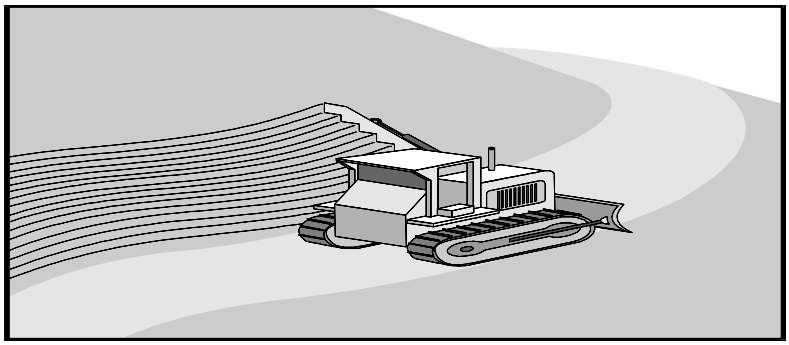
ACTIVITY: Gradient Terraces and Slope Roughening

PESC – 05



Targeted Constituents				
● Significant Benefit	◗ Partial Benefit	○ Low or Unknown Benefit		
● Sediment	○ Heavy Metals	○ Floatable Materials	○ Oxygen Demanding Substances	
○ Nutrients	○ Toxic Materials	○ Oil & Grease	○ Bacteria & Viruses	○ Construction Wastes

Implementation Requirements				
● High	◗ Medium	○ Low		
○ Capital Costs	○ O & M Costs	○ Maintenance	● Suitability for Slopes >5%	○ Training

Description

Prevent or reduce the discharge of pollutants to the storm drain system or to watercourses as a result of construction activity by terracing slopes to reduce erosion by decreasing runoff velocities, trapping sediment, increasing infiltration, and aiding in supporting vegetative cover. This management practice is likely to create a significant reduction in sediment.

Suitable Applications

- Slopes steeper than 3:1 (H:V), and greater than 5 ft. (1.5 m) in height.
- Graded areas with smooth, hard surfaces.
- Where length of slopes needs to be shortened by terracing. Note: terracing is usually permanent, and should be designed under the direction of and approved by a licensed professional civil engineer based on site conditions. Terraces must be designed with adequate drainage and stabilized outlets.

Installation/ Application Criteria

- These systems should be designed by a licensed professional civil engineer.
- Terracing installation techniques are presented in TCP-11: Terracing.
- In the event that terraced slopes become unstable or flow is diverted to them to an extent that the practice becomes ineffective in limiting erosion or stabilizing vegetation, then alternative measures should be considered. Alternative measures can include flow diversion, drains, swales, level spreaders, geotextiles and bank stabilization practices described in the TCP section. These measures should be designed to consider the permanent structure/slope and other site conditions.

Maintenance

Periodically check the seeded or planted slopes for rills and washes, particularly after significant storm events greater than 0.5 in. (12 mm). Fill these areas slightly above the original grade, then reseed and mulch as soon as possible.

