GRADING

MANUAL

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CITY OF SAN CLEMENTE GRADING MANUAL

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SUBARTICLE 1
GENERAL PROVISIONS

1.1 Authority

The City of San Clemente Grading Ordinance and Grading Manual authorize the City Engineer to formulate such rules, procedures and interpretations as may be necessary or convenient to administer the Grading Ordinances. Such rules, procedures, interpretations and amendments thereto shall be referred to as the City of San Clemente Grading Manual upon approval of the San Clemente City Council.

1.2 Scope and Purpose

The City of San Clemente Grading Manual (hereinafter referred to as the grading manual) is a compilation of rules, procedures and interpretations necessary to carry out the provisions of the City of San Clemente Grading Ordinances.

The purpose of the grading manual is to assist users of the grading ordinances by supplementing it with detailed information regarding rules, interpretations, standard specifications, procedures, requirements, forms and other information applicable to control excavation, grading, and earthwork construction in the City of San Clemente. Should any portion of the grading manual be found to be in conflict with the provisions of the grading ordinances, the ordinance provisions shall govern.

1.3 Adoption and Revision

The provisions of the grading manual, including revisions or additions thereto, shall be prepared by the City Engineer, and shall become effective upon their being approved by resolution of the City Council.

SUBARTICLE 2
DEFINITIONS

2.1 Definitions

The definitions contained in this subarticle are supplemental to those contained in the grading ordinances.

As-Graded: the surface conditions existent on the completion of grading.

Bedrock: the relatively unweathered, consolidated or relatively hard formation that underlies the soil and other unconsolidated material.

Bench: the relatively level step excavated into earth material on which fill is to be placed.

Earth Material: any rock, natural soil or fill and/or any combination thereof.

Fault: a fracture in the earth's crust along which movement has occurred. A fault is considered active if movement has occurred within the last ±11,000 years (Holocene geologic time).

Flatland Site: any site which does not fit the definition of a hillside site.

Hillside Site: a site which entails cut and/or fill grading of three (3) feet or more in vertical height below or above natural ground; or a combination fill-over-cut slope equal to or greater than five (5) feet in vertical height; or where the existing grade is 20 percent (%) or greater; and which may be adversely affected by drainage and/or stability conditions within or from outside the site, or which may cause an adverse affect on adjacent property.

Key: a designed compacted fill placed in a trench excavated in earth material beneath the toe of a proposed fill slope.

Keyway: an excavated trench into competent earth material beneath the toe of a proposed fill slope.

Retaining Wall: a wall designed to resist the lateral displacement of soil or other materials.

Slope Stability:

> Gross Slope Stability: the stability of slope material below a plane approximately 3 to 4 feet deep measured from and perpendicular to the slope face.
>
> Surficial Slope Stability: the stability of the outer 3 to 4 feet of slope material measured from and perpendicular to the slope face.

Sulfate (SO_4): a chemical compound occurring in some soils which, at above certain levels of concentration, has a corrosive effect on ordinary portland cement concrete and some metals.

SUBARTICLE 4
GRADING PERMIT REQUIREMENTS

4.1 Grading Permit Aplication

A grading permit application shall consist of the following items and forms completed and signed by the applicant or his representative unless otherwise specific by the City Engineer:

a. Application form
b. Three sets of grading plans
c. Notice of application completion form
d. Two copies of a preliminary soils report (if required)
e. Two copies of a preliminary geology report (if required)
f. Payment of grading plan check fee
g. Three sets of erosion control plans for applications submitted between August 1 and April 1
h. Street cleaning & maintenance agreement forms
i. Agreement form for consultant review of soil & geologic reports and field investigation & inspection

The City Engineer will inspect the site as necessary and determine whether a soils report or geology is required prior to the issuance of the grading permit. He shall notify the applicant of his determination in writing.

4.2 Grading Plan Clearances

The City Engineer shall notify the applicant that, prior to issuance of a grading permit, written clearance will be required from other Divisions within the City Department depending on site conditions and location, written clearance or permits may be required from, but not limited to, the following:

a. California Regional Water Quality Control Board
b. California Department of Fish and Game
c. California Coastal Conservation Commission
d. California Division of Industrial Safety
e. Orange County Fire Marshal (fuel modification)
f. Orange County Human Services Agency (Vector Control)

Upon notification by the City Engineer, the applicant shall be responsible for submitting copies of the grading plans and information required by those departments and obtaining the required clearance or permits.

4.3 Grading Plan Check

Information on Plans and Specifications: Plans submitted for plan check shall be drawn to scale upon mylar or cloth and shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that they will conform to the provisions of this grading manual, the Grading Ordinances, and all relevant laws, ordinances, rules and regulations, and shall be prepared under the supervision of and signed by a registered Civil Engineer.

The first sheet of each set of plans shall give the location of the work and the name and address and telephone number of the owner, the person by whom they were prepared, the project soil engineer, engineering geologist and when required the project paleontologist and archaeologist. A plan of workable size at a reduced scale may be required when the grading plans exceed two (2) sheets in number. Plan dimension should be 24” x 36”.

a. Preliminary Grading Permit:

The plans shall include but not be limited to the following information:

1. Vicinity map of the site.

2. Property limits clearly labeled or otherwise identified and accurate contours of existing ground and details of terrain and area drainage a minimum of fifteen (15) feet beyond the property limits (spot elevations may be used on flatland sites).

3. Prominent existing or natural terrain features.

4. Limiting dimensions including setbacks between property lines and top and toe of slopes, elevations of finish contours to be achieved by the grading, proposed drainage devices and related construction.

5. Details (plan and section) of all surface and subsurface drainage devices, walls, cribbing, dams, and other protective devices to be constructed with, or as part of the proposed work together with a map showing the drainage area and estimated runoff from the area served by any drains.

6. Location of any existing buildings or structures on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners which are within fifteen (15) feet of the property, or which may be adversely affected by the proposed grading operations.

7. If the grading project includes the movement of earth material to or from the site in an amount considered substantial by the City Engineer, the permittee shall submit the haul route for review and approval by the Traffic Engineer prior to the issuance of a grading permit. The Traffic Engineer may suggest alternate routes or special requirements in consideration of the possible impact on the adjacent community environment or effect on the public right-of-way itself, which the City Engineer shall prescribe as a condition of the grading permit. There shall be no additional fee for the haul route plan check, but a street repair bond shall be posted as determined by the City Engineer.

8. Additional plans, drawings, calculations, environmental impact information, or other reports required by the City Engineer.

b. Precise Grading Permit:

The plans shall include the following in addition to the above items listed for Preliminary Grading Permits:

1. The footprint or allowable building area of all proposed structures (including Appurtenances).

2. Setback distances between structures and top and toe of slopes.

3. Detailed finish grade and finish floor elevations.

4. Flowlines for lot drawings.

5. Details for building footing and side-year swale relationship (including extra-height of footing).

6. All proposed concrete flatwork and/or driveways with elevations. Driveways shall not have slope greater than 10%. Slopes in excess of 10% shall be reviewed and approved by the City Engineer.

The Precise Grading Plan shall identify all previous preliminary grading permits issued for the project site. It may include sheets from preliminary grading plan which show original topography in lieu of reproducing original contours on the precise plan.

c. Grading Plan Correction List:

A Grading Plan Standards and Correction Sheet is included in Appendix A which identifies additional items typically required on grading plans depending on site conditions.

4.4 Soil and Engineering Geology Report Content

Two copies of each report required in this section shall be submitted as part of the application for grading permit. Each report shall contain all information applicable to the project. Guidelines are provided in Appendix B.

Recommendations contained in the approved reports shall be incorporated into the grading plans and specifications and shall become conditions of the grading permit.

a. Preliminary Soil Report:

Soil engineering reports shall be required for all subdivision, commercial/industrial, multi-residential and similar developments involving structures and/or earthwork for which a grading permit is required. Soil reports shall also be required for grading or building permits on single lot projects when specified by the City Engineer.

The preliminary (initial) soil engineering report shall include information and data regarding the nature, distribution, and the physical and chemical properties of existing soils; conclusions as to adequacy of the site for the proposed grading; recommendations for general and corrective grading procedures; foundation and pavement design criteria and shall provide other recommendations, as necessary, commensurate with the project grading and development.

b. Preliminary Engineering Geology Report:

Engineering geology reports shall be required for all developments on hillside sites where geologic conditions are considered to have a substantial effect on existing and/or future site stability. This requirement may be extended to other sites suspected of being adversely affected by faulting.

The preliminary (initial) engineering geology report shall include a comprehensive description of the site topography and geology; and opinion as to the adequacy of the proposed development from an engineering geologic standpoint; an opinion as to the extent that instability on adjacent properties may adversely affect the project; a description of the field investigation and findings; conclusions regarding the effect of geologic conditions on the proposed development; and specific recommendations for plan modification, corrective grading and/or special techniques and systems to facilitate a safe and stable development, and shall provide other recommendations as necessary, commensurate with the project grading and development. The preliminary engineering geology report may be combined with the soil engineering report.

c. Seismicity Report:

A seismicity report shall be required as a condition for issuance of a grading permit and/or Building Permit for all subdivisions (tracts); and all sites for critical structures (fire stations, nursing homes, etc.) and major structures, as determined by the City Engineer. Additionally, sites

containing earthquake sensitive earth materials and/or sites that are located on or near potentially active or active faults shall also require a seismicity report, as determined by the City Engineer.

The report shall be prepared by an engineering geologist, geophysicist, or a civil engineer with expertise in earthquake technology and its application to building and other civil engineering works. The scope of the report shall be commensurate with the proposed development and shall reflect the state of art. The seismic report may be combined with the soil and engineering geology reports.

d. Final Reports:

Rough grade and final soil and engineering geology reports shall be submitted in accordance with Subarticle 14 of this grading manual.

4.5 Permit Issuance

Either a preliminary or precise grading permit may be issued for a project after the approval of a Final Tract or Final Parcel Map. Grading permits subject to the above subdivision requirements shall not be issued prior to the approval of the Final Maps unless otherwise provided in Zoning regulations or approved by the City Engineer.

4.6 Permit Expiration

The time limitations and provisions of Section 303, Permits Issuance, of the Uniform Building Code as amended relating to expiration of grading permits are included in Appendix C.

SUBARTICLE 5
FEES

5.1 Plan Checking Fee

Plan checking fees on each site shall be based on (1) the volume (cubic yards) of excavation or fill, whichever is greater, and (2) the estimated value of onsite drainage improvements. The amount of the plan checking fee for grading plans shall be as specified by the resolution of the City Council. Fees shall also include Consultant's fees engaged by the City to perform reviews of soil and geologic reports including field investigations and inspections.

For the purpose of this section, onsite drainage improvements shall include but need not be limited to pavement surfacing, inlets, outlet structures, subsurface drainage devices, rip rap, curb and gutter, and erosion control facilities. Asphalt concrete is classified as a secondary drainage device when used for roadway and parking lot surfacing, or other similar uses for the purposes of determining plan checking and permit fees. No separate charge shall be made for public and private street improvements required by administrative condition or approval and inspected by the Public Works Department. No separate charge shall be made for standard terrace drains, down drains or interceptor drains.

Separate permits and/or fees shall apply to retaining walls, major drainage structures, and other improvements as prescribed by the City Engineer.

Plans submitted prior to issuance of a permit which are substantially incomplete, or change from a previous submittal, as determined by the City Engineer, and require additional plan checking shall require a new plan check fee to be charged by the City Engineer.

