

Steep Slopes Resource Sheet



Background

Problem

Water infiltration is more complicated on steep slopes, fast moving stormwater cannot properly infiltrate the soil, causing flooding, washouts, pollution, and soil erosion. Development on these steep slopes disrupts the natural functions of the ecosystem and results in more runoff, and the removal of healthy vegetation. This results in increased flooding at the base of the slope and high turbidity in streams impacting, aquatic life.

Solution

To prevent soil erosion on steep slopes, multiple best management practices can be employed to stabilize the soil and manage water flow effectively. For example, planting deep-rooted vegetation, such as native grasses, shrubs, and trees, helps anchor the soil and absorb excess water. Local governments should update their zoning codes that include best management practices from the case studies highlighted in this resource sheet.

Steep Slopes as a Sensitive Area

- Preserve steep slopes and build on flatter land to prevent soil erosion and minimize stormwater runoff
- Develop roadway patterns to fit the site terrain and avoid placement of roadways and other impervious surfaces on steep slopes
- Steep slopes are not good at water infiltration, adding impervious surfaces and reducing vegetation reduces the ability of the terrain to absorb water further
- Maintain natural conditions of steep slopes helps to stabilize soils



Geological Map Background By: Виктория Котлярчук
Source: Adobe Stock

Best Management Practices

- Evaluate the site
- Develop a site plan
- Cultivate healthy soil
- Protect and restore vegetation
- Divert or slow down water
- Protect waterbodies



Topography By: jamrut
Source: Adobe Stock

Case Studies

UPPER SALFORD TOWNSHIP, PA



Introduction

This overlay district encompasses all land with a natural slope over 15%. The overlay sets disturbance limits for vegetation or grading of the slope based on slope designation while also providing 3 options for subdivisions within the overlay aimed at conservation.

Disturbance Limitations

The maximum area of such slope based on the category that may be regraded or stripped of vegetation:

15% - 20% of maximum area:
• 30% Disturbance Limit

20% - 25% of maximum area:
• 20% Disturbance Limit

25% - 30% of maximum area:
• 10% Disturbance Limit

30% of maximum area or greater:
• 5% Disturbance Limit



Upper Salford Township Sign By: Upper Salford Township

Development Regulations

Residential uses having a steep slope of 15% or more within the zoning districts R-2, R-1, R-1.5, R-30, IN, REC, or CB may be subdivided consistent with one of the following requirements:

Option 1 – Conservation Subdivision

- Steep slopes are located within the required greenway land, and are in consideration of the greenway delineation standards within the Town's Subdivision and Land Development Ordinance

Option 2 – Density Transfer for Creation of Conservation Area

- A density credit may be provided for all steep slope areas and designated as permanently protected conservation areas

Density credit may be transferred only to the remaining tract area by providing a reduction in the required minimum lot size of the underlying district, consistent with the following requirements:

- Minimum conservation area based on slope category

The creation of conservation area permits a reduction in the minimum lot area, the maximum number of permitted dwelling units on the tract, designation of eligible receiving areas, and new dimensional requirements shall be determined in accordance with:

- Yield plan
- Eligible receiving areas
- Minimum lot size

Option 3 – Increase Minimum Lot Size and Adjust Maximum Impervious Surface Limit

Case Studies

CANANDAIGUA, NY



Introduction

In 2017, Canandaigua passed the Steep Slope Protection Law to ensure development will not induce soil erosion, unreasonably alter the natural topography of the area, require excessive grading, increase slope instability, increase stormwater runoff, contaminate surface waters, or create onsite sewage treatment problems. This law classifies slopes into 3 categories. These classifications have different uses allowed and different site plan requirements.

Steep Slope Protection Areas (SSPAs)

Classifications:

- Moderately steep: 15% - 25%
- Very steep: 25% - 40%
- Extremely steep: > 40%

Activities requiring site plan reviews:

- Zone A: 500 sq. ft. or greater of land disturbance within 2,000 feet horizontal distance from the mean high water mark of Canandaigua Lake
- Zone B: 500 sq. ft. or greater of land disturbance within 100 feet horizontal distance from any open watercourse
- Zone C: 2,000 sq. ft. or greater of land disturbance occurring beyond the horizontal distance stipulations in Zones A and B
- All Zones: Any prohibited use or activity that would create a land disturbance of less than 500 sq ft for Zones A and B and a land disturbance of less than 2,000 square feet for Zone C

Permitted Uses

Moderately Steep Slope Areas:

- All permitted uses allowed in the underlying zoning district except those prohibited by this chapter

Very Steep Slope Areas:

- One single family residence with attached or detached garage
- One driveway to serve the residence and garage
- Trams or stairs as needed to access another elevation on the property
- Onsite wastewater treatment systems

Extremely Steep Slope Areas:

- Construction of new stairs or tramways for access to an allowable building site, existing residence, elevation change on the property, or to the waterfront
- Replacement of existing structures, stairs, and tramways all within the same footprint that are currently on the property
- Construction of roadside parking via retaining

