



MANHATTAN BEACH COMMUNITY DEVELOPMENT DESIGN POLICY Grading and Drainage Plans

A Grading Permit is required for the following work [CBC J103.2]:

- Any excavation or fill, except excavation for a structure constructed under a valid building permit.
- Retaining/Basement wall backfill
- Removal (over excavation) and recompaction

Grading Plan Requirements

1. Grading plans are required when cut or fill depth is 3'-0" or deeper, or greater than 50 cubic yards, or when changes are proposed to the existing drainage pattern.
2. Two complete sets of grading plans and geotechnical reports shall be submitted. Plans shall include: Job address, North arrow, property lines and dimensions, existing buildings on the site and on adjacent properties, proposed buildings, setbacks, drainage, streets, easements, scale, name, address, and contact information for owner, Geotechnical Engineer, Engineering Geologist, and Civil Engineer, and report number and date for geotechnical report. [CBC 106.3.1, 107.1, J104]
3. Earthwork quantities and calculations for cut, fill, removal and recompaction, and import/export shall be shown on the plans.
4. Grading Plans shall be stamped and signed by a Civil Engineer registered in the State of California.
5. Grading Plan shall show all existing and proposed elevations and contours, adjacent elevations, proposed elevations of house pad, lot corners, swales, high and low points all existing/proposed utility structures, connections, and drainage facilities, contours, flow areas, elevations, or slopes which define existing and proposed drainage patterns, location of cut and fill areas and depths/slopes, tops and toes of all cuts and fills, location of daylight lines, surface and subsurface drainage devices, retaining walls, existing or proposed private sewage disposal system.
6. Provide cross sections to show the extent of cut and fill, over excavation and recompaction, anticipated geologic conditions per the soils/geology reports, temporary excavations, keyway/bench dimension, proposed structures, property lines, and location of surface and subsurface drainage devices.
7. Recommendations in the geotechnical engineering report and the engineering geology report shall be incorporated into the grading plans or specifications.
8. The following statement signed by both the geotechnical engineer and engineering geologist as applicable: "This plan has been reviewed and conforms to the recommendations of soils engineering/geological reports dated _____. Signature and date _____.

Geotechnical and Geology Reports

9. Provide two copies of the geotechnical report for review. The report shall contain: Site and project description, geologic/geotechnical map, description of field exploration, ground-water table, laboratory testing, soil classification, static and seismic slope stability analyses, liquefaction, lateral earth pressure, total and differential settlement, mudflow/debris flow analysis, surface fault rupture investigation, and provide

recommendations for temporary and permanent cut, fill, and natural slopes, compaction, design of shoring, shallow and deep foundations, retaining/basement walls, pavement, slope setbacks, expansive soil conditions, subdrains, lateral deflection, retaining/basement wall backfill construction sequence, and special inspections by the geotechnical consultant. [CBC 1803]

10. If foundations are proposed to bear on compacted fill, the geotechnical report shall include the following: Specifications for site preparation prior to placement of fill, fill material specifications, test methods for maximum dry density and optimum moisture content, maximum lift thickness, field density test method, minimum acceptable dry density expressed as a percentage of maximum dry density, number and frequency of required field tests.

Temporary Excavations and Shoring

11. The grading plans shall detail the method of performing temporary excavations. Dimension maximum vertical cuts, trim slopes, and/or slot cut layout/widths, and setbacks to existing structures and property lines. Temporary excavations shall be in accordance with the geotechnical report.
12. Separate plan check and permits are required for shoring. Please refer to the separate Manhattan Beach Shoring Requirements handout for more information.

Certified Fill/Compaction - General

13. All fill material shall be compacted to 90% of the maximum dry density as determined by ASTM: D-1557, in lifts not exceeding 12 inches in depth, as tested by the soil-testing agency.
14. Fill areas shall be cleared off all vegetation and debris, scarified and inspected by Grading Inspector and Soil Engineer and approved soil-testing agency prior to placing of fill. All existing fills shall be approved or removed before new fill is placed.
15. Special Inspection shall be provided per CBC 1705.6. The special inspector shall submit a complete report and map upon completion of the rough grading.

Cut and Fill Slopes

16. Cut slopes shall be no steeper than 2 horizontal to 1 vertical [CBC J106.1, 3304.1.1].
17. Fill slopes shall be no steeper than 2 horizontal to 1 vertical. [CBC J107.6, 3304.1.1]
18. Front slope from the property line adjacent to a sidewalk to be no steeper than 5 horizontal to 1 vertical.
19. Cut and fill slopes shall be set back from property lines per CBC J108.
20. Cut and Fill slopes shall be planted with an approved ground cover for erosion control. Planted slopes shall be watered and maintained.

Drainage

21. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approval. The study shall include existing and proposed hydrologic conditions as well as hydraulic calculations (per Los Angeles County format) for all drainage control devices and storm drain lines.
22. Surface drainage shall be conducted to an approved location. Side and Rear of Building Pad shall be elevated such that the pad area shall have a minimum slope of

2% to the street and a maximum slope of 21% (requiring deep foundations). Pad shall be graded to drain surface water away from foundation walls and shall fall a minimum of 6 inches within the first 10 feet [CRC R401.3]. Graded swales shall have a minimum slope of 1%. The swale centerline shall be located 3' minimum away from the pad along the side yards and 10' minimum along the rear. There shall be 2' minimum distance from graded swale centerline and property lines.

23. The plan shall show flow-line grades and elevations of all drainage swales, gutters or drainage structures, top of grade elevations and invert elevations for all area drains and pipes.
24. Area drains shall be installed around the pad, where 1% graded swales are difficult to attain. Area drains shall be connected to drain pipes having a minimum slope of 0.5%.
25. Common swales between lots are not permitted. (Swales may not be located on property lines).
26. Drainage is not allowed to flow against or over retaining walls. A drainage structure is required adjacent to the top of the wall.
27. Clean-out at the property line shall be installed prior to connection to curb drain.
28. Downspout from the roof should be connected to area drains.
29. Drainage shall be directed to the street driveway. Cross flows shall not drain over the sidewalks.
30. Cross-lot drainage is not permitted. Changes to the existing drainage pattern which alter or increase the cross-lot drainage are not permitted.
31. Fills placed against existing block walls shall not exceed 1 foot in height and shall not block weep holes.

Temporary Erosion Control Plan and Best Management Practices for Construction Activities

32. Erosion Control Plan and Best Management Practices for Construction Activities shall accompany the grading plan.
33. Approved erosion protection devices shall be provided and maintained for construction during the rainy season between November 1st and April 15th and shall be in place at the end of each day's work.

Retaining Walls

34. Separate plan check and permits are required for retaining walls.
35. Grading plans shall show retaining walls, lengths, top of wall elevations, surface drains, subsurface drains, backfill slope. All walls must show Top of Wall (TW), Top of Footing (TF), and Finished Grades (FG) on both sides of the retaining wall.

Landscaping

36. Landscape plans prepared by a landscape architect, designer, or other qualified person shall be submitted to the Community Development Department. MBMC 10.60.070.

Protection of Adjacent Properties

37. A 30 day excavation notice must be provided as required by California Civil Code section 829 - 834 when the excavation is of sufficient depth and proximity to adjacent lot structures.