The fee for checking substantial revisions to previously approved grading plans for which a valid permit is active, shall be based on the fees computed from the difference of the total new yardage and/or valuations and the original yardage and/or valuations. The fee increment shall be calculated at the rate of the combined original and new yardage and/or valuation. The fee increment used shall be the adopted fee in effect at the time the revisions were approved. The fee may be waived if in the opinion of the City Engineer it is not warranted due to the minor nature of the changes.

5.2 Preinspection Fee

Before issuance of a building permit for a building or other structure, the City Engineer shall collect a grading preinspection fee, as specified by the City Council Resolution, to verify site conditions and to determine the need for a grading permit or other special requirements. Where a subdivision (tract), multiple housing, or commercial units are part of one grading site, only one fee is required. Where individual lots are preinspected separately, a fee shall be charged for each site.

5.3 Grading Permit Fee

Grading permit fees on each site shall be based on (1) the volume (cubic yards) of excavation or fill, whichever is greater, and (2) the estimated value of onsite drainage improvements. Onsite drainage improvements shall be considered the same as described for plan checking fees in this Subarticle.

The fee for a minimum fee grading permit for inspection purposes only, described in Section 24-2(14)6(a) Grading Permits, of the grading code shall be based on 100 cubic yards of excavation plus the estimated value of onsite drainage improvements to be inspected.

The fee(s) for authorizing additional grading work to that under a valid grading permit including erosion control work shall be computed as specified for plan checking substantial revisions in this Subarticle. No allowance for reduced earthwork volume or valuation shall be permitted.

5.4 Grading Permit Renewal Fee

The fee for renewing an expired or invalid grading permit shall be as specified in Section 24-2(14)16, Issuance, Expiration and Renewal, of the grading code.

5.5 Reinspection Fee

When any reinspection is required due to the negligence of the permit holder, his agent or other responsible persons, or due to the failure of said parties to comply with previous correction instructions, a fee calculated to be the actual time spent by the Engineering personnel shall be charged by the City Engineer for each such reinspection. The fee shall be paid before any further inspections are made.

This subsection is not to be interpreted as requiring reinspection fees the first time a job is rejected for failure to comply with the requirements of this Manual, but as controlling the practice of calling for inspection before the job is ready for such inspection or reinspection.

5.6 Preliminary Grading Permit Conversion Fee

Fees for the conversion of a preliminary grading permit to a precise grading permit shall be twenty-five (25) percent of the original preliminary plan check and grading permit fee, plus the full cost of any additional work not covered under the preliminary permit. Fees for additional work shall be at the rate of the combined original and new yardage and valuation. The fee increment for additional work shall be the adopted fee in effect at the time the precise permit is issued. If the precise permit is issued for a portion of the area covered by the preliminary permit, the conversion fee shall be adjusted by the ratio of lots or units under the precise permit to the number under the preliminary permit.

5.7 Investigation Fee

An investigation fee as established by resolution may be charged by the City Engineer whenever any work for which a permit is required by the Grading Ordinance has been commenced without first obtaining said permit. This fee shall be paid and the investigation shall be made prior to the issuance of any permit for said work.

An investigation fee may be charged for any investigation of a building, structure, site, or any other related work, requested by an owner or authorized agent of such owner. An investigation fee shall not be charged for complaints against projects under a valid grading permit or for investigations of hazardous conditions as determined by the City Engineer.

5.8 Refunds

a. Permit fee refunds will be made in an amount equal to eighty (80) percent where work authorized by said permit has not commenced, except that no refund will be made for less than twenty-five (25.00) dollars, and no refund will be made if one (1) year has elapsed from the date of permit issuance.

b. Plan check fee refunds will be made in an amount equal to eighty (80) percent if the request for such refund is received before the commencement of the first complete plan check, except that no refund will be made for less than twenty-five (25.00) dollars, and no refund will be made if one (1) year has elapsed from date of the plan check fee payment.

c. Permit and plan check fees will be refunded in their entirety when inadvertently paid for a project outside the jurisdiction of the City of San Clemente or as duplicate fees, except that no refund will be made if one (1) year has elapsed from the date of payment.

SUBARTICLE 6
BONDS

6.1 Types of Bonds

In lieu of a surety bond, the applicant may file a cash bond or, if approved by the City Attorney, a letter of credit or Time Certificate of Deposit from financial institutions subject to regulation by the State or Federal Government in an amount equal to that which would be required in the surety bond.

6.2 Bond Amount

The amount of a grading bond shall be based on 100% of the cost of the project.

The amount of the bond may be reduced by the City Engineer to the extent that he determines that potential hazards or the nature of the project do not justify the full amount.

The amount of the bond may also be increased by the City Engineer up to 100% of the cost of the total cut and fill volume and 100% of the drainage improvements and erosion control facilities if the potential hazards or nature of the project justifies such an increased amount.

6.3 Bond Conditions

Every bond shall be made on the form contained in Appendix D or contain the conditions prescribed therein and be approved as to form by the City Attorney.

6.4 Term of Bond

The term of each bond shall begin upon the date of permit issuance and shall remain in effect until the completion of the work to the satisfaction of the City Engineer.

6.5 Substitution

A substitute bond may be filed in lieu of the above mentioned bonds and the City Engineer may accept the same if it is suitable to insure completion of the work remaining to be performed and in proper form and substance.

6.6 Cash Deposit

Upon discretion by the City Engineer, cash deposits are sometimes required to insure emergency repair expenses that the City will perform or any emergency repair work that the City will cause to be performed without going through the long procedure of collecting monies through bonds.

SUBARTICLE 7
CUTS

7.1 Cut Slopes

Cut slopes shall be no steeper than two horizontal to one vertical (2:1).

SUBARTICLE 8
FILLS

8.1 Fill Location

Fill slopes shall not be constructed on natural slopes steeper than two (2) horizontal to one (1) vertical (2:1) or where the fill slope toes out within twelve (12) feet horizontally of the top of existing or planned cut slopes, outside the permit area boundary.

8.2 Preparation of Ground

The ground surface shall be prepared to receive fill by removing vegetation; noncomplying fill; topsoil and other unsuitable materials; and by scarifying to provide a bond with the new fill. Where existing slopes exceed five (5) feet in height and/or are steeper than five horizontal to one vertical (i.e. 5:1), the ground shall be prepared by benching into sound bedrock or other competent material, as determined by the soil engineer and/or engineering geologist and approved by the City Engineer. The lowermost bench beneath the toe of a fill slope shall be a minimum ten (10) feet in width. The ground surface below the toe of fill shall be prepared for sheet flow runoff, or a paved drain shall be provided.

Where fill is to be placed over a cut slope, the bench under the toe of the fill shall be at least fifteen (15) feet wide, but the cut slope must be made before placing fill and shall meet the approval of the soil engineer and/or engineering geologist as suitable foundation for fill.

Unsuitable soil is soil which, is not dense, firm or unyielding, is highly fractured or has a high organic content and in the opinion of the City Engineer, civil engineer, or engineering geologist is not competent to support other soil or fill, to support structures or to satisfactorily perform the other functions for which the soil is intended.

8.3 Fill Material

Detrimental amounts of organic material shall not be permitted in fills. Except as outline below, no rock or similar irreducible material with a maximum dimension greater than twelve (12) inches shall be buried or placed in fills.

The City Engineer may permit placement of larger rock when the soil engineer properly devises a method of placement, continuously inspects placement, and approves the fill stability and competency. The following conditions shall also apply:

a. Prior to issuance of the grading permit, potential rock disposal area(s) shall be delineated on the grading plan.

b. Rock sizes greater than twelve (12) inches in maximum dimension shall be ten (10) feet or more below grade, measured vertically. This depth may be reduced upon recommendation of the soil engineer and approval of the City Engineer providing that the permitted use of the property will not be impaired.

c. Rocks greater than twelve (12) inches shall be placed so as to be completely surrounded by soils; no nesting of rocks will be permitted.

8.4 Compaction

All fills shall be compacted to a minimum of ninety (90) percent of maximum density as determined by Uniform Building Code Standard No. 70-1 or equivalent, as approved by the City Engineer. Field density shall be determined in accordance with Uniform Building Code Standard No. 70-2 or equivalent, as approved by the City Engineer.

Locations of field density tests shall be determined by the soil engineer and by the approved testing agency and shall be sufficient in both horizontal and vertical placement to provide representative testing of all fill placed. Testing in areas of a critical nature or special emphasis shall be in addition to the normal representative samplings.

Exceptions:

a. Fills excepted in the Grading Ordinances and where the City Engineer determines that compaction is not a necessary safety measure to aid in preventing saturation, settlement, slipping or erosion.

b. Where lower density and very high potential expansion characteristics as defined by Table No. 29-C of the Uniform Building Code exist, lesser compaction may be granted by the City Engineer upon justification and recommendation by the soil engineer.

Fill slopes shall be compacted to the finish slope face as specified above. The soil engineer shall provide for the method of placement and compaction of the soil within the zone of the slope face.

Sufficient maximum density determinations by test method, Uniform Building Code standard No. 70-1 or approved equivalent, shall be performed during the grading operations to verify that the maximum density curves used are representative of the material placed throughout the fill.

8.5 Slope

Fill slopes shall be no steeper than two horizontal to one vertical (2:1).

8.6 Utility Line Backfill

Utility line backfill beneath and adjacent to structures; beneath pavements; adjacent and parallel to the toe of a slope; and in sloping surfaces steeper than ten horizontal to one vertical (10:1), shall be compacted and tested in accordance with subsection 8.4, Compaction, of this section. Alternately,

relatively self-compacting material may be used. The material specification and method of placement shall be recommended and inspected by the soil engineer and approved by the City Engineer prior to backfilling.

Utility line backfill in areas other than those stated above need no specified placement method or compaction criterion, but shall require approval by the soil engineer.

The final utility line backfill report from the project soil engineer shall include an approval statement that the backfill is suitable for the intended use.

SUBARTICLE 9
SETBACKS

9.1 Setbacks from Permit Area Boundary

The tops of cuts and toes of fill slopes shall be setback as far as necessary from the outer property boundaries of the permit area, including slope easements, and in accordance with Detail 1.

9.2 Design Standards for Setbacks

The tops and the toes of cut and fill slopes shall be set back from structures as far as is necessary for adequacy of foundation support and to prevent damage as a result of water runoff, erosion or maintenance of the slopes.

Unless otherwise approved by the City Engineer based on recommendations in the approved soil engineering and/or engineering geology report on the approved grading plan, setbacks shall be no less than shown in Detail 1 on the following page.

9.3 Retaining Walls

Retaining walls may be used to reduce the required setback in accordance with Detail 1 when approved by the City Engineer.