Prohibited Uses

Moderately Steep Slope Areas:

- Removal of existing ground cover and root systems except when related to a permitted use
- Solid waste disposal, recycling uses, junkyards, or other outdoor storage use
- Installation of an accessory structure, except for driveways, that requires greater than 4,000 sq. ft. of land disturbance within the steep slope protection area

Very Steep Slope Areas:

- All items prohibited on moderately steep slope areas
- All terraced landscaping, with or without retaining walls, not directly required to construct items listed as permitted

Extremely Steep Slope Areas:

- All uses or construction activities that require land disturbance greater than the threshold for the zone

Case Studies

SPAFFORD, NY



Introduction

In 2022, Spafford passed the Steep Slope Protection Law to ensure development will not induce soil erosion, unreasonably alter the natural topography of the area, require excessive grading, increase slope instability, increase stormwater runoff, contaminate surface waters, or create onsite sewage treatment problems. This law mirrors Canandaigua by classifying slopes into 3 categories. These classifications have different uses allowed and different site plan requirements.

Steep Slope Protection Areas (SSPAs)

All lands having a slope of 15% or greater:

- Moderately steep: 15% - 25%
- Very steep: 25% - 40%
- Extremely steep: > 40%

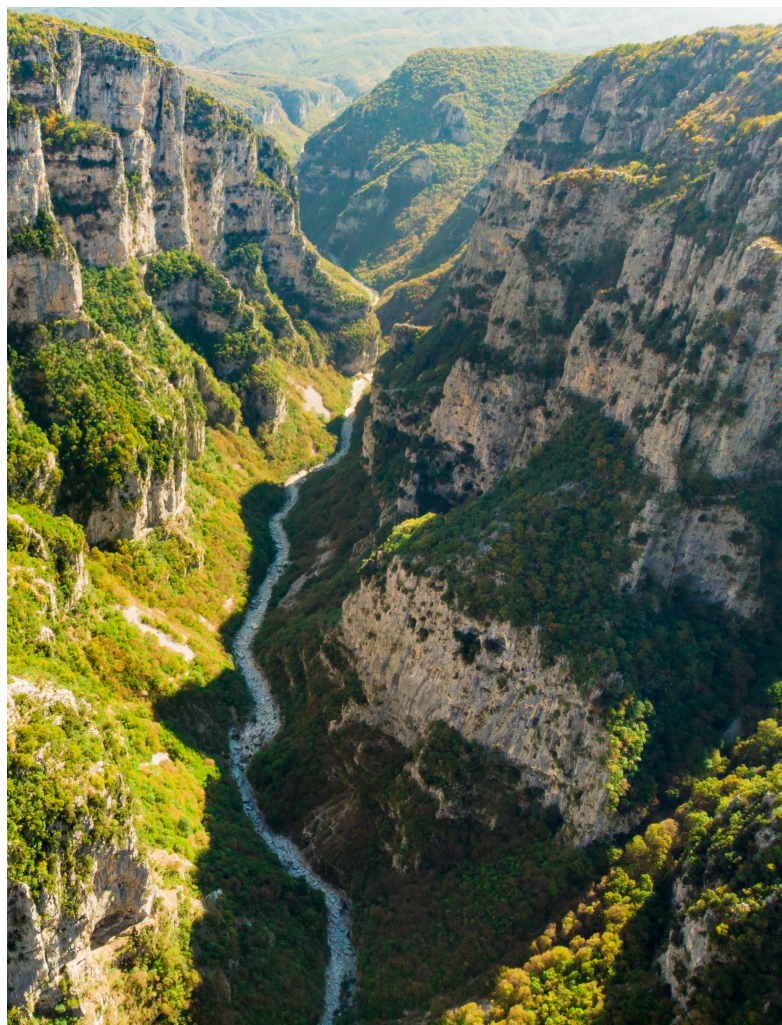
Activities requiring site plan reviews:

- Area A1: 1,000 sq. ft. or greater of land disturbance on a moderately steep slope in a lake district or within 100 feet horizontal distance from any watercourse
- Area A2: 500 sq. ft. or greater of land disturbance on a very steep or extremely steep slope in a lake district or within 100 feet horizontal distance from any watercourse
- Area B: 3,000 sq. ft. or greater of land disturbance occurring on a moderately steep slope outside a lake district and beyond 100 horizontal feet from any watercourse
- Area C: 2,000 sq. ft. or greater of land disturbance occurring on a very steep or extremely steep slope outside a lake district and beyond 100 horizontal feet from any watercourse

Additional Provisions

Existing farming operations are exempt from site plan review.

All land disturbances that occur on the steep slope protection area portion of the parcel within 2 years of the disturbance shall be used to calculate the total area of land disturbance.



Vikos Gorge Background By: MNstudio
Source: Adobe Stock

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