



Boulder County  
Land Use Department  
Publications

## Earthwork & Grading

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## Earthwork & Grading

Boulder County has identified several impacts associated with earth movement including erosion potential, habitat intrusion, soil stability, visual scarring, and interference with drainage. The County has also identified the location of a project in relation to the site's topography as perhaps the single biggest determining factor in gauging these impacts. County reviews will verify that thoughtful location and mitigation have played a role in all applications.

### Grading Calculations

**Grading** is defined by the Boulder County Land Use Code as "Any excavating, filling or combination thereof."

#### Grading is broken down into two types:

1. **Cut** - Earthen materials that are removed from an area of land, such as digging a hole; and
2. **Fill** - The earthen materials that are added to an area of land, such as the placement of soil for a berm or fill slope.

**Grading Calculations** are the result of cut + fill as measured in cubic yards. This means that when one cubic yard of earth is cut, and then that same yard is used as fill elsewhere on the property, Boulder County would view this as two cubic yards of earth movement (sometimes this method is referred to as "double counting"). This form of measurement takes into consideration the total disturbance of a site from its existing state.

#### Grading Calculations must Include Features Designed to County

**Specifications** - Earthwork calculations for driveways in particular must include several minimum specifications including cut and fill slopes (typically no steeper than 2 :1), provision for emergency access, and road width of 12 feet. Note, however, that the road base material volume is exempt from the grading volume total.

**Please Show Your Work** by supplying any maps, mathematics, or diagrams used to produce your calculations you can help prevent delays in processing your review. The Land Use Department may require these items to verify calculations.

#### Review Triggers:

Various reviews are required for earth work depending on the amount of cubic yards moved. The reviews are:

- Less than 50 cubic yards? No review required.
- 50 or more cubic yards? Site Plan Review Waiver and Grading Permit required.
- 500 or more cubic yards? Limited Impact Special Use Review and Grading Permit required.

## Exempt Earthwork

"Exempt" earthwork does not contribute toward the review triggers listed in the margin. Exempt earthwork includes:

1. Foundation work & incidental backfill, 10 feet from the structure perimeter;
2. Utility installation; and
3. Normal road base.

Septic System Installation is also exempt except in situations where there are alterations of the ground surface, such as a raised bed. Important Note: excess material removed from these features (especially foundations) that is used elsewhere on site as fill is not considered exempt earthwork.

## Cut & Fill Slopes

Applications should show thoughtful attention paid to minimizing the impacts of cut and fill slopes. Consider the following when designing your site layout:

- Designing slopes which are conducive to revegetation should be a primary focus. Revegetation controls erosion and minimizes visual scarring.
- It is very difficult, under most circumstances, to establish vegetation on slopes steeper than 2:1.
- Although the county minimum for slopes is 1.5 : 1, reviews will typically require that slopes not exceed 2:1.
- If a slope of 2:1 or flatter cannot be achieved, then nearly vertical cuts and either 1) engineered retaining walls and/or 2) geotechnical evaluations of the slopes will be required.

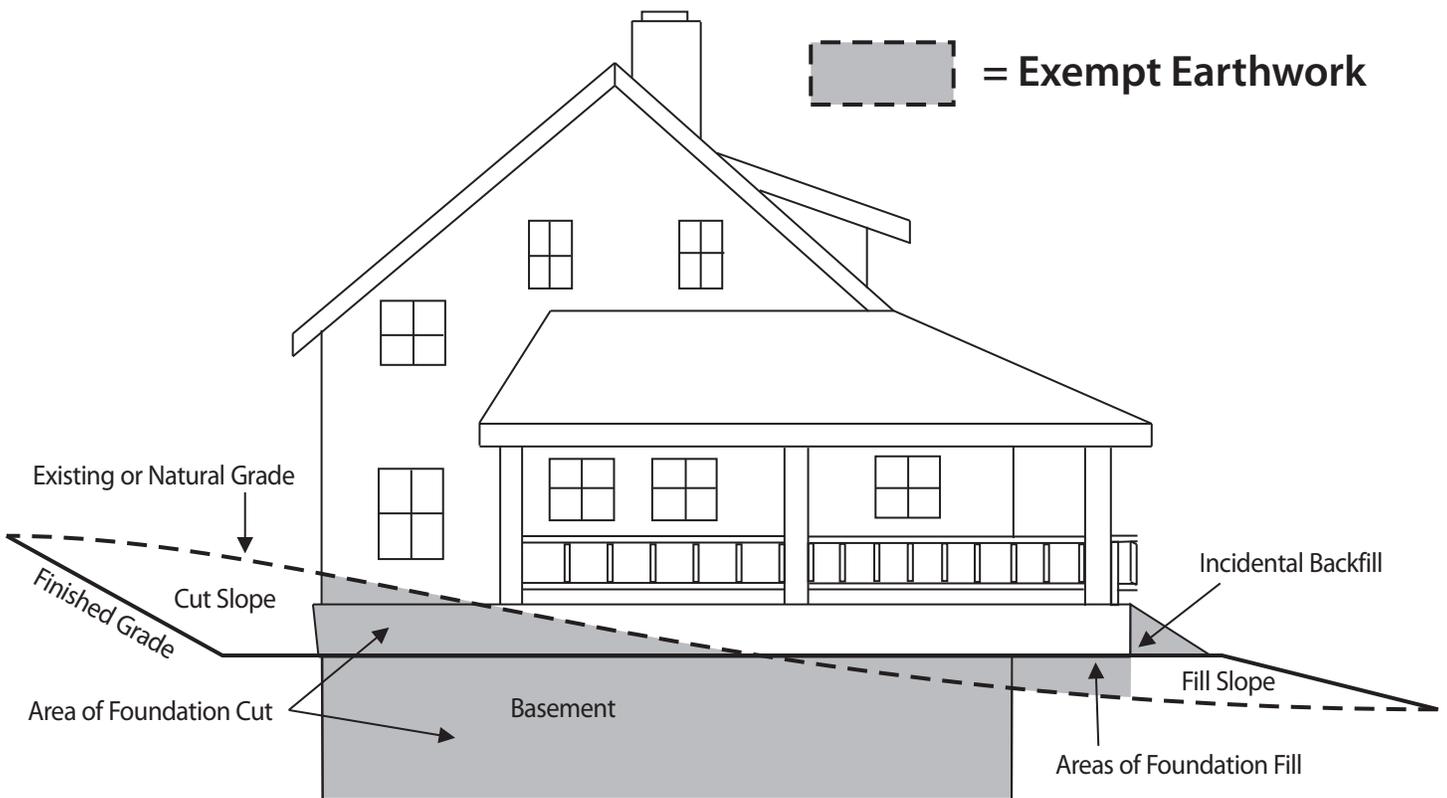


Figure1: The diagram above illustrates which portions of a typical building pad are exempt.