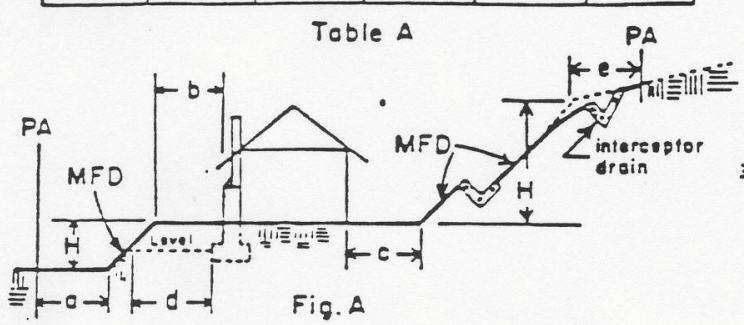
Detail 1

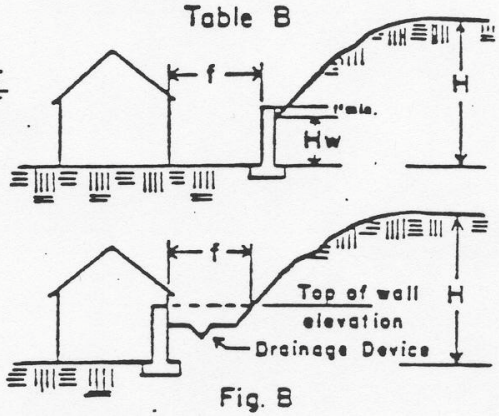
Min. Setback From Adjacent Slope					
H(hgt) Feet	a	b	c	d	e
0<6	3'	7'	3'	5'	1'
6-14	5'	7'	H/2	H/2 5'min.	H/5
14-30	5'	H/2 10'max.	H/2	H/2 10'max.	H/5
+30	5'	10'	15'	10'	6'

Table A

H(hgt.) Feet	Max. Hw	Min. Setback f
0-6	3'	3'min.
6-12	H/2	H/2
12-30	6'	H/2
+30	6'	15'

Table B





Detail 1 Notes:

1. PA means permit area boundary and/or property line; MFD means manufactured surface.
2. Setbacks shall also comply with applicable zoning regulations.
3. Table A applies to manufactured slopes and 2:1 or steeper natural slopes. Setbacks from natural slopes flatter than 2:1 shall meet the approval of the City Engineer.
4. "b" may be reduced to 5 feet minimum if an approved drainage device is used; roof gutters and downspouts may be required.
5. "b" may be reduced to less than 5 feet if no drainage is carried on this side and if roof gutters are included.
6. If the slope between "a" and "b" levels is replaced by a retaining wall, "a" may be reduced to zero and "b" remains as shown in Table A. The height of the retaining wall shall be controlled by zoning regulations.
7. "b" is measured from the face of the structure to the top of the slope.
8. "d" is measured from the lower outside edge of the footing along a horizontal line to the face of the slope. Under special circumstances, "d" may be reduced as recommended in the approved soil report and approved by the City Engineer.
9. The use of retaining walls to reduce setbacks (Figure B) must be approved by the City Engineer.
10. "f" may be reduced if the slope is composed of sound rock that is not likely to produce detritus and is recommended by the soil engineer or engineering geologist and approved by the Building Official.
11. "a" and "e" shall be 2 feet when PA coincides with Arterial or local street right-of-way and when improved sidewalk is adjacent to right-of-way.
12. "e" shall be increased as necessary for interceptor drains.

SUBARTICLE 10
DRAINAGE AND TERRACING

10.1 Terrace

Terraces at least six (6) feet in width shall be established at not more than thirty (30) foot vertical intervals on all cut or fill slopes to control surface drainage and debris, except that where only one (1) terrace is required, it shall be mid-height. For cut or fill slopes greater than 60 feet and up to 120 feet in vertical height, one terrace at approximately mid-height shall be 12 feet in width. Terrace width spacing for cut and fill slopes greater than 120 feet in vertical height shall be designed by the civil engineer and approved by the Building Official. Suitable access shall be provided to permit proper cleaning and maintenance.

Swales or ditches on 6 feet and 12 feet wide terraces shall have a minimum gradient of six (6) percent and must be paved with reinforced concrete, or approved equal, not less than three (3) inches in thickness. They shall have a minimum depth at the deepest point of eighteen (18) inches and a minimum paved width of five (5) feet.

A single run of swale or ditch shall not collect runoff from a tributary area exceeding 13,500 square feet (projected) without discharging into a down drain.

10.2 Subsurface Drainage

Cut and fill slopes shall be provided with approved subsurface drainage as necessary for stability and protection of adjacent properties from the influence of groundwater. The design of such facilities shall be contained in the approved preliminary (initial) soil engineering or engineering geology report and/or shall appear on the approved grading plan pursuant to the approval of the soil engineer and/or the engineering geologist.

Subsurface drainage facilities shall be installed where natural and/or artificially introduced groundwater affects or is likely to affect the project in a potentially unstable, hazardous or otherwise deleterious manner. Subsurface drainage shall be installed in all canyons and swales where fill is to be placed.

10.3 Disposal

All drainage facilities shall be designed to carry waters to the nearest practicable drainage way approved by the City Engineer and/or other appropriate jurisdiction as a safe place to deposit such water. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive down-drains, riprap, energy dissipators or other approved devices including a return of flow to a natural sheet flow condition.

No surface waters are to be conducted or directed onto adjacent property in an unnatural manner.

Building sites shall have a sheet flow drainage gradient of two (2) percent from the structure toward approved swales and/or drainage facilities, unless otherwise waived by the City Engineer. The maximum drainage gradient of an earth swale shall be 4 percent.

Grading of future building sites under a preliminary grading permit for the purpose of lot sales shall have a sheet flow drainage gradient of two (2) percent toward approved drainage facilities. The City Engineer may reduce this minimum gradient to one (1) percent upon the written request of the applicant or his agent, providing the applicant demonstrates the following:

a. Finish grades for drainage of building sites can be constructed in accordance with the requirements of this subsection without importing additional fill, and

b. Sufficient approved swales and/or drainage facilities are constructed to prevent water from ponding on any lot supported by a natural slope or cut or fill slope over five (5) feet in height.

Finish grades, other than above, shall conform to the following minimum drainage gradient standards:

	Minimum Gradient
a. Earth swales	2%
b. Earth (sheet flow)	2%
c. Asphalt pavement (sheet flow)	1%
d. Concrete drain in earth area	0.5%
e. Concrete gutter in asphalt paved area	0.28%

10.4 Interceptor Drains

Paved interceptor drains shall be installed along the top of all manufactured slopes where the tributary drainage area flows toward the slope and has a drainage path to top of slope greater than forty (40) feet measured horizontally. Interceptor drains shall be paved with a minimum of three (3) inches of reinforced concrete or gunite. They shall have a minimum depth of eighteen (18) inches and a minimum paved width of thirty six (36) inches mesaured horizontally across the drain. The slope of the drain shall be approved by the City Engineer.

10.5 Pipe Specifications

Pipe material specifications shall be shown on the approved plans or in the approved soil report by the civil engineer or soil engineer and approved by the City Engineer. The pipe shall conform to the currently adopted Standard Specifications for Public Works Construction unless otherwise recommended by the civil engineer or sol engineer and approved by the City Engineer.

Approved pipe includes:

a. Asbestos Cement Pipe (ACP)
   D-load to be designed and shown on approved grading plans.

   1. Subdrain – ASTM C508
   2. Stormdrain – ASTM C663

      (a) maximum velocity, 10 feet per second

b. Acrylonitrile Butadiene Styrene (ABS) Solid wall pipe

1. Subdrain (a) ASTM D2751, SDR 35
(b) ASTM D1527, schedule 40

2. Stormdrain

(a) ASTM D2751, SDR 35, maximum velocity 8 feet per second
(b) ASTM D1527, schedule 40, maximum velocity 15 feet per second

c. Polyvinyl Chloride Plastic Pipe (PVC)

1. Subdrain

(a) ASTM D3034, SDR 35
(b) ASTM 1785, schedule 40

2. Stormdrain

(a) ASTM D3034, SDR 35, maximum velocity 8 feet per second
(b) ASTM 1785, schedule 40, maximum velocity 15 feet per second

d. Reinforced Concrete Pipe (RCP)
D-load to be designed and shown on approved grading plans.

e. Corrugated Steel Pipe (CSP)
Metal thickness to be designed and shown on approved grading plans. Pipe to be bituminous coated – to be used above ground only.

f. Corrugated Aluminum Pipe (CAP)
Metal thickness to be designed and shown on approved grading plans. Pipe to be bituminous coated – to be used above ground only.

g. Nonreinforced Concrete Pipe
Pipe shall be extra strength.

The maximum flow design parameters may be exceeded in special circumstances when justified and recommended by the civil engineer and approved by the City Engineer.

10.6 Area Drain Grates

The minimum cross-sectional area of area drain grates shall not be less than 100 square inches, and shall contain a grate cover having 50% net opening.

10.7 Conduits Beneath Structures

Drainage conduits placed beneath structures shall conform to the requirements for sewer and waste plumbing. PVC and ABS pipes shall be schedule 40.

SUBARTICLE 11
ASPHALT CONCRETE PAVEMENT

11.1 Asphalt Concrete and Untreated Base Standards

When asphalt concrete pavement is proposed for surfacing of private parking lots, private streets or other similar use, this paving, including the tack coat, prime coat, seal coat and base course, shall conform to the current Environmental Management Agency special provisions for asphalt concrete and untreated base materials unless otherwise approved by the City Engineer.

> Exception: The provisions of this section shall not apply when a private asphalt concrete driveway access to a single residence is proposed.

Prime coat shall be placed on subgrade or untreated base when the base will be subjected to substantial construction traffic or long periods of time before asphalt concrete is placed, as determined by the soil engineer and approved by the City Engineer.

Untreated base may require testing by an approved testing agency to insure its compliance with the applicable specifications and special provisions when determined necessary by the City Engineer. Tests may include but shall not be limited to:

a. Sieve analysis
b. Sand equivalent
c. Percent of crushed particles retained by a No.4 screen.

11.2 Subgrade Compaction

The top 6 inches of the subgrade material shall be compacted to a relative compaction of 90 percent of maximum density as determined by Uniform Building Code Standard 70-1 or approved equivalent unless otherwise recommended by the soil engineer in the preliminary soil report and approved by the City Engineer.

11.3 Soil Sterilization

Weed killer shall be required on subgrade if no aggregate base is used.

11.4 Surface Drainage

All concentrated drainage in asphalt paved areas shall be carried by approved concrete drainage devices.

11.5 Pavement Structural Section

The project soil engineer or design civil engineer shall determine the pavement structural section(s) for parking lots/service roads and private streets based on: (1) soil tests of the subgrade soil(s) performed by an approved soil testing laboratory; and (2) anticipated traffic and/or loading conditions. The methods used for soil testing and pavement design shall be that currently in use by the Environmental Management Agency for construction of public roadways, or methods acceptable to the City Engineer. Unless otherwise specified by the soil engineer, the relative compaction of each layer of compacted base material shall not be less than 95 percent.

In lieu of a recommended structural section from the soil engineer or civil engineer for parking lots/service roads, the following standards may be used:

	Pavement Structural Section
a. Parking stall areas	3”AC/6”AB
b. Commercial driveways, perimeter drives and loading areas	3”AC/10”AB
c. Industrial driveways, perimeter drives and loading areas	3”AC/12”AB

SUBARTICLE 12
EROSION CONTROL

12.1 Information on Erosion Control Plans

The plan shall include but not be limited to:

a. The name and twenty-four (24) hour telephone number of the person responsible for performing emergency erosion control work.

b. The signature of the registered civil engineer who prepared the grading plan and who is responsible for inspection and monitoring of the erosion control work.

c. All desilting and erosion protection facilities necessary to protect adjacent property from sediment deposition.

d. The streets and drainage devices that will be completed and paved by October 15.

e. The The placement of sandbags or gravelbags, slope planting or other measures to control erosion from all slopes above and adjacent to roads open to the public. The use of gravelbags is encouraged over sandbags.

f. The plan shall indicate how access will be provided to maintain desilting facilities during wet weather.

SUBARTICLE 13
GRADING INSPECTION

13.1 Site Inspection by the City Engineer

Prior to any grading, brushing or clearing, there shall be a pregrading meeting held on the site. Prior to pouring curb and gutter or placement of pavement base material, there shall be a prepaving meeting held on the site if required by the City composing of Geologist, Civil Engineer, Contractor and Owner or Developer. The permitee, or his agent, shall notify the City Engineer at least two (2) working days prior to the meetings and shall be responsible for notifying all principals responsible for grading or paving related operations. The Contractor shall be responsible in the maintenance, safety and cleanliness on site and especially on street areas.