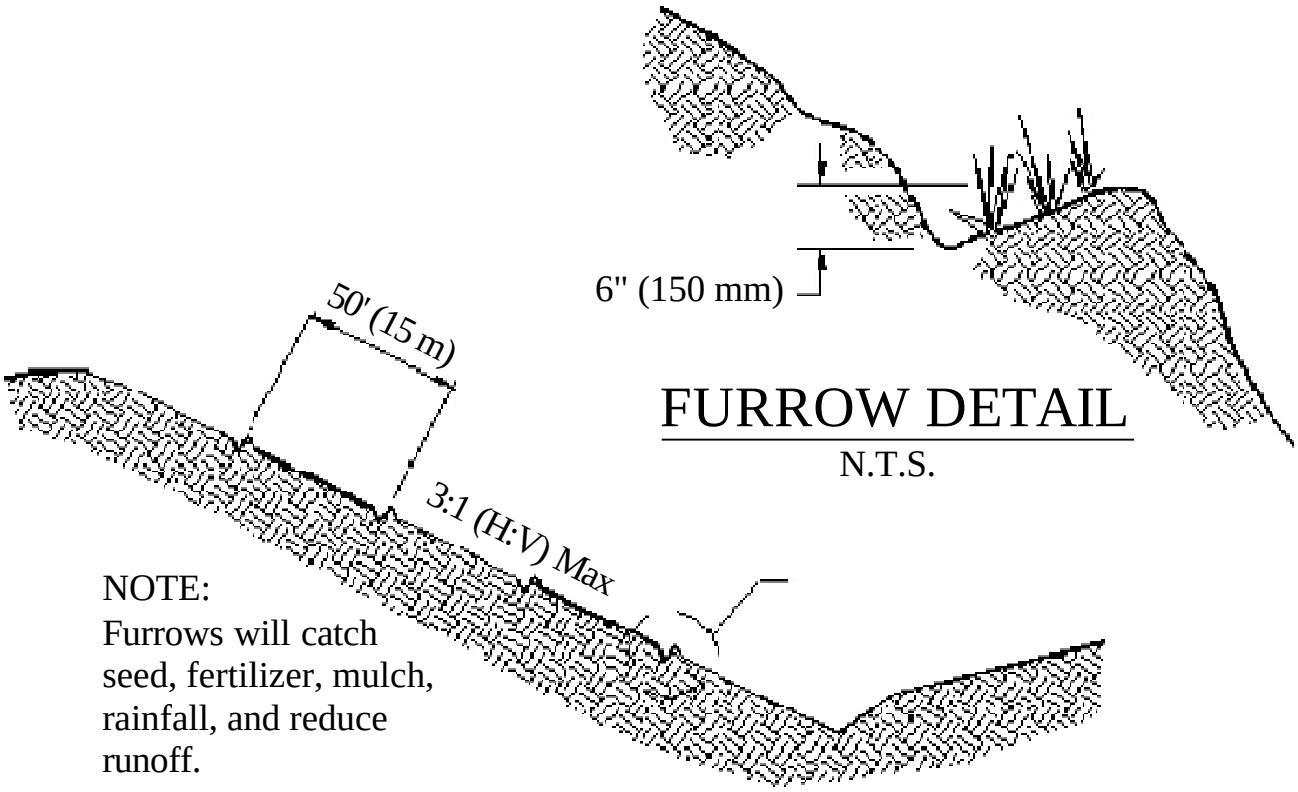
Inspect monthly for the first year after construction. The slope should be inspected in early fall thereafter.

Limitations

- Stair-step grading may not be practical for sandy, steep, or shallow soils.

