or MSC number.
4. Show adequate monumentation, including ties to existing monuments in adjacent tracts. Also see guide for monument location (Section H).
- * 5. All lot corners, angle points, and curve points where no monuments are set shall be noted by a wooden hub not less than two (2) inches square and twelve (12) inches long driven flush with the ground and the exact point marked with a tack.
6. Show magnitude of θ angle, location where taken, basis of bearing, and tie to line used as basis of bearings. Basis of bearings to be California Coordinate System Zone 3 unless approved otherwise. Show ground to grid factor.
- * 7. Show all easements, including P.U.E.'s. Minimum width of public easement is 10 ft., except for sewer easements which according to Central Contra Costa Sanitary District must be 15 ft., and P.U.E.'s which vary.
8. Be sure all dedications and necessary easements are included in Owner's Certificate on major subdivisions. Minor subdivision dedications and easements must be done by separate instrument and recorded prior to approval of the parcel map.
9. For minimum property line length on curves see item E.10.
10. Maps will not be approved which have off-site problems for which guarantees are not on file with the city.
11. On original tracing, outer property boundary to be colored in heavy black.
12. Use key map sheet if map has more than two sheets in addition to the certificate sheet.
13. Submit preliminary title report with maps.
14. Submit closure calculations with parcel or final map.
15. Dedications, easements and agreements must be executed prior to the signing of parcel or final maps by the City Engineer.

B. Lot Grading Plan, Plot Plans

1. The grading plan is a portion of and shall be included with the construction plans. All grading shall comply with Chapter 70, "Excavation and Grading" of the Uniform Building Code.
2. In paved areas (AC or cement) finished grade shall have minimum slope of 1% and swales minimum slope of 0.50%. In unpaved areas finished grade shall have minimum slope of 2% and swales minimum slope of 1%.
3. Show elevations of high points and swales in side and rear yards. Lots should drain to the fronting street, although if site conditions dictate, some or all of the lot area could drain to the rear to a lined drainage ditch or pipe system with inlets.
4. Existing pad elevations of adjacent developments and natural drainage patterns around the perimeter of the proposed tract shall be shown in sufficient detail to be able to correctly evaluate the proposed grading. Show all new pad elevations.
5. Grading shall be such that the tract continues to receive natural run-off from adjacent properties upstream. Pay particular attention to areas in fill for blocking and/or ponding of drainage.
6. Generally show cross-sections along the perimeter of the tract at the following locations:
 - a. Abutting an existing tract if proposed tract is in fill. Fill slope is required to be on adjacent property, or retaining wall may be used.
 - b. Areas in fill on upstream side of tract; does tract receive and dispose of run-off? (Off-site or on-site ditch or drainage structure may be required.)
 - c. If off-site ditches or drainage structures are necessary, get right of entry and S.D.E.
 - d. Areas in heavy cut upstream side of tract; does proposed grading result in one or more lots receiving concentrated flow?
7. Show typical lot section.
8. Remember that drainage of entire vicinity, upstream and downstream, is engineer's responsibility.
9. Show existing contours; also new ones, if applicable. (50 ft. minimum beyond lot or subdivision property line.)
10. On hillside development or other unusual grading situation, roof drainage systems must be piped to drain to the street, or to a lined drainage ditch.
11. A minimum of 3 ft. of clear space, after deducting for any slopes, stoops, or fireplaces, should remain to carry drainage along narrow side yards. Otherwise design lot grading so that no water is conveyed to that side.

12. If property is located in "Flood Zone A", base flood elevation must be shown on improvement plans, along with finished floor elevations.
- * 13. Show 5% reverse slope for three feet from back of sidewalk/curb.
- * 14. Show sidewalk/curb drains (per S-13) at low point of each lot.

C. Sanitary Sewers

Sanitary sewers shall be designed in accordance with Central Contra Costa Sanitary District design requirements and the following minimum standards:

- * 1. Sewer manholes shall have precast steps conforming to City of Concord Standard Plan S-3. *(supersedes CCCSD requirements)*
- * 2. Sewer manhole covers shall be marked "City of Concord" as shown on City of Concord Standard Plan S-4. The 25" diameter cover and frame (CCCSD Sec.28-15) is allowed if the street is not a truck nor a bus route and the traffic index is five (5) or less. *(supersedes CCCSD requirements)*
- * 3. Any plan for a sewer extension in an existing street must show location of the existing water main and must meet CCCSD requirements (Sec.28-27) for separation of the sewer and the water line.
- * 4. Manholes in easements must be accessible via all-weather surfaced roadway (minimum eight (8) inches of compacted aggregate base rock. *(supersedes CCCSD requirements)*
5. Drop manholes are not allowed.
6. Consider potential extension of sewer line, it may need to be lowered or up-sized to allow future extension. If line can be extended, it should be built to tract line or end of dead-end street. Check alignment for future extension. Will manhole be in center of street or easement?
7. Check for stubs, laterals, or wyes for future service to adjacent undeveloped areas.
8. Length, slope, size, and material (V.C.P., P.V.C., etc.) of line is to be called out on every sanitary sewer profile.
9. No horizontal or vertical grade breaks between manholes are allowed.
10. Horizontal and vertical curves may be used together. See CCCSD design requirements.
11. If proposed sewer is an extension of an existing sewer or stub, it must conform to the as-built slope, alignment, and material. If not, a manhole is required.
- * 12. Non-roadway and off-site sewers must show a 15 ft. easement with recording data.