It shall be the duty of the person doing the work authorized by a permit to notify the City Engineer at least one (1) working day prior to the work being ready for the following inspections:

a. Excavation and Fill Inspection

1. Canyon Cleanout: After all brush and unsuitable material has been removed and an acceptable base has been exposed, but before any fill is placed.

2. Toe Bench and Key: After the natural ground or bedrock is exposed and prepared to receive fill, but before fill is placed.

3. Over-Excavation: After the area has been excavated but before fill is placed.

4. Excavation: After the excavation is started, but before the vertical depth of the excavation exceeds ten (10) feet, and every ten (10) feet interval thereafter. Continuation of this excavation operation need not await the arrival of the grading inspector provided that proper notification has been made to the City Engineer.

5. Fill: After the fill has started, but before the vertical height of the fill exceeds ten (10) feet, and every ten (10) feet interval thereafter. Continuation of this fill operation need not not await the arrival of the grading inspector provided that proper notification has been made to the City Engineer.

6. Rough Grade Inspection shall include inspection by City Geologist on geologic related items, if required.

b. Concrete or gunite drainage device inspection:

1.Alley gutter and or concrete device draining asphalt:

(a) Subgrade (prior to placement of concrete): Subgrade is to be prepared and required reinforcement placed. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans.

(b) Concrete placement. Concrete placement need not await the arrival of the grading inspector provided proper notification has been made to the City Engineer.

2.Curb and gutter (private property):

(a) Subgrade (prior to placement of concrete): Subgrade is to be made. forms and reinforcement are to be placed. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans.

(b) Concrete placement. Concrete placement need not await the arrival of the grading inspector provided proper notification has been made to the City Engineer.

3. Terrace drains, down drains, brow ditches, and all other paved drainage devices:

(a) Subgrade: Prior to placement of welded wire mesh or reinforcing steel. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans. Reinforcement: Thickness control wire and reinforcing steel or welded wire mesh are to be installed but prior to placement of gunite or concrete.

(b) Concrete placement. Concrete placement need not await the arrival of the grading inspector provided proper notification has been made to the City Engineer.

4.Sidewalks used as drainage devices:

Subgrade: Prior to placement of concrete, subgrade is to be made, forms are to be in place with the required reinforcement. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans.

c. Drainage device other than concrete or gunite inspection:

1. Subdrains:

   (a) After excavation but prior to placement of filter material and pipe. The subdrain pipe and filter material shall be on-site for inspection.
   (b) After filter material and subdrain has been placed but prior to covering with backfill.

2. Storm drains and inlets:

   (a) After placement of storm drains but prior to covering with backfill. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans.

   (b)After placement of inlet forms but prior to pouring concrete. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans.

3. Earth Swales:

   (a) Prior to rough grading approval or lumber drop.

(b) Prior to final grading approval.

d. Rough Grade Inspection

When all rough grading has been completed. This inspection may be called for at the completion of rough grading without the necessity of the City Engineer having previously reviewed and approved the required reports if the grading was performed under a precise grading permit. Under normal circumstances, all subdrains and slope drains shall be in place and approved as a condition for rough grading approval.

e. Paving Inspection

1. Subgrade:

After subgrade has been established, tested and approved by the soil engineer, or his qualified representative. The soil engineer shall provide a field memo of compaction test results. The civil engineer, shall provide a field memo that line and grade is set in accordance with approved plans.

2. Untreated Base:

After untreated base course has been placed, tested and approved by the soil engineer, or his qualified representative, but prior to prime coat and asphalt placement. The soil engineer shall provide a field memo of compaction test results. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans. Material invoices may be required.

3. Asphalt

(a) During asphalt lay down to verify continuous inspection by the soil engineer, or his qualified representative or a special inspector when authorized. Material invoices may be required. Asphalt placement need not await the arrival of the grading inspector provided that proper notification has been made to the City Engineer.

(b) Prior to application of seal coat, the paved surface shall be water tested to reveal any irregularities and shall be patched where required. Material invoices may be required after placement of seal coat.

f. Final Inspection

After all work, including installation of all drainage structures and other protective devices, has been completed and all written professional approvals and the required reports have been submitted. An As-Built plan will be required if, in the opinion of the City Engineer, the finished site significantly deviates from the approved grading plan.

g. Siltation Control Facilities (rainy season: October 15 to April 15):

1. After excavation of desilting basins but prior to fill placement. Prefabricated devices are to be

available on-site for inspection.

2. After fill placement for desilting basins but prior to placement of concrete or other non-erosive materials.

3. After completion of an erosion control system in accordance with an approved erosion control plan and the requirements of the City Engineer.

13.2 Special Inspections

The responsibilities and duties of a special inspector as provided in Section 306, Special Inspections, of the Uniform Building Code as amended are included in Appendix E.

13.3 Alternate Materials and Methods of Construction

a) The provisions of this grading manual are not intended to prevent the use of any material or method of construction not specifically prescribed by the grading code or this grading manual provided any such alternate has been approved pursuant to this section.

b) The City Engineer may approve any such alternate provided he finds that the proposed design is satisfactory and complies with the provisions of the grading code and this grading manual and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in quality, strength, effectiveness and safety.

c) The City Engineer shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding its use.

d) Whenever there is insufficient evidence of compliance with the : provisions of this grading manual or evidence that any material or any construction does not conform to the requirements of this grading manual or in order to substantiate claims for alternate material or methods of construction, the Building Official may require tests as proof of compliance to be made at the expense of the owner or his agent by an approved testing agency.

e) Test methods shall be as specified by this grading manual for the material in question. If there are no appropriate test methods specified, the Building Official shall approve the test procedure. Copies of the results of all such tests shall be retained for a period of not less than two (2) years after the acceptance of the grading.

SUBARTICLE 14
COMPLETION OF WORK

14.1 Final Reports

Upon completion of the rough grading work and at the final completion of the work under the grading permit but prior to the issuance of building permits or release of grading bonds or issuance of a certificate of use and occupancy, the City Engineer may require:

a. An as-graded grading plan prepared by the civil engineer, which shall include corrected original ground surface elevations if necessary, graded ground surface elevations, lot drainage patterns, manufactured slope inclination, and location of all drainage facilities and subdrains.

b. A written approval by the civil engineer approving the grading as being substantially in conformance with the approved grading plan and which specifically approves the following items as appropriate to the project and stage of grading:

1. Construction of line and grade for all engineered drainage devices and retaining walls (rough and final grading).
2. Staking of property corners for proper building location (rough grading).
3. Setting of all monuments in accordance with the recorded tract map (rough or final grading).
4. Location of permanent walls or structures on property corners or property lines where monumentation is not required (final grading).
5. Location and inclination of all manufactured slopes (rough and final grading).
6. Construction of earthen berms and positive building pad drainage (rough and final grading).
7. That all grading ordinances and permit provisions have been complied with.

c. A soil engineering report prepared by the soil engineer, including type of field testing performed, suitability of utility trench and retaining wall backfill, summaries of field and laboratory tests and other substantiating data, and comments on any changes made during grading and their effect on the recommendations made in the soil engineering investigation report. Each field density test shall be identified, located on a plan or map, the elevation of test and finish grade elevation shown, and the method of obtaining the inplace density described, either Uniform Building Code Standard 70-2 or the approved equal shall be so noted. The soil engineer shall provide a written approval as to the adequacy of the site for the intended use, as affected by soil engineering factors. The City Engineer may require that the soil tests or testing be performed by an approved testing agency under the supervision by a licensed Civil Engineer.

d. A geology report prepared by the engineering geologist, including a final description of the geology of the site including any new information disclosed during the grading, and the effect of same on recommendations incorporated in the approved grading plan. He shall provide a written approval as the adequacy of the site for the intended use as affected by geologic factors and when required by the City Engineer, shall submit an as-built geologic map.

e. A statement prepared by the grading contractor describing the volume of excavation and fill moved on the project. In addition, the grading contractor shall submit written approval that the work was completed in accordance with the approved plans by the registered Civil Engineer who prepared the grading plans and performed the inspection on the grading work.

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APPENDIX A

GRADING PLANS STANDARDS

AND

CORRECTION LIST

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REGULATION GRADING SECTION
GRADING PLAN STANDARDS AND CORRECTION LIST

OWNERS NAME_____ PROJECT ADDRESS_____

CHECKED BY_____ PHONE_____ DATE_____ NOTIFIED_____

PLAN CHECK #_____ TYPE OF PERMIT_____PRECISE_____ PRELIMINARY____

CIRCLED ITEMS REQUIRE CORRECTION OR SUBMITTAL. THIS IS SUPPORT DOCUMENT #2.

Corrections shall be made on the tracings and 3 new sets of plans shall be submitted.

RETURN THIS SHEET WITH CORRECTED PLANS, AND THE ORIGINAL CHECK PRINT. Payment of a new plan check fee shall be required for all plans on which no action is taken by the applicant for a period of 180 days. Applications for which no permit is issued within 180 days following date of plan check shall expire by limitation.

I. APPLICATION COMPLETION
a. Sign and complete application.
b. Sign and complete Notice of Application Completion.
c. Provide 3 complete sets of plans. The maximum size shall be 24" x 36".
d. Complete the Environmental Categorical Exemption Checklist.
e. Submit for review and approval two copies of the following reports:
____Preliminary soil engineering
____Preliminary engineering geology
f. Plan check fees required:
1. Grading____ Improvements_____
2. Balance owed_____

II. ADDITIONAL INFORMATION REQUIRED FOR APPROVAL
a. Submit an itemized summary of the cost of all drainage devices and on site improvements, including cost of grading and asphalt paving.
b. Grading permit fees required:
1. Grading____ Improvements____
2. Balance owed_____
c. Submit plans and obtain clearance from:
1. Engineering Division, P.W. Dept. (2 plans)
_____Street & Drainage Section
_____Traffic Engineering
2. EMA, Planning, Information & Applications
3. EMA, Planning, Environmental Analysis
4. California Regional Water Quality Control Board
5. California Department of Fish & Game (submit questionaire with date of mailing to CDFC)
6. California Coastal Conserv. Comm.

7. _____
8._____

d. Bond required in the amount of $_____ . Bond form is available on request.
e. Provide a certificate of insurance for worker's compensation coverage.
f. A notarized letter of permission from adjacent property owner(s) is required for slope encroachment or other offsite grading or work. Include legal description and Assessor's Parcel number. (See attached).
g. A notarized letter of permission is required from adjacent property owner(s) for acceptance of unnatural drainage. Include legal description and Assessor's parcel number. Applicant must have this document recorded.
h. Retaining walls are not a part of the grading permit. Submit for separate building permit. Note on plans. Show location of walls on Grading Plan plus top of wall & adjacent finished surface elevations.
i. A permit is required from Engineering Division/Public Works, for any encroachment in the public right of way. Note on plans.
j. Submit a hydrology study and/or hydraulic calculations for _____.
k. Submit for approval, two copies of precise grading plan review report.