Primary References

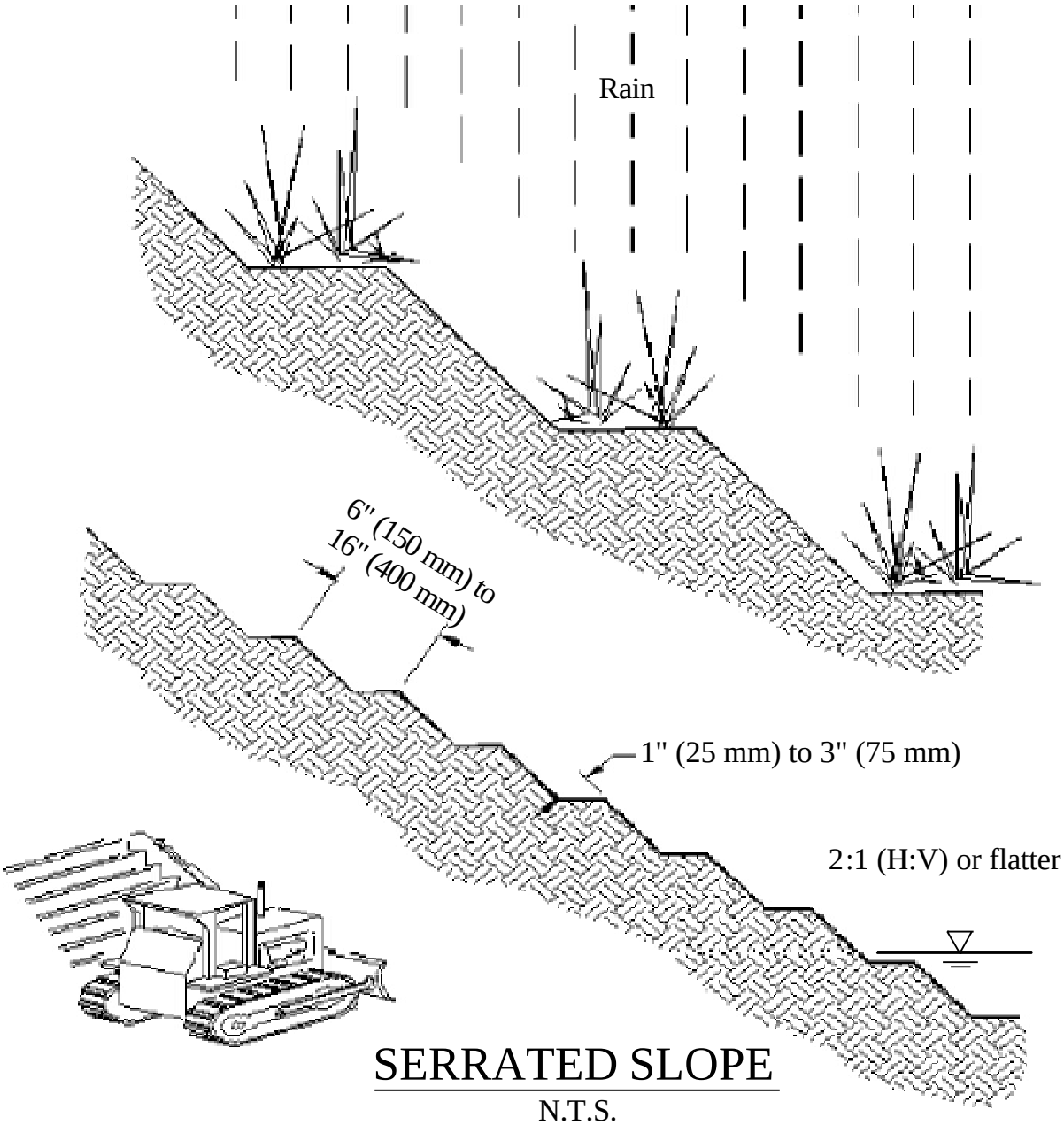
Caltrans Storm Water Quality Handbooks, Construction Contractor's Guide and Specifications, April 1997.



FURROW DETAIL
N.T.S.

CONTOUR FURROWS
N.T.S.

