4. Stabilization of Road Slope Surfaces and Spoil Disposal Areas (PRACTICE: 2-4)

a. Objective: To minimize erosion from exposed cut slopes, fill slopes, and spoil disposal areas.

b. Explanation: This is a preventative practice using mechanical, biological and structural techniques to prevent erosion or minimize its transport. Selection of techniques depends on site specific characters such as soil properties, slope, road surface type, appropriate vegetation, and cost. The techniques, or combination thereof, are applied to cut and fill slopes and travelway surface at risk of erosion or sediment transport. Selection of techniques involves the design professional along with input from soil scientist, hydrologist, and botanist.

Spoil disposal areas, regardless of location, are candidates for stabilization techniques, which may differ from those applied at the original road location.

Mechanical techniques may include erosion nets/mats, blankets, mulch, tackifiers (may include seed), windrowed construction slash at toe of fill slopes, or soil seals. Biological techniques may include planting vegetation such as grass(es), brush, trees, or a combination thereof. Vegetation types are native seed or stock, certified weed-free to prevent transport of non-native invasive plants. If native vegetation is not feasible, non-native species that are non-invasive may be substituted. Vegetation methods, which take effect over time, may be used in combination with other methods. Structural methods may include terraced or roughened cut and fill slope faces, allowing larger rock and boulders to remain in place, if they don't present safety hazards. Riprap placement, mid-slope drainage ditches, retaining walls, or construction of reinforced earth embankment may also be incorporated, within funding availability.

c. Implementation: Beginning with project analysis, through road location selection and design process, the site characteristics are weighed and mitigation measures planned and designed to minimize impacts to water quality and other resources. The designer has the full complement of procedures available to consider for incorporation, and selection is made with respect to effectiveness and funding availability.

Project drawings, and specifications if project work is contracted, include details of methods, materials, locations, quantities of slope stabilization requirements. For contracts, the COR and inspector insure compliance by the contractor. For force account labor, the project manager, designer, hydrologist, and crew supervisor/leader work together to assure the slope stabilization is constructed as planned. Compliance with operating plans for timber sales, mining operations, or other authorized activity is ensured by the ER, FSR, or permit administrator through inspection and feedback communication. Regardless of implementation method, monitoring for effectiveness provides important information to influence future slope stabilization method selection.

Reference:
- FP-03 – Section 157 – Soil Erosion Control
- FP-03 – Section 204 – Excavation and Embankment
- FP-03 – Section 207 – Earthwork Textiles
- FP-03 – Division 250 – Slope Reinforcement and Retaining Walls
- FP-03 – Division 600 – Incidental Construction
- FP-03 – Division 700 – Material

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Comment [DB1]: And travelway surfaces, if not addressed elsewhere.

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Comment [KS2]: Spoil disposal areas should be carefully considered and selected to avoid damage to biological , geological or cultural resources.

Comment [TU3]: Source of the practices available

Comment [TU4]: Question the use of non-native vegetation. Best not to provide this as an option.

Comment [DB5]: Delete

Comment [TU6]: Source of procedures available.

Comment [DB7]: Funding availability is a poor excuse for not providing adequate erosion control measures to protect water quality and other resources. Funding accurate site specific assessment and analysis of soil characteristics, slope stability and angle, surface and near surface hydrology, and road surface treatments leads to better design and effective measures which reduces long term road maintenance needs and costs.

Funding availability should not dictate the degree of implementing appropriate mitigation measures, rather, the analysis of effective mitigation measures should dictate funding requirements. Time has proven it is better to do fewer things well than to do many things halfway.

Comment [TU8]: Source of specifications. May be best to provide information at the beginning of Practice referring to source of specific practices.