III. GRADING PLANS, GENERAL

a. Show assigned project address on plans.
b. Show yardage figures on plans. Cut_____yds
overexcavation_____yds, natural fill_____yds, import_____yds, export_____yds
c. Plans to be signed by a licensed Civil Engineer or Architect.
d. Show on plans:

___North Arrow	___Grading Limits
___Scale	___Permit Limits
___Legend	___Property Lines
___Vicinity Map	___Tract Number
	___Lot Numbers

e. Show location of all existing and proposed structures, buried tanks and wells.
f. Show all cut/fill daylight lines.
g. Show existing offsite terrace and drainage features that could significantly affect the project.
h. Show existing and proposed elevations (using contours for hillside sites).
i. Show existing and proposed elevations using contours and/or spot elevations (for flatland sites).
j. Indicate disposition of excess earth materials. A separate permit may be required.
k. A berm, 12" high by 4’ wide is required at tops of all slopes. Illustrate with typical detail.
l. Add the following to the plan tracings:
Grading notes (which are applicable). See attached sheet

1. Paving notes. See attached sheets.
2. Detail sheets_____
3. _____
4. _____
5. _____

m. Show street width and centerline.
n. _____

IV. DRAINAGE

a. Show location and provide details for all subdrain system (1), as recommended in the soil/geology report, by_____ dated_____
b. or (2), Earth Science approved standard.
c. Maximum gradient for sheet flow 10%
d. Minimum acceptable gradients:

1. Earth	2.0%
2. Asphaltic concrete	1.0%
3. Concrete in earth	0.5%
4. Concrete in A.C.	0.28%
5. Lot swales	2.0%
6. Terrace drains	6.0%
7. Interceptor drains	2.0%

e. Show plan and section details of typical lot drainage. Minimum 2%, maximum 21%, away from a building pad to a swale is required for a minimum distance of 3 ft.
f. Drainage shall be conducted to a street, natural watercourse or other approved location.
g. Drainage over a manufactured slope is not permitted except in approved devices.
h. Interceptor drains (brow ditches at top of manufactured slopes are required to intercept surface drainage. Show on plans and provide detail.
i. Cut off walls are required at inlet of paved drains. Show detail on plan.
j. Velocity reducers (i.e. energy dissipators) are required where drain discharge onto natural ground. If rip-rap is to be used specify class and size. Show on plan and provide detail.
k. Concentrated drainage exceeding 4% gradient requires concrete, gunite or other approved nonerosive device.
l. Revise plans to show complete details for all drainage structures, i .e._____.
m. Provide concrete device in asphalt section to carry concentrated water.
n. Show detail and locations of extra depth footings.
o. Provide 7' setback from top of slope to building to accommodate graded drainage swale or 5’ setback with P.C.C. device to carry drainage, lots-_____.
p. Show flow line elevations of all swales and other drainage devices.

V. SLOPES

a. Provide setbacks as outlined in the Grading and Excavation Code.
b. Show detail of typical slope benching preparatory to fill placement.
c. Provide a minimum 6’ wide terrace at maximum 30 foot intervals measured vertically. Minimum paved width to be 5' with 18" depth (flow line to top of paved conc.).
d. A downdrain shall be installed for every single run of terrace drain that collects run-off from a slope watershed area of 13,500 sq. ft.
e. Show on plans the proposed location and fully dimensioned cross sectional details of all buttress fills recommended by the project soil engineer and/or engineering geologist.
f. Show top and toe of cut and fill slopes.
g. Incorporate the following hillside design criteria or justify in writing why it does not apply to your project.

1. Slope rounding
2. Slope contouring at daylight line

3. Undulating slopes with a minimum of long flat, inclined planes and acute angles.
4. Max slope height_____ (type B-35 feet), (Type C-20 feet).
5. Ten foot bench exclusive of drainage facilities.
6. Manufactured (cut and fill) slopes shall have a maximum slope ratio of 2:1 (26 degrees).

VI. MISCELLANEOUS

a. Delineate areas of overexcavation and recompaction as recommended by the soils engineer. Detail and show volume as separate item. Where depth exceeds 12", soils engineer to verify recommended compaction in his final report.
b. Incorporate Planning Commission's Conditions of Approval into plans, and incorporate into the grading notes.
c. Planning Commission review of grading plan(s) is required prior to issuance of grading permit. Submit ten sets of pre-folded final plans, (suitable for mailing), color coded showing Planning Commission's approved concept vs. proposed deviations and a letter of explanation and justification.
d. Note on plans: Grading operations and maintenance of equipment within one half mile of human occupancy shall not be conducted between hours of 8:00 p.m. and 7:00 a.m. or anytime on a Sunday or a federal holiday.
e. Delineate on the plans and provide details for rock disposal areas as recommended by the project soil engineer.
f. Approved erosion control measures are to be installed and functional during the rainy season from Oct. 15th to April 15th. Justify design with hydrology and hydraulic calculations. Additional fees may be required. Submit improvement cost and yardage breakdown.
g. Prior to rough grade release for building permits, the accoustical designer shall review the "as built" grades as approved by the site Civil Engineer or Architect for requirements relating to sound attenuation structures, and submit a letter of requirements.
h. Show detail on plan how finished grades meet adjoining property.
i. Soils and geology reports must be approved by the City Engineer.
j. Show on plans name, address and telephone number of:

____Owner
____Architect
____Paleontologist
____Civil Engineer
____Grading Contractor
____Engineering Geologist
____ Soil Engineer
____ Archaeologist

VII. ADDITIONAL:

APPENDIX B

TECHNICAL GUIDELINES FOR SOIL

AND

GEOLOGY REPORTS

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GRADING SECTION
Technical Guidelines for Soil and Geology Reports

PREFACE:

The ultimate responsibility for a safe design, construction and maintenance of any grading project rests with the consulting engineers, geologists, contractors, and the owner. Since site conditions and the proposed development plan varies so greatly between projects, the City Engineer recognizes the discretion and judgements that must be used by the consulting professionals. It is, therefore, essential to enhance the general understanding between the permit applicants, consultants and the City Engineer.

The purpose of these technical guidelines is to inform grading permit applicants and their professional consultants of the basic information looked for by the City Engineer in reviewing preliminary (initial) Soil and Geology reports for grading permit applications and rough grade compaction reports. The guidelines used for the preparation of this document are:

> The City of San Clemente Grading Ordinance, the Uniform Bui1ding Code, the California State Board of Registration policy statement (effective 1/1/79) on adequacy of professional geological work as represented by the guidelines for standards of practice issued by the California Division of Mines & Geology, the City of San Clemente Planning Commission and Subdivision Committee conditions of approval, the City of San Clemente Subdivision Ordinance, and presently accepted geotechnical engineering and engineering geologic practices.

DESCRIPTION:

The technical guidelines are divided into 6 parts to distinguish report content for different project types and topographic areas to be developed by grading. The more involved grading projects will encompass, but not be limited to, several parts listed below:

Part I Single Family Dwellings (flatland) - identifies the report content for precise grading permits on single family dwellings in flatland areas.

Part II Single Family Dwellings (hillside) - identifies the report content for precise grading permits on single family dwellings in hillside areas (additive to the requirements of Part I).

Part III Single Family Dwellings (supplemental information) - identifies additional report content which may be needed with Part I and Part II depending on the site conditions and development proposed (additive to the requirements of Parts I and II).

Part IV Commercial and Industrial Sites - identifies the report content for precise grading permits on commercial and industrial site including apartment complexes (additive to the requirements of Part I and applicable items of Part III).

Part V Residential, Commercial and Industrial Subdivisions (tracts and parcels) - identifies the report content for pre1iminary grading permits of large commercial and industria1

subdivisions and preliminary and precise grading permits of residential subdivisions in flat1and and hillside area (additive to the requirements of Part I and applicable items of Parts II and III).

Part IV Rough Grade Compaction Reports - identifies the report content for preliminary and precise grading permit rough grade compaction reports.

Due to particular site conditions, proposed improvements or the policies of testing firms or project consultants, some of these items may be included in subsequent reports on the same project with the conditional approval of EMA.

GRADING PLAN REVIEW REPORT:

A grading plan review report is an evaluation of the conclusions and recommendations in the pre1iminary soil and geology report as they relate to the proposed grading plan. It is usually required when there are changes in the proposed development, consulting firms, soil engineer or engineering geologist, an update of the preliminary report or signatures are needed, or the project is a conversion to precise permit application. The grading plan review reports are supplements to the preliminary reports and are an opportunity for the consultants to review the planned development. The purpose is to determine if the preliminary reports are adequate and complete for the presently planned grading and construction on the site and if the conclusions and recommendations still apply to the proposed operations. It is not intended that the soil engineer or engineering geologist approve or disapprove the grading plan, but provides them an opportunity to update the preliminary reports and include additions or qualifications as necessary. The date and name of the person preparing the latest grading plan reviewed should be identified for reference purposes.

PART I: TECHNICAL GUIDELINES FOR PRELIMINARY REPORTS (SOIL REPORTS) ON SINGLE FAMILY DWELLINGS IN FLATLAND AREAS

A. General

1. Signature and RCE number of project soil engineer.
2. Job address.
3. Location description and/or location index map with reference north, scale etc.
4. Description of site conditions (topography, relief, vegetation, man-made features, drainage and watershed).
5. Proposed grading (general scope, amount, special equipment and/or methods if applicable).
6. Planned construction (type of structure and use, type of construction and foundation/floor system, number of stories, estimated structural loads).

B. Field Investigations

1. Scope (date work done, investigative methods, sampling methods, logs of borings/test pits, elevations of borings/test pits for reference of materials and samples to finished grade or footing elevations, identify real or assumed elevations.
2. Plan with legend showing: site limits, terrain features, man-made features, boring/test pit locations, proposed improvements (including slopes with ratios, soil limits, daylite lines, paving areas, retaining walls, subdrains,

3. Location of all samples taken, surface and subsurface.
4. Groundwater conditions and potential (future natural and artificial see-page effects).

C. Engineering/Material Characteristics and Testing

1. Test methods used, type or condition of samples, applicable engineering graphics and calculations, results of all tests, and sample locations of all test samples (overexcavation/cleanout/uncertified fill areas).
2. Unified Soil Classification of materials.
3. Material competency and strength[1].
    a. Field densities (and relative compactions where pertinent) and moisture content.
    b. Shear strength of foundation material (drained or undrained conditions, effective stress or total stress analysis, in-situ or remolded samples must be identified).
    c. Consolidation or settlement potential.
    d. Expansion potential.
4. Maximum density-optimum moisture parameters of proposed fill material if available by Uniform Building Code Standard No. 70-1 or approved equivalent.
5. Shrinkage and/or bulking factors.

D. Foundation Design Criteria

1. Footing depth and width[1].
2. Criteria for foundation material preparation[1].
3. Allowable bearing values based on testing[1].
4. Lateral pressures (active passive, or at rest conditions) and coefficient of friction[1].
5. Settlement - total, differential and rate of settlement.

E. Reference

1. In supplemental or grading plan review reports referencing earlier reports, supply copies of those referenced reports or applicable portions as required by the Building Official.
2. Fill support:
    a. Suitability and precompaction of in situ materials (describe test results and other pertinent data to be used to determine suitability).
    b. Suitability and precompaction of in situ materials (describe test results and other pertinent data to be used to determine suitabillty).
3. Placement of fill:
    a. Material approval (on site, imported).
    b. Methods and standard (Uniform Building Code Standard 70-1 or approved equivalent).
    c. Testing (min. 90~ rel. comp. by U.B.C. standard 70-2 or equivalent) and frequency of field density testing by vertical intervals and/or volume of fill.
4. Elimination of cut/fill or other differential transitions beneath improvements.

Note 1: UBC requirements may be used as an alternative: soil classification of founding materials by UBC Standard #29-1 and use minimums and maximums based on UBC Tables 29-A and 29-B or approved equivalent.

