



TOWN OF DEWEY-HUMBOLDT
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Grading Plan Requirements

For quantities under 2000 C.Y.

Each application for a grading permit shall be accompanied by two (2) sets of plans of sufficient clarity to indicate the nature and extent of the work

The plan shall include the following information:

1. *Digital photographs of the site.*
2. *A soils classification and/or a soils report may be required for all grading of any single family residence or commercial project, when indicated by the elements of the grading plan and/or site inspection, to include a plot plan to show the locations and depth from which the samples are taken.*
3. Estimated cubic yards of material to be excavated and/or filled.
4. General vicinity of the proposed grading site as located on a detailed plot plan.
5. Property limits and accurate contours of existing ground and details of terrain and area drainage. Grading cannot be closer than 2 feet to the property line.
6. Limiting dimensions, *set back lines, finish floor and pad elevations*, or finish contours to be achieved by the grading, and proposed drainage channels and related construction.
7. Detailed plans are to be provided of all surface and subsurface drainage devices, walls, cribbing, dams and other protective devices to be constructed. Detailed plans are to include as a part of, the proposed work, a map showing the drainage area and the estimated runoff of the area served by any drains.
8. Location of any buildings or structures on the property and the location of any buildings or structures on land of adjacent owners that are within fifteen feet (15') of the property line(s) that may be affected by the proposed grading operations.
9. Type, *source, and soil classification* of fill material
10. When required, a soil investigation report and *an engineered fill report attesting to fill adequacy to support the structure*, shall be submitted for all fills *regardless of depth or extent* used to support the foundations of any building or structure.
11. The following notes are required on the plans:
 - A. The ground surface shall be prepared to receive fill by removing vegetation, non-complying fill, and other unsuitable materials. *All such materials are to be hauled away.*
 - B. No rock or similar irreducible material with a maximum dimension greater than

eight inches (8") shall be allowed in fills in the absence of a soils report and inspection by a soils engineer.

C. All fills shall be compacted to a minimum of 90% of maximum density *as determined by ASTM D1557 test procedures* and verified by an *engineered fill* compaction report when supporting a structure.

D. *All native slopes greater than 5 to 1 (H:V) and underlying engineered fill zones shall be benched to form horizontal surfaces.*

Note:

A. Grading of less than 50 CY and a fill area of less than 2 feet in depth do not require a permit. *However. All footing bases will then be placed below native ground surface rather than finished pad surface.*

B. The faces of cut and fill slopes shall be prepared and maintained to control erosion. This control may consist of effective planting.

C. All fills over 2 feet in depth require compaction.

D. Maximum slope for driveways shall be 15% for an unpaved surface and 20% for a paved surface.

Definitions:

Compaction – A densification of fill by mechanical means.

Engineered Fill – Fill zones placed and compacted under observation and testing by a third party soil testing firm.

Engineered Fill Report – A report prepared by a qualified soil engineer stating that fills were placed in accordance with the specifications of the code and will support the intended structure(s).

Engineered grading – Grading in excess of 2000 cu. yds. or 3 feet of fill which supports a structure, performed in accordance with the approved grading plan prepared by a civil engineer.

Applies to all Grading plans:

REQUIREMENTS FOR COMPACTION OF FILL MATERIAL

Per Section R506.2.1 of the 2006 IRC regarding requirements for fill material used for concrete slab-on-ground floors; "Fill material shall be free of vegetation and foreign material. The fill shall be compacted to assure uniform support of the slab, and except where approved, the fill depths shall not exceed twenty-four (24") inches for clean sand or gravel and eight (8") inches for earth" also, Section R401.2 "Fill soils that support footings and foundations shall be designed, installed and tested in accordance with accepted engineering practice" *to yield an "Engineered fill zone"*. In addition, the Dewey-Humboldt Grading Ordinance 07-31, Section 110 states "Detrimental amounts of organic material shall not be permitted in fills. NO rock or similar irreducible material with a maximum dimension greater than twelve (8") inches shall be buried or placed in fills."

The following requirements shall be met for submittals of “engineered fill” compaction reports for fill materials, either for footing placement on fill material, or fill inside the foundation walls of a residential structure when the foundation wall exceeds two (2’) feet in height and the area to be filled is fifty percent (50%) or more of the entire floor area. These compaction reports shall be *submitted* by an Arizona licensed engineering firm:

1. Engineered fill reports shall accurately reflect the placement of fill in maximum twelve (12”) inch lifts with compaction tests performed on each lift, under the direction of a soils engineer.
2. Engineered fill reports shall include dates, times, number of tests, specific locations of the tests in relation to the structure to be built on the site, and the results of the tests including any failure notifications. Subsequent reports should reflect actions taken to resolve any failures.
3. Engineered fill reports shall be written on forms showing the authorized agency along with the name of the individual performing the tests. If requested by Building Safety, the individual or firm performing the test may be required to submit copies of their credentials to Dewey-Humboldt, Building Safety Unit.
4. Engineered fill reports shall include a cover letter from the firm performing the tests certifying that the fills are placed in accordance with the specifications of the project, and will afford adequate support of the structure.
5. Approval of any foundation or slab grade inspection will be given only after the compaction reports have been received, reviewed and approved by either the building inspector or the building official.

REQUIREMENTS FOR ENGINEERED FILL REPORT

1. Address and legal description of the site, and the grading permit under which the work is authorized, *and the grading contractor*.
2. Plot plan with:
 - a. north arrow and scale
 - b. showing location limits of fill
 - c. showing depth of fill at various locations of the site
 - d. location *and depth* of in-place density tests
 - e. location of retaining walls and their subdrains
 - f. property boundaries and streets
 - g. building footprints and adjacent structures/sidewalks, etc.
 - h. toe and top of slopes
3. On engineered grading plans a statement that inspection and approval by soils engineer of:
 - a. *cleaning and grubbing of the site*
 - b. the bottom of excavation (and slope benching where required) before placing the fill
 - c. sub drains before placing gravel backfill
4. Statement of purpose and use of fill: (primary structural for supporting footings *and/or floor slabs*, secondary structural for supporting walkways/paving, non-structural for landscaping, etc.)

5. Description of each of the following:
 - a. Materials encountered at the bottom of the excavation.
 - b. Preparation of the bottom prior to placement of fill
 - c. Fill-backfill placement, and preparation
 - d. Method of mechanical compaction
 - e. Identify fill material used with Unified Soil Classification System, maximum dry density, and optimum moisture
 - f. Moisture content control method and results
 - g. Thickness of the uncompacted fill lifts (typically 8-10 inches).
6. Results of all density tests with applicable ASTM or IBC standard designation numbers, compaction standard, and depths.
7. Description of removal and recompaction of the unacceptable fill and its retesting shall be included.
8. Expansion index *or swell test* shall be provided or recommendations for special design for highly expansive soil.