D. Storm Drains

1. Minimum size is 15 in. diameter for public lines.
2. Check Contra Costa County Flood Control and Water Conservation District and City Master Storm Drain zone maps for major storm drain lines which need to be constructed with new project.
3. Storm drains are to be designed for a 10 year storm, using Contra Costa County criteria. Use 17.5 in. for mean seasonal precipitation. If property is located in designated special flood hazard area, storm drain must be designed for 100-year flood.
4. Storm drain to be placed behind curb where possible to avoid conflict with utilities.
5. Minimum cover required for storm drains is 30 in. below finished grade. Less cover will dictate special considerations (higher strength pipe or cover slabs). Desirable design cover is 2 ft. below subgrade. (See City Standard Plan S-17)
6. Curve requirements for cast-in-place concrete pipe. The minimum radius of curvature, measured at centerline of the pipe shall not be less than those show here:

INTERNAL DIAMETER <i>(inches)</i>	MINIMUM RADIUS <i>(feet)</i>
24	50
30	50
36	50
42	65
48	80
54	100
60	120
72	130

7. Minimum allowable class for R.C.P. storm drains = III.
- * 8. Maximum distance between catch basins to be 500 ft.
9. Grade breaks between manholes are not allowed.
10. Grades of junction structures and inlets not in street area usually should be 6 in. above ground with side openings.
11. Catch basins should be placed at return point wherever possible.
12. Valley Gutters
 - a. 10 ft. width required.
 - b. Minimum slope across valley gutter = 0.005; grade breaks not allowed; 3 elevations required.

- c. Difference in elevation between T/C at midpoint of return and flow line of valley gutter not to exceed 1 ft. (See City Standard Plan S-16)

13. Length, slope, size and material (R.C.P., P.V.C., etc.) of line is to be called out on every storm drain profile.

E. Streets

1. 4 ft. monolithic sidewalk in 50 ft. R/W. For 60 ft. and wider R/W, back of sidewalk to be on property line. Commercial areas are special cases, to be treated individually.
2. Handicap ramps are required at all returns. (See City Standard Plan S-15)
3. Cul-de-sac maximum length is 600 ft.
4. Minimum center line radius for horizontal curves is 75 ft. on minor street.
5. Street names must agree with final map.
6. Show typical cross-sections of all streets.
7. Conform Paving
 - a. Show typical cross-sections, including existing paving, conform paving, curb and gutter, etc.
 - b. Show cross-sections at every half station and elsewhere as needed. Cross sections should include existing center line, existing edge of pavement, proposed conform paving, proposed curb and gutter, and existing and proposed cross slopes.
 - c. Conform paving section shall be the ultimate section to the existing edge of pavement; in some cases the conform point will extend beyond the edge of pavement; in nearly all cases the conform point will vary.
 - d. The cross slope of the conform section, as measured from the point of conform to the lip of gutter, should not exceed 5%. Minimum is 2%.
 - e. When tract abuts a County road or street, County requirements for curb grades and conform paving will generally be followed.
8. When on new streets, or existing unpaved street, and improvements are being constructed on one side only, a 2x6 redwood (or treated D.F.) header must be placed along E.P. A ditch or swale shall be provided as necessary along E.P. for drainage.
9. Use a barricade at dead-end street. (See City Standard Plan S-21)
10. Minimums - Bulbs and Cul-de-sacs
 - a. Minimum lot frontage at curb line = 34 ft. (22 L.F. standard curb and gutter section and 12 ft. driveway, top of ramp to top of ramp).

- b. Minimum face of curb radius = 33 ft.; minimum property line radius = 40 ft.
 - c. Lots inside corners, cul-de-sacs, or courts shall generally not be less than fifty (50) feet in width at the setback line, measured on the chord of the arc.
- * 11. Make sure structural section is designed and shown. If no base soil R-value is known, assume one of 5. Minimum T.I. is 4.5 for cul-de-sacs, except when cul-de-sac is subject to truck traffic, in which case T.I. shall be 7.7. For other streets refer to the City Transportation Division.
 - 12. All pavement sections in the public right-of-way shall have a minimum A.C. thickness of 3 in.
 - 13. Show all existing underground and overhead utilities on the improvement plans.
 - 14. Improvement plans must show signing and striping.
 - * 15. Improvement plans for projects on or adjacent to major streets must include traffic control plans.