5. Utility trenches:
    a. Backfill specifications and recommendations under structures, pavements and slopes (min. 90% rel. comp. using native materials) vs. landscape and other areas.
6. Provisions of approval inspections and necessary testing during and on completion of grading.
7. Opinion as to adequacy of site for the proposed development. (This opinion should also be summarized in the first part of the report).
8. Other pertinent geotechnical information for the safe development of the site.

PART II: TECHNICAL GUIDLINES FOR PRELIMINARY REPORTS (SOIL AND GEOLOGY REPORTS) SINGLE FAMILY DWELLINGS IN HILLSIDE AREAS

All guidelines listed in Part I for preliminary reports are applicable in addition to the following:

A. General

1. Engineering geology report with signature and CEG number of project engineering geologist (generally needed depending on site conditions and proposed base map source (next item)).
2. Source of base map with date
3. Geologist performing mapping (if different than signing CEG).
4. Geological setting including general description, index of site of portion of recent large scale geologic map (if available) and references to previous reports (or published papers) and aerial photo data on site area. developments).
5. Topographic features and relationship to site geology (outcrop distribution, slope height and angles and/or ratios, dip slopes, cliffs, faults contacts, erosion pattern, etc.).

B. Field Investigations

1. Geologic map showing: site geology, approximate location of proposed keyways, proposed buttresses, proposed or existing subdrains, seeps or springs, etc., and be suitable for the general purpose in it size, scale and manifestation and contains an adequate legend. The map should have highlighted representative geologic data of sufficient amount and location for evaluation of: general rock or soil unit distribution, geologic structure, downslope movement features (including soil/rock creep), groundwater conditions, subsidence/settlement features or potential, and other pertinent site characteristics.

2. Substantiation of any known gross differences of opinion with recently available geologic reports or published data or maps on site area.

C. Earth Materials (Bedrock and Surficial Units)

1. Unit classification, general lithologic type, geologic age, origin.
2. Unit description and characteristics (in sequence for relative age) including:
    a. Composition, texture, fabric, lithification, moisture, etc.
    b. Pertinent engineering geologic attributes (clayey, weak, loose; alignments, fissility, planar boundaries; pervious or water-bearing parts; susceptibility to mass wasting, erosion, piping, or compressibility).

c. Distribution, dimensions, or occurrence (supplemental to data furnished on illustrations).
d. Suitability as construction and foundation material.
e. Effects and extent of weathering (existing and relationship to project design and future site stability, material strength, etc.).

D. Geologic Structure

1. General Structure
2. Distribution of structural features including position, attitude, pattern and frequency of:
    a. Fissures, joints, shears, faults and other features of discontinuity.
    b. Bedding, folds, and other planar features.
3. Character of structural features including: continuity, width of zones and activity, dominant vs. subordinate, planar nature, plunge, depth, open vs. closed (degree of cementation or infilling), gouge.
4. Structural or cross-sections (one or more appropriately positioned and referenced on map; especially through critical areas, slopes and slides) of suitable size and engineering scale; with labeled units, features and structures; and a legend. These sections should correlate with surface and subsurface data showing representative dip components, projections and stratigraphic/structural relationships.

E. Stability Features and Conditions

1. Adequate mapping, sections and description showing position, dimensions and type of existing downslope movement features including soil/rock creep, flows, falls, slumps, slides if any.
2. Activity, cause or contributing factors of downslope movement features.
3. Recent erosion, deposition, or flooding features.
4. Subsidence/settlement. Piping, solution or other soil features or conditions.
5. Groundwater and surface drainage characteristics or features.
    a. Surface expression (past and present); permeability/porosity of near surface materials.
    b. Actual or potential aquifers or conduits, perching situations, barriers or other controls to percolation and groundwater movement and fluctuation of groundwater levels at the site.

F. Conclusions and Recommendations (including slope and site stability).

1. Unsuitable material removal (canyon cleanout, overexcavation, etc.).
2. Keyways and benching for existing slopes steeper than 5:1.
3. Specifications for the method of placement and compaction of soil within the zone of the slope face.
4. Slope stability - susceptibility to mass-wasting (creep to rapid failure potential).
    a. Favorable or unfavorable inter-relationships of fractures (joints, shears, faults or zones) to planar structures (bedding, contacts, folds, plunges, weathered zones, etc.) and to each other forming potential failure planes, veneers, masses, or blocks.
    b. Favorable or unfavorable inter-relationships of geologic structures, conditions and potential failure planes to natural and/or man-made topography forming actual or

potential adverse dips and contacts, adverse fractures (jointing, shearing, faulting), adverse fold limbs or synclinal axes, adverse earth masses or blocks.

c. Favorable or unfavorable inter-relationships of height of existing or proposed slopes to present and future (weathering effects, rate, depth, etc.) strength of earth materials.

d. Slope stability effects onto or from developed, natural or proposed slopes of adjacent properties.

e. Analysis of mudflow and debris flow from up slope natural terrain.

5. Statement of site stability and summary of actual and potential unstable situations relative to the proposed site configuration and necessary stabilization or remedial measures for downslope movements, erosion, groundwater or settlement/subsidence effects. Opinion and recommendations of surficial and gross stabilities of natural and manufactured slopes.
6. Provisions for necessary inspections of excavations to competent material by the project engineering geologist and/or soil engineer and their approval and/or testing of material competency.
7. Geologic feasibility of the site for the proposed development. (This opinion should also be summarized in the first part of the report).

PART III: TECHNICAL GUIDELINES FOR PRELIMINARY REPORTS (SOIL AND GEOLOGY REPORTS) ON SINGLE FAMIL Y DWELLINGS: SUPPLEMENT TO PARTS I AND II.

This section includes additional report content that may be necessary depending on project site conditions or proposed developments for either flatland or hillside locations.

A. General

1. Site conditions - distress on existing improvements in area (expansive, settlement/subsidence, or creep areas).
2. Proposed grading - special grading equipment or methods needed for resistant, saturated or other unusual materials or situations.
3. Proposed rock disposal methods (for clasts and residuals larger than 12 inches) and disposal areas (include on geotechnical plan if disposal area is on site).
4. References to publications and other reports cited.

B. Engineering/Material Characteristics and Testing

1. Shear strength evaluations and results (drained or undrained conditions, effective stress or total stress analysis, in-situ or remolded samples).
2. Expansivity analyses of foundation material (test by U.B.C. Standard #29-2 or approved equivalent and classify potential by U.B.C. Table #29-C).
3. Material densities and/or penetration tests (Standard Penetration or other methods of known correlation to material density).
4. Soluble sulfate content of soils in contact with concrete (test by ASTM D516 or equivalent).
5. Gradation/size analyses, if appropriate.
6. Atterberg limit analysis and parameters, if appropriate.
7. Geophysical survey, if appropriate graphics and results.
8. Include all test methods used, type or condition of sample used, applicable engineering graphics and calculations, results of all tests, and sample locations of all test samples.

C. Slope stability analysis (dependent on slope height and ratios, strength of earth materials, internal structure, susceptibility to weathering, actual or potential groundwater, surficial covering, proximity to site improvement or structures, and proposed landscaping and maintenance).

1. Gross stability of natural or man-made slopes with calculations, graphics supporting data and applicable parameters.
2. Surficial stability of slopes with calculations, graphics, supporting data and applicable parameters.

NOTE: General guidelines for gross stability analyses are provided in "Minimum Standards for Slope Stability Analysis" (Appendix F) formulated by the LA/ASCE Geotechnical Group Committee on Seismic Stability of Soil and Rock and adopted by the County of Los Angeles on July 25,1978, except that they shall apply to all slopes steeper than 2:1. Guidelines for surficial stability analyses are established in "Slope Stability Report" formulated by the Orange County Slope Stability Committee dated January 10, 1972.

D. Seismic evaluation should include regional seismicity; potential for strong shaking, ground rupture, and liquefaction; applicable parameters (peak and/or design ground acceleration, duration of strong shaking, site period) or reference to U.B.C. standards for earthquake design (Chap. 23).

E. Foundation Design Criteria -Special provision for expansive earth materials.

1. Footing design and placement criteria.
2. Slab thickness, reinforcement; separation and expansion joints, construction joints, doweling, or ties.
3. Bridging; grade beam specifications and recommendations, when applicable.
4. Prestressed (post-tensioned) floatation slab specifications and recommendations if this system is proposed.
5. Exterior flatwork recommendations.
6. Moisture barriers and/or selective grading aggregate or sand base or other subbase).
7. Soil moisture measures
    a. Treatment prior to concrete pouring; "pre-pour moistening," "pre-soaking," or "pre-saturation."
    b. Drainage/irrigation controls to maintain moisture content in foundation materials (including increased positive drainage, paving, cut-off walls, sealed planters, gutters and downspouts, etc.).

F. Foundation Design Criteria - other special provisions

1. Soluble sulfate content specifications and recommendations based on U.B.C. Section 2604 (c) 2G.
2. Footing setback from base of slopes and other setbacks (faults, fracture zones, contacts, etc.).
3. Effects of adjacent loads when footings are at differing elevations.
4. Deep foundation systems.
    a. Allowable bearing values.
    b. Foundation design criteria, parameters and calculations when applicable.
    c. Additional loads or potential loads caused by geologic conditions (parameters and calculations).

5. Engineering calculations with supporting data and applicable parameters used as a basis for recommended values. These will be needed depending on the values presented relative to the foundation materials, groundwater table, proposed improvements and imposed loads.

G. Retaining Walls: Design Criteria on Proposed Walls (surcharged or greater than 3 feet in height above the base).

1. Slope surcharge and geologic surcharge factors, parameters and calculations.
2. Drainage and backfill requirements including waterproofing of living areas and suitable drains.
3. Allowable bearing values, lateral bearing resistance and coefficient of friction based on testing or U.B.C. (Chap. 29).
4. Active, passive, or at rest lateral pressure.
5. Footing setback from base of slopes.

H. Conclusions and Recommendations

1. Corrective or selective grading.
2. Subgrade specifications and and recommendations.
3. Soil cement or lime stabilization.
4. Rock clast disposal.
5. Blasting.
6. Irrigation/drainage controls, dewatering, surface and subsurface drains and subdrains.
7. Special planting and irrigation measures, slope coverings and other erosion control measures which may be apparent from the preparation of the geotechnical report.
8. Slough walls (including free board on retaining walls).
9. Protection of existing structures during grading.
10. Foundation/wall excavation inspections and approval by engineering geologist and/or soil engineer.
11. Shoring requirements.
12. Actual or potential effects extending into site from adjacent areas or from the site into adjacent areas and recommendations pertaining to stability, erosion, sedimentation, groundwater etc.
13. Stabilization measures (see note under item C for guidelines and minimums).
    a. Fill blankets for pads or stabilization blankets for slopes.
    b. Stabilization fills: specifications (including subdrains and landscape) and parameters (include stability analysis and calculations if geologically surcharged).
    c. Buttress fills: specifications (including landscape), subdrains, stability analysis with calculations and supporting test data and parameters.
14. Fill over cut slope specifications and recommendations.
15. Subsidence, hydrocompaction and piping potential, factors, time frame and recommendations.

PART IV: TECHNICAL GUIDELINES FOR PRELIMINARY SOIL AND GEOLOGY REPORTS ON PRECISE COMMERCIAL/INDUSTRIAL GRADING APPLICATIONS

This section includes the necessary report content in addition to Part I and applicable items of Part II and III for the proposed commercial/industrial development.

