

A geotechnical investigation and report may be required for sloped sites, sites susceptible to landslides, or where soils at a site are likely to have specific characteristics that warrant evaluation. The geotechnical evaluation shall be performed by a qualified, Oregon licensed design professional.

A geotechnical evaluation is required when any of the following conditions exist at the site of the proposed development:

- Expansive soils. Soil data from the USDA Natural Resources Conservation Service indicates that expansive soils are likely to be present.

EXPANSIVE SOILS: Soils that exhibit volumetric increase or decrease (swelling or shrinking) in response to partial or full wetting or drying under load.

An evaluation is required in areas where USDA-NRCS data indicates soils with a “moderate” or “high” shrink/swell capacity. The [USDA-NRCS Soil Survey](http://websoilsurvey.nrcs.usda.gov/app/) is available online at <http://websoilsurvey.nrcs.usda.gov/app/>.

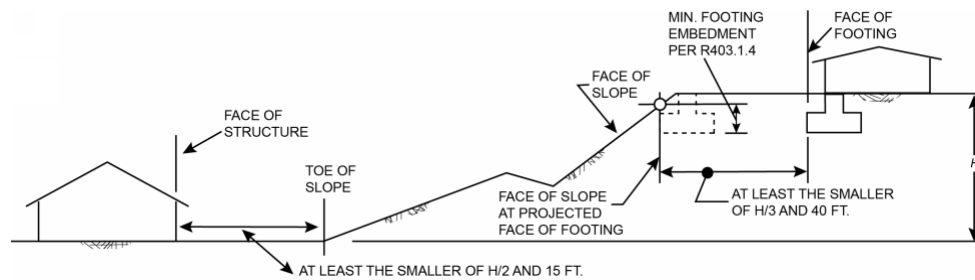
The investigation shall include recommendations for site preparation and foundation design to address soil shrink/swell potential. This may include removal of expansive soils, excavation to a depth that ensures stable moisture content, construction of structural fill, or determination that expansive soils are not present at the building location. See the “Expansive Soil – Condition of Approval” handout for more information.

- Landslide hazard. The site is identified by the Oregon Department of Geology and Mineral Industries (DOGAMI) as having either of the following:
 1. “High” Shallow Landslide Susceptibility, or
 2. “Moderate” or “High” Deep Landslide Susceptibility.

An interactive [Landslide Hazard Map](https://www.oregongeology.org/Landslide/landslidehome.htm) for Eugene-Springfield is available from DOGAMI at <https://www.oregongeology.org/Landslide/landslidehome.htm>.

If the development site is within one of the identified areas of landslide susceptibility a geotechnical investigation and landslide hazard assessment is required. The level of investigation and analysis is expected to be commensurate with the level of hazard and complexity of site conditions and the proposed development. Evaluation of the existing subsurface soils, groundwater conditions, and any potential concerns related to historic or pre-historic landslide activity should be included, as well as recommendations for site preparation, grading, drainage, and foundation construction.

- Slope. The proposed structure is on or adjacent to a slope steeper than one unit vertical in three units horizontal (33% slope) prior to excavation and does not meet the prescriptive setbacks and clearances provided in ORSC Sections R403.1.9.1 and R403.1.9.2.



The investigation shall include consideration of material, height of slope, slope gradient, load intensity and erosion characteristics of slope material, and a report shall be provided which includes recommendations to meet the intent of ORSC Section R403.1.9.

- **Undocumented fill.** The site is suspected or known to have areas of previous fill placement that was done without benefit of permit. Compacted fill material more than 12" in thickness that will support footings and foundations shall be designed, installed, and tested in accordance with accepted engineering practice. The geotechnical evaluation and recommendations must include specifications for: site preparation prior to placement of fill; fill materials; placement and compaction of fill materials; and test method for determining in-place dry density.

Related ORSC Code Sections:

R401.2 Requirements. Foundation construction shall be capable of accommodating all loads in accordance with Section R301 and of transmitting the resulting loads to the supporting soil. Fill soils that support footings and foundations shall be designed, installed, and tested in accordance with accepted engineering practice. Gravel fill used as footings for wood and precast concrete foundations shall comply with Section R403.

R401.4 Soil tests. Where data indicate expansive soils, compressible soils, shifting soils or other questionable soil characteristics are likely to be present, the building official shall determine whether to require a soil test to determine the soil's characteristics at a particular location. This test shall be done by an approved agency using an approved method.

R403.1.9 Footings on or adjacent to slopes. The placement of buildings and structures on or adjacent to slopes steeper than one unit vertical in three units horizontal (33.3-percent slope) shall conform to Sections R403.1.9.1 through R403.1.9.4.

R403.1.9.4 Alternate setbacks and clearances. Alternate setbacks and clearances are permitted, subject to the approval of the building official. The building official is permitted to require an investigation and recommendation of a qualified engineer to demonstrate that the intent of this section has been satisfied. Such an investigation shall include consideration of material, height of slope, slope gradient, load intensity and erosion characteristics of slope material.