F. Curbs

- 1. Minimum slope = 0.005. Slopes less than 0.005 will require special treatment to at least include a drainage analysis with signed and sealed calculations from a Civil Engineer proving the adequacy of his solution to the drainage situation.
- 2. Minimum radius of curb return at property line = 20 ft.
- 3. Minimum slope around return = 0.008. Always check. Could be less for special cases. Always show return profiles.
- 4. Check carefully streets intersecting at conflicting grades or elevations for unusual drops around returns, especially where valley gutters occur. Reduce if possible.
- 5. Curbs for Existing Streets
 - a. Sufficient profile to be shown, upstream and downstream, to justify design.
 - b. At upstream end, check to see that water can get into gutter. Are curbs too high? At downstream end, are gutters able to discharge flow without any ponding?
 - c. Compare profile to existing or proposed improvements upstream and downstream. Will curbs and drainage tie in?
 - d. Check design against existing or proposed improvements on opposite side of street.
 - e. Consider future overlay when checking depth of crown.

6. Vertical Curves

- a. Required where grade break is 1% or more.
- b. Required around curb return if drop is 2 ft. or more.
- c. Check vertical and horizontal curves for sight distance, sag, and grade break at intersection. Use State Design Manual.

G. Miscellaneous (applying to construction drawings)

- * 1. Plans must be drawn to appropriate scale on 24" x 26" paper.
- * 2. Plans must show tract name and number, MSC number, or project name and number.
3. Monuments per final map should be shown on construction drawings.
- * 4. Street names and lot numbers are to agree with tract map or project location.
5. Electrolier locations to be shown in plan view of all streets. Check for conflicts between electroliers and line of sight between monuments. Detail of electrolier location may be required. Electroliers are to be purchased and installed by developer. Do not locate new electroliers or traffic signal poles in the median.
- * 6. Street lighting plans must be designed in conformance with I.E.S. (Illuminating Engineering Society) standards.
7. Sidewalk at intersection must abut back of curb.
- * 8. Driveways shall conform to Standard Plan S-14, except for the following modifications in areas of monolithic 4'-wide sidewalk (to meet the intent of the handicap accessibility standards):
 - a. Driveway ramp slope (from face-of-curb to back-of-walk line) shall be 2%.
 - b. Maximum slope at face-of-curb taper shall be 8.33%.

The driveway detail is similar to Case C Handicap Ramp (S-15), except for the 12 in. border grooves and the retaining curb at the back of walk which are omitted. The lots shall be graded to transition smoothly to the back of the driveway at the back-of-walk line.

9. Construction plans shall indicate location and elevation of benchmark used. If other than City datum, equation relating datum used to City datum shall be stated, if possible.
10. If underground utilities (such as telephone) are installed, a note to this effect shall be placed upon the drawing.
11. Show utility poles on construction plans.

12. Signature and seal of civil engineer shall be shown.
13. Construction staking along existing streets, whether for subdivision or private owner, shall be set from established center line, rather than from property line.
14. After plans are signed, five copies of any revisions will be required.
15. Off-Site Work
 - a. In general, ditches will not be accepted by the City. Provision for maintenance to be made by developer. Right-of-entry or easement must be acquired.
 - b. City will accept sanitary sewer and storm drain facilities for maintenance (off-site or over private property) only when there are recorded public easements. (Easements must be 10 ft. wide minimum for storm drain and 15 ft. wide for sewer.)
16. If drainage from adjacent land must be carried through the property in a pipe on natural grade, consider lowering inlet end slightly if grade allows to provide more entry opening.
17. If a high water table requires subdrains to insure the stability of the street or subgrade, they shall be run within the R/W or easements 1 ft. from the lot lines.
18. Structures (e.g. M.H.'s or J.B.'s) within the street or sidewalk shall be placed at proper grade and cross-slope for that particular station.
19. Where valley gutters are used, the crown shall be eliminated on the minor street at a distance back determined by the engineer to allow street flow into the V.G.; where a V.G. crosses a through street, this shall be done on both sides.
20. All existing structures and pertinent topo around extremities of subdivision shall be shown where appropriate.
- * 21. Be sure necessary City review blocks are on plans. Also provide a block for revisions - number, description, drawn by, approved, and date.
22. For streets with median islands, consider island surfacing (such as Bomanite) treatment for narrow medians.
23. Be sure all general notes are on plans (see attached list, Section J).

H. Guide for Monument Location

1. Streets Without Median Islands
 - a. Locate monuments 8 ft. off street center line.
 - b. Locate monuments at all B.C. and E.C.
 - c. Locate monuments at all street intersections.