A. Pavement Design (indicate areas and type on geotechnical plan)

1. AC pavement design criteria
    a. R-Value testing: method (California 301-f or equivalent), results, sample location(s); or provide minimum AC sections per excavation and grading code.
    b. Traffic indices or projected loading conditions.
    c. AD structural sections: parking areas, access areas, service areas, heavy vehicle areas.
    d. Untreated base compaction recommendations (min. 95% rel. comp.).
    e. Subgrade recommendations: minimum depth, compaction (min. 90% rel. comp.); special recommendations for bridging, or founding, e.g. soil cement or lime treatment, overexcavation, selective grading, etc.
2. Concrete pavement
    a. Minimum thickness and reinforcement.
    b. Size of poured or sawed sections; expansion joints.
    c. Untreated base specifications and recommendations.
    d. Subgrade recommendations.

B. Seismic evaluation of site (if site involves a critical or major structure or is in close proximity to an active fault); see Part III for description of necessary content.

PART V: TECHNICAL GUIDELINES FOR PRELIMINARY SOIL AND GEOLOGY REPORTS ON RESIDENTIAL OR COMMERCIAL/INDUSTRIAL SUBDIVISIONS (TRACTS AND PARCELS); FLATLAND OR HILLSIDE AREAS

This section includes necessary report content in addition to Part I and the applicable items of Parts II and III.

A. Seismic evaluation of site (see Part III for description of necessary content).

B. Evaluation of expansivity of site.

C. Stability evaluation of site; slopes, tract boundary areas, etc.

PART VI: TECHNICAL GUIDELINES FOR ROUGH GRADE COMPACTION REPORTS

A. General

1. Signature and RCE number of project soil engineer.
2. Job address, lot and tract number.
3. Grading Permit Number.

B. Placement of fill

1. Purpose for which fill was placed.
2. Preparation of natural grade to receive fill.
3. Placement of fill (depth of layers, watering, etc.)
4. Equipment used for compaction.
5. Method of compacting outer slope area.

C. Testing (Compaction)

1. Test procedure (field and laboratory).
2. Plot plan with the location of all density tests.
3. Summary of test results
    a. Test identification number.
    b. Date test performed.
    c. Maximum dry density.
    d. Optimum moisture.
    e. Field dry density.
    f. Field moisture.
    g. Relative compaction.
    h. Approximate elevation of test.
    i. Approximate finish grade elevation at test summary at test site.

D. Testing (Utility Trench Compaction)

1. Location of test.
2. Depth of trench and test.
3. Method of backfill and compaction equipment.
4. Summary of test results.

E. Testing (other)

1. Summary of expansion test results (identify lots or areas with swelling potential, plot test locations on plot plan).
2. Summary of soluble sulfate test results.
3. Summary of "R" value tests for asphalt concrete design if applicable.

F. As-Built Conditions

1. Plot plan showing limits of the approved compacted fill area (approximate pad elevation, depth of fill, areas of overexcavation, canyon cleanout, keys, and subdrains).
2. Treatment of "daylight" or cut/fill transition zones (extent of over-excavation outside of footing).
3. Type of soil encountered during grading (fill, in-situ, imported borrow).
4. Groundwater conditions identified and subdrains or other methods used to mitigate adverse effects.
5. Geologic conditions encountered

6. Comments on changes made during grading and their effect on the recommendations made in the geotechnical report.

G. Recommendations and Opinions

1. Footing recommendations and bearing value on compacted fill.
2. Footing and floor slab recommendations based on results of expansion and soluble sulfate tests (construction details of footing if applicable).
3. Pavement structural section design recommendations and specifications if applicable.
4. Opinion of the suitability of natural soil to support the fill or structure.
5. Approval as to the adequacy of the site for the intended use as affected by soil engineering and/or geologic factors.
6. Opinion as to the gross and surficial stability of all slopes.
7. Opinion as to the suitability of utility trench and retaining wall backfill.
8. A statement that the soil engineering and engineering geologic aspects of the grading have been inspected and are in compliance with the applicable conditions of the Grading Permit and the soil engineer's and engineering geologist's recomnendations.

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APPENDIX C

PERMIT EXPIRATION

SECTION 303 PERMITS ISSUANCE

OF THE UNIFORM BUILDING CODE

AS AMENDED

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PERMIT EXPIRATION, SECTION 303, PERMITS ISSUANCE, OF THE UNIFORM BUILDING CODE AS AMENDED.

Section 303 of said Uniform Building Code is hereby amended to read as follows:

Building Permits

Sec. 302. (a) Issuance. The application, plans and specifications and other data filed by an applicant for a permit shall be reviewed by the Building Official. Such plans may be reviewed by other City departments to verify compliance with any applicable laws and ordinances under their jurisdiction. If the Building Official finds that the work described in an application for a permit and the plans, specifications and other data filed therewith conform to the requirements of this code and other pertinent laws and ordinances, and that the fee specified in Section 304(a) has been paid, he shall issue a permit therefor to the applicant.

When the Building Official issues the permit where plans are required, he shall endorse in writing or stamp on both sets of plans and specifications, "APPROVED". Such approved plans and specifications shall not be changed, modified or altered without authorization from the Building Official, and all work shall be done in accordance with the approved plans.

The Building Official may issue a permit for the construction of part of a building or structure before the entire plans and specifications for the whole building or structure have been submitted or approved provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holder of such permit shall proceed at his own risk without assurance that the permit for the entire building or structure will be granted.

(b) Retention of Plans. One set of approved plans, specifications and computations shall be retained by the Building Official for a period of not less than ninety (90) days from date of completion of the work covered therein, and one set of approved plans and specifications shall be returned to the applicant, which said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

(c) Validity. The issuance or granting of a permit or approval of plans and specifications shall not be construed to be a permit for, or an approval of any violation of any of the provisions of this code or of any other ordinance of the County. No permit presuming to give authority to violate or cancel the provisions of this code shall be valid.

The issuance of a permit based upon plans, specifications and other data shall not prevent the Building Official from thereafter requiring the correction of errors in said plans, specifications and any other data, or from preventing building operations being carried on thereunder when in violation of this code or of any other ordinance of the City.

(d) Expiration. Every permit issued by the Building Official under the provisions of this code shall expire by limitation and become null and void if the building or work authorized by such permit is not commenced within one hundred eighty (180) days from the date of such permit or if the building or work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of one hundred eighty (180) days. Before such work can be recommenced a permit shall

be first renewed or obtained so to do, and the fee therefore shall be one-half the amount required for the original permit for such work; provided however, that:

(1) No changes have been made in the original plans and specifications for such work, and
(2) Such suspension or abandonment has not exceeded one year, and
(3) A re-endorsement of the compliance of the plans with the applicable regulations, by the City of San Clemente, shall be obtained.

Any permittee may apply for an extension of the time within which he may commence work under that permit when he is unable to commence work within the time required by this section for good and satisfactory reasons. The Building Official may extend the time for action by the permittee for a period not exceeding 180 days upon written request by the permittee showing that circumstances beyond the control of the permittee have prevented action from being taken. Such written request shall be submitted no later than sixty (60) days after expiration of the permit. No permit shall be extended more than once. In order to renew action on a permit after expiration, the permittee shall pay a new full permit fee.

(e) Change of Contractor or of Ownership. A permit issued hereunder shall expire upon a change of ownership or a change of contractor regarding the building, structure or grading for which said permit was issued if the work thereon has not been completed, and anew permit shall be required for the completion of the work. If the provisions of section (d) above are not applicable and if no changes have been made to the plans and specifications last submitted to the Building Official, no charge, other than permit issuance fee, shall be made for the issuance of the new permit under such circumstances. If, however, changes have been made to the plan and specifications last submitted to the Building Official, a permit fee based upon the valuation of the work or the yardage to be completed as provided for in Section 304(a) hereof shall be charged to the permit app1icant.

(f) Suspension or Revocation. The Building Official may, in writing suspend or revoke a permit issued under provisions of this code whenever the permit is issued in error or on the basis of incorrect information supplied or in violation of any ordinance or regulation or any of the provisions of this code.

APPENDIX D

SURETY BOND FORM

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GRADING PERMIT SURETY BOND

KNOW ALL MEN BY THESE PRESENTS: That _____, as Principal, and _____, a corporation organized and existing under the laws of the State of _____, and duly authorized to transact a surety business in the State of California, as Surety, are held and firmly bound unto the City of San Clemente in the just and full sum of _____DOLLARS, for the payment of which, well and truly to be made, said Principal and Surety bind themselves, their heirs, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT,
WHEREAS, the said Principal above named is applicant under Grading Permit No. _____ of the City of San Clemente, California, for grading, on the following described property:

NOW, THEREFORE, IT IS AGREED that if the Principal shall:
a. Comply with all the provisions of the City of San Clemente Grading Ordinance and other applicable laws and ordinances; and
b. Comply with all the terms and conditions of the permit to the satisfaction of the City Engineer; and
c. Complete all of the work contemplated under the said permit within the time limit specified in the permit, and any extension or extensions thereof; and
d. Reimburse the City for any work required by the permit that the City Engineer deems necessary to complete, correct or otherwise undertake for the public safety, because of failure on the part of Principal, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or modification of the permit or of the work to be performed thereunder shall in any way affect its obligation on this bond and it does hereby waive notice of any such change, extension of time, alternation or modification of the permit or of work to be performed thereunder, and

PROVIDED FURTHER, That in case suit is brought upon the bond by the City or any other person who may bring an action on this bond, a reasonable attorney's fee, to be fixed by the court, shall be paid by the Principal or Surety.

IN WITNESS WHEREOF, the said Principal and said Surety have caused these presents to be duly signed and sealed this _____ day of _____, 20____.

_____
Principal

(Attach acknowledgement) By_____

By_____

_____
Surety

(Attach acknowledgement) By_____
Attorney-in-Fact

Address:_____

_____

APPENDIX E

SPECIAL INSPECTIONS

SECTION 306, SPECIAL INSPECTIONS

OF THE UNIFORM BUILDING CODE

AS AMENDED

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SPECIAL INSPECTIONS, SECTION 306, SPECIAL INSPECTIONS, OF THE UNIFORM BUILDING CODE AS AMENDED

Section 306 of said Uniform Building Code is hereby amended to read as follows:

Special Inspections:

Sec. 306. (a) General. In addition to the inspections to be made as specified in Section 305, the owner shall employ a special inspector during construction on the following types of work.

1. CONCRETE: During the taking of test specimens and placing of all reinforced concrete and pneumatically placed concrete.

> EXCEPTIONS: 1. Concrete for foundations conforming to minimum requirements of Table No. 29-A and for Group R, Division 3 and Group M, Division 1 Occupancies provided the Building Official finds no special hazards exist.
> 2. For foundation concrete, when the structural design is based on a F'c no greater than 2000 psi.
> 3. Nonstructural slabs on grade, including prestressed slabs on grade when effective prestress in concrete is less than 150 pounds per square inch.
> 4. Site work concrete full supported on earth and concrete where no special hazard exists.

2. DUCTILE MOMENT-RESISTING CONCRETE FRAME. As required by Section 2626(h) of this code.

3. REINFORCING STEEL AND PRESTRESSING STEEL:

> A. During all stressing and grouting of prestressed concrete.
> B. During placing of reinforcing steel, placing of tendons and prestressing steel for all concrete required to have special inspection by Item 1.
>
> EXCEPTION: The special inspector need not be present during entire reinforcing steel and prestressing steel placing operations, provided he has inspected for conformance with the approved plans, prior to the closing of forms or the delivery of concrete to the job site.

4. WELDING.

A. Ductile moment-resisting steel frames. As required by Section 2722(f) of this code.
B. All structural welding, including welding of reinforcing steel.