Figure PESC-05-1
Furrow Layout

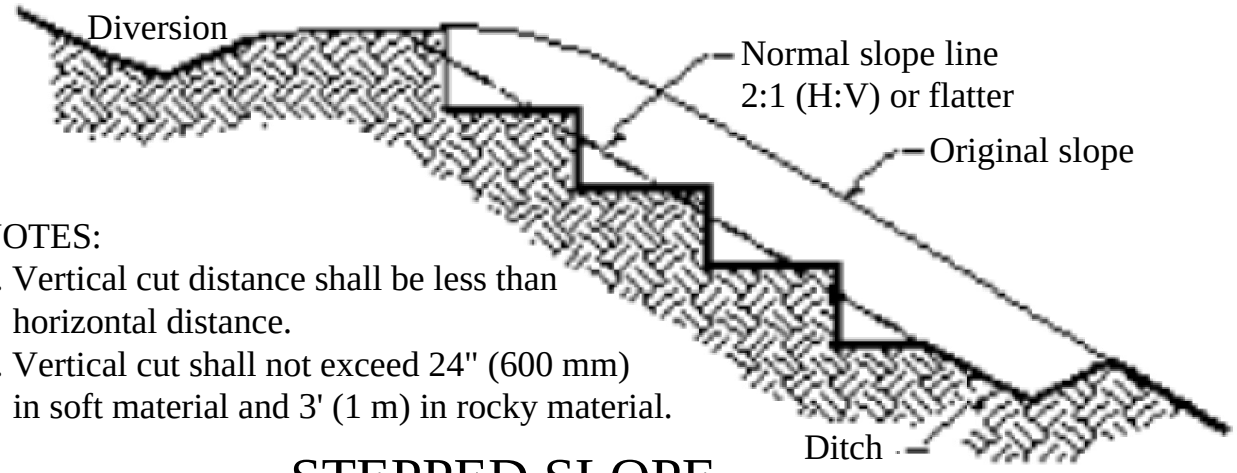


SERRATED SLOPE

N.T.S.

NOTE:
Groove by cutting serrations along the contour. Irregularities in the soil surface catch rainwater, seed, mulch and fertilizer.

Figure PESC-05-2
Serrated Slope Layout



NOTES:
1. Vertical cut distance shall be less than horizontal distance.
2. Vertical cut shall not exceed 24" (600 mm) in soft material and 3' (1 m) in rocky material.

STEPPED SLOPE

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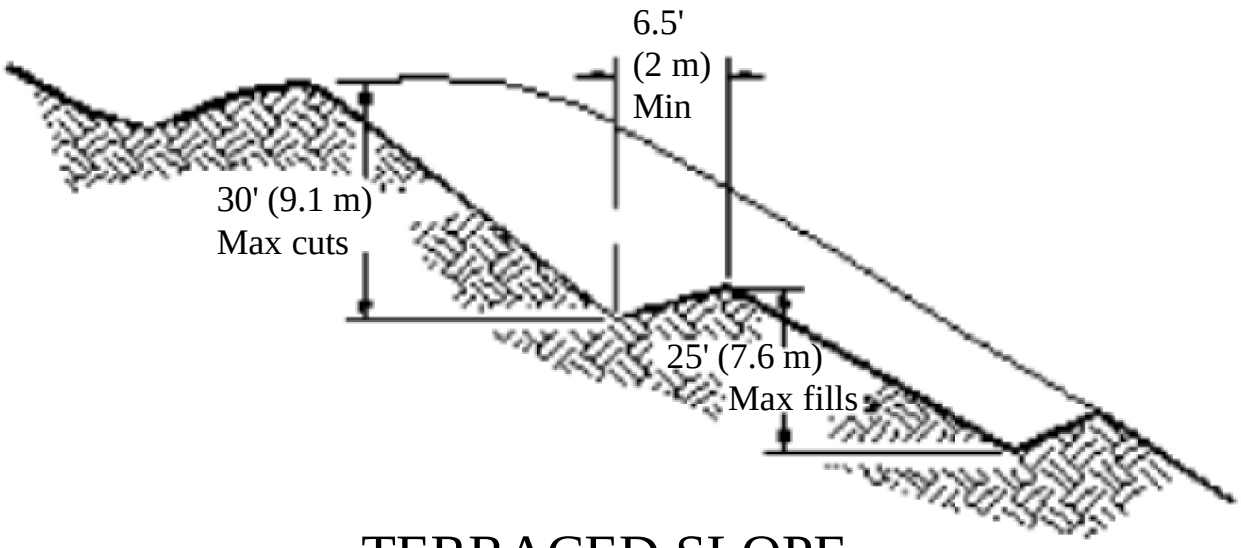

TERRACED SLOPE

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Figure PESC-05-3
Stepped and Terraced Slope Construction