



Detailed Grading and Drainage Requirements

APPLICABILITY

These submittal requirements apply to the following types of construction within the Estes Valley:

1. Multi-family and nonresidential construction.
2. Single-family homes on lots created after February 1, 2000. This includes all lots created by plats recorded after February 1, 2000 and excludes lots whose boundaries were merely adjusted after February 1, 2000.
3. Single-family homes proposed to be built on any portion of a site containing a slope of twenty percent or greater. Slope shall be measured from the points with the highest and lowest elevation within five feet of any portion of the proposed structure (See EVDC Section 7.1.B).
4. Single-family homes in ridgeline protection areas.
5. Single-family homes proposed to be built in a rock-fall hazard area.
6. Single-family homes in areas that include significant historic drainage channels/ravines. The Estes Valley Development Code (EVDC) Stream and River Corridor Resource Map can be used as a reference; however, this does not show all significant historic drainage channels/ravines.

PURPOSE AND INTENT

The site plan submitted with the building permit application shall include detailed grading and drainage information and shall demonstrate that drainage will not negatively impact neighboring properties or watersheds, including the creation of erosion and sedimentation problems. This is a legal responsibility for the owner. Contractors may also have legal liability.

Demonstration of positive drainage and compliance with the Estes Valley Development Code, including EVDC §7.2 *Grading and Site Disturbance Standards*, is required. This includes restoring all disturbed areas as natural-appearing land forms, with curves that blend in with adjacent undisturbed slopes.

Refer to the Estes Valley Development Code and the Building Code for grading and drainage requirements. Estes Valley Development Code Sections 7.1 *Slope Protection Standards*, 7.2 *Grading and Site Disturbance Standards*, 7.7 *Geologic and Wildfire Hazard Areas*, and Appendix D *Street Design and Construction Standards* provide the most detailed information about these requirements.

SITE PLAN REQUIREMENTS

The site plan shall be *designed and stamped by a Civil Engineer duly licensed in the State of Colorado* in the following cases:

1. For single-family homes proposed to be built on any portion of a site containing a slope of twenty percent or greater. Slope shall be measured from the points with the highest and lowest elevation within five feet of any portion of the proposed structure (See EVDC Section 7.1.B);

2. For single-family homes in ridgeline protection areas;

As needed, staff will visit the site prior to requiring engineered plans to verify the accuracy of a mapped ridgeline protection area. The applicant can also demonstrate that the location of the proposed development is not on an identified ridgeline area with site-specific analysis such as photo analysis.

3. For single-family homes built in rock-fall hazard areas;

As needed, staff will visit the site prior to requiring engineered plans to verify the accuracy of a mapped rock-fall hazard area. The applicant can also submit evidence from a professional geologist to determine if a rock-fall hazard area exists.

4. For single-family homes in areas that include significant historic drainage channels/ravines. The Estes Valley Development Code (EVDC) Stream and River Corridor Resource Map can be used as a reference; however, this does not show all significant historic drainage channels/ravines;

5. For site plans that propose grass swales of three percent or less.

Site plans shall be legible and shall include all information required on the “Minimum Plot Plan Specifications” checklist. At a minimum, site plans shall also include the following grading and drainage information:

1. **Retaining Walls.** Retaining walls greater than four feet in height shall be *designed and stamped by a Civil Engineer duly licensed in the State of Colorado*.

If a wall is taller than four feet, note top- and bottom-of-wall elevations at each location where the retaining wall steps up or down, including the tallest point of the retaining wall, and provide a retaining wall detail.

- a. If a wall is four feet tall or less, note this and describe the wall design, e.g., stacked rock wall.

2. **Existing Contours.** Clearly labeled, existing two-foot contours shall be provided for all disturbed areas. Contours for undisturbed areas shall be shown when drainage in those areas impacts the disturbed area, e.g., drainage swales.
 - a. A *site-specific survey* is required for single-family homes in ridgeline protection areas and single-family homes proposed to be built on any portion of a site containing a slope of twenty percent or greater and in rock-fall hazard areas.
 - b. Contours provided on *Town base maps* may be used in other cases.
3. **Proposed Contours.** Clearly labeled, proposed two-foot contours for all disturbed areas shall be shown which demonstrate positive drainage. Plans must be *stamped by a Civil Engineer licensed in the State of Colorado* if grass swales of less than three percent are proposed.
4. **Finished Floor Elevations.** Note finished floor elevation(s) for all floors.
5. **Spot Elevations.** Show critical spot elevations, as necessary to demonstrate positive drainage and the direction of flow.
 - a. Finished grade at all building corners shall be provided.
 - b. A permanent control point (benchmark) shall be established on the property and shown on the site plan with the elevation noted.
6. **Drainage Arrows.** Provide drainage arrows that clearly identify how stormwater will be routed around buildings and where stormwater will exit the property. Stormwater shall not cause damage to adjacent property, including right-of-way. Drainage and erosion-control features needed to prevent damage shall be shown on the plan.
7. **Top-of-Foundation Elevations.** The top-of-foundation elevation shall be provided on the site plan and shall be consistent with the foundation plan. For buildings on slopes of thirty percent or more, elevations for stepped foundation walls shall be provided.
8. **Slopes.** Proposed slopes of fifty percent or more shall be noted.
9. **Other Drainage Facilities.** If other drainage facilities are proposed, such as French drains, they shall be shown on the plan with the slope noted.

FOUNDATION PLAN REQUIREMENTS

1. The foundation plan shall note top-of-foundation wall elevation(s) when homes are proposed on slopes of thirty percent or more.

2. The foundation plan shall be *designed and stamped by a duly licensed Civil Engineer* when single-family homes are proposed to be built on any portion of a site containing a slope of twenty percent or greater or in rock-fall hazard areas.