> EXCEPTIONS: l. When welding is done in an approved fabricator's shop.
> 2. When approved by the Building Official, floor and roof deck welding and welded studs when used for structural diaphragm or composite systems may have periodic inspections as defined in Section 306(e). For periodic inspection, the inspector shall check qualifications of welders at start of work and then make final inspection of all welds for compliance prior to completion of welding.

5. HIGH-STRENGTH BOLTING: During all bolt installations and tightening operations.

EXCEPTIONS: 1. The special inspector need not be present during the entire installation and tightening operation provided he has:

(i) Inspected the surfaces and bolt type for conformance to plans and specifications prior to start of bolting.
(ii) And, will upon completion of all bolting verify the minimum specified bolt tension for 10 percent of the bolts for each “type” of connection, for a representative number of total connections established by the plans and specifications.
2. In bearing type connections when threads are not required by design to be excluded from the shear plane, inspection, prior to or during installation will not be required.

6. STRUCTURAL MASONRY: During preparation of masonary wall prisms, sampling and placing of all masonary units, placement of reinforcement, inspection of grout space immediately prior to closing of cleanouts, and during all grouting operations. Where the f'm is less then 2600 psi and special inspection stresses are used, test specimens may consist of either one prism test for each 5000 square feet of wall area or a series of tests based on both grout and mortar for the first three consecutive days and each third day thereafter.

EXCEPTION: Special inspection will not be required for structures designed in accordance with the values in appropriate tables for noncontinuous inspection.

7. REINFORCED GYPSUM CONCRETE: When cast-in-place Class "B" gypsum concrete is being mixed and placed.

8. INSULATING CONCRETE FILL: During the application of insulating concrete fill when used as part of a structural system.

EXCEPTION: The special inspection may be limited to an initial inspection to check the deck surface and placement of reinforcing. The special inspector shall supervise the preparation of compression test specimens during this initial inspection.

9. SPRAYED-ON FIREPROOFING: As required by U.B.C. Standard No. 43-8.

10. PILING, DRILLED PIERS AND CAISSONS: During driving and testing of piles and construction of cast-in-place drilled piles or caissons. See Items 1 and 3 for concrete and reinforcing steel inspection.

11. SPECIAL GRADING, EXCAVATION AND FILLING: During earthwork excavations, grading and filling operations inspection to satisfy requirements of Chapter 29.

12. SPECIALCASES: Work which, in the opinion of the Building Official, involves unusual hazards.

(b) Special Inspector. The special inspector shall be a qualified person who shall demonstrate his competence, to the satisfaction of the Building Official, for inspection of the particular type of construction or operation requiring special inspection.

Each person applying for registration as a special inspector for the Building Department, of the City of San Clemente shall pay an examination fee established by resolution of the City Council for each classification, payable,with his application prior to examination by the Examining Board. Any person failing to pass the examination may retake the examination one additional time without additional fee after a thirty-day waiting period, and not exceeding ninety (90) days. No part of any examination fee shall be returned to any applicant. Failure to pass the second examination will require applicant to wait at least one year from date of original application before he may file another application for examination.

A registration card shall be issued to each such special inspector that the City qualifies. A renewal fee established by resolution of the City Council for each classification shall be charged on July first of each year thereafter, at which time the special inspector may be subject to reexamination.

The building Official may revoke any special inspector's certificate of registration at any time for due cause by written notice. This notice shall set forth the time and place a hearing shall be held before the Building Official at which time and place evidence would be submitted to show cause why the certificate of registration should not be withdrawn. Failure to appear at such hearing by the special inspector may result in immediate revocation of said special inspector's certificate of registration.

Special inspector's qualification examinations are to be given only for the execution of work done under Section 306(a) of the Uniform Building Code.

(c) Duties and Responsibilities of the Special Inspector. 1. The special inspector shall observe the work assigned to be certain it conforms to the design drawings and specifications.
2. The special inspector shall furnish inspection reports to the Building Official, the engineer or architect of record and other designated persons. All discrepancies shall be brought to the immediate attention of the contractor for correction; then if uncorrected, to the proper design authority and to the Building Official.
3. The special inspector shall submit a final signed report stating whether the work requiring special inspection was, to the best of his knowledge, in conformance with the approved plans and specifications and the applicable workmanship provisions of this Code.

(d) Waiver of Special Inspection. The Building Official may waive the requirement for the employment of a special inspector if he finds that the construction is of minor nature.

(e) Periodic Special Inspection. Some inspections may be made on a periodic basis and satisfy the requirements of continuous inspection, provided this periodic scheduled inspection is performed as outlined in the project plans and specifications and approved by the Building Official.

(f) Approved Fabricators. Special inspections required by this Section and elsewhere in this Code, shall not be required where the work is done on the premises of a fabricator registered and approved by the Building Official to perform such work without special inspection. The Certificate of registration shall be subject to revocation by the Building Official if it is found that any work done pursuant to the approval is in violation of this Code. The approved fabricator shall submit a Certificate of Compliance that the work was performed in accordance with the approved plans and specifications to the Building Official and to the engineer or architect of record. The approved fabricator's qualifications shall be

contingent on compliance with the following:

1. That the fabricator has developed and submitted a detailed fabrication procedural manual reflecting key quality control procedures which will provide a basis for inspection control of workmanship and the fabricator plant.
2. Verification of the fabricator's quality control capabilities, plant and personnel as outlined in the fabrication procedural manual shall be by an approved inspection or quality control agency.
3. Periodic plant inspections shall be conducted by an approved inspection or quality control agency to monitor the effectiveness of the quality control program.
4. It shall be the responsibility of the inspection or quality control agency to notify the approving authority in r writing of any change to the procedural manual. Any fabricator approval may be revoked for just cause. Reapproval of the fabricator shall be contingent on compliance with quality control procedures during the past year.

APPENDIX F

MINMUM STANDARDS FOR

SLOPE STABILITY ANALYSIS

(LA/ASCE Geotechnical Group Committee on Seismic Stability of Soil and Rock)

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MINIMUM STANDARDS FOR SLOPE STABILITY ANALYSIS

The following minimum standards for slope stability analysis will generally be required for fill slopes. A more detailed field and, laboratory investigation combined with a seismic stability analysis utilizing such information may be required where unusual soils or geologic conditions exist.

1. Separate calculations shall be performed for static and seismic conditions.

2. The pseudostatic slope stability analysis shall be the minimum seismic analysis accepted for design.

3. Conventional static methods of slope stability analysis based upon principles of mechanics may be used to analyze the stability of slopes under both static and pseudostatic loads.

4. The minimum acceptable factor of safety on shear strength is 1.5 for static loads and 1.1 for pseudostatic loads. The factor of safety on strength is defined as the ratio of the shearing resistance force to the actual driving force acting along the potential failure surface.

5. The static analysis shall include the effect of expected maximum moisture conditions, soil weight and seepage or pore pressure where applicable. Saturated moisture conditions shall be utilized unless it can be shown that other moisture contents will represent worst possible conditions for the project.

6. Pseudostatic analysis shall include the effect of static loads combined with a horizontal inertial force acting out of the slope and through the center of gravity of the potential sliding mass.

7. A minimum pseudostatic horizontal inertial force equal to 0.15 times the total weight of the potential sliding mass shall be used. This minimum lateral design value should be increased where subsurface conditions or the proximity to active faults warrants the use of higher values in the opinion of the private consultant(s).

8. The critical potential failure surface used in the analysis may be composed of circles, planes or other shapes considered to yield the minimum factor of safety against sliding and most appropriate to the soil and geologic site conditions. In cohesive soils, a vertical tension crack extending down from the top of the slope to the potential failure surface may be used to limit the lateral extent of the potential sliding mass.

9. The critical potential failure surface having the lowest factor of safety on strength shall be sought for the static case. This same static surface and sliding mass may be assumed critical for the pseudostatic case.

10. Soil properties including unit weight and strength parameters (cohesionand friction angle) may be based on conventional field and laboratory tests and/or field performance. Where appropriate, laboratory tests for long-term residual strengths shall be performed. Shear resistance along bedding planes normally requires estimation of bedding-strength values of the weakest unsupported plane. It is expected that the engineer will use considerable judgment in the selection of appropriate shear tests and interpretation of the results in arriving at strength characteristics fitting the present and anticipated future slope conditions. Dynamic strengths used in a pseudostatic analysis shall not exceed peak point static strengths unless supported by dynamic test results or other convincing physical evidence.

11. In the design of slope support, bedding planes flatter than 12 degrees from the horizontal need not normally be considered in a pseudostatic analysis.

12. Each slope stability analysis shall be accompanied by a geotechnical report including a summary of the results of field exploration and laboratory investigation. This report should at least include the following items:

a. Boring logs and plan locations relative to the proposed grading.

b. Geotechnical description of soil and geologic description or rock encountered in the proposed cut slope and/or expected to be used in the proposed fill. Soil description should include engineering classification with moisture and density or stiffness. Rock description should include, but not be limited to: geologic assessment of hardness, degree of weathering, strata thickness, clay surfaces and oriented planar discontinuities such as strike and dip of bedding, joint spacing, joint thickness, fracture and fault surfaces.

c. Groundwater conditions encountered at the site as well as anticipated future groundwater conditions that may affect the design.

d. Description of laboratory tests performed with summary of laboratory test results. Both the moisture and drainage conditions during any shear strength tests should be clearly defined.

e. Shear strength parameters for design which are based on field experience should be properly referenced or explained.

13. All design parameters shall be verified during construction. This includes applicable geologic structures such as bedding attitudes, joint orientation and existing shear surfaces; fill strength, and groundwater conditions. If any significant variation from the design values is discovered revised calculations shall be made and submitted.

APPENDIX G

PROTECTION OF ADJOINING PROPERTY

CALIFORNIA CIVIL CODE, SECTION 832

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Protection of Adjoining Property
California Civil Code, Section 832

Lateral and subjacent support; excavations; degree of care; damages; protection of other structures.

Each coterminous owner is entitled to the lateral and subjacent support which his land receives from the adjoining land, subject to the right of the owner of the adjoining land to make proper and usual excavations on the same for purposes of construction or improvement, under the following conditions:

1. Any owner of land or his lessee intending to make or to permit an excavation shall give reasonable notice to the owner or owners of adjoining lands and of buildings or other structure, stating the depth to which such excavation is intended to be made, and when the excavating will begin.

2. In making any excavation, ordinary care and skill shall be used. And reasonable precautions taken to sustain the adjoining land as such. Without regard to any building or other structure which may be thereon, and there shall be no liability for damage done to any such building or other structure by reason of the excavation, except as otherwise provided or allowed by law.

3. If at any time it appears that the excavation is to be of a greater depth than are the walls or foundations of any adjoining building or other structure, and is to be so close as to endanger the building or other structure in any way, then the owner of the building or other structure must be allowed at least 30 days if he so desires, in which to take measures to protect the same from any damage, or in which to extend the foundations thereof, and he must be given for the same purposes reasonable license to enter on the land on which the excavation is to be or is being made.

4. If the excavation is intended to be or is deeper than the standard depth of foundations, which depth is defined to a depth of *** nine feet below the adjacent curb level, at the point where the joint property line intersects the curb and if on the land of the coterminous owner there is any building or other structure the wall or foundation of which goes to standard depth or deeper than the owner of the land on which the excavation is being made shall, if given the necessary license to enter on the adjoining land, protect the said adjoining land and any such building or other structure thereon without cost to the owner thereof, from any damage by reason of the excavation, and shall be liable to the owner of such property for any such damage, excepting only for minor settlement cracks in buildings or other structures.