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- d. Locate monuments at cul-de-sac radius point, 8 ft. offset.
 - e. Locate monuments at P.I. or curve midpoint when sight from B.C. and E.C. monuments is impossible.
 - f. Locate monuments consistently on same side of street.
2. Streets With Median Islands
- a. Locate monuments within the island area. Electroliers, signs, landscaping must not interfere with line of sight.
 - b. Locate monuments with consistent offset from center line. Monuments should not be closer than 1-1/2 ft. from median curb face.

I. Erosion Control Plans (ECP)

- 1. ECP is required to be submitted and approved by the Engineering Division for all subdivisions (minor and major) filed with the City when acceptance of the improvements is not expected before the rainy season (October 15 - April 15) where:
 - a. Slopes are over 15%, and
 - b. the grading operation is over 150 c.y., or
 - c. any grading operation is within 100 ft. of a watercourse (top of bank) or any other water body.
- 2. ECP is to be prepared in accordance with the "Manual of Standards for Erosion and Sediment Control Measures" for both temporary and permanent erosion control measures. (ABAG Manual)
- 3. The cost of ECP measures are to be included in the subdivision cost estimates for bonding and construction inspection fee calculations.
- 4. ECP should be approved no later than September 1 and installation completed no later than October 15 of each year.
- 5. Construction Inspectors will inspect the installation of ECP measures and monitor functioning of same during winter and require repairs/revisions as needed.
- 6. Any development involving five or more acres of total land area must obtain a General Permit from the State Water Resources Control Board. This permit requires the owner/developer to do the following:
 - a. Submit a Notice of Intent (NOI) to the State Water Resources Control Board prior to commencement of construction activity.
 - b. Prepare and implement a Storm Water Pollution Prevention Plan (SWPPP).

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- b. Prepare and implement a Storm Water Pollution Prevention Plan (SWPPP).
- c. Conduct inspections of storm water controls before and after storm events.
- d. Annually certify compliance with the General Permit and SWPPP.
- e. File a Notice of Termination at the completion of construction.

Copies of the NOI and the SWPPP must be submitted to the Engineering Division along with proof of compliance.

J. General Notes for Subdivision Improvement Plans

- 1. Benchmark: Use City of Concord Datum.
- 2. All materials and methods of construction shall be in accordance with the latest City of Concord Standard Plans and Specifications, and shall be subject to inspection by the City of Concord Public Works Department.
- 3. All works shall be in accordance with the recommendations specified in the Soils Investigation Report prepared by _____, File No. _____. (Not necessary for Minor Subdivisions, unless a soils report has been prepared.)
- 4. An encroachment permit is required for all work within the public right-of-way.
- 5. A grading permit is required prior to commencement of grading.
- * 6. All sanitary sewer pipe and structures shall conform to Central Contra Costa Sanitary District and City of Concord requirements. Include items C.1, C.2, and C.4 where applicable.
- * 7. Traffic control during construction shall be in accordance with the current edition of "Work Area Traffic Control Handbook" issued by BNI, Building News Inc., Los Angeles.
- 8. Connection to the City sewer system subject to receipt of all fees and sewer easements.
- 9. Handicap ramps are to be constructed at all intersections per City of Concord Standard Plan S-15.
- 10. All pavement shall be fog sealed in accordance with City of Concord Standard Specifications.
- 11. Street trees are required to be planted on 30 ft. centers, as shown on these plans. Trees shall be _____ and shall be 15 gallon size. (Species to be obtained from Parks Division.)
- 12. Round cut and fill slopes into existing contours to achieve natural effect. (Use for hillside subdivisions only.)

13. All graded slopes are to be slope seeded immediately after grading. (Use for hillside subdivisions only.)
14. Applicable City of Concord Standard Plans include, but are not limited to: (make sure S-17 is included.)
15. All trench backfill, which lies within either existing or new roadway areas, shall conform to the Roadway Areas Backfill Specifications of City Standard Plans S-17.
16. It shall be the contractor's responsibility to ascertain the existence of any and all underground facilities which may be subject to damage by reason of his operations. Call USA at 800-642-2444 prior to excavation.
17. All sewer laterals shall have cleanouts at the property line and at the building. Backflow preventers are required at the building.
18. Minimum relative compaction required under sidewalks and driveways will be 90% Minimum relative compaction required under curb and gutter and in street section will be 95%.
19. The developer may request an alternate street structural section after approval of the construction plans, subject to approval of the City of Concord.
- * 20. A preconstruction conference shall be scheduled at least 48 (forty-eight) hours in advance of commencement of any construction work for the improvements delineated within this set of plans. The following individuals shall be in attendance: owner, contractor, city engineer, engineer, soils engineer, construction inspector or their authorized representatives.
- * 21. All survey monuments shall be preserved, referenced, and/or replaced pursuant to Section 8771 of the Business